

Section 22: Natural Hazards

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22. NATURAL HAZARDS

22.1 Introduction

Palmerston North City is subject to a number of hazards which can be broadly divided into three categories, viz.

- Flooding hazards associated with the Manawatu River, Mangaone and Kawau and various smaller streams. This also includes areas subject to poor drainage which leads to surface ponding.
- Seismic Hazards, associated with the City's close proximity to the Wellington fault system, which tracks along the eastern side of the Tararua Ranges, and its proximity to numerous other earthquake sources, such as: the Indo-Australian / Pacific Plate subduction zone, which lies beneath the eastern portion of the North Island; fault systems within the Wanganui Basin, and; fold structures within Manawatu District. This hazard includes earthquake induced ground shaking, surface fault rupture, amplification of ground shaking and liquefaction of soft sediment areas.
- Earth movements and instability which is associated with particular soil and slope conditions predominantly in the Aokautere area and those areas in the foothills of the Tararua Ranges.

The management responsibilities of the Palmerston North City Council and the Manawatu-Wanganui Regional Council regarding the avoidance or mitigation of these natural hazards are identified within Part 6 of the Regional Policy Statement. The respective responsibilities assigned to each of these authorities are as follows:

(A) Palmerston North City Council

- developing objectives, policies and rules for the control of the use of land except in beds of rivers and adjacent land designated or zoned for river control, for the purpose of avoiding, remedying or mitigating any adverse effects of flood hazards;
- developing objectives, policies and rules for the control of the use of land for the purpose of avoiding, remedying or mitigating any adverse effects of land subsidence from activities other than soil disturbance and vegetation clearance;
- developing objectives, policies and rules for the control of the use of land for the purpose of avoiding, remedying or mitigating any adverse effects of seismic hazards.

(B) Manawatu-Wanganui Regional Council

- developing objectives, policies and rules for the control of the use of land in the beds of rivers and adjacent land designated or zoned for river control, for the purpose of avoiding, remedying or mitigating any adverse effects of flood hazards;
- giving notice where appropriate of designations for river control purposes; and
- developing objectives, policies and rules for the control of the use of land for the purpose of avoiding, remedying or mitigating any adverse effects of land subsidence as the result of soil disturbance and vegetation clearance.

Given the diverse nature of these natural hazards, it is not possible to adopt a single strategy to deal with them. Rather, particular strategies are associated with each individual hazard.

22.2 Resource Management Issues

The following resource management issues have been identified as pertaining to natural hazards:

1. The identification of the existence and location of natural hazards;
2. The actual or potential costs of natural hazards to the community;
3. Identification of the effects of natural hazards;
4. Recognition of the need to provide for the avoidance or mitigation of natural hazards.
5. The adverse effects of natural hazards on people and the natural and physical environment.

22.3 Objectives and Policies

Within the broad framework of the City View objectives, the following specific objectives and policies have been identified with regard to natural hazards:

Objective 1

To recognise the existence of natural hazards.

Policies

- 1.1 To identify any land subject to the effects of a natural hazard.
- 1.2 To educate the community with regard to the existence, nature and threats posed by natural hazards.

Objective 2

To control the type of development on land which is or might be affected by natural hazards.

Policies

- 2.1 To exclude development on hazard-prone land where the hazard cannot be effectively avoided, remedied or mitigated.
- 2.2 To establish appropriate controls to avoid, remedy or mitigate the effects of natural hazards.

22.4 Methods

- District Plan Rules
- Flood Protection Works of the Manawatu-Wanganui Regional Council
- Building Act Provisions
- Public Education

In the area of the mitigation of the effects of natural hazards, the District Plan can, through rules and zoning, provide specific guidance or restrictions on development. This is particularly true with regard to the flooding and land instability hazards. In these areas the District Plan is a cost-effective method of achieving the objectives and policies. However, with a seismic hazard limited information and the sheer unpredictability of an earthquake event means that there is little a District Plan can effectively contribute in terms of mitigation of this hazard, other than through the provision of information

There are a number of other methods however, which can deal more positively with the issue of natural hazards. Physical flood protection works are significant with regard to the flooding hazard and this is the responsibility of the Manawatu-Wanganui Regional Council. Controls put in place through the Building Act 1991 also assist in the mitigation of the effects of natural hazards. Finally, public education is also an important tool in informing the public of the existence of natural hazards and means of avoiding the effects of those hazards. A combination of these other methods will most effectively achieve the rest of the objectives and policies in this Section.

NOTE TO PLAN USERS:

The City Council's specific management responsibilities for natural hazards are outlined within Section 22.1.

22.5 Environmental Results Anticipated

It is anticipated that the objectives, policies and methods of this section will achieve the following results:

- Avoidance of the development of areas affected by natural hazards, where these hazards cannot be remedied or mitigated.
- Greater public recognition of the existence and effects of natural hazards.

22.6 Seismic Hazards

Palmerston North City has the unenviable position of not only being bounded to its immediate west, north, east and south by numerous prominent and "hidden" potential earthquake sources, but also having a surface and sub-surface geology which is susceptible to ground shaking amplification and, potentially, the phenomenon known as "liquefaction".

To the west of the City, offshore, lies the Wanganui Basin which has historically been the locus of frequent swarm like seismicity. Immediately to the south and east of the City, on the eastern side of the Tararuas, lies the northern extension of the largest, most continuous and active fault within the Manawatu-Wanganui Region - the Wellington fault system.

Underlying Palmerston North and those areas to the north east and south-west of the City, at a depth of some 30km, and extending eastwards beneath Tararua District, is the Pacific and Indo-Australian plate subduction zone, where the Pacific plate is currently being forced beneath the Australian plate. This area is a source of numerous small to moderate earthquakes from the "downgoing slab" of the Pacific Plate, and moderate to large, and potentially even great, earthquakes along the plate interface (which are likely to produce widespread strong shaking).

In addition to these identified fault systems, numerous other smaller and buried structures also lie north, east, south and west of the City. These include, but are not limited to, the Pohangina, Feilding, Mt Stewart-Halcombe and Himatangi anticlines and the Ruahine reverse fault.

Movement or rupture within or along any of these faulting systems is likely to cause ground shaking which, depending on ground conditions related to soils and geological structures, will generally vary in felt intensity throughout Palmerston North.

In some circumstances soil liquefaction may also occur at some sites within the City. Soil liquefaction is induced where ground shaking is of sufficient intensity and duration to cause soils, such as those typically found in river valleys, on floodplains and in swamps, to compact, increasing pore water pressure and decreasing shear strength (ie the soils ability to withstand applied pressure) to a point where the soil is transformed to a liquid state. This phenomenon can result in significant ground deformation.

Significant areas of Palmerston North City are particularly susceptible to ground shaking amplification and "liquefaction" due to the city's particular sub-surface geology and it largely being positioned on a flood plain and, to a much lesser extent, on swampland sediments.

In 1992, the Manawatu-Wanganui Regional Council commissioned an Earthquake Hazard Analysis from the Institute of Geological and Nuclear Sciences (IGNS) and Victoria University to assess seismic hazard across the entire region. This exercise involved a comprehensive assessment of earthquake hazards within the Manawatu Wanganui Region, including: an assessment of active geological structures; earthquake hazard (magnitude and frequency); an assessment of liquefaction induced ground failure, and; a ground shaking hazard assessment of the various urban centers.

This study subsequently identified those areas within Palmerston North City that were more, or less, susceptible to ground shaking amplification (ie the situation where the felt intensity of an earthquake varied between sites) and liquefaction, and the likely frequency or probability of earth shaking events that would typically induce liquefaction.

Arising out of the analysis undertaken by IGNS, two Maps "22.6.1 Ground shaking hazard map for Palmerston North City" and "22.6.2 Liquefaction susceptibility zones for Palmerston North City" have been included within the District Plan. These maps are intended to broadly raise public awareness of the potential ground shaking and liquefaction hazard which is associated with seismic events which impact on the City. However, it should be noted that this information is indicative only. Additional site specific geological and geotechnical investigations would be required to accurately determine a site's susceptibility to amplified ground shaking and liquefaction.

In terms of ground shaking amplification Palmerston North is broadly divided into four distinct zones (refer Map 22.6.1). Zone 1, which is confined to the Tararuas, represents an area within which little or no amplification of ground shaking would be expected in response to an earthquake event. Zone 4, alternatively, is broadly characterised by being underlain by considerable thicknesses of river sediments which, combined with its particular sub-surface geology, produces an area within which a high amplification of ground shaking motion is expected in response to an earthquake event. Zone 2, which covers the majority of the City, exhibits low to moderate amplification of earthquake shaking motion. Zone 3, which broadly covers the western most portion of the Palmerston North urban area, defines an area within which moderate amplification of earth shaking motion is anticipated.

In terms of liquefaction hazard, the City is also divided into four liquefaction susceptibility zones (refer Map 22.6.2).

Areas within Zone 1 are considered to have the highest susceptibility to soil liquefaction. This zone contains most of the known sites of liquefaction induced ground damage reported in historical earthquakes in the Manawatu Wanganui Region. It also includes areas covered with stream and swamp sediments which have a documented susceptibility to this phenomenon. Areas covered by Zone 2 have a moderate susceptibility to liquefaction. Zones 3 and 4 contain areas with low and negligible susceptibility to liquefaction, respectively. Ashhurst largely falls within zone 4.

It is important to note that in areas considered to be highly susceptible to liquefaction (Zone 1), this phenomenon is only likely to occur where ground shaking of Modified Mercalli (MM) intensity VII, or greater, is experienced. To provide some perspective as to the frequency or annual probability of experiencing such shaking, between 1840 and 1994 MM VII shaking has only been experienced within part or parts of the Manawatu-Wanganui Region, which includes Palmerston North City, Tararua, Horowhenua, Manawatu, Rangitikei, Wanganui, and Ruapehu and parts of Stratford, Taupo and Waitomo District, 11 times. Liquefaction induced ground damage has been reported at various sites in the region in only 8 of these cases. In most cases recorded liquefaction ground damage effects associated with these events has been relatively minor.

Palmerston North's general exposure to MM VII shaking, under average ground conditions, has been estimated at a 10% probability over a 15 year period (sometimes termed a 1 in 150 year event). However, given the City's general positioning on sediments prone to amplifying earth shaking events, shaking intensities experienced across the city with such an event are likely to exceed this level. It is therefore likely that shaking of MM VII or higher will be experienced within parts the city, on average, somewhat more frequently than once in 150 years.

For further information and explanation of terms related to Palmerston North's susceptibility to earth shaking, ground shaking amplification and liquefaction plan users are advised to contact Manawatu-Wanganui Regional Council relating to the hazard analysis work that has been undertaken in this area.

NOTE TO PLAN USERS:

The Palmerston North City Council's specific management responsibilities for natural hazards are outlined within Section 22.1. Material discussed within this section has been sourced from the horizons.mw publication "Hazard Analysis Manual- Volume II - Seismic Analysis", prepared by the Institute of Geological and Nuclear Sciences- 1994. Additional information can be obtained from this document.

22.7 Flood Hazard

The City has always been susceptible to flooding or to the development of ponding areas.

The City's major flood hazard is associated with the Manawatu River and between 1956 and 1965 stopbanks were constructed on the river from Ashhurst to Foxton as part of the Lower Manawatu River Control Scheme. That Scheme offers the most protection to land used for urban purposes because of the enormous losses which would be experienced if there was a major flood episode. The Lower Manawatu Scheme is administered by the Manawatu-Wanganui Regional Council.

A reassessment of part of the Lower Manawatu River Control Scheme, undertaken in 1994, indicated that although the existing flood protection works would perform reasonably well during the flood for which they had been designed (3450 m³ per second) there was the possibility, in some areas, that the existing stopbanks might fail.

Consequently, the Lower Manawatu River Control Scheme has been reassessed in terms of the river's floodplain and its major tributaries, between Ashhurst and Longburn. As a result of that reassessment there is to be an upgrading and extension of the stopbanks within the urban area of the City and a major realignment of the river. These works, in combination, are intended to significantly reduce the flood risk when the river flow gets up to 4500 m³ per second.

Although this upgrading work will significantly reduce the flooding risk to the City from the Manawatu River there still remains land which will continue to be subject to a flooding hazard and on which there needs to be restrictions on development. These areas are controlled by the provisions of the Flood Protection Zone. The Manawatu-Wanganui Regional Council also

exercises controls with regard to excavations on or near the stopbank. These controls are intended to protect the stopbanks and maintain the integrity of the stopbank system.

In addition to the flood risk presented by the Manawatu River there are areas in the City where ponding of water or surface flooding occurs at times of high rainfall. Where a specific ponding area has been identified, controls have been included which are aimed at mitigating, as far as possible, the effects of this hazard on residential development. These are dealt with in Section 10 of the Plan. Elsewhere, such as in the Amberley Avenue area, minimum floor levels are required.

With regard to those areas covered by the Flood Protection Zone, the boundaries of this Zone are intended to identify land affected by a flood hazard which has a 1% chance of occurring annually (commonly referred to as a 100 year return period event).

It should be noted that the landward boundary of the Flood Protection Zone has been established by survey and is accurately shown on the Planning Maps. Information on the location of the boundary on specific properties on a larger scale can be obtained from the Planning Services Section. In the case of the ponding areas, similar surveyed information on a larger scale is also available from the Planning Services Section.

NOTE TO PLAN USERS:

The City Council's specific management responsibilities for natural hazards are outlined within Section 22.1.

22.8 Flood Protection Zone

22.8.1 Rules : Permitted Activities



R 22.8.1.1 Permitted Activities

The following activities are Permitted Activities:

- (i) Recreational activities.
- (ii) Grazing and cropping, including horticulture.
- (iii) Walkways, bridlepaths and cycleways.
- (iv) Soil conservation and river control works carried out or supervised by the Manawatu-Wanganui Regional Council



R 22.8.1.2 Minor and Extended Temporary Military Training Activities

Minor and Extended Temporary Military Training Activities are a Permitted Activity, provided the following Performance Conditions are complied with.

Performance Conditions

(a) Buildings and Structures

- (i) Any buildings and/or structures erected must be in compliance with performance conditions (b) and (c) of Rule 9.6.5.

- (ii) Any buildings erected in associated with the Temporary Military Training Activity must be removed at the conclusion of the activity unless they are in compliance with Rule 9.6.5.

(b) Excavations and Alterations to Landform

Where the activity involves any excavations or alterations to landform, the ground shall be reinstated to a condition as close as practicable to its state prior to the disturbance.

(c) Hazardous Substances

Compliance with the requirements of Section 14 - Hazardous Substances of this District Plan.

(d) Duration and Frequency of Activities

The activity is limited to a period not exceeding 31 days.

Explanation

The New Zealand Defence Force (NZDF) carries out temporary military training activities in areas not designated for defence purposes. Such temporary training involves military activities by regular and territorial force units in zones throughout Palmerston North City. The Defence Act 1990 provides for the raising and maintenance of armed forces. Military training activities are essential in enabling the NZDF to maintain operational capability. The above conditions have been designed to enable the NZDF to carry out temporary military training activities while ensuring that any adverse effects of training activities on the environment are mitigated.

22.8.2 Rules : Controlled Activities



R 22.8.2.1 Minor and Extended Temporary Military Training Activities which do not comply with Performance Conditions

Minor and Extended Temporary Military Training Activities which do not comply with the Performance Conditions of R 22.8.1.2 shall be Controlled Activities with regard to:

- **External appearance and amenity and/or character of the surrounding area**
- **The safe and efficient operation of the roading network**

In determining what conditions to impose, if any, the Council will in addition to the City View objectives in section 2 and the objectives and policies of the Natural Hazards Section and Flood Protection Zone in particular, assess any application in terms of the following further policies:

- (a) To avoid, remedy or mitigate the visual impact of any activities, and to preserve the character and amenity of the surrounding environment.
- (b) To avoid, remedy or mitigate the effects of the proposal on any area of natural and/or cultural heritage value, or of particular significance to Tangata Whenua.
- (c) To ensure that any exacerbation of flooding hazard associated with the site is avoided, remedied or mitigated.
- (d) To avoid, remedy or mitigate the effect of additional traffic generated on the safe and efficient operation of the roading network.

- (e) To assess the adequacy of any proposed reinstatement works to return the land to its previous or better state.

Explanation

The New Zealand Defence Force (NZDF) may need to carry out temporary military training activities which do not meet the performance conditions for permitted activities. In this case, it is important to ensure that any adverse effects of training activities on the environment are avoided, remedied or mitigated.

22.8.3 Rules : Discretionary Activities (Unrestricted)



R 22.8.3.1 Discretionary Activities (Unrestricted)

The following activities are Discretionary Activities (Unrestricted).

- (i) **Quarrying;**
- (ii) **Concrete Manufacturing, including machinery, plant, buildings and associated retailing activities.**

In determining whether to grant consent and what conditions to impose, if any, Council will, in addition to the City View objectives in section 2 and the Natural Hazards objectives and policies, assess any application in terms of the following further policies:

- (a) To avoid, remedy or mitigate the effects of traffic on the safe and efficient operation of the roading network and on the surrounding area through adequate provision of parking, loading, manoeuvring and access space.
- (b) To avoid, remedy or mitigate the effects of noise, dust and other environmental disturbances on the amenity values of the area, particularly on adjacent residential uses.
- (c) To assess the adequacy of any proposed reinstatement works to return the land to its previous or better state.
- (d) To ensure that any exacerbation of flooding hazard associated with the site is avoided, remedied or mitigated.
- (e) To avoid, remedy or mitigate the effects of the proposal on any area of environmental or cultural significance.
- (f) To avoid, remedy or mitigate the effects on the adjacent river including effects on flows, water quality, bank stability and habitats.



R 22.8.3.2 Bridges

Bridges are a Discretionary Activity (Unrestricted).

Explanation

Given the dissected nature of urban development within the City, the Council recognises that the construction of a further bridge or bridges across the Manawatu River may be required in future to ensure a more efficient movement of vehicles across this watercourse.

The Council acknowledges though, that the potential range of effects associated with the construction of such structures necessitates a thorough assessment of any such application, and therefore considers it appropriate that this activity be treated as a Discretionary Activity (Unrestricted).

22.8.4 Rules : Non-Complying Activities

R 22.8.4.1 Non-Complying Activities

Any activity which is not provided for as a Permitted Activity, Controlled Activity, Discretionary Activity (Unrestricted) or a Prohibited Activity shall be a Non-Complying Activity.

The further policies contained within Rule 22.8.2.1 will be considered by the Council in addition to the City View and Natural Hazards Objectives and Policies in determining whether to grant consent and what conditions to impose, if any, in relation to any application for a Non-Complying Activity.

22.8.5 Prohibited Activities

R 22.8.5.1 Prohibited Activities in the Air Noise Zone identified on Map 10.7.6.3

Any of the following activities occurring in the Air Noise Zone (as shown on Map 10.7.6.3) shall be a Prohibited Activity:

All new dwellings, new relocated dwellings, new dependent dwelling units, new education and early childhood facilities, new community homes, new accommodation motels, new motel conference centres, new training facilities, new hospitals, new retirement villages, new residential centres, new tourist facilities, and any other new buildings used for regular accommodation and communal activities.

These activities are expressly prohibited and no resource consent shall be granted.

Explanation

The above-mentioned activities have been identified as being highly sensitive to the adverse effects of noise exposure associated with aircraft operations. The impact of aircraft noise has been assessed by New Zealand Standards 6805:1992 – Airport Noise Management and Land Use Planning, which recommends as one of the criteria for land use planning within any defined air noise boundary that noise sensitive activities, such as dwellings and schools, be prohibited. The purpose of this rule is to give effect to this recommended standard.

22.8.6 Rules : Noise

R 22.8.6.1 Noise

Sound emissions from any activity in the Flood Protection Zone when measured at or within the boundary of any land zoned for residential purposes or at or within the boundary of any land in the Rural Zone (other than a road) shall not exceed the following:

| | |
|----------------------------|---|
| 7:00 am to 10:00 pm | 50 dBA L₁₀ |
| 10:00 pm to 7:00 am | 40 dBA L₁₀ and 70 dBA L_{max} |

Explanation

These rules are intended to provide for permitted agricultural activities while controlling noise from a range of other activities which may also occur in the Flood Protection Zone, e.g. Recreation and Quarrying. This Rule does not control certain rural activities carried on in the Flood Protection Areas, nor does it control some soil conservation and river control works. Reference should be made to Section 6 for those activities that are excluded from the above controls and for further general information on noise.

22.9 Land Instability Hazards

Much of the elevated land on the eastern side of the City has potential for instability resulting in slippage, slumping, slope failures and general soil erosion. This reflects to a large degree the relatively young geological age of New Zealand and is common throughout the country.

In rural areas particularly, such soil and slope movements are of lesser concern as low levels of development make the triggering of instability less likely. In addition the maintenance of grass coverage, and planting of trees often assists in maintaining soil and slope stability. It is in areas of urban style development that soil and slope instability become of concern. This issue is of major concern in the Aokautere area where dissected landforms have created steep slopes which, combined with the soil types, make instability a potential problem. In 1989 the Palmerston North City Council commissioned an Urban Land Use Capability Study (ULUC Study) of the area of Aokautere intended for residential and rural-residential development. The Plan identifies land which should be excluded from development or should be subject to particular controls through its classification into developable and undevelopable land.

The survey method is based on six factors being rock type, soils, dominant slope, dominant land form, dominant land cover and mass-movement hazard. The analysis assessed the impact of these factors alone and in combination on the suitability of land for urban purposes. This resulted in land in Aokautere being classified into five classes in terms of their potential for urban development. These can then be placed into three groups, viz.:

ULUC Classes A and B —which offer negligible or slight physical limitations to urban development and use.

ULUC Class C — which imposes moderate physical constraints on urban development and use.

ULUC Classes D and E — which imposed severe constraints to urban development and use.

The area in Aokautere zoned for residential development has been surveyed to determine the boundary between developable and undevelopable land as shown on Map 10.1. The boundary between developable and undevelopable land includes a set-back of 10 metres, where ULUC Class A or B land abuts ULUC Class D or E land, and a variable set-back distance, generally greater than 10 metres, where ULUC Class C land abuts ULUC Class D or E land. Where ULUC Class C land has been included as developable land a specific engineering design may be required to ensure that any structure can be safely established on it.

The controls which emerge from the use of the ULUC study are contained within Section 7 Subdivision and Section 10 Residential Zone.

NOTES TO PLAN USERS:

1. Such applications require specific information to accompany such applications. These requirements are detailed in Section 5.
2. Council's specific management responsibility for this identified hazard is outlined within Section 22.1.

22.9.1 Rules : Permitted Activities

R 22.9.1.1 Mitigation and Avoidance Works

Any building or structure or works of any local authority or the Crown for the purpose of avoiding or mitigating any land instability hazard is a Permitted Activity.

Explanation

This control has been included to ensure that any works undertaken to stabilise the cliffs and river terraces in the Aokautere area are provided for.

22.9.2 Rules : Discretionary Activities (Restricted)

R 22.9.2.1 Restructuring of Land in Aokautere

Restructuring of land through earthworks or other works to create land with improved slope and soil stability, in the Aokautere Development Area, shall be a Discretionary Activity (Restricted) in respect of:

- The Avoidance or Mitigation of any Natural Hazard.

provided it complies with the following Performance Conditions:

Performance Condition

(a) Timing of Application and Undertaking of Works

- Any application to restructure land in the Aokautere Development Area shall be made at the same time as any application is made for a subdivision consent for the same land.
- Any works associated with the restructuring must be carried out at the same time as any other works associated with the approved subdivisional consent.

In determining whether to grant consent and what conditions to impose, if any, Council will, in addition to the City View objectives in section 2 and the Natural Hazard Section objectives and policies, assess any application in terms of the following further policies:

- To avoid, remedy or mitigate any adverse environmental effects arising from the proposed restructuring works.
- To ensure that the proposed restructuring works avoid, remedy or mitigate the land instability hazard.

Explanation

While some of the land in Aokautere is naturally unstable, it is possible to undertake carefully designed earthworks to remodel land and to improve its stability. It is important however that such works are carried out with other subdivisional works to ensure that they are undertaken with appropriate technical supervision.

This rule however does not refer to any earthworks or other works associated with building or development on an existing site. These works will be controlled under the provisions of the Building Act 1991 having regard to the definitions of "building work" and "sitework" contained in that Act, and under the provisions of the Earthworks Section (Section 6) of this Plan.

NOTE TO PLAN USERS:

The provisions of Sections 91 and 92 of the Resource Management Act 1991 would be used to ensure that all consents for any application are heard together.

Also refer to the provisions of Section 6 of this Plan with respect to earthworks rules. Earthworks activities are also subject to the provisions of Section 6.

22.9.3 Rules : Discretionary Activities (Unrestricted)**R 22.9.3.1 Discretionary Activities (Unrestricted)**

Any building or structure or works of any landowner or their agent for the purpose of avoiding or mitigating any land instability hazard is a Discretionary Activity (Unrestricted) provided it complies with the following Performance Conditions:

Performance Conditions

- (a) Every such application shall be notified unless the written approval of all affected parties, and any relevant local authority, is provided.

In determining whether to grant consent and what conditions to impose, if any, Council will, in addition to the City View objectives in section 2 and the Natural Hazard Section objectives and policies, assess any application in terms of the following further policies:

- (a) To avoid, remedy or mitigate any adverse environmental effects arising from the proposed mitigation and avoidance works.
- (b) To ensure that the proposed mitigation and avoidance works avoid, remedy or mitigate the land instability hazard.

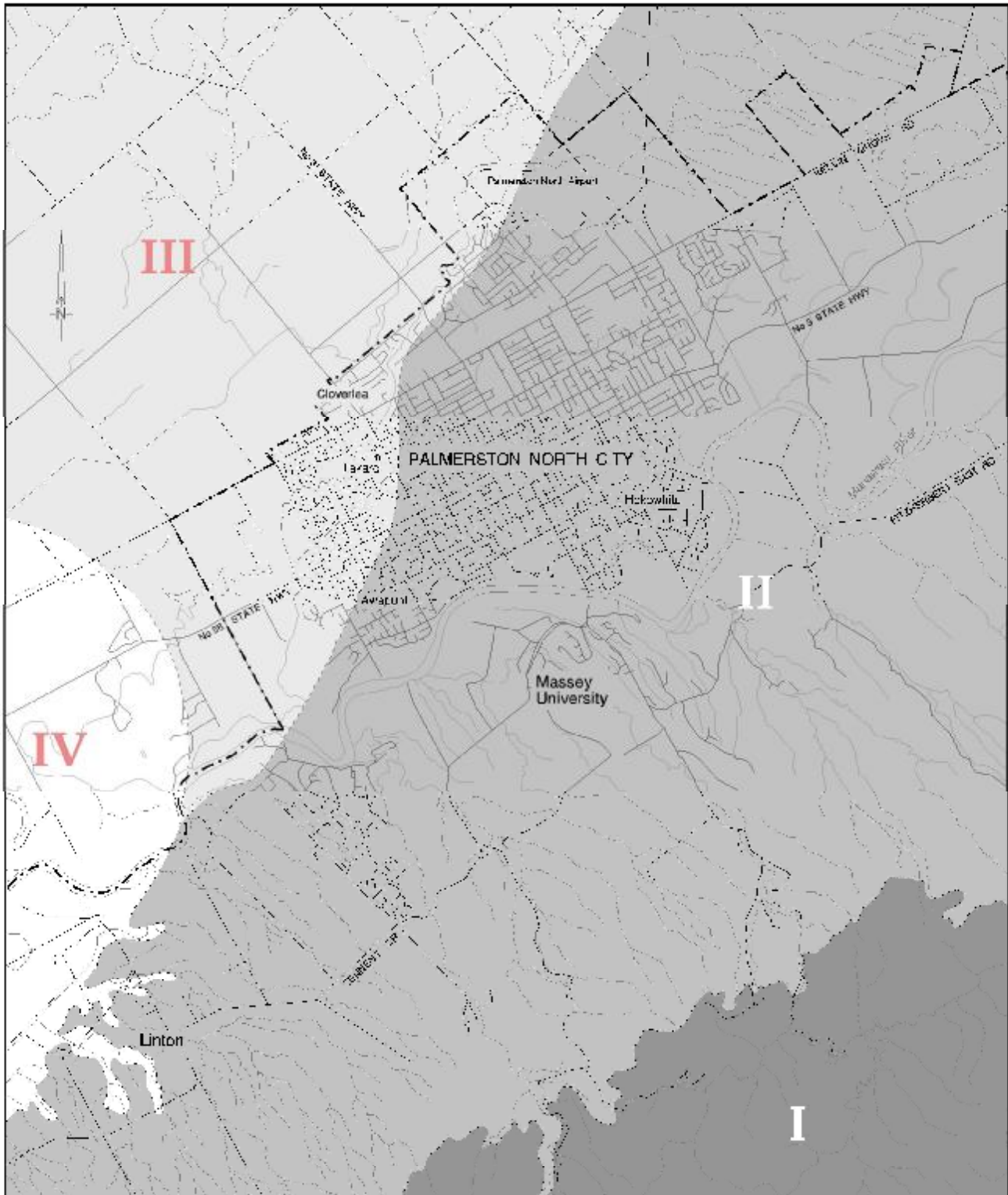
Explanation

It may at times be appropriate for a landowner to initiate and undertake mitigation and avoidance works. This rule has been included to provide a degree of certainty.

R 22.9.4 Rules Non-Complying Activities**R 22.9.4.1 Non-Complying Activities**

Any activity, building or structure that is not a Permitted Activity, Discretionary Activity (Restricted) or Discretionary Activity (Unrestricted) shall be a Non-Complying Activity.

GROUND SHAKING HAZARD MAP FOR PALMERSTON NORTH CITY



THIS MAP IS INDICATIVE ONLY

Map Production: **LandInfo**
 City, Environmental
 P.N.C.C. Dec 2010

- I** Zone I - Zone within which little or no amplification of ground shaking is expected
- II** Zone II - Zone within which no significant amplification of ground shaking is expected
- III** Zone III - Zone within which moderate amplification of ground shaking is expected
- IV** Zone IV - Zone within which high amplification of ground shaking is expected

- HDAC
- River
- - - Palmerston North City Boundary

0 1 2 3 km
 SCALE 1:60,000

