

DISTRICT PLAN TEXT AMENDMENTS

KEY:

1. Text Amendments as Notified by Council and included in Proposed Plan Change 14

For the purposes of this plan change any unchanged text is shown as normal text or in **bold**, any text proposed to be added by the plan change as notified is shown as **bold underlined** and text to be deleted as ~~**bold strikethrough**~~.

Text in **green** font identifies existing terms defined in *Chapter 2 – Definitions*.

Where the proposed plan change contains a term defined in *Chapter 2 – Definitions*, the term is shown as **bold underlined text in green** and the wording to be deleted is shown as ~~**bold strikethrough in green**~~. New definitions in Chapter 2 and within a provision (including a rule) is shown as **bold green text underlined in black**.

Text in **blue** font indicates existing links to other provisions in the District Plan and/or external documents. These will have pop-ups and links, respectively, in the on-line Christchurch District Plan. Where the proposed plan change contains a new link, it is shown as **bold underlined text in blue**. Where a link is proposed to be deleted, it is shown as ~~**bold strikethrough in blue**~~.

2. Text as Recommended in s42A Reports

Text as recommended to be added within s42A reports is shown as **purple bolded and underlined**.
Text as recommended to be deleted within s42A reports is shown as ~~**purple bolded strikethrough**~~.

3. Text Amendments from Expert Conferencing/Joint Witness Statements

Text in **dark orange** font is recommended additional text from expert conferencing/joint witness statements.
Text in ~~**dark orange strikethrough**~~ is recommended deleted text from expert conferencing/joint witness statements.

4. Additional Text Amendments to s42A Reports in Response to Matters Raised During Hearings

Text in **bold dark orange underlined** indicates text recommended to be added.
Text in ~~**bold dark orange strikethrough**~~ indicates text recommended to be deleted.
Text in **bold orange text underlined in black** indicates text that was proposed to be deleted in the s42A report but is now recommended to be reinstated.

Chapter 5 Natural Hazards

5.1 Introduction

- a. This introduction is to assist the lay reader to understand how this chapter works and what it applies to. It is not an aid to interpretation in a legal sense.

- b. The provisions in this chapter give effect to the [Chapter 3 Strategic Directions Objectives](#).
- c. Natural hazards are defined in the Resource Management Act 1991 as:
- any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment.*
- d. This chapter identifies the ways in which the impacts from a range of natural hazards are managed, particularly in relation to the use, development and maintenance of land, [buildings](#) and infrastructure.
- e. Natural hazard risk can arise from:
- i. intense rainfall events causing flooding from rivers, streams, overland flow and lakes;
 - ii. earthquakes;
 - iii. liquefaction;
 - iv. slope instability, being cliff collapse, rockfall or boulder roll, and mass movement;
 - v. tsunami;
 - vi. inundation from the sea and storm surge;
 - vii. coastal erosion;
 - viii. fire;
 - ix. exacerbation of some of the hazards above through climate change and sea level rise; and
 - x. multiple hazards consisting of combinations of the above.
- f. The primary approach to managing natural hazards in this [District Plan](#) is to take what is called a “risk-based” approach. Such an approach considers various scales of a particular natural hazard event (for example different magnitude earthquakes and different intensities and durations of rainfall events), together with the likelihood of that particular event occurring and the effects that it would cause, particularly on people and property.
- g. In this chapter, risk is expressed in a number of ways. For example, in areas at risk from slope instability such as cliff collapse, rockfall, or mass movement, it is the degree of risk to people’s lives that is of primary concern. In most areas at risk from flooding, the primary concern relates to damage to property and how often this may occur.
- h. In areas of slope instability, risk is expressed as an “[Annual Individual Fatality Risk](#)” or AIFR, being the probability of a fatality for an individual occupying a specific [site](#) in any one year as a result of slope instability. Calculating this risk involves a number of underlying assumptions, such as the percentage of time an individual is on [site](#) or in a [residential unit](#), the level of seismicity (taking into account that the Canterbury earthquakes are expected to decrease over time) and whether or not people would

be evacuated following a major seismic event. Given the range of inputs into AIFR, there is an uncertainty in the calculated value of the AIFR which can mean there is a higher or lower level of actual risk. Recognising this, and the area-wide scale of the slope instability mapping, a process has been included that allows for rockfall risk to be recalculated on a site-specific basis through an independent risk assessment that has been supported by an independent peer review.

- i. In areas of flooding, the term “Annual Exceedance Probability” or AEP is used to describe the likelihood of a flooding event of a certain size occurring. This is a different way of expressing the commonly used term “return period” – for example a storm with a return period of 200 years has an AEP of 1/200 (i.e. the reciprocal of the return period) or 0.5%, and means there is a 0.5% chance of a storm of that size happening in any one year.
- j. In areas where there is likely to be a liquefaction risk to property, no specific measure of risk is applied. The area mapped is based on whether liquefaction is more likely to occur than not. Within that area, liquefaction risk and appropriate mitigation is assessed on a site-specific basis using best practice geotechnical and engineering methods to determine the performance of infrastructure and buildings.
- k. The level of control over activities in the District Plan is related to the consequence of the various natural hazards and whether such risks are considered to be acceptable or not. There is also a category in between where, following proper assessment, risk may be able to be managed such that the risk is reduced to acceptable levels.
- l. In locations where the risk from natural hazards is considered to be unacceptable and such risks cannot practically be reduced to acceptable levels, new activities in those areas are generally to be avoided. This includes areas such as Cliff Collapse Management Area 1, Cliff Collapse Management Area 2 and Rockfall Management Area 1, but also includes adjacent areas where risk cannot be adequately remedied or mitigated.
- m. Where risk from natural hazards is able to be managed to acceptable levels, the Council may require assessment and mitigation in relation to potential effects on development from natural hazards in order to reduce risk to a level that is deemed acceptable in the circumstances. Examples are Rockfall Management Area 2, the Flood Management Area and the Liquefaction Management Area. The planning maps also include Flood Ponding Management Areas which are required for flood storage capacity, thereby reducing impacts of downstream flooding, and the function of these is recognised in the District Plan.
- n. Where risk is considered to be acceptable without any interventions, and is similar to the levels of many everyday risks that people face and accept each day, there is no intervention required by the District Plan.

5.2 Objectives and Policies

5.2.1 Natural Hazard Objectives

5.2.1.1 Objective — Natural hazards

- a. The Objective for this chapter is [Objective 3.3.6](#) in Chapter 3 Strategic Directions.

5.2.2 Natural hazards policies

5.2.2.1 General natural hazards policies

5.2.2.1.1 Policy — Avoid new development where there is unacceptable risk

- a. Avoid new **subdivision**, use and development, including new urban zonings, where the risk from a natural hazard is assessed as being unacceptable.

5.2.2.1.2 Policy — Manage activities to address natural hazard risks

- a. Manage activities in all areas subject to natural hazards in a manner that is commensurate with the likelihood and consequences of a natural hazard event on life and property.

5.2.2.1.3 Policy — Infrastructure

- a. Avoid locating new **critical infrastructure** where it is at risk of being significantly affected by a natural hazard unless, considering functional and operational requirements, there is no reasonable alternative location or method.
- b. Enable **critical infrastructure** to be designed, maintained and managed to function to the extent practicable during and after natural hazard events.
- c. Recognise the benefits of infrastructure and the need for its repair, maintenance and ongoing use in areas affected by natural hazards.

5.2.2.1.4 Policy — No transferring of natural hazard risk

- a. Ensure that **subdivision**, use and development (including proposals for hazard mitigation works or hazard removal) do not transfer or create unacceptable natural hazard risk to other people, property, infrastructure or the natural environment.

5.2.2.1.5 Policy — Natural features providing hazard resilience

- a. Protect natural features which assist in avoiding or reducing the risk of natural hazards, such as natural ponding areas, coastal dunes, **wetlands**, **water body** margins and riparian vegetation from inappropriate **subdivision**, use and development and where appropriate restore, maintain or enhance the functioning of these features.

5.2.2.1.6 Policy — Awareness of natural hazards

- a. Ensure people are informed about the natural hazards relating to their properties and surrounding area, including through provision of relevant information on Land Information Memoranda and hazard mapping on the **Council's** website.
- b. Encourage property owners to incorporate measures into **buildings** including earthquake damaged **buildings** beyond existing use rights or minimum building standards to avoid or mitigate natural hazards affecting their property.

5.2.2.1.7 Policy — Repair of earthquake damaged land

- a. Facilitate recovery by enabling property owners to make repairs to earthquake damaged land for residential purposes, where these repairs will appropriately manage adverse effects on people, property or the natural environment.
- b. Recognise that the repair of other earthquake damaged land is necessary as part of recovery.

5.2.2.1.8 Policy – Assessment of hazards

- a. Ensure that the level of assessment undertaken for plan changes, [subdivision](#) or development reflects the potential scale and significance of the hazard; and the nature and scale of the re-zoning, [subdivision](#) or development and its susceptibility to those hazards.

5.2.2.2 Policy for managing risk from flooding

5.2.2.2.1 Policy — Flooding

- a. Map hazard risk for the [Flood Management Area](#) based on:
 - i. a modelled 0.5% [AEP](#) (1 in 200-year) rainfall event plus a 5% [AEP](#) (1 in 20-year) tide event plus 250mm [freeboard](#); OR a modelled 5% [AEP](#) (1 in 20-year flood event) plus a 0.5% [AEP](#) (1 in 200-year) tide event plus 250mm [freeboard](#); OR 11.9m above [Christchurch City Council Datum](#) (the maximum 200-year tidal contour) plus 250mm [freeboard](#); whichever is the greater; and
 - ii. allowance for 1 metre of sea level rise and an increase in rainfall intensity by 16% through to 2115 as a result of climate change; and
 - iii. a maximum buffer extension of the modelled rainfall event areas by 60 metres in a north/south and east/west direction.
- b. In the [High Flood Hazard Management Area](#):
 - i. provide for development of a residential unit on residentially zoned land where the flooding risk is predominantly influenced by sea-level rise and where appropriate mitigation can be provided that protects people’s safety, well-being and property from unacceptable risk; and
 - ii. within the [Specific Purpose \(Ōtākaro Avon River Corridor\) Zone](#), provide for structures in accordance with [Policy 13.14.2.1.8](#).
 - iii. In all other cases, avoid [subdivision](#), use or development where it will increase the potential risk to people’s safety, well-being and property.
- c. Avoid activities locating where they could undermine the integrity of the Waimakariri River primary stopbank system, and restrict activities locating where they could undermine the integrity of the Waimakariri River secondary stopbank system.
- d. Maintain the flood storage capacity and function of natural floodplains, [wetlands](#) and ponding areas, including the Hendersons Basin, Cashmere Stream Floodplain, Hoon Hay Valley, Cashmere-Worsleys Ponding Area, Cranford Basin and Lower Styx Ponding Area¹.

¹ This policy does not foreclose compensatory storage being provided for where [filling](#) is required.

- e. Except for **filling** required to meet minimum floor levels, ensure that **filling** in urban areas at risk of flooding in a **major flood event** does not transfer flooding risk to other people, property, infrastructure or the natural environment.
- f. Reduce potential flood damage by ensuring floor levels for new **buildings** or additions to **buildings**, except those unlikely to suffer material damage, are above flooding predicted to occur in a **major flood event**, including an allowance for appropriate **freeboard**.

5.2.2.3 Policy for managing risk from liquefaction

5.2.2.3.1 Policy — Management of liquefaction risk

- a. Map the Liquefaction Management Area based on a district-wide assessment of where damaging liquefaction is more likely to occur.
- b. Provide for re-zoning, **subdivision**, use and development on flat land where liquefaction risk has been appropriately identified and assessed, and can be adequately remedied or mitigated.

5.2.2.4 Policies for managing risk from slope instability

5.2.2.4.1 Policy — Slope instability

- a. Map areas of slope instability risk at an area-wide scale using the following fixed inputs into calculations² that establish the **Annual Individual Fatality Risk (AIFR)** for a typical residential **site**³:

| | Slope instability hazard management area | Inputs | | | Mapped risk (AIFR) |
|--|--|--|--|---|--------------------|
| | | Percentage of a day the property is assumed to be occupied (%) | Year of predicted seismic activity used in modelling | Whether or not the property is evacuated immediately following a Natural Hazard Event | |
| | | | | | |

² Using the method and parameters described in GNS Science Consultancy Report 2011/311 Canterbury Earthquakes Port Hills Slope Stability: Pilot study for assessing life-safety risk from rockfalls (boulder rolls) and GNS Science Consultancy Reports 2012/57 Canterbury Earthquakes Port Hills Slope Stability: Pilot study for assessing life-safety risk from cliff collapse and 2012/124 Port Hills Slope Stability: Life-safety risk from cliff collapse in the Port Hills, and any subsequent updates to those reports by GNS Science. Calculations also include modelling and estimates, such as probability of a rockfall/cliff collapse event, vulnerability, rock/debris volumes and rockfall run-out. The mapping does not take account of **hazard mitigation works**. Rocks can, and will, fall outside of the mapped hazard risk areas, however the risk of a fatality is lower.

³ Except Mass Movement Management Areas 2 & 3 which are mapped based on potential effect on property, not **Annual Individual Fatality Risk**.

| | | | | | |
|------|--------------------------------------|------------------------------|------|-----|----------------|
| i. | Cliff Collapse Management Area 1 | 100 | 2012 | No | $\geq 10^{-2}$ |
| ii. | Cliff Collapse Management Area 2 | 100 | 2012 | No | $\geq 10^{-4}$ |
| iii. | Rockfall Management Area 1 | 67 | 2016 | Yes | $\geq 10^{-4}$ |
| iv. | Rockfall Management Area 2 | 100 | 2016 | No | $\geq 10^{-4}$ |
| v. | Mass Movement Management Area 1 | 67 | 2016 | Yes | $\geq 10^{-4}$ |
| vi. | Mass Movement Management Areas 2 & 3 | Refer to natural hazard maps | | | |

- b. In slope instability hazard management areas in the Port Hills and across [Banks Peninsula](#):
- i. avoid [subdivision](#), use and development where the activity will result in an unacceptable risk to life safety (AIFR $\geq 10^{-4}$ using the GNS Science method and parameters for establishing life safety risk), taking into account all relevant site-specific information and any [hazard mitigation works](#) proposed; and
 - ii. otherwise, manage [subdivision](#), use and development so that risk of damage to property and infrastructure is mitigated to an acceptable extent.

5.2.2.4.2 Policy — Site-specific risk assessment for AIFR Certificates⁴ in certain areas potentially affected by rockfall and/or cliff collapse

- a. Provide for site-specific assessment of risk from rockfall and/or cliff collapse, in Rockfall Management Area 1, Rockfall Management Area 2, and/or Cliff Collapse Management Area 2, in accordance with the method and parameters described in [Policy 5.2.2.4.1a](#)⁵ (along with all relevant site-specific information) in order to allow for the issue of AIFR certificates.
- b. Make information from site-specific assessments of risk from rockfall and/or cliff collapse (which have been certified by the [Council](#)) readily publicly available.
- c. Regularly notify changes to the [District Plan](#), as required to change the planning maps, in order to reflect updated information from site-specific assessments of life-safety risk from rockfall and/or cliff collapse which have been certified by the [Council](#).

5.2.2.4.3 Policy — Slope instability for all of the Port Hills and Banks Peninsula

- a. In areas not already identified in [Policy 5.2.2.4.1a](#) as being subject to cliff collapse, rockfall or mass movement, but where the land may be subject to slope instability:

⁴ Refer to [Rule 5.6.1.2](#)

⁵ This method does not take account of [hazard mitigation works](#).

- i. to the extent appropriate, require proposals for **subdivision**, use and development to be assessed by a geotechnical specialist to evaluate the presence of hazards and level of risk to people and property (including infrastructure) from slope instability hazards; and
 - ii. only allow **subdivision**, use and development where risk can be reduced to an acceptable level.
- b. Avoid **hazard mitigation works** in areas of the Port Hills and across **Banks Peninsula** where cliff collapse or mass movement is likely to destroy or significantly damage such works, or where construction or maintenance of **hazard mitigation works** creates a safety hazard, unless reasonably required to protect **critical infrastructure**.
- c. Control **hazard mitigation works** and hazard removal works for slope instability across all other areas of the Port Hills and **Banks Peninsula**, to ensure that works:
- i. are effective;
 - ii. do not worsen any existing natural hazard; and
 - iii. do not transfer or increase the risk to other people, property, including **critical infrastructure**, or the natural environment.

NOTE: The provisions of the Christchurch City Plan and the Banks Peninsula District Plan that relate to coastal hazards continue to apply. The provisions of those plans that still apply (including the 20m building and earthworks setback from mean high water springs) are set out in [this table](#).

5.2.2.5 **Policies for managing risk from coastal hazards**

Commented [S01]: Heading missing from s42A set of provisions

5.2.2.5.1 **Policy – Managing residential intensification development in within the Qualifying Matter Coastal Hazard Management Areas**

Commented [S02]: Reference to “qualifying matter” is not considered necessary

a. ~~Within the following Qualifying Matters, development, subdivision and land use that would provide for intensification of any site shall be avoided, unless the risk is from coastal inundation and a site specific assessment demonstrates the risk is low or very low based on thresholds defined in-Map areas at risk from coastal hazards in accordance with the categories of thresholds for coastal inundation as set out in Table 5.2.2.5.1a below to manage residential intensification:~~

~~Coastal Hazard High Risk Management Area;~~

~~Coastal Hazard Medium Risk Management Area;~~

Table 5.2.2.5.1a ~~Thresholds~~ Risk categories for Coastal Hazard Medium and High Risk Management Areas –for coastal inundation

Commented [S03]: Minor change to heading to more appropriately describe the table

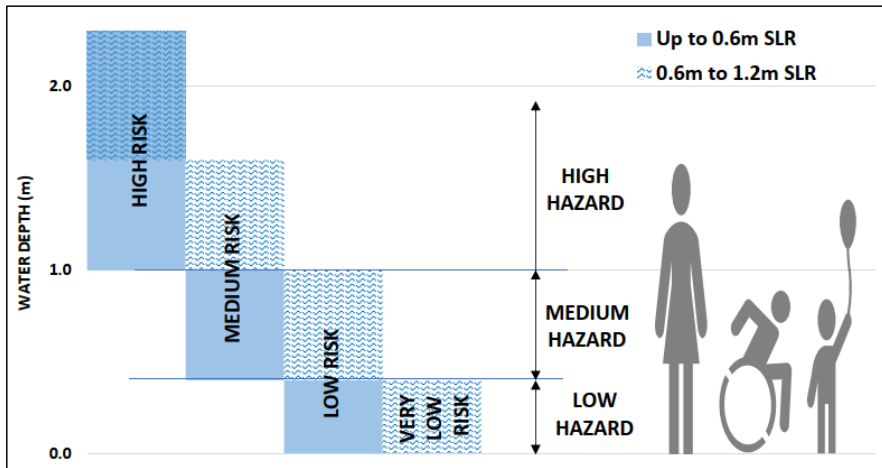
| Coastal Hazard QM Management Area category | Coastal erosion risk category in the CHMA QM | Coastal inundation risk category in the CHMA QM | Mapped risk and inputs | |
|--|--|---|--|--|
| | | | Flood depth based on 0.6m of sea level rise (higher certainty) | Flood depths based on 1.2m of sea level rise (less certainty – higher consequence) |
| Coastal Hazard Medium Risk Management Area | Low | Medium | 0.4m < d < 1.0m | d > 1.0m |
| Coastal Hazard High Risk Management Area | High-medium | High | d > 1.0m | d > 1.6m |

Notes:

- d represents the depth of coastal flooding in a 0.2% AEP coastal flood event, which factors in the sea level amount considered i.e. 0.6m of sea level rise does not equate to 0.6m of flooding; and

- the following illustration of risk and hazard categories is a visual representation of the above policy.

Commented [S04]: Additional note to provide explanation of the illustration.



b. Replacement buildings, accessory buildings and extensions/additions to buildings are enabled where effects are mitigated to an acceptable level based on a site specific assessment, and having regard to the level and timing of the hazard. This could be by use of an appropriate risk based trigger or alternative methods.

b. Within the Coastal Hazard Medium Risk Management Area and Coastal Hazard High Risk Management Area, avoid residential intensification unless a site-specific assessment demonstrates the risk is low or very low based on the thresholds in Table 5.2.2.5.1b.

Table 5.2.2.5.1b Low and very low risk thresholds for coastal inundation

| Coastal inundation risk category | Mapped risk and inputs | |
|----------------------------------|--|--|
| | Flood depth based on 0.6m of sea level rise (higher certainty) | Flood depths based on 1.2m of sea level rise (less certainty – higher consequence) |
| Very low | Dry | $d < 0.4m$ |
| Low | $d < 0.4m$ | $0.4m < d < 1.0m$ |

Note:

- d represents the depth of coastal flooding in a 0.2% AEP coastal flood event, which factors in the sea level amount considered i.e. 0.6m of sea level rise does not equate to 0.6m of flooding.

Commented [S05]: Note included as above to explain “d”

5.2.2.5.2 Policy – Managing residential intensification development within the Qualifying

Matter: Tsunami Risk Management Area

- a. Within the Tsunami Management Area Qualifying Matter, avoid development, subdivision and land use that would provide for intensification of any site, unless the risk to life and property is acceptable.
- a. Map areas where in a major tsunami event the risk to life will be unacceptable and the extent of property damage will be significant, in accordance with the thresholds as set out in Table 5.2.2.5.2a:

Table 5.2.2.5.2a Tsunami risk thresholds

| Tsunami risk category | Mapped risk: Potential events expected within a specified return period | Inputs: | |
|------------------------------|--|----------------|------------------|
| | | Sea Level Rise | Inundation depth |
| Tsunami Risk Management Area | Major impact event arising from large subduction earthquakes defined as: 1 in 500 year/ AEP 0.2% (likelihood of occurring in any given year) | 1.06m | d > 0.3m |

- b. Within the Tsunami Risk Management Area;
 - i. For sites located within the Residential Suburban and Residential Suburban Density Zone avoid residential intensification on any site, except where the Tsunami Risk Management Area overlays only a minor extent of the site and any residential unit is located outside of the overlay.
 - ii. For sites located within the Medium Density Residential Zone and/or Residential Hills Precinct, where the Tsunami Risk Management Area overlays any part of the site, any residential unit shall be located outside of the Tsunami Risk Management Area, except that for sites zoned Residential Medium Density prior to [operative date of PC14] residential intensification is provided for in accordance with the Medium Density Residential Zone.

Commented [S06]: IHP request to Ms Oliver for recommended drafting Hearing Week 9

5.3 How to interpret and apply the rules

- a. The rules that apply in the natural hazard overlay areas in the planning maps are listed in:
 - i. Rule 5.4 – Flood hazard:
 - A. Rule 5.4.1 – Activities and earthworks in the Flood Management Area;

- B. [Rule 5.4.2](#) – Activities and earthworks in the Te Waihora/Lake Ellesmere and Wairewa/Lake Forsyth Flood Management Areas;
 - C. [Rule 5.4.3](#) – Activities and earthworks in the Waimakariri Flood Management Area;
 - D. [Rule 5.4.4](#) – Repair of land used for residential purposes damaged by earthquakes within the Flood Management Areas in rural and residential zones;
 - E. [Rule 5.4.5](#) – Activities and earthworks in the Flood Ponding Management Area; and
 - F. [Rule 5.4.6](#) – Activities in the High Flood Hazard Management Area.
- ii. [Rule 5.4A – Qualifying Matter Coastal Hazard Management Areas](#)
- ~~iii.~~ [Rule 5.5](#) – Liquefaction hazard; and
 - ~~iii.~~~~iv.~~ [Rule 5.6](#) – Slope instability.
- b. The [Flood Management Areas](#) have separate, specific provisions in identified geographical areas identified on the planning maps as set out below. [Rule 5.4.1](#) does not apply to areas subject to [Rules 5.4.2](#) or [5.4.3](#):
- i. [Rule 5.4.1](#) – Activities and earthworks in the Flood Management Area;
 - ii. [Rule 5.4.2](#) – Activities and earthworks in the Te Waihora/Lake Ellesmere and Wairewa/Lake Forsyth Flood Management Areas;
 - iii. [Rule 5.4.3](#) – Activities and earthworks in the Waimakariri Flood Management Area.
- c. The information requirements for resource consent applications are set out in [Rule 5.7](#).
- d. The activities covered by the rules in this chapter are also subject to the rules in the relevant zone chapters.
- e. The activity status tables, rules and standards in the following chapters also apply:
- [4](#) Hazardous Substances and Contaminated Land
 - [6](#) General Rules and Procedures
 - [7](#) Transport
 - [8](#) Subdivision, Development and Earthworks
 - [9](#) Natural and Cultural Heritage
 - [11](#) Utilities and Energy

NOTE: The provisions of the Christchurch City Plan and the Banks Peninsula District Plan that relate to coastal hazards continue to apply. The provisions of those plans that still apply (including the 20m building and earthworks setback from mean high water springs) are set out in [this table](#).

5.4 Rules - Flood hazard

- a. Areas identified as being subject to high hazard flooding⁶ are identified on the planning maps as **High Flood Hazard Management Area**.
- b. Areas identified as being subject to inundation in a major flooding event are identified as **Flood Management Area**. Within this area, where the required floors levels are certain and already established by the **Council**, they are identified on the planning maps as being within the Fixed Minimum Floor Level Overlay. Where they are not accurately modelled and further modelling is required, the **Council** will, on request, review its current information and issue a Minimum Floor Level Certificate that will certify the floor level necessary for that **site** based on available information.
- c. Areas that are important for stormwater retention are also identified on the planning maps as Flood Ponding Management Area.

5.4.1 Activities and earthworks in the Flood Management Area

5.4.1.1 Permitted activities

- a. The activities listed below are permitted activities where the activity is located in the area shown on the planning maps as **Flood Management Area** (other than in a Transport Zone, where the **Flood Management Area** rules do not apply), if they meet the activity specific standards set out in **Table 5.4.1.1b**.
- b. Activities may also be restricted discretionary as specified in **Rule 5.4.1.5**.
- c. Exemptions relating to this rule can be found in **Rule 5.4.1.4**.
- d. For **filling** or **excavation** (before 31 December 2018) for repair of land used for residential purposes and damaged by earthquakes, see **Rule 5.4.4**.
- e. For the purpose of determining appropriate floor levels for P1 and P2, the following models will be used:

Table 5.4.1.1a

| | Flood Management Area Catchment | Model | Version |
|-----|--|---|----------------|
| i. | Styx | Styx River Hydrologic and Hydraulic Model | R004 |
| ii. | Avon | Avon River Hydrologic and Hydraulic Model | D13 |

⁶ High hazard flooding includes areas that flood to a depth greater than 1 metre, or the depth (m) x velocity (ms⁻¹) of the over land flow is greater than 1 in a 0.2% **AEP** (1 in 500-year) flood event

| | | | |
|------|------------------------|---|-------------|
| iii. | Heathcote | Heathcote River Hydrologic and Hydraulic Model | 2012 Design |
| iv. | Sumner | Sumner Floodplain Hydrologic and Hydraulic Model | 12N |
| v. | Avoca Heathcote Valley | Avaco Heathcote Valley Hydrologic and Hydraulic Model | AV-ED2014 |

Table 5.4.1.1b

| Activity | | Activity specific standards |
|-----------|--|--|
| P1 | New buildings located within the Fixed Minimum Floor Level Overlay, unless specified in P5, P6, P7, P8 or P9 in Rule 5.4.1.1 . | a. Minimum floor levels shall be the highest of the following: <ul style="list-style-type: none"> i. flooding predicted to occur in a 0.5% AEP (1 in 200-year) rainfall event concurrent with a 5% AEP (1 in 20-year) tidal event, including 1metre sea level rise plus 400mm freeboard, as predicted by the relevant Council model and version identified in Table 5.4.1.1a; or ii. flooding predicted to occur in a 0.5% AEP (1 in 200-year) tidal event concurrent with a 5% (1 in 20-year) rainfall event, including 1m sea level rise plus 400mm freeboard, as predicted by the relevant Council model and version identified in Table 5.4.1.1a; or iii. 12.3 metres above Christchurch City Council Datum. (<i>Link to Council's Floor Level Viewer for Fixed Minimum Floor Levels</i>) |
| P2 | Additions to existing buildings which increase the ground floor area of the building located within the Fixed Minimum Floor Level Overlay, unless specified in P6, P7, P8 or P9 in Rule 5.4.1.1 . | |
| P3 | New buildings outside the Fixed Minimum Floor Level Overlay unless specified in P5, P6, P7, P8 or P9 in Rule 5.4.1.1 . | a. Minimum floor levels shall be the level specified in the Minimum Floor Level Certificate (refer to Rule 5.4.1.2) |
| P4 | Additions to existing buildings which increase the ground floor area of the building outside the Fixed Minimum Floor Level Overlay unless specified in P6, P7, P8 or P9 in Rule 5.4.1.1 . | a. Minimum floor levels shall be the level specified in the Minimum Floor Level Certificate (refer to Rule 5.4.1.2) |
| P5 | Additions to existing buildings that do not increase the ground floor area of the building . | Nil |

| Activity | | Activity specific standards |
|----------|---|---|
| P6 | Additions other than garages provided for in Rule 5.4.1.1 P7 which do not increase the ground floor area of an existing building by more than 25m ² within any continuous period of 10 years. | Nil |
| P7 | Garages of 40 m ² or less in area, and any other accessory buildings without floors. | Nil |
| P8 | Decks, swimming pools, and unenclosed buildings without floors. | Nil |
| P9 | Utilities and LPG storage tanks. | Nil |
| P10 | Filling or excavation for residential building platforms only to the extent necessary to achieve the minimum floor levels specified for P1, P2, P3 and P4 in Rule 5.4.1.1 for new buildings and for additions to buildings. | Nil |
| P11 | Filling or excavation associated with the maintenance of flood protection and bank erosion protection works; and the maintenance of existing drains or ponds. | Nil |
| P12 | Filling or excavation associated with utilities, or the replacement, repair or maintenance of existing utilities. | Nil |
| P13 | Filling or excavation in zones other than commercial, industrial and rural zones that is not provided for under Rule 5.4.1.1 P10-P12 or P17-P18. | <p>a. A maximum height of 0.3m of filling above ground level and 0.6m depth of excavation below ground level; and</p> <p>b. A maximum volume of filling above ground level of 10m³ per site, and a maximum cumulative volume of filling and excavation of 25m³ per site, in each case within any continuous period of 10 years.</p> <p>Or</p> <p>c. The excavation and filling is associated with the maintenance and/or replacement of underground petroleum storage systems and where, following reinstatement of the</p> |

| Activity | | Activity specific standards |
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| | | underground petroleum storage systems, the site will have a finished contour that is equivalent to the ground level at the commencement of the works. |
| P14 | Filling or excavation in commercial and industrial zones that is not provided for under Rule 5.4.1.1 P10-P12 or P17. | <p>a. A maximum height of 0.3m of filling above ground level and 0.6 metres depth of excavation below ground level; and</p> <p>b. A maximum volume of filling above ground level of 20m³ per site, and a maximum cumulative volume of filling and excavation of 50m³ per site, in each case within any continuous period of 10 years.</p> <p>Or</p> <p>c. The excavation and filling is associated with the maintenance and/or replacement of underground petroleum storage systems and where, following reinstatement of the underground petroleum storage systems, the site will have a finished contour that is equivalent to the ground level at the commencement of the works.</p> |
| P15 | Filling or excavation in rural zones that is not provided for under Rule 5.4.1.1 P10-P12 or P17. | <p>a. A maximum height of 0.2m of filling above ground level and 0.6 metres depth of excavation below ground level; and</p> <p>b. A maximum volume of filling above ground level of 100m³ per site within any continuous period of 10 years.</p> <p>Or</p> <p>c. The excavation and filling is associated with the maintenance and/or replacement of underground petroleum storage systems and where, following reinstatement of the underground petroleum storage systems, the site will have a finished contour that is equivalent to the ground level at the commencement of the works.</p> |
| P16 | Outdoor storage of transiting shipping containers in commercial and industrial zones. | Nil |
| P17 | Excavation and filling within the area identified in Appendix 8.10.76d - Cashmere/Worsleys Development Plan. | a. The excavation and filling will not result in the reduction in the existing potential storage volume of water that is able to be retained within the development plan area, prior to any |

| Activity | Activity specific standards |
|----------|---|
| | <p>residential zone development, in a 0.2% AEP event up to the existing Worsleys Road minimum centreline level of 18.89 metres (Christchurch City Council Datum). The design shall also accommodate additional storage for any additional stormwater that could be discharged from the development of the residential zones and roads in a 0.2% AEP event.</p> <p>b. All roads are filled so that the crown of the road is no lower than RL 18.7 metres (Christchurch City Council Datum), except for the realigned Worsleys Road required in the Development Plan. The crown of Worsleys Road shall be no lower than RL 18.89 metres (Christchurch City Council Datum).</p> <p>c. The side slopes of all areas filled or excavated in accordance with a. and b. above shall not exceed an angle of 1 in 5.</p> |
| P18 | <p>Filling or excavation in the Specific Purpose (Ōtākaro Avon River Corridor) Zone that is not provided for under Rule 5.4.1.1 P10-P12</p> <p>a. A maximum height of 0.3m of filling above ground level and 0.6m depth of excavation below ground level; and</p> <p>b. A maximum volume of filling above ground level of 20m₃ per site and a maximum cumulative volume of filling and excavation of 50m₃ per hectare, which shall be applied as a ratio in each case within any continuous period of 10 years.</p> |

5.4.1.2 Minimum floor level certificate

- a. For P3 and P4 in Table 5.4.1.1b, new buildings or additions to existing buildings within the Flood Management Area, but outside of the Fixed Minimum Floor Level Overlay shall have a floor level that is greater than or equal to that specified in a Minimum Floor Level Certificate. The Council will issue a Minimum Floor Level Certificate (which will be valid for 2 years from the date of issue) which specifies the design floor level for a building calculated as the highest of the following:
 - i. flooding predicted to occur in a 0.5% AEP (1 in 200-year) rainfall event concurrent with a 5% AEP (1 in 20-year) tidal event, including 1m sea level rise plus 400mm freeboard, as predicted by the most up to date Council model and any relevant field information; or
 - ii. flooding predicted to occur in a 0.5% AEP (1 in 200-year) tidal event concurrent with a 5% AEP (1 in 20-year) rainfall event, including 1m sea level rise plus 400mm freeboard, as predicted by the most up to date Council model and any relevant field information; or
 - iii. 12.3 metres above Christchurch City Council Datum.

5.4.1.3 Exemptions for daylight recession planes in the Flood Management Area

- a. For P1 and P2 in Rule 5.4.1.1, the applicable daylight recession plane in residential zones **(other than in the Medium Density Residential Zone and High Density Residential Zone)** shall be determined as if the ground level at the relevant boundary was the minimum floor level set in the activity specific standards in Rule 5.4.1.1, or natural ground level, whichever is higher.
- b. For P3 and P4 in Rule 5.4.1.1, the applicable daylight recession plane in residential zones **(other than in the Medium Density Residential Zone and High Density Residential Zone)** shall be determined as if the ground level at the relevant boundary was the minimum floor level specified in the Minimum Floor Level Certificate issued under Rule 5.4.1.2, or natural ground level, whichever is higher.
- c. For the purposes of a. and b. above, the applicable daylight recession plane in residential zones are:
 - i. Rule 14.4.2.6 Daylight recession planes - Residential Suburban Zone and Residential Suburban Density Transition Zone;
 - ii. ~~Rule 14.5.2.6 Daylight recession planes - Residential Medium Density Zone;~~
 - iii. ~~ii.~~ Rule 14.8.2.5 Daylight recession planes – Residential Banks Peninsula Zone;
 - iv. ~~iii.~~ Rule 14.7.2.4 Daylight recession planes – Residential Hills Zone;
 - v. ~~iv.~~ Rule 14.9.2.4 Daylight recession planes – Residential Large Lot Zone;
 - vi. ~~v.~~ Rule 14.10.2.4 Daylight recession planes – Residential Small Settlement Zone;
 - vii. ~~vi.~~ Rule 14.12.2.4 Daylight recession planes - ~~Residential New Neighbourhood Zone Future Urban Zone;~~ and
 - viii. ~~Rule 14.11.2.6 Daylight recession planes - Residential Visitor Accommodation Zone;~~
 - ix. ~~vii.~~ Rule 14.13.3.2 Daylight recession planes - Enhanced development mechanism;
 - x. ~~Rule 14.14.2.2 Daylight recession planes - Community housing redevelopment mechanism;~~ and
 - xi. ~~Rule 14.6.2.2 Daylight recession planes - Residential Central City Zone.~~

5.4.1.4 Exemption for buildings in certain circumstances where a PIM has been issued

- a. Replacement of earthquake-damaged buildings (including partial replacement) in the Flood Management Area are exempt from compliance with the requirements of P1-P4 in Rule 5.4.1.1, provided that:
 - i. for Flood Management Areas made operative on 7 June 2016 or [insert Stage 3 operative date], on or before the date at which those Flood Management Areas became operative, the Council has received an application for a Project Information Memorandum (PIM) for a building on a specific site; AND
 - ii. in response to that application, the Council has issued a PIM that confirms the minimum floor level for the building on that site.

The PIM may be issued before or after the date at which the relevant Flood Management Area became operative, but shall be based on the requirements of the relevant district plan that was operative on the date the PIM was received, or if no rules were relevant under that plan, the New Zealand Building Code as at the date that the application was received.

- b. The exemption to Rule 5.4.1.1 outlined in a. above will cease to apply if construction of the building is not commenced by 30 April 2018.

5.4.1.5 Restricted discretionary activities

- a. The activities listed below are restricted discretionary activities where the activity is located in an area shown on the planning maps as a Flood Management Area.
- b. Discretion to grant or decline consent and impose conditions is restricted to the matters of discretion as set out in the following table.

Table 5.4.1.5a

| Activity | | The Council's discretion shall be limited to the following matters: |
|------------|---|--|
| RD1 | <ul style="list-style-type: none"> a. New buildings or additions to buildings which are not permitted by the activity status rules and/or activity specific standards for P1 – P9 set out in Rule 5.4.1.1. b. Any application arising from this rule shall not be limited or publicly notified. | <ul style="list-style-type: none"> a. The Council's discretion is limited to the following matters: <ul style="list-style-type: none"> i. setting of minimum floor levels ii. mitigation of the effects of flooding b. These restricted discretionary activities will be assessed against the following criteria: <ul style="list-style-type: none"> i. The frequency at which any proposed building or addition is predicted to be flooded and the extent of damage likely to occur in such an event. ii. Whether any mitigation measures are proposed, their effectiveness and environmental effects, and any benefits to the wider area associated with flood management. iii. Whether there are any positive effects from the reduction in floor levels in relation to neighbouring buildings or streetscape. |
| RD2 | Filling or excavation which is not a permitted activity under P10, P11, P12, or P17 set out in Rule 5.4.1.1, or filling or excavation that exceeds the standards in P13 | <ul style="list-style-type: none"> a. The Council's discretion is limited to the following matters: <ul style="list-style-type: none"> i. timing, location, scale and nature of earthworks; ii. earthworks method; and iii. mitigation of effects as they impact flooding and |

| Activity | The Council's discretion shall be limited to the following matters: |
|--|---|
| <p>- P15 or P18 set out in Rule 5.4.1.1.</p> | <p>surface drainage</p> <p>b. These restricted discretionary activities will be assessed against the following criteria:</p> <p>i. Whether any effects arise from filling or excavation on land stability, flooding, water bodies, groundwater and natural ground levels on- and/or off-site, including:</p> <p>A. any likelihood of exacerbation of flooding, erosion, or siltation either upstream or downstream of the site;</p> <p>B. any likelihood of affecting the stability of adjoining land, including its susceptibility to subsidence or erosion;</p> <p>C. any adverse effects on other properties from disturbances to surface drainage patterns;</p> <p>D. effects on flood storage capacity and function in the immediate area, and any wider effects on the flood storage in the catchment including any compensatory storage proposed; and any effects on existing stormwater and flood protection works;</p> <p>E. any implications for groundwater and the water table, on- or off-site; and</p> <p>F. any benefits associated with flood management.</p> <p>ii. Whether there are any benefits arising that enable the reasonable use of the site.</p> <p>iii. Whether any mitigation measures are proposed, their effectiveness and whether, and to what extent there is a transfer of adverse effects to other properties.</p> |

5.4.2 Activities and earthworks in the Te Waihora/Lake Ellesmere and Wairewa/Lake Forsyth Flood Management Areas

5.4.2.1 Permitted activities

- a. The activities listed below are permitted activities where the activity is located within the areas shown on the planning maps as Te Waihora/Lake Ellesmere or Wairewa/Lake Forsyth **Flood Management Areas** (other than in a Transport Zone, where the **Flood Management Area** rules do not apply), if they meet the activity specific standards set out in this table.
- b. Activities may also be restricted discretionary as set out in [Rule 5.4.2.4](#).
- c. For **filling** or **excavation** (before 31 December 2018) for repair of land used for residential purposes and damaged by earthquakes, see [Rule 5.4.4](#).

| Activity | Activity specific standards |
|--|---|
| P1 New buildings and additions to existing buildings unless specified in Rule 5.4.2.1 P2-P6. | a. Minimum floor levels shall be the level specified in the Minimum Floor Level Certificate (refer to Rule 5.4.2.2). |
| P2 Additions to existing buildings that do not increase the ground floor area of the building . | Nil |
| P3 Additions, other than garages provided for in Rule 5.4.2.1 P4, which do not increase the ground floor area of an existing building by more than 25m ² within any continuous period of 10 years. | |
| P4 Garages of 40m ² or less in area, accessory buildings which are no more than 200m ² in area, and other accessory buildings without floors. | |
| P5 Decks, swimming pools, and unenclosed buildings without floors. | |
| P6 Utilities and LPG storage tanks. | |
| P7 Filling or excavation for residential building platforms only to the extent necessary to achieve the minimum floor levels specified for P1 in Rule 5.4.2.1 for new buildings and for additions to buildings . | |
| P8 Filling or excavation associated with the maintenance of flood protection and bank erosion protection works; and the maintenance of existing drains or ponds. | |
| P9 Filling or excavation associated with utilities , or the replacement, repair or maintenance of existing utilities . | |

| Activity | Activity specific standards |
|---|---|
| <p>P10 Filling or excavation that is not provided for under Rule 5.4.2.1 P7-P9 or P11.</p> | <p>a. A maximum height of 0.3 metres of filling above ground level and 0.6 metres depth of excavation below ground level; and</p> <p>b. A maximum volume of filling above ground level of 20m³ per site, and a maximum cumulative volume of filling and excavation of 50m³ per site, in each case within any continuous period of 10 years.</p> <p>Or</p> <p>c. The excavation and filling is associated with the maintenance and/or replacement of underground petroleum storage systems and where, following reinstatement of the underground petroleum storage systems, the site will have a finished contour that is equivalent to the ground level at the commencement of the works.</p> |
| <p>P11 Filling or excavation for the maintenance or upgrading of existing roads on legal road.</p> | <p>a. The works shall not impede the flow of surface water.</p> |

5.4.2.2 Minimum floor level

- a. For Rule 5.4.2.1 P1, new buildings or additions to existing buildings within the Te Waihora/Lake Ellesmere and Wairewa/Lake Forsyth Flood Management Areas shall have a floor level that is greater than or equal to that specified in a Minimum Floor Level Certificate. The Council will issue a Minimum Floor Level Certificate (which will be valid for 2 years from the date of issue) which specifies the design floor level for a building calculated as the highest of the following:
- i. flooding predicted to occur in a 0.5% AEP (1 in 200-year) rainfall event concurrent with a 5% AEP (1 in 20-year) tidal event, including 1m sea level rise plus 400mm freeboard, as predicted by the most up to date Council approved model and any relevant field information; or
 - ii. flooding predicted to occur in a 0.5% AEP (1 in 200-year) tidal event concurrent with a 5% AEP (1 in 20-year) rainfall event, including 1m sea level rise plus 400mm freeboard, as predicted by the most up to date Council approved model and any relevant field information; or
 - iii. 12.3 metres above Christchurch City Council Datum.

5.4.2.3 Exemptions for daylight recession planes in the Te Waihora/Lake Ellesmere and Wairewa/Lake Forsyth Flood Management Areas

- a. For Rule 5.4.2.1 P1, the applicable daylight recession plane in residential zones shall be determined as if the ground level at the relevant boundary was the minimum floor level specified in the Minimum Floor Level Certificate issued under Rule 5.4.2.2, or natural ground level, whichever is higher.
- b. For the purposes of a. above, the applicable daylight recession plane in residential zones is:
 - i. Rule 14.10.2.4 Daylight recession planes - Residential Small Settlement Zone

Advice note:

- 1. For filling or excavation (before 31 December 2018) for repair of land used for residential purposes and damaged by earthquakes, see Rule 5.4.4.

5.4.2.4 Restricted discretionary activities

- a. The activities listed below are restricted discretionary activities where the activity is located within the areas shown on the planning maps as Te Waihora/Lake Ellesmere or Wairewa/Lake Forsyth Flood Management Areas.
- b. Discretion to grant or decline consent and impose conditions is restricted to the matters of discretion as set out in the following table.

| Activity | The Council's discretion shall be limited to the following matters: |
|---|--|
| <p>RD1</p> <ul style="list-style-type: none"> a. New buildings or additions to buildings which are not permitted by the activity status rules and/or activity specific standards for P1 – P6 set out in Rule 5.4.2.1. b. Any application arising from this rule shall not be limited or publicly notified. | <ul style="list-style-type: none"> a. The Council's discretion is limited to the following matters: <ul style="list-style-type: none"> i. setting of minimum floor levels; and ii. mitigation of the effects of flooding. b. These restricted discretionary activities will be assessed against the following criteria: <ul style="list-style-type: none"> i. The frequency at which any proposed building or addition is predicted to be flooded and the extent of damage likely to occur in such an event. ii. Whether any mitigation measures are proposed, their effectiveness and environmental effects, and any benefits to the wider area associated with flood management. iii. Whether there are any positive effects from the reduction in floor levels in relation to neighbouring buildings or streetscape. |

| Activity | The Council's discretion shall be limited to the following matters: |
|--|--|
| <p>RD2</p> <p>Filling or excavation which is not a permitted activity under P7–P9 or P11 set out in Rule 5.4.2.1, or filling or excavation that does not meet the standards in P10 set out in Rule 5.4.2.1.</p> | <p>a. The Council’s discretion is limited to the following matters:</p> <ul style="list-style-type: none"> i. Timing, location, scale and nature of earthworks ii. Earthworks method iii. Mitigation of effects as they impact flooding and surface drainage <p>b. These restricted discretionary activities will be assessed against the following criteria:</p> <ul style="list-style-type: none"> i. Whether any effects arise from filling or excavation on land stability, flooding, water bodies, groundwater and natural ground levels on- and/or off-site, including: <ul style="list-style-type: none"> A. any likelihood of exacerbation of flooding, erosion, or siltation either upstream or downstream of the site. B. any likelihood of affecting the stability of adjoining land, including its susceptibility to subsidence or erosion. C. any adverse effects on other properties from disturbances to surface drainage patterns. D. effects on flood storage capacity and function in the immediate area, and any wider effects on the flood storage in the catchment including any compensatory storage proposed; and any effects on existing stormwater and flood protection works. E. any implications for groundwater and the water table, on- or off-site. F. any benefits associated with flood management. ii. Whether there are any benefits arising that enable the reasonable use of the site. iii. Whether any mitigation measures are proposed, their effectiveness and whether, and to what extent there is a transfer of adverse effects to other properties. iv. Whether any effects arise with regard to access, character, ecology and amenity, |

| Activity | | The Council's discretion shall be limited to the following matters: |
|----------|--|---|
| | | including: <ul style="list-style-type: none"> A. any adverse effects or benefits for public access, natural character or ecology of water bodies and wetland areas. B. any adverse effects on amenity values including dust nuisance, visual impact, noise, vibration and traffic associated with the filling or excavation. |

5.4.3 Activities and earthworks in the Waimakariri Flood Management Area

5.4.3.1 Permitted activities

- a. The activities listed below are permitted activities where the activity is located within the area shown on the planning maps as the Waimakariri **Flood Management Area** (other than in a Transport Zone, where the **Flood Management Area** rules do not apply), if they meet the activity specific standards set out in this table.
- b. Activities may also be restricted discretionary or non-complying as specified in [Rules 5.4.3.3](#) and [5.4.3.4](#).
- c. For **filling** or **excavation** (before 31 December 2018) for repair of land used for residential purposes and damaged by earthquakes, see [Rule 5.4.4](#).

| Activity | | Activity specific standards |
|-----------|--|---|
| P1 | Additions to existing buildings that do not increase the ground floor area of the building . | Nil |
| P2 | Additions other than garages provided for in P3 which do not increase the ground floor area of an existing building by more than 25m ² within any continuous period of 10 years. | |
| P3 | Garages and any other accessory buildings without floors. | a. The maximum area of any garage or other accessory building shall be no greater than 200m ² in rural zones and open space zones. |
| P4 | Decks, swimming pools and unenclosed buildings without floors. | Nil |

| Activity | | Activity specific standards |
|----------|---|--|
| P5 | Filling or excavation associated with the maintenance of flood protection and bank erosion protection works; and the maintenance of existing drains or ponds. | |
| P6 | Filling or excavation associated with utilities, or the replacement, repair or maintenance of existing utilities. | |
| P7 | Filling or excavation for post holes for fences and shade cloth structures and tunnel houses, planting holes, and excavation for approved wells. | |
| P8 | Filling or excavation for the maintenance of existing farm tracks and farm yards, or the establishment of new farm tracks and farm yards. | a. The finished ground level shall be maintained to within 200mm of the natural ground level. |
| P9 | <p>a. Application of fertiliser, lime or other plant growth enhancers such as topsoil, bark and trace elements.</p> <p>Advice Note:</p> <p>1. Consent may be required from Canterbury Regional Council, pursuant to section 15 of the Resource Management Act 1991, for the discharge of plant growth enhancers, including fertiliser, into or onto land.</p> | a. For top soil, the maximum volume of filling shall be 100m ³ per site within any continuous period of 10 years. |
| P10 | Filling or excavation for the purposes of establishing and maintaining access ways to a residential unit. | <p>a. Finished ground level shall be maintained to within 200mm of the natural ground level, and</p> <p>b. Access ways shall be constructed so as not to impede the flow of surface water.</p> |
| P11 | Filling for the purposes of landscaping around a residential unit in association with domestic gardening. | a. The maximum volume of filling shall be 10m ³ per site, in each case within any continuous period of 10 years. |
| P12 | Filling or excavation for the maintenance or upgrade of existing roads on legal road. | a. The works shall not impede the flow of surface water. |
| P13 | Filling that is not provided for under Rule 5.4.3.1 P5-P12. | a. Either the maximum depth of filling shall be 200mm; and |

| Activity | | Activity specific standards |
|----------|--|--|
| | | <ul style="list-style-type: none"> b. The maximum volume of filling shall be 100m³ per site; and c. The filling shall not impede the flow of surface water; or d. The filling has been approved as part of a building consent. |
| P14 | Excavation for farm purposes that is not provided for under Rule 5.4.3.1 P5-P12. | a. The excavated area is subsequently filled within the following year so that there is no net effect on flood storage. |
| P15 | New buildings unless specified in P1, P2, P3 or P4 in Rule 5.4.3.1 or RD1 or RD2 in Rule 5.4.3.3 or NC1 or NC2 in Rule 5.4.3.4 . | a. Minimum floor levels shall be the level specified in the Minimum Floor Level Certificate (refer to Rule 5.4.3.2). |
| P16 | Additions to existing buildings which increase the ground floor area of the building unless specified in P2, P3 or P4 in Rule 5.4.3.1 or RD1 or RD2 in Rule 5.4.3.3 or NC1 or NC2 in Rule 5.4.3.4 . | a. Minimum floor levels shall be the level specified in the Minimum Floor Level Certificate (refer to Rule 5.4.3.2). |
| P17 | Utilities | Nil |

5.4.3.2 Minimum floor level certificate

- a. For P15 and P16 in [Rule 5.4.3.1](#), new **buildings** or additions to existing **buildings** within the Waimakariri **Flood Management Area** shall have a floor level that is greater than or equal to that specified in a Minimum Floor Level Certificate. The **Council** will issue a Minimum Floor Level Certificate (which will be valid for 2 years from the date of issue) which specifies the design floor level for a **building** calculated as the highest of the following:
- i. flooding predicted to occur in a 0.5% **AEP** (1 in 200-year) rainfall event concurrent with a 5% **AEP** (1 in 20-year) tidal event, including 1m sea level rise plus 400mm **freeboard**, as predicted by the most up to date **Council** approved model and any relevant field information; or
 - ii. flooding predicted to occur in a 0.5% **AEP** (1 in 200-year) tidal event concurrent with a 5% **AEP** (1 in 20-year) rainfall event, including 1m sea level rise plus 400mm **freeboard**, as predicted by the most up to date **Council** approved model and any relevant field information; or
 - iii. 12.3 metres above Christchurch City Council Datum.

5.4.3.3 Restricted discretionary activities

- a. The activities listed below are restricted discretionary activities where the activity is located within the area shown on the planning maps as the Waimakariri **Flood Management Area**.

- b. Discretion to grant or decline consent and impose conditions is restricted to the matters of discretion as set out in the following table.

| Activity | | The Council's discretion shall be limited to the following matters: |
|------------|---|---|
| RD1 | New buildings not located within the 100 metre wide Primary Stopbank Setback as shown on the planning maps and which are not permitted by the activity status rules and/or activity specific standards for P1, P2, P3 or P4 set out in Rule 5.4.3.1. | a. The likely effects of proposed filling, excavation and/or building on the functioning of the Waimakariri River stopbank floodplain during and after flood events, including any likelihood of work undertaken exacerbating inundation, erosion, alluvion or avulsion whether upstream or downstream of the site. |
| RD2 | <p>a. New buildings or new accessory buildings or additions to any accessory building not located within the 50 metre wide Secondary Stopbank Setback as shown on the planning maps and not permitted by the activity status rules and/or activity specific standards for P1, P2, P3 or P4 set out in Rule 5.4.3.1.</p> <p>b. Any application arising from this rule shall not be limited or publicly notified.</p> | <p>b. The frequency at which the building or addition is predicted to be inundated by floodwaters and the extent of damage that is likely to occur in such an event.</p> <p>c. Whether the floor level of any new building/building addition is above the predicted 0.5% Annual Exceedance Probability (AEP) or 1 in 200 year flood event level with a stopbank breach plus an allowance for freeboard not exceeding 400mm.</p> <p>d. Whether the integrity and/or function of either the primary or secondary stopbanks will be adversely affected by the method to achieve the floor level set out in c.</p> <p>e. Where relevant, any adverse effects likely on land as a result of tidal influences during flood periods including the potential for exacerbation of those effects with potential sea level rise.</p> |
| RD3 | Filling or excavation within 50 metres of the Secondary Stopbank as shown on the planning maps unless permitted by Rule 5.4.3.1 P10. | <p>f. The way in which any building is sited and constructed and its intended use.</p> <p>g. Any adverse effects on access for maintenance of flood protection works.</p> <p>h. The effectiveness and environmental impact of any measures that may be proposed to mitigate the effects of filling, excavation or building.</p> <p>i. The extent to which other properties will be adversely affected as a result of disturbances to surface drainage patterns.</p> <p>j. Any benefits associated with flood management, including the provision of public access, or the enhancement of the natural qualities, amenity values or ecology of water bodies and wetlands.</p> <p>k. The extent to which development could result in surface water ponding in the event of flooding, and hence and increased risk of birdstrike.</p> |

| Activity | The Council's discretion shall be limited to the following matters: |
|---|---|
| | <p>I. Any actual or potential effects on the structural integrity of either the primary or secondary stopbanks including those resulting from scour and backwash from increased water in excavated areas during a flood.</p> |
| <p>RD4</p> <p>a. New buildings or additions to buildings which are not permitted by the activity status rules and/or activity specific standards for P1 – P4 or P15 - P17 set out in Rule 5.4.3.1.</p> <p>b. Any application arising from this rule shall not be limited or publicly notified.</p> | <p>a. The Council's discretion is limited to the following matters:</p> <ul style="list-style-type: none"> i. setting of minimum floor levels ii. mitigation of the effects of flooding <p>b. These restricted discretionary activities will be assessed against the following criteria:</p> <ul style="list-style-type: none"> i. The frequency at which any proposed building or addition is predicted to be flooded and the extent of damage likely to occur in such an event. ii. Whether any mitigation measures are proposed, their effectiveness and environmental effects, and any benefits to the wider area associated with flood management. iii. Whether there are any positive effects from the reduction in floor levels in relation to neighbouring buildings or streetscape. |
| <p>RD5</p> <p>Filling or excavation which is not a permitted activity under P5-P7 set out in Rule 5.4.3.1, or filling or excavation that does not meet the standards in P8-P14 set out in Rule 5.4.3.1.</p> | <p>a. The Council's discretion is limited to the following matters:</p> <ul style="list-style-type: none"> i. timing, location, scale and nature of earthworks; ii. earthworks method; and iii. mitigation of effects as they impact flooding and surface drainage. <p>b. These restricted discretionary activities will be assessed against the following criteria:</p> <ul style="list-style-type: none"> i. Whether any effects arise from filling or excavation on land stability, flooding, waterways, groundwater and natural ground levels on- and/or off-site, including: <ul style="list-style-type: none"> A. any likelihood of exacerbation of flooding, erosion, or siltation either upstream or downstream of the site; B. any likelihood of affecting the stability of adjoining land, including its susceptibility to |

| Activity | The Council's discretion shall be limited to the following matters: |
|----------|--|
| | <p>subsidence or erosion;</p> <p>C. any adverse effects on other properties from disturbances to surface drainage patterns;</p> <p>D. effects on flood storage capacity and function in the immediate area, and any wider effects on the flood storage in the catchment including any compensatory storage proposed; and any effects on existing stormwater and flood protection works;</p> <p>E. any implications for groundwater and the water table, on- or off-site; and</p> <p>F. any benefits associated with flood management.</p> <p>ii. Whether there are any benefits arising that enable the reasonable use of the site.</p> <p>iii. Whether any mitigation measures are proposed, their effectiveness and whether, and to what extent there is a transfer of adverse effects to other properties.</p> <p>iv. Whether any effects arise with regard to access, character, ecology and amenity, including:</p> <p>A. any adverse effects or benefits for public access, natural character or ecology of water bodies and wetlands; and</p> <p>B. any adverse effects on amenity values including dust nuisance, visual impact, noise, vibration and traffic associated with the filling or excavation.</p> |

5.4.3.4 Non-complying activities

- a. The activities listed below are non-complying activities where the activity is located within the area shown on the planning maps as Waimakariri **Flood Management Area**.

| Activity | |
|----------|---|
| NC1 | New buildings or accessory buildings or additions to existing buildings or accessory buildings located within the 100 metre wide Primary Stopbank Setback shown on the planning maps. |

| | |
|------------|---|
| NC2 | New buildings or new accessory buildings or additions to any existing building or existing accessory building located within the 50 metre wide Secondary Stopbank Setback shown on the planning maps. |
| NC3 | Filling or excavation within the 100 metre wide Primary Stopbank Setback shown on the planning maps. |

5.4.3.5 Exemptions to Rules 5.4.3.1, 5.4.3.3 and 5.4.3.4

- a. The following are exemptions from [Rules 5.4.3.1, 5.4.3.3 and 5.4.3.4](#):
 - i. activities within the Clearwater Golf Resort, because [Rule 13.9.4.3.2](#) Flood Protection – Ground levels at Clearwater Golf Resort, within the [Specific Purpose \(Golf Resort\) Zone](#), makes provision for **ground levels** and **building** floor levels; and
 - ii. activities within the Rural Quarry Zone (McLeans Island area) provided for in [Rules 17.8.1, 17.8.2 and 17.8.3](#), provided that no **excavation** shall cut below a surface with a gradient of 3 (horizontal) to 1 (vertical) measure from a point commencing 10 metres from the toe of any existing or consented stopbank (see [Appendix 5.8.1](#) Gradient for excavation near stopbank for [Rule 5.4.3.5.a.ii.](#)).

5.4.4 Repair of land used for residential purposes damaged by earthquakes within Flood Management Areas in rural and residential zones

5.4.4.1 Permitted activities

- a. The activities listed below are permitted activities in the area shown on the planning maps as **Flood Management Area** (including the Te Waihora/Lake Ellesmere and Wairewa/Lake Forsyth **Flood Management Areas**) provided the activity:
 - i. meets all of the activity status rules and activity specific standards in [Rule 5.4.4.1](#); and
 - ii. occurs in a rural or residential zone (except for the Residential Suburban Zone on the corner of Hendersons and Sparks Road); and
 - iii. is commenced prior to the expiry date of this rule on 31 December 2018.
- b. Activities may also be restricted discretionary as specified in [Rule 5.4.4.2](#).
- c. Exemptions from the permitted activity standards are listed in [Rule 5.4.4.3](#).

Table 5.4.4.1a

| Activity | | Activity specific standards |
|----------|---|--|
| P1 | Any filling or excavation activity undertaken to repair land used for residential purposes and damaged by the earthquakes, where any site or part of a site is located within a Flood Management Area unless specified by P2 in Rule 5.4.4.1. | <p>a. Any filling, excavation or disturbance of soil shall not exceed the standards in Tables 5.4.4.1b or 5.4.4.1c (whichever applies) under Rule 5.4.4.1.</p> <p>b. There shall be no filling, excavation or disturbance of soil within 5 metres from any network waterway identified on the planning maps and in Appendix 6.11.5.4;</p> <p>Advice Note:</p> <ol style="list-style-type: none"> 1. The Canterbury Regional Council manages earthworks within 10 metres of other rivers and lakes and 20 metres of the coast and land use consent may be required from that Council. <p>c. All filling, excavation or disturbance of soil:</p> <ol style="list-style-type: none"> i. is not within the <u>dripline-tree protection zone radius</u> of a significant tree listed in Appendix 9.4.7.1; or ii. is not within any Site of Ecological Significance listed in Schedule A of Appendix 9.1.6.1; or iii. is not at or within 5 metres of: <ol style="list-style-type: none"> A. any heritage item listed in Appendix 9.3.7.2, where the heritage item is on the same site, or B. a site of Ngāi Tahu Cultural Significance identified in Schedule 9.5.6. <p>d. Erosion and sediment control measures are implemented and maintained in accordance with Canterbury Regional Council's Erosion and Sediment Control Guidelines for Small Sites to minimise erosion and the discharge of sediment laden water to surface water.</p> <p>e. All filling, excavation or disturbance of soil greater than 0.3m in depth shall be in accordance with New Zealand Standard NZS 4431:1989 Code of Practice for Earth Fill for Residential Development. Certification is not required except as specified at activity specific standards k. and l. in Table 5.4.4.1a.</p> <p>f. All land repair works are to be managed in accordance with New Zealand Standard NZS 6803:1999 Acoustics – Construction Noise and DIN 4150 1999-02 Structural Vibration.</p> |
| P2 | Any filling or excavation activity undertaken to repair land used for residential purposes and damaged by the earthquakes involving soil mixing, aggregate piers, or grout, where any site or part of a site is located within a Flood Management Area. | |

| Activity | Activity specific standards |
|----------|---|
| | <p>g. Land repair works involving mixing or insertion of grout shall not involve:</p> <ul style="list-style-type: none"> i. mixtures with a flow time greater than 30 seconds when tested in accordance with the grout flow test at NZS 3112: Part 1:1986 (Test 3) or a flowable concrete/ grout including cement and inert additives which exceed a diameter of 300mm when tested in accordance with the inverted cone test at NZS 3112: Part 1:1986 (Test 11) except for in-situ mixing; or ii. injection of grout into the ground at a pressure of no more than 40 bar when measured at the pump. <p>h. Where grout is deposited into land:</p> <ul style="list-style-type: none"> i. using in-situ mixing, the grout shall be mixed evenly through the augured soil column and the percentage of grout within the augured soil column shall not exceed 20%; or ii. where grout is deposited into land using methods other than in situ mixing, the percentage of cement in the dry grout mixture shall not exceed 30%. <p>i. Land repair materials shall consist only of:</p> <ul style="list-style-type: none"> i. soil, gravel, rocks, concrete, sand, silt (such as exists on site already), or clean, inert material; or ii. cement and/or bentonite grout including inert additives; or iii. timber foundation piles; and shall not iv. include or disturb putrescible, pollutant, inflammable or hazardous components; and/or v. include filling which comprises more than 5% vegetation of any load by volume. <p>j. Land repair works, other than dust and sediment control measures, shall not be undertaken outside of the hours of 7.30 to 18:00 Monday to Friday and 8.00 to 17:00 on Saturday. No works shall occur on public holidays.</p> <p>k. Where the land repair and earthworks are designed, supervised or certified by a Chartered Professional</p> |

| Activity | Activity specific standards |
|----------|--|
| | <p>Engineer with experience in geotechnical engineering, or Professional Engineering Geologist (IPENZ Registered), at least 3 working days prior to commencing any work on the site, including stockpiling and preparatory works:</p> <ul style="list-style-type: none"> i. written notice shall be provided to the Council informing it of the location of the land repair and the name and contact details of the supervising engineer; and ii. written notice shall be provided to any occupier of a residential unit adjoining the land repair site to inform them that the works will be taking place, the expected duration of the works and provide contact details of the site supervisor; and iii. a sign shall be erected at the front of the property including the name and contact details of the site supervisor. <p>l. Where the land repair and earthworks are designed, supervised or certified by a Chartered Professional Engineer with experience in geotechnical engineering, or Professional Engineering Geologist (IPENZ Registered), a statement of professional opinion completed by a Chartered Professional Engineer with experience in geotechnical engineering must be provided to the Council within 3 months of the land repair being completed to the effect that the works will meet all applicable standards and requirements and be suitable for its intended purpose. This shall include as-built plans of the works.</p> |

Standards where the land repair and earthworks are not designed, supervised or certified by a Chartered Professional Engineer with experience in geotechnical engineering. All activity specific standards in Rule 5.4.4.1 must also be met:

Table 5.4.4.1b

| Column A Max. Volume (Cumulative) | Column B Max. depth (m) | Column C Max. depth of filling (m) [below ground level] | Column D Filling (m) [above ground level] | Column E Setback from boundary |
|-----------------------------------|-------------------------|---|---|--------------------------------|
| | | | | |

| | | | | | |
|----|---|-----|-----|--|--|
| P1 | 50m ³ /site | 0.6 | 0.6 | 0.3 max. depth; and 10 m ³ /site max. volume | Setback from boundary must be equivalent to or greater than the depth of filling or excavation. |
| P2 | Not more than 10m ³ of grout/site | 1.0 | 1.0 | 0.3m max. depth | |

Standards where the land repair and earthworks are designed, supervised or certified by a Chartered Professional Engineer with experience in geotechnical engineering. All activity specific standards at [Rule 5.4.4.1](#) must also be met:

Table 5.4.4.1c

| | Column A Max. Volume (Cumulative) | Column B Max. depth (m) | Column C Max. depth of filling (m) [below ground level] | Column D Filling (m) [above ground level] | Column E Setback from boundary |
|----|--|-------------------------|---|---|--------------------------------|
| P1 | Nil | Nil | Nil | 0.3 max. depth and 10m ³ /site max. volume | Nil |
| P2 | Not more than 80m ³ of grout/site | Nil | Nil | Nil | 1m |

5.4.4.2 Restricted discretionary activities

- The activities listed below are restricted discretionary activities in areas shown on the planning maps as a [Flood Management Area](#) (including the Te Waihora/Lake Ellesmere and Wairewa/Lake Forsyth [Flood Management Areas](#)).
- Exemptions from the restricted discretionary activities are listed in [Rule 5.4.4.3](#).
- Discretion to grant or decline consent and impose conditions is restricted to the matters of discretion set out in the following table.

Table 5.4.4.2a

| Activity | The Council's discretion shall be limited to the following matters: |
|----------|---|
| RD1 | a. Any filling or excavation undertaken to repair land used for residential purposes damaged by earthquakes that does not meet one or more of the |

| | | |
|--|--|---|
| | <p>activity specific standards for P1 or P2 set out in Rule 5.4.4.1.</p> <p>b. Any application arising from this rule shall not be limited or publicly notified.</p> | <p>i. The matters for discretion reserved for RD2 set out in Rule 5.4.1.5.</p> <p>b. These restricted discretionary activities will be assessed against the following criteria:</p> <p>i. The assessment criteria set out for RD2 in Rule 5.4.1.5</p> |
|--|--|---|

5.4.4.3 Exemptions to Rules 5.4.4.1 and 5.4.4.2

- a. Works involving the establishment, repair or replacement of any permitted [utilities](#) or the maintenance of existing drains or ponds by a [utility](#) operator.
- b. Works permitted by or exempted from a building consent (including work forming part of foundations for a [building](#)) do not require resource consent under [Rules 5.4.4.1](#) or [5.4.4.2](#) where:
 - i. they meet the standards in column D of [Tables 5.4.4.1b](#) and [5.4.4.1c](#) in [Rule 5.4.4.1](#) controlling [filling](#) above [ground level](#) in a [Flood Management Area](#); or
 - ii. they are designed, supervised and certified by a Chartered Professional Engineer with experience in geotechnical engineering, including where they exceed the criteria at columns A, B, C or E of [Tables 5.4.4.1b](#) and [5.4.4.1c](#) in [Rule 5.4.4.1](#); or
 - iii. they meet activity specific standards b. and c. of P1 and P2 in [Rule 5.4.4.1](#).
- c. Testing or investigation preceding land repairs or remediation as a result of land damaged by earthquakes is permitted provided it meets the activity specific standards for P1 and P2 in [Rule 5.4.4.1](#).
- d. [Filling](#) or [excavation](#) associated with the maintenance of flood protection works.
- e. Post holes for the erection of fences or for permitted or approved [buildings](#) and [signs](#).
- f. Planting holes for trees and plants.

Clarification of rule

- a. For the purposes of this rule, the building consent platform extends to a maximum of 2.5m from the exterior wall of an enclosed structure or support structures of open structures.
- b. Measurement of volume shall include only areas which have been disturbed, including by [filling](#), [excavation](#), [soil mixing](#) or injection of materials. Soil above or between these areas which remains undisturbed does not form part of the allowable volume, including where those undisturbed soils are compacted or otherwise altered by the works.
- c. For the purposes of this rule, when land repairs are being undertaken over a number of properties at the same time and by the same contractor, the [site boundary](#) for the purpose of the setback is the outer perimeter of the properties which are subject to the land repair works.

Advice notes:

1. For the avoidance of doubt, where the **earthworks** are associated with the repair of land damaged by earthquakes and used for residential purposes in the zones listed in [Rule 5.4.4.1](#), [Rule 5.4.4](#) substitutes for all other **earthworks** rules in this [District Plan](#).
2. For the purposes of this rule, “repair of land used for residential purposes damaged by earthquakes” does not include repair of land on the Port Hills or [Banks Peninsula](#).
3. Those intending to do land repair **earthworks** are responsible for complying with the National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health (2011). Such persons should contact the [Council](#) or Canterbury Regional Council to find out whether their land has been used for hazardous activities which might trigger the need for compliance with the NES.
4. Any vegetation removed during land repairs should not be replaced with pest species as listed in Appendix 1 to the [Infrastructure Design Standard \(Part 10\)](#). The [Council](#) prefers that replanting occurs in accordance with its Streamside Planting Guideline to ensure bank stability is not compromised.
5. Information regarding the disposal of excavated material and the Standards and Guidelines referenced in the rule is available from the [Council](#).
6. [Archaeological sites](#) are subject to a separate consent process under the [Heritage New Zealand Pouhere Taonga Act 2014](#). The [Heritage New Zealand Pouhere Taonga 2014](#) makes it unlawful for any person to destroy, damage or modify the whole or any part of an [archaeological site](#) without the prior authority of the Heritage New Zealand. This is the case regardless of whether the land on which site is located is designated, or the activity is permitted under the [District Plan](#) or Regional Plan or a resource or building consent has been granted. The [Heritage New Zealand Pouhere Taonga Act 2014](#) also provides for penalties for unauthorised destruction, damage or modification.

5.4.5 Activities and earthworks in the Flood Ponding Management Area

5.4.5.1 Permitted activities

- a. The activities listed below are permitted activities where the activity is located in the area shown on the planning maps as Flood Ponding Management Area, if they meet the activity standards set out in this table.
- b. Activities may also be restricted discretionary or non-complying as specified in [Rules 5.4.5.2](#) and [5.4.5.3](#).

Advice Note:

1. Consent may be required from Canterbury Regional Council for **earthworks** in a Flood Ponding Management Area.

| Activity | | Activity specific standards |
|----------|--|-----------------------------|
| P1 | Filling or excavation associated with the maintenance of flood protection and bank erosion protection works; and the | Nil |

| Activity | | Activity specific standards |
|----------|--|--|
| | maintenance of existing drains or ponds. | |
| P2 | Filling or excavation associated with utilities, or the replacement, repair or maintenance of existing utilities. | |
| P3 | Filling or excavation for post holes for fences, planting holes, and excavation for approved wells. | |
| P4 | Filling or excavation for the maintenance of existing farm tracks and farm yards, or the establishment of new farm tracks and farm yards. | a. Finished ground level shall be maintained to within 200mm of the natural ground level. |
| P5 | Application of fertiliser, lime or other plant growth enhancers such as top soil, bark and trace elements. Advice Note: 1. Consent may be required from Canterbury Regional Council, pursuant to section 15 of the Act for the discharge of plant growth enhancers, including fertiliser, into or onto land. | a. Finished ground level shall be maintained to within 200mm of the natural ground level; and b. Filling is limited to a total volume of not more than 100m ³ per ha.; and c. For top soil, the maximum volume of filling shall be 100m ³ per site within any continuous period of 10 years. |
| P6 | Filling or excavation for the purposes of establishing and maintaining access ways to a residential unit. | a. Finished ground level shall be maintained to within 200mm of the natural ground level, and b. Access ways shall be constructed so as not to impede the flow of surface water. |
| P7 | Filling or excavation for the purposes of landscaping around a residential unit in association with domestic gardening. | a. The maximum volume of filling shall be 20m ³ per site per year and a maximum volume of filling of 100m ³ per site within any continuous period of 10 years. |
| P8 | Filling and excavation for the maintenance or upgrade of existing roads on legal road. | a. The works shall not impede the flow of surface water. |
| P9 | Filling that is not provided for under Rule 5.4.5.1 P 1-8 or P12. | a. Either the maximum depth of filling shall be 200mm, and b. The maximum volume of filling shall be 100m ³ per site within any continuous period of 10 years, and c. Finished ground level shall not exceed the surrounding land; or |

| Activity | | Activity specific standards |
|------------|---|---|
| | | d. The filling has consent approval. |
| P10 | Excavation for farm purposes that is not provided for under Rule 5.4.5.1 P1-P4, P6-P8 or P12. | a. The excavated area is subsequently filled within the following year so that there is no net effect on flood storage. |
| P11 | Utilities | a. The ground floor area of the utility does not exceed 10m ² (except where the utility is a lattice tower for electricity transmission or electricity distribution purposes). |
| P12 | Excavation and filling within the area identified in Appendix 8.10.76d – Cashmere/Worsleys Development Plan. | <p>a. The excavation and filling will not result in the reduction in the existing potential storage volume of water that is able to be retained within the development plan area, prior to any residential zone development, in a 0.2% AEP (1 in 500 year) event up to the existing Worsleys Road minimum centreline level of 18.89m (Christchurch City Council Datum). The design shall also accommodate additional storage for any additional stormwater that could be discharged from the development of the residential zones and roads in such a 0.2% AEP event.</p> <p>b. All roads are filled so that the crown of the road is no lower than RL 18.7m (Christchurch City Council Datum), except for the realigned Worsleys Road required in the Development Plan. The crown of Worsleys Road shall be no lower than RL 18.89m (Christchurch City Council Datum).</p> <p>c. The side slopes of all areas filled or excavated in accordance with a. and b. above shall not exceed an angle of 1 in 5.</p> |
| P13 | The replacement or repair of buildings . | <p>a. The ground floor area of the replaced or repaired building is not greater than the ground floor area of the existing building.</p> <p>b. The replaced or repaired building is located in a position on the site that is no lower than the existing building.</p> |
| P14 | Residential unit . | <p>a. The residential unit is either:</p> <ol style="list-style-type: none"> i. on piles; or ii. has a maximum of 200m² ground floor |

| Activity | | Activity specific standards |
|----------|--|---|
| | | <p>area.</p> <p>b. There is a maximum of one residential unit per site.</p> |
| P15 | Farm buildings without floors. | Nil |
| P16 | Accessory buildings without floors. | |
| P17 | Farm buildings, or accessory buildings, with floors. | <p>a. The building:</p> <p>i. is on piles; or</p> <p>ii. has a maximum ground floor area of 200m².</p> <p>b. There is a maximum of one accessory building or farm building per site up to 20 hectares and a maximum of one accessory building or farm building per additional 20 hectares of site.</p> |
| P18 | Below-ground swimming pools. | Nil |
| P19 | Above-ground swimming pools. | <p>a. The swimming pool is not larger than 200m².</p> <p>b. There is no more than one swimming pool per 20 hectares of site.</p> |

5.4.5.2 Restricted discretionary activities

- a. The activities listed below are restricted discretionary activities where the activity is located in the area shown on the planning maps as Flood Ponding Management Area.
- b. Discretion to grant or decline consent and impose conditions is restricted to the matters of discretion as set out in the following table.

| Activity | | The Council's discretion shall be limited to the following matters: |
|----------|--|--|
| RD1 | <p>Filling and excavation within Henderson Basin for the creation and enhancement of:</p> <p>a. Water bodies, wetlands or public access ways associated with the recreation values of the water bodies or wetlands within the Basin; and</p> <p>b. stormwater treatment systems including water quality treatment,</p> | <p>a. The likely effects of proposed filling, or excavation or subdivision on the functioning of the ponding area or floodplain during flood periods including any compensatory storage proposed.</p> <p>b. Any potential impacts of excavation or filling or subdivision on the rate, level or volume of flood discharges to the Avon, Heathcote and Styx Rivers and their tributary streams and margins.</p> |

| | | |
|------------|--|--|
| | attenuation and compensatory storage. | <p>c. Any adverse effects on the natural qualities, amenity values or ecology of water bodies and wetland areas.</p> <p>d. In respect to the Lower Styx Ponding Area, any adverse effects likely on land as a result of tidal influences during flood periods including the potential for exacerbation of those effects with potential sea level rise.</p> <p>e. Any adverse effects on access for maintenance or flood protection works.</p> |
| RD2 | Utilities that do not meet the activity specific standard in P11 of Rule 5.4.5.1 . | f. The effectiveness and environmental impact of any measures that may be proposed to mitigate the effects of filling or excavation . |
| RD3 | Subdivision within the area shown at Appendix 8.10.7d – Cashmere/Worsleys Development Plan Area for the following purposes: <ul style="list-style-type: none"> a. Roads; b. ‘Land to Vest’ areas as shown on Appendix 8.10.7d This allotment will be transferred to the Council. | g. Any beneficial effects, including the provision of public access, or the enhancement of the natural qualities, amenity values or ecology of water bodies and wetland areas. |

5.4.5.3 Non-complying activities

- a. The activities listed below are non-complying activities where the activity is located in the area shown on the planning maps as Flood Ponding Management Area.

| Activity | |
|------------|---|
| NC1 | Any filling or excavation activity listed in Rule 5.4.5.1 that does not meet one or more of the activity specific standards, or any filling or excavation activity not listed in Rules 5.4.5.1 or 5.4.5.2 . |
| NC2 | Any subdivision which creates an additional vacant allotment or allotments from a site within a Flood Ponding Management Area shown on the planning maps except where: <ul style="list-style-type: none"> a. the additional allotment or allotments is entirely outside the Flood Ponding Management Area; or b. if the additional allotment or allotments is partially within the Flood Ponding Management Area, the additional allotment or allotments contains a net site area capable of containing a complying residential unit entirely outside of the Flood Ponding Management Area. |
| NC3 | New buildings within a Flood Ponding Management Area shown on the planning maps, unless specified in P11, P13-17 and P19 in Rule 5.4.5.1 or RD2 in Rule 5.4.5.2 . |
| NC4 | The replacement or repair of buildings that do not meet one or more of the activity specific standards in Rule 5.4.5.1 . |

5.4.6 Activities in the High Flood Hazard Management Area

5.4.6.1 Permitted activities

- a. The activities listed below are permitted activities where the activity is located in the area shown on the planning maps as [High Flood Hazard Management Area](#), if they meet the activity specific standards set out in this table.
- b. Activities may also be restricted discretionary or non-complying as specified in [Rules 5.4.6.2](#) and [5.4.6.3](#).

| Activity | | Activity specific standards |
|----------|---|--|
| P1 | The replacement or repair of buildings . | <p>a. The ground floor area of the replaced or repaired building is not greater than the ground floor area of the existing building.</p> <p>b. The replaced or repaired building is located in a position on the site that is no lower than the existing building.</p> |
| P2 | The replacement and repair of residential units existing as at 4 September 2010 on sites in the Residential Unit Overlay identified in Appendix 5.8.2 . | <p>a. The ground floor area of the replaced or repaired residential unit is not greater than the ground floor area of the residential unit that existed as at 4 September 2010.</p> <p>b. The replaced or repaired residential unit is located in the same or similar position on the site as the residential unit that existed as at 4 September 2010.</p> |
| P3 | Utilities . | a. The ground floor area of the utility does not exceed 10m ² (except where the utility is a lattice tower for electricity transmission or electricity distribution purposes). |
| P4 | Repair, rebuild and maintenance of critical infrastructure and associated ancillary structures. | Nil |
| P5 | Farm buildings without floors in rural zones. | |
| P6 | Accessory buildings without floors in rural zones. | |
| P7 | Farm buildings , or accessory buildings , with floors in rural zones. | |
| | | <p>a. The building is:</p> <p>i. on piles; or</p> <p>ii. has a maximum ground floor area of 200m².</p> |

| Activity | | Activity specific standards |
|------------|---|---|
| | | b. There is a maximum of one accessory building or farm building per site up to 20 hectares and a maximum of one accessory building or farm building per additional 20 hectares of site . |
| P8 | Below-ground swimming pools in rural zones. | Nil. |
| P9 | Above-ground swimming pools in rural zones. | a. The swimming pool is not larger than 200m ² . b. There is no more than one swimming pool per 20 hectares of site . |
| P10 | Public amenities within the Specific Purpose (Ōtākaro Avon River Corridor) Zone, excluding visitor information centres, public toilets and changing rooms. | Nil. |

5.4.6.2 Restricted discretionary activities

- a. The activities listed below are restricted discretionary activities where the activity is located in the area shown on the planning maps as **High Flood Hazard Management Area**.
- b. Discretion to grant or decline consent and impose conditions is restricted to the matters of discretion as set out in the following table.

| Activity | | The Council's discretion shall be limited to the following matters: |
|------------|---|---|
| RD1 | Subdivision within the area shown at Appendix 8.10.76d – Cashmere/Worsleys Development Plan Area for the following purposes: <ol style="list-style-type: none"> a. Roads; b. 'Land to Vest' areas as shown on Appendix 8.10.76d. This allotment will be transferred to the Council. | <ol style="list-style-type: none"> a. The likely effects of the proposed subdivision on the High Flood Hazard Management Area. b. Any potential impacts of the subdivision on the rate, level or volume of flood within the High Flood Hazard Management Area. c. Whether the subdivision will increase the potential risk to people's safety, well-being and property. |
| RD2 | Residential units within the Residential Unit Overlay identified in Appendix 5.8.2 , including: <ol style="list-style-type: none"> a. any new residential unit; or b. any replacement residential unit; or c. any addition to an existing residential unit. | <ol style="list-style-type: none"> a. The Council's discretion is limited to the following matters: <ol style="list-style-type: none"> i. Setting of minimum floor levels. ii. Design of buildings. iii. Mitigation of the effects of flooding. iv. Level of intensification. |

| Activity | The Council's discretion shall be limited to the following matters: |
|--|---|
| <p>other than as provided for by Rule 5.4.6.1 P1 or P2.</p> <p>Any application arising from this rule shall not be limited or publicly notified.</p> | <ul style="list-style-type: none"> v. Safe ingress and egress. vi. Reducing the risk to people's safety, wellbeing and property resulting from the development. <p>b. These restricted discretionary activities will be assessed against the following criteria:</p> <ul style="list-style-type: none"> i. The type of foundation and structure proposed for the residential unit and the likely impact of the building with regard to flood storage and flow of water. ii. The frequency at which any proposed building or addition is predicted to be flooded, the extent of damage likely to occur in such an event and the potential for injury or risk to people's safety, well-being and property from such an event. iii. The ability to maintain safe access to and from the residential unit from the transport network with respect to design of the access and engineering solutions. |
| <p>RD3 Any new building within the Specific Purpose (Ōtākaro Avon River Corridor) Zone, other than as provided for in Rule 5.4.6.1 P1, P3, P4 and P</p> | <ul style="list-style-type: none"> a. Whether, based on an evaluation prepared by suitably qualified and experienced professionals: <ul style="list-style-type: none"> i. The filling undertaken is adequate such that the building site no longer falls within the criteria contained in the definition of High Flood Hazard Management Area; ii. The proposal will avoid contributing to potential cumulative transfer of natural hazard risk to other people and property; and iii. functional access and egress will be maintained within and beyond the site during a hazard event; or b. Whether, based on an evaluation prepared by suitably qualified and experienced professionals: <ul style="list-style-type: none"> i. the structure proposed will maintain its sanitation, safety and functionality during an inundation hazard event or when there is a temporary loss of functionality it can be reinstated within a time appropriate to its use; ii. the proposal will avoid contributing to |

| Activity | The Council's discretion shall be limited to the following matters: |
|----------|---|
| | <p>potential cumulative transfer of natural hazard risk to other people and property;</p> <p>iii. functional access and egress will be maintained within and beyond the site during a hazard event;</p> <p>iv. back-up servicing that does not rely on the Council's reticulated network is provided and is able to be used in the event the primary servicing fails;</p> <p>v. the proposal will not result in an unacceptable risk to life or property, recognising that, over time, predictions around sea level rise will result in changes to risk and considering the ability for the relocation or removal of structures and any consent monitoring proposed;</p> <p>vi. the proposal will not exacerbate the effects of the natural hazard or generate the need for new mitigation works to protect the proposed structures; and</p> <p>vii. an adequate management plan is provided that includes where appropriate:</p> <ul style="list-style-type: none"> A. information on the hazards advice system being used to monitor anticipated hazards; B. evidence of alternative accommodation options available; and C. instructions on using the proposed back-up servicing. |

5.4.6.3 Non-complying activities

- a. The activities listed below are non-complying activities where the activity is located within the area shown on the planning maps as **High Flood Hazard Management Area**.

| Activity | |
|----------|---|
| NC1 | Any subdivision which creates an additional vacant allotment or allotments from a site within a High Flood Hazard Management Area shown on the planning maps except where: |

| | |
|------------|---|
| | <p>a. the additional allotment or allotments is entirely within the Specific Purpose (Ōtākaro Avon River Corridor) Zone and is not intended for a habitable building or is intended for a building that has a resource consent under Rule 5.4.6.2 RD3; or</p> <p>b. the additional allotment or allotments is entirely outside the High Flood Hazard Management Area; or</p> <p>c. if the additional allotment or allotments is partially within the High Flood Hazard Management Area, the additional allotment or allotments contains a net site area capable of containing a complying residential unit entirely outside of the High Flood Hazard Management Area.</p> |
| NC2 | New buildings within a High Flood Hazard Management Area shown on the planning maps, unless specified in P1 – P7 or P9, or P10 in Rule 5.4.6.1, or RD2 – RD3 in Rule 5.4.6.2. |
| NC3 | The replacement or repair of buildings that do not meet one or more of the activity specific standards in Rule 5.4.6.1, unless specified in RD2 in Rule 5.4.6.2. |
| NC4 | Change in use of a site that increases the occupancy of the site, unless specified in P1 or P2 in Rule 5.4.6.1, or RD2, or RD3 in Rule 5.4.6.2. |

5.4A Rules – ~~Qualifying Matter~~ Coastal Hazard ~~Medium Risk and High Risk~~ Management Areas and ~~the Qualifying Matter~~ Tsunami Risk Management Area

5.4A.1 Permitted activities

- a. ~~All activities in the Qualifying Matter Coastal Hazard Management Areas and Qualifying Matter Tsunami Risk Management Area are a permitted activity unless specified in Rule 5.4A.5 or as otherwise specified elsewhere in the District Plan.~~

Commented [S07]: Reference to these being a “qualifying matter” is possibly unnecessary.

5.4A.2 Controlled activities

- a. ~~There are no controlled activities.~~

| | <u>Activity</u> | <u>The matters over which Council reserves its control</u> |
|---------------|---|---|
| C1 | a. The construction of replacement buildings located in the area shown on the planning maps as Qualifying Matter Coastal Hazard Medium Risk Management Area. | a. The number and size of buildings and structures, siting of buildings and structures, design, and building materials, with regard to the level of mitigation required for the potential adverse effects from coastal hazards; b. Setting of minimum floor levels to mitigate the effects of inundation; c. Adequate provision for the timely relocation or removal of buildings and structures, or cessation of activity, and remediation of the site, and mechanisms to ensure this occurs, if required due to the level of risk. |
| C2 | a. Earthworks associated with Rule 5.4A.2 C1. | a. The timing, scale, duration, and location of earthworks, and method of earthworks to mitigate the effects of coastal hazards and avoid the transfer of risk to another site. |
| C3 | a. Stormwater management area associated with Rule 5.4A.2 C1. | a. The degree to which the proposed stormwater management for the site; i. takes into account effects of sea level rise; ii. avoids or mitigates effects on water quality; iii. avoids or mitigates erosion; iv. avoids or mitigates increased run off to areas outside the site to the greatest extent reasonable; and v. avoids the transfer of risk to another site. |

5.4A.3 Restricted discretionary activities

a. There are no restricted discretionary activities.

| | <u>Activity</u> | <u>The Council's discretion shall be restricted to the following matters:</u> |
|------------|--|---|
| <u>RD1</u> | <p><u>a. The construction of replacement buildings, new accessory buildings, and/or extensions/additions to existing buildings that increase the ground floor footprint of the building located in the area shown on the planning maps as Qualifying Matter Coastal Hazard High Risk Management Area.</u></p> <p><u>b. The construction of accessory buildings and/or extensions/additions to existing buildings located in the area shown on the planning maps as Qualifying Matter Coastal Hazard Medium Risk Management Area.</u></p> | <p><u>a. Whether the development or use of the site can adequately mitigate the adverse effects of coastal hazards on people, property, infrastructure and the environment.</u></p> <p><u>b. Whether the number and size of buildings and structures, siting of buildings and structures, design, and building materials are appropriate for the site considering the risk of coastal hazards, and provide appropriate mitigation of the potential adverse effects from coastal hazards.</u></p> <p><u>c. Whether the proposed floor levels will mitigate the effects of inundation including when sea level rise is taken into account.</u></p> <p><u>d. Whether there is adequate provision for the timely relocation or removal of buildings and structures, or cessation of activity, and remediation of the site, including mechanisms to ensure this occurs, if necessary due to the level of risk.</u></p> |
| <u>RD2</u> | <p><u>a. Earthworks associated with Rule 5.4A.3 RD1.</u></p> | <p><u>a. Whether the timing, duration, scale and location of earthworks, and method of earthworks are appropriate to mitigate the effects of coastal hazards, and avoids the transfer of risk to another site.</u></p> |
| <u>RD3</u> | <p><u>a. Stormwater management area associated with Rule 5.4A.3 RD1.</u></p> | <p><u>a. The degree to which the proposed stormwater management for the site:</u></p> <p><u>i. takes into account effects of sea level rise;</u></p> <p><u>ii. avoids or mitigates effects on water quality;</u></p> <p><u>iii. avoids or mitigates erosion; and</u></p> <p><u>iv. avoids or mitigates increased run off to areas outside the site to the greatest extent reasonable.</u></p> |

5.4A.4 Discretionary activities

a. There are no discretionary activities.

| | <u>Activity</u> |
|-----------|--|
| <u>D1</u> | <p><u>a. The addition of a new building, other than the construction of accessory buildings, extensions/additions to existing buildings, and the replacement of existing building/s, located in the area shown on the planning maps as Qualifying Matter Coastal Hazard Medium Risk Management Area.</u></p> |

5.4A.5 Non-complying activities

a. The activities listed below are non-complying activities.

| | Activity |
|------------|--|
| NC1 | a. New buildings, other than accessory buildings, extensions/additions to existing buildings, and the replacement of existing building/s, located in the area shown on the planning maps as Qualifying Matter Coastal Hazard High Risk Management Area. |
| NC2 | a. Subdivision in the Qualifying Matter Coastal Hazard Medium Risk Management Area and Qualifying Matter Coastal Hazard High Risk Management Area. Within the Coastal Hazard Medium Risk Management Area and/or the Coastal Hazard High Risk Management Area, and/or the Tsunami Risk Management Area subdivision of a site within the Residential Suburban Zone and Residential Suburban Density Zone which does not comply with Rule 8.6.1. |
| NC1 | a. Within the Coastal Hazard Medium Risk Management Area and/or the Coastal Hazard High Risk Management Area residential intensification of any site zoned Residential Suburban or Residential Suburban Density Transition, and located within the Qualifying Matters Coastal Hazard Medium Risk Management Area and the Coastal Hazard High Risk Management Area and Tsunami Risk Management Area. |
| NC2 | a. Within the Tsunami Risk Management Area residential intensification of any site zoned Residential Suburban or Residential Suburban Density Transition, except where the Tsunami Risk Management Area overlays 30% or less of the net site area of a site and any new residential unit is located outside of the overlay. |

Commented [S08]: IHP request to Ms Oliver for recommended drafting Hearing Week 9

5.4A.6 Prohibited activities

a. There are no prohibited activities.

5.5 Rules - Liquefaction hazard

- a. Liquefaction is a process that can occur during strong earthquake shaking which causes loss of stiffness and strength in generally loosely consolidated fine grained water saturated soils and can result in ground damage from lateral spreading, settlement, ground cracking, sand boils and deposition of sediment, as well as localised flooding.

5.5.1 Permitted activities

- a. All activities in the Liquefaction Management Area are a permitted activity unless specified in [Rules 5.5.2](#) or [5.5.3](#), or as otherwise specified elsewhere in the [District Plan](#).

5.5.2 Controlled activities

- a. The activities listed below are controlled activities within the area shown on the planning maps as the Liquefaction Management Area.
- b. Discretion to impose conditions is restricted to the matters over which control is reserved as set out in the following table.
- c. Where [subdivision](#) is specified, a subdivision consent is also required under [Chapter 8](#) Subdivision, Development and Earthworks.
- d. There may be other areas that are not identified at the district scale that are susceptible to liquefaction risk based on site specific characteristics – these may require specific geotechnical investigations as part of [subdivision](#) to satisfy the [Council](#) with respect to [Section 104](#) and [Section 106](#) of the [RMA](#).

Table 5.5.2a

| Activity | The matters over which Council reserves its control |
|--|--|
| <p>C1</p> <ul style="list-style-type: none"> a. Any subdivision which creates an additional vacant allotment or allotments in the Liquefaction Management Area. b. Any resource consent application arising from this rule shall not be limited or publicly notified. | <ul style="list-style-type: none"> a. The Council's control is limited to the following matters: <ul style="list-style-type: none"> i. location, size and design of allotments, structures, roads, access, services or foundations as they relate to the liquefaction hazard; ii. timing, location, scale and nature of earthworks as they relate to the liquefaction hazard; and iii. liquefaction hazard remediation methods. b. These controlled activities will be assessed against the following criteria. <ul style="list-style-type: none"> i. Whether techniques proposed for remediation and/or mitigation of the effects of any liquefaction |

| Activity | | The matters over which Council reserves its control |
|----------|--|--|
| | <p>Advice Note:</p> <p>1. This rule does not apply to boundary adjustments, amalgamations, or the creation of unit titles.</p> | <p>hazard identified are appropriate, including but not limited to:</p> <p>A. provision for ground-strengthening, foundation design, provision of resilient services and the ability of these to be incorporated into the subdivision consent as conditions or consent notices; and</p> <p>B. setbacks in relation to any waterway or water body, or any sharp change in ground elevation, sloping ground or free face. Alternatively, whether ground-strengthening or other proposed engineering or geotechnical solutions are identified to address any identified potential for lateral spread.</p> <p>ii. The extent to which the layout of the subdivision in relation to the liquefaction hazard is appropriate, including the proposed location of earthworks, roads, access, servicing and building platforms in relation to the liquefaction hazards identified.</p> <p>iii. The effect of the remediation and/or mitigation on the reasonable use of the site.</p> |

5.5.3 Restricted discretionary activities

- a. The activities listed below are restricted discretionary activities in any zone within the area shown on the planning maps as the Liquefaction Management Area.
- b. Discretion to grant or decline consent and impose conditions is restricted to the matters of discretion set out in the following table.

Table 5.5.3a

| Activity | | The Council's discretion shall be limited to the following matters: |
|----------|--|--|
| RD1 | <p>a. Any activity located on a site with an area of 1500m² or more, qualifying as a controlled or restricted discretionary activity under any of the</p> | <p>a. The Council's discretion is limited to the following matters:</p> <p>i. Location, siting and layout, design of buildings, car-parking areas, access, services or foundations as they relate to the liquefaction hazard</p> <p>ii. Timing, location, scale and nature of earthworks as they relate to the liquefaction hazard</p> |

| Activity | The Council's discretion shall be limited to the following matters: |
|---|--|
| <p>following residential rules:</p> <p>i. Enhanced Development Mechanism – Rule 14.13.2.3 RD1, RD2;</p> <p>ii. Community Housing Redevelopment Mechanism – Rule 14.14.1.3 RD1, RD2;</p> <p>iii. i. Residential Suburban Zone and Residential Suburban Density Transition Zone - Rule 14.4.1.3 RD7, RD8, RD10;</p> <p>iv. ii. Residential Medium Density Residential Zone - Rule 14.5.1.3 RD2;</p> <p>v. iii. Residential Banks Peninsula Zone - Rule 14.8.1.3 RD14</p> <p>vi. iv. Residential Neighbourhood Zone Future Urban Zone – Rule 14.12.1.2 C1 or Rule 14.12.1.3 RD3;</p> <p>b. Any application arising from this rule in respect to the Enhanced Development Mechanism or the Community Housing Redevelopment Mechanism shall not be limited or publicly notified.</p> | <p>iii. Liquefaction hazard remediation methods</p> <p>b. These restricted discretionary activities will be assessed against the following criteria:</p> <p>i. Whether techniques proposed for remediation and mitigation of the effects of any liquefaction hazard identified are appropriate, including but not limited to:</p> <p>A. Provision for ground-strengthening, foundation design, and provision of resilient services</p> <p>B. Setbacks in relation to any waterway or water body, or any sharp change in ground elevation, sloping ground or free face. Alternatively, whether ground-strengthening or other proposed engineering or geotechnical solutions are identified to address any identified potential for lateral spread.</p> <p>ii. The extent to which the siting and layout of the proposal is appropriate, including the proposed location of buildings, earthworks, car parking areas, servicing, access and building platforms in relation to the liquefaction hazards identified.</p> |

5.6 Rules - Slope instability

5.6.1 Activity status for Slope Instability Management Areas

5.6.1.1 Activity status for Slope Instability Management Areas excluding land within the Specific Purpose (Lyttelton Port) Zone

- a. The activities listed below have the activity status listed within each Slope Instability Management Area, and are subject to any activity status, rules and any standards specified elsewhere in the [District Plan](#) for that activity.
- b. In relation to controlled activities, discretion to impose conditions is restricted to the matters over which control is reserved as set out in [Rule 5.6.1.4](#) and [5.6.1.5](#) as applicable.
- c. In relation to restricted discretionary activities, discretion to grant or decline consent and impose conditions is restricted to the matters of discretion set out in [Rule 5.6.1.6](#).
- d. Where [subdivision](#) is specified, a subdivision consent is also required under the provisions of [Chapter 8](#).

Table 5.6.1.1a

| Activity | Cliff Collapse Mgmt Area 1 | Cliff Collapse Mgmt Area 2. For exceptions, refer to Rule 5.6.1.2 | Rockfall Mgmt Area 1. For exceptions, refer to Rule 5.6.1.2 | Rockfall Mgmt Area 2. For exceptions, refer to Rule 5.6.1.2 | Mass Mvmt Mgmt Area 1 | Mass Mvmt Mgmt Areas 2 & 3 | Remainder of Port Hills and Banks Peninsula Slope Instability Mgmt Area |
|--|----------------------------|---|---|---|-----------------------|----------------------------|---|
| Key: P = Permitted; RD = Restricted Discretionary; D = Discretionary; NC = Non-complying; PR = Prohibited. | | | | | | | |
| a. Subdivision | PR1/NC1* | NC2 | NC3 | RD1 | NC4 | RD2 | RD3 |
| b. Earthworks except where specifically provided below in Rule 5.6.1.1 | PR2 | NC5 | NC6 | RD4 | NC7 | RD5 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| c. Hazard mitigation works or hazard removal works, including earthworks | PR3 | NC8 | RD6 | RD7 | NC9 | RD8 | RD9 |

| Activity | Cliff Collapse Mgmt Area 1 | Cliff Collapse Mgmt Area 2. For exceptions, refer to Rule 5.6.1.2 | Rockfall Mgmt Area 1. For exceptions, refer to Rule 5.6.1.2 | Rockfall Mgmt Area 2. For exceptions, refer to Rule 5.6.1.2 | Mass Mvmt Mgmt Area 1 | Mass Mvmt Mgmt Areas 2 & 3 | Remainder of Port Hills and Banks Peninsula Slope Instability Mgmt Area |
|--|----------------------------|---|---|---|-----------------------|----------------------------|---|
| associated with those works, unless provided for in d | | | | | | | |
| d. Hazard mitigation works to protect infrastructure, including earthworks associated with those works | RD10 | RD11 | RD12 | RD13 | RD14 | RD15 | RD16 |
| e. Demolition of buildings | RD17 | RD18 | RD19 | RD20 | RD21 | RD22 | P1 |
| f. Repair and maintenance of existing infrastructure, including minor upgrading of the existing electricity network | P2 | P3 | P4 | P5 | P6 | P7 | P8 |
| g. Earthworks associated with activities listed in f. above | C1 | C2 | C3 | C4 | C5 | C6 | P9 |
| h. Upgrading of existing infrastructure or development of new infrastructure (where there is a functional need to locate in the overlay), including earthworks | RD23 | RD24 | RD25 | RD26 | RD27 | RD28 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |

| Activity | Cliff Collapse Mgmt Area 1 | Cliff Collapse Mgmt Area 2. For exceptions, refer to Rule 5.6.1.2 | Rockfall Mgmt Area 1. For exceptions, refer to Rule 5.6.1.2 | Rockfall Mgmt Area 2. For exceptions, refer to Rule 5.6.1.2 | Mass Mvmt Mgmt Area 1 | Mass Mvmt Mgmt Areas 2 & 3 | Remainder of Port Hills and Banks Peninsula Slope Instability Mgmt Area | |
|----------|--|---|---|---|-----------------------|----------------------------|---|---|
| | associated with these works. | | | | | | | |
| i. | Retaining walls which are both less than 6 m ² in area and less than 1.8 metres in height including earthworks associated with those works. | RD29 | RD30 | RD31 | P10 | RD32 | P11 | P12 |
| j. | Signage and fencing for warning or excluding the public, including post holes associated with those works. | RD33 | P13 | P14 | P15 | P16 | P17 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| k. | Hazard mitigation works and associated earthworks and planting in accordance with the Port Hills Parks and Tracks Reopening Process (dated 19 December 2012) | NC10 | P18 | P19 | P20 | NC11 | P21 | P22 |
| l. | Recreation activities within parks and reserves and associated park management activities, | NC12 | P23 | P24 | P25 | NC13 | P26 | Refer to relevant chapters within zone and/or district wide provisions applying to the |

| Activity | Cliff Collapse Mgmt Area 1 | Cliff Collapse Mgmt Area 2. For exceptions, refer to Rule 5.6.1.2 | Rockfall Mgmt Area 1. For exceptions, refer to Rule 5.6.1.2 | Rockfall Mgmt Area 2. For exceptions, refer to Rule 5.6.1.2 | Mass Mvmt Mgmt Area 1 | Mass Mvmt Mgmt Areas 2 & 3 | Remainder of Port Hills and Banks Peninsula Slope Instability Mgmt Area | |
|----------|---|---|---|---|---|----------------------------|---|---|
| | including grazing and track repair. | | | | | | sites within this area | |
| m. | Farm buildings and farm tracks, including earthworks associated with these works. | NC14 | NC15 | RD34 | RD35, except that farm tracks up to 2 metres wide shall be permitted. | NC16 | RD36 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| n. | Any building or structure not listed in activities a. to m. of Rule 5.6.1.1 | PR4 | NC17 | NC18 | RD37 | NC19 | RD38 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| o. | Any other activity not otherwise listed in this table. | NC20 | NC21 | NC22 | RD39 | NC23 | RD40 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |

e. Any resource consent application arising from C1-6, or RD1–RD40 set out in Rule 5.6.1.1 above shall not be limited or publicly notified.

* Prohibited where site subject to proposed subdivision is solely located within Cliff Collapse Management Area 1; non-complying activity where it is proposed to subdivide off land within Cliff Collapse Management Area 1 from an area of land not within Cliff Collapse Management Area 1.

5.6.1.2 Exceptions to Rule 5.6.1.1 — AIFR Certificate

a. The Council will issue an AIFR Certificate (which will be valid for 2 years from the date of issue) which specifies the calculated AIFR from i. and ii. below for an identified area of land in Rockfall

Management Area 1, Rockfall Management Area 2 and/or Cliff Collapse Management Area 2 only, when the following procedure is undertaken and the requirements of the procedure are satisfied:

- i. The Council has received a report, in respect of an identified area of land, prepared by a Chartered Professional Engineer with requisite experience in geotechnical engineering or a Professional Engineering Geologist (IPENZ registered), which calculates the AIFR from rockfall and/or cliff collapse for the identified land in the following manner:⁷
 - A. If the land is in Rockfall Management Area 1:
 - I. Apply the method for assessing the risk as set out in the *GNS Science Consultancy Report 2011/311 Port Hills Slope Stability: Pilot Study for assessing life-safety risk from rockfalls (boulder rolls)*, and any subsequent updates to this report by GNS Science, using the parameters listed in the Table in Policy 5.2.2.4.1.a for Rockfall Management Area 1 along with any relevant site-specific information, and other parameters in the GNS Science report (calculation 1(a)).
 - II. If the risk (AIFR) resulting from calculation 1(a) is less than that shown in the Table in Policy 5.2.2.4.1.a for Rockfall Management Area 1 ($\geq 10^{-4}$), then using the same method set out in the *GNS Science Consultancy Report 2011/311 Port Hills Slope Stability: Pilot Study for assessing life-safety risk from rockfalls (boulder rolls)*, and any subsequent updates to this report by GNS Science, calculate the AIFR using the parameters listed in the Table in Policy 5.2.2.4.1.a for Rockfall Management Area 2 along with all relevant site-specific information, and other parameters listed in the GNS Science report (calculation 1(b)).
 - B. If the land is in Rockfall Management Area 2:
 - I. Apply the method for assessing the risk as set out in the *GNS Science Consultancy Report 2011/311 Port Hills Slope Stability: Pilot Study for assessing life-safety risk from rockfalls (boulder rolls)*, and any subsequent updates to this report by GNS Science, using the parameters listed in the Table in Policy 5.2.2.4.1.a for Rockfall Management Area 2 along with all relevant site-specific information, and other parameters in the GNS Science report (calculation 2(a)).
 - C. If the land is in Cliff Collapse Management Area 2:
 - I. Apply the method for assessing the risk as set out in the GNS Science Consultancy Reports *2012/57 Port Hills Slope Stability: Pilot Study for assessing life-safety risk from cliff collapse and 2012/124 Port Hills Slope Stability: Life-safety risk from cliff collapse in the Port Hills*, and any subsequent updates to those reports by GNS Science, using the parameters listed in the Table in Policy 5.2.2.4.1.a for Cliff Collapse Management Area 2 along with all relevant site-specific information, and other parameters in the GNS Science Consultancy Reports (calculation 3(a)).

AND

- ii. The Council has commissioned and received a peer review report from a Chartered Professional Engineer with requisite experience in geotechnical engineering or a Professional

⁷ The calculation shall not take account of hazard mitigation works.

Engineering Geologist (IPENZ registered)**, which concurs with the application of the method required in i. above, and with the calculated AIFR(s) for the identified land.

**The peer reviewer must not, at the time of undertaking the review, be employed by either:
a) the same company as the company that authored the report received in i. above, or b) the Council.

- b. Where a valid AIFR Certificate has been issued by the Council for an identified area of land, in accordance with the procedure described in Rule 5.6.1.2a. above, the activity status (for activities listed in Table 5.6.1.1a) that applies to that land shall be that which applies to the Slope Instability Management Area specified in Table 5.6.1.2a. below. An AIFR Certificate is valid for 2 years from the date of issue. If the activity is commenced (in the case of a permitted activity) or a resource consent application is lodged within 2 years from the date of issue of the AIFR Certificate, no further Certificate is required after the 2 year term expires.

⁷ The calculation shall not take account of hazard mitigation works.

Table 5.6.1.2a

| Slope instability hazard management area applying to the land on the planning maps | AIFR as specified in the site-specific AIFR Certificate | | Slope Instability Management Area for the purpose of determining activity status for activities on the land (Table 5.6.1.1a) |
|--|---|-------------------|--|
| Rockfall Management Area 1 | Result of calculation 1(a) | ≥10 ⁻⁴ | Rockfall Management Area 1 |
| | | ≥10 ⁻⁴ | Rockfall Management Area 2 |
| | Result of calculation 1(b) where required | <10 ⁻⁴ | Remainder of Port Hills and Banks Peninsula |
| Rockfall Management Area 2 | Result of calculation 2(a) | ≥10 ⁻⁴ | Rockfall Management Area 2 |
| | | <10 ⁻⁴ | Remainder of Port Hills and Banks Peninsula |
| Cliff Collapse Management Area 2 | Result of calculation 3(a) | ≥10 ⁻⁴ | Cliff Collapse Management Area 2 |
| | | <10 ⁻⁴ | Remainder of Port Hills and Banks Peninsula |

Advice note:

1. Calculated AIFRs specified in issued, valid AIFR Certificates for identified areas of land, and valid certificates themselves, will be made freely available to the public, recorded in the Council's Geographical Information System and provided in Land Information Memoranda.
2. Changes to the District Plan will be regularly notified, as required, to change the planning maps, in order to reflect updated information regarding life-safety risk from rockfall and/or cliff collapse from issued AIFR Certificates.

5.6.1.3 Activity status for Slope Instability Management Areas within the Specific Purpose (Lyttelton Port) Zone

- a. The activities listed below have the activity status listed within each Slope Instability Management Area.
- b. In relation to controlled activities, discretion to impose conditions is restricted to the matters over which control is reserved as set out in [Rule 5.6.1.4](#) and [5.6.1.5](#) as applicable.
- c. In relation to restricted discretionary activities, discretion to grant or decline consent and impose conditions is restricted to the matters of discretion set out in [Rule 5.6.1.6](#).
- d. Where [subdivision](#) is specified, a subdivision consent is also required under the provisions of [Chapter 8](#).

Table 5.6.1.3a

| | Activity | Cliff Collapse Mgmt Area 1 | Cliff Collapse Mgmt Area 2 | Rockfall Mgmt Area 1 | Rockfall Mgmt Area 2 | Remainder of Port Hills and Banks Peninsula Slope Instability Mgmt Area |
|----|--|----------------------------|----------------------------|----------------------|----------------------|---|
| a. | Subdivision | C7 | C8 | C9 | C10 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| b. | Earthworks except as provided for below | NC24 | RD41 | C11 | C12 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| c. | Hazard mitigation works , including earthworks associated with those works | C13 | C14 | C15 | C16 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| d. | Demolition of buildings | C17 | C18 | C19 | C20 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |

| | Activity | Cliff Collapse Mgmt Area 1 | Cliff Collapse Mgmt Area 2 | Rockfall Mgmt Area 1 | Rockfall Mgmt Area 2 | Remainder of Port Hills and Banks Peninsula Slope Instability Mgmt Area |
|----|---|----------------------------|----------------------------|--|--|---|
| e. | Repair and maintenance of existing infrastructure, buildings, and access ways, including minor upgrading of the existing electricity network. | P1 | P2 | P3, includes earthworks associated with these works on flat land or where the earthworks are less than 10m ³ cut or fill on sloping land. | P4, includes earthworks associated with these works on flat land or where the earthworks are less than 10m ³ cut or fill on sloping land. | P |
| f. | Earthworks associated with the activities listed in e above unless identified as permitted. | C21 | C22 | C23 | C24 | P |
| g. | Upgrading of existing infrastructure, buildings, and access ways including associated earthworks, provided such upgrades are limited to an increase in capacity, efficiency or security of an existing structure or route | D1 | RD42 | RD43 | RD44 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |

| | Activity | Cliff Collapse Mgmt Area 1 | Cliff Collapse Mgmt Area 2 | Rockfall Mgmt Area 1 | Rockfall Mgmt Area 2 | Remainder of Port Hills and Banks Peninsula Slope Instability Mgmt Area |
|----|---|----------------------------|----------------------------|----------------------|----------------------|---|
| h. | Construction of new non-habitable** buildings or structures used for storage or infrastructure | D2 | RD45 | RD46 | RD47 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| i. | Construction of new retaining walls | RD48 | C25 | P5 | P6 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| j. | Quarrying and associated haul road formation on land below Sumner Rd | Not applicable | Not applicable | C26 | C27 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| k. | Bulk storage of cargo or construction material, outdoors on flat land | RD49 | C28 | P7 | P8 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| l. | Signage and fencing for warning or excluding the public including postholes associated with those works | P9 | P10 | P11 | P12 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |

| | Activity | Cliff Collapse Mgmt Area 1 | Cliff Collapse Mgmt Area 2 | Rockfall Mgmt Area 1 | Rockfall Mgmt Area 2 | Remainder of Port Hills and Banks Peninsula Slope Instability Mgmt Area |
|----|---|----------------------------|----------------------------|----------------------|----------------------|---|
| m. | Minor earthworks associated with tree planting, ecological restoration and the formation and maintenance of pedestrian walking and cycle tracks | D3 | P13 | P14 | P15 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |
| n. | Any activities not otherwise listed above, including buildings not otherwise provided for under h | NC25 | NC26 | NC27 | D4 | Refer to relevant chapters within zone and/or district wide provisions applying to the sites within this area |

e. Any resource consent application arising from any controlled or restricted discretionary activities set out in Rule 5.6.1.3 above shall not be limited or publicly notified.

**Note: for the purpose of Rule 5.6.1.3h, 'non-habitable' buildings means those buildings or structures where the building is not designed for human occupation and will not be used for human occupancy. Examples of such buildings include bulk storage silos, tanks, plant rooms and electricity substations.

5.6.1.4 Slope Instability Management Areas — C1 to C6 matters of control

- a. The Council's control is limited to the following matters:
 - i. timing, location, scale and nature of earthworks;
 - ii. earthworks method; and
 - iii. mitigation of effects as they impact slope instability hazards.
- b. Controlled activities C1 to C6 will be assessed against the following criteria:
 - i. Whether proposed earthworks could trigger slope instability or exacerbate risk posed by natural hazard(s) to people or property, and any measures required to avoid or mitigate that risk.
 - ii. Measures proposed to reinstate the excavated or filled area on completion of the earthworks to reduce the natural hazard risk(s) and ensure long-term land stability.

- iii. Whether the **earthworks** could have any adverse effects as a result of disturbance to drainage patterns and any measures required to avoid or mitigate such effects.

5.6.1.5 Slope Instability Management Areas — C7 to C28 matters of control

- a. The **Council's** control is limited to the following matters:
 - i. effects of natural hazards on people and property;
 - ii. location, size and design of **allotments**, structures, **roads**, **access**, services or foundations in relation to natural hazard risk;
 - iii. location, scale and design of **buildings** in relation to natural hazard risk;
 - iv. clearance or retention of vegetation or other natural features that mitigate natural hazard risk;
 - v. timing, location, scale and nature of **earthworks**;
 - vi. **earthworks** method;
 - vii. potential for the proposal to exacerbate natural hazard risk;
 - viii. benefits of infrastructure and performance of **critical infrastructure** following a natural hazard event; and
 - ix. mitigation of effects as they impact slope instability hazards.
- b. Controlled activities C7 to C28 will be assessed against the following criteria:
 - i. Whether the proposal and associated **hazard mitigation works**:
 - A. can be shown, based on evaluation by a Chartered Professional Engineer with experience in geotechnical engineering, using best practice methods, to increase the stability of land and/or protect structures and **buildings** and their occupants;
 - B. can be shown, based on evaluation by a Chartered Professional Engineer with experience in geotechnical engineering, using best practice methods, to achieve an acceptable risk to life or property, including the extent to which an **Annual Individual Fatality Risk** of 10^{-4} (1 in 10,000) or better can be achieved; and
 - C. will have appropriate monitoring procedures applied, with inspections and maintenance undertaken and reported to the **Council**.
 - ii. Whether, due to the sensitive nature of the proposed activity (for example, childcare centre, playground, **hospital**), an **Annual Individual Fatality Risk** lower than 10^{-4} is appropriate.
 - iii. Whether development of the **site** transfers risk to another **site**.
 - iv. Whether the location and design of proposed **building** platforms, **access**, **earthworks**, retaining walls and services to the **site** are the most appropriate considering the risk of natural hazards on the **site**.
 - v. Provision for ground-strengthening, foundation design, protection structures and the ability of these to be incorporated into the subdivision consent as conditions or consent notices.

- vi. The extent that surface or subsurface drainage patterns and stormwater management are impacted as a result of **hazard mitigation works**, and whether these have an effect on the **site** or surrounding **sites**.
- vii. Where **critical infrastructure** is involved, whether the infrastructure is designed in a way to continue to operate safely in the event of a significant natural hazard occurring, including containment of any **hazardous substances** associated with that infrastructure.
- viii. For infrastructure generally, the extent of benefits associated with that infrastructure, whether there is a functional or operational requirement for that location and whether there are any practical alternatives.
- ix. Whether or not the work would be carried out under the supervision of either a Chartered Professional Engineer with experience in geotechnical engineering or a Professional Engineering Geologist (IPENZ registered).

5.6.1.6 Slope Instability Management Areas — RD1 to RD49 matters of discretion

- a. The **Council's** discretion is limited to the following matters:
 - i. effects of natural hazards on people and property;
 - ii. location, size and design of **allotments**, structures, **roads**, **access**, services or foundations in relation to natural hazard risk;
 - iii. location, scale and design of **buildings** in relation to natural hazard risk;
 - iv. clearance or retention of vegetation or other natural features that mitigate natural hazard risk;
 - v. timing, location, scale and nature of **earthworks**;
 - vi. **earthworks** method;
 - vii. potential for the proposal to exacerbate natural hazard risk;
 - viii. benefits of infrastructure and performance of **critical infrastructure** following a natural hazard event; and
 - ix. mitigation of effects as they impact slope instability hazards.
- b. Restricted discretionary activities RD1 to RD49 will be assessed against the following criteria:
 - i. Whether the proposal and associated **hazard mitigation works**:
 - A. can be shown, based on evaluation by a Chartered Professional Engineer with experience in geotechnical engineering, using best practice methods, to increase the stability of land and/or protect structures and **buildings** and their occupants;
 - B. can be shown, based on evaluation by a Chartered Professional Engineer with experience in geotechnical engineering, using best practice methods, to achieve an acceptable risk to life or property, including the extent to which an **Annual Individual Fatality Risk** of 10^{-4} (1 in 10,000) or better can be achieved; and

- C. will have appropriate monitoring procedures applied, with inspections and maintenance undertaken and reported to the Council.
- ii. Whether, due to the sensitive nature of the proposed activity (for example, childcare centre, playground, hospital), an Annual Individual Fatality Risk lower than 10^{-4} is appropriate.
- iii. Whether development of the site transfers risk to another site.
- iv. Whether the location and design of proposed building platforms, access, earthworks, retaining walls and services to the site are the most appropriate considering the risk of natural hazards on the site.
- v. Provision for ground-strengthening, foundation design, protection structures and the ability of these to be incorporated into the subdivision consent as conditions or consent notices.
- vi. The extent that surface or subsurface drainage patterns and stormwater management are impacted as a result of hazard mitigation works, and whether these have an effect on the site or surrounding sites.
- vii. Where critical infrastructure is involved, whether the infrastructure is designed in a way to continue to operate safely in the event of a significant natural hazard occurring, including containment of any hazardous substances associated with that infrastructure.
- viii. For infrastructure generally, the extent of benefits associated with that infrastructure, whether there is a functional or operational requirement for that location and whether there are any practical alternatives.
- ix. Whether or not the work would be carried out under the supervision of either a Chartered Professional Engineer with experience in geotechnical engineering or a Professional Engineering Geologist (IPENZ registered).
- x. For RD 34, RD 36, RD 37, RD 38, RD 39 and RD 40 only, where the use and storage of hazardous substances are involved, whether the facility is designed in a way to manage the residual risks of adverse effects from hazardous substances to acceptable levels in the event of a significant natural hazard event occurring.

5.7 General procedures — information requirements

5.7.1 Additional information requirements for resource consent applications in the Liquefaction Management Area where a geotechnical report is required

Liquefaction potential

- a. Applicants will be required to supply the results of a detailed geotechnical investigation and interpretation. The level of investigation should correspond with the scale and significance of the liquefaction hazard. Plans and information shall:
 - i. identify any areas which require particular ground strengthening or other mitigation measures, and recommendations for such mitigation;
 - ii. identify any areas which should be excluded from built development, due to geotechnical constraints, or which require geotechnical setbacks, including areas near the edges of rivers, streams, lakes, wetlands, stormwater detention areas and swales where lateral spread is likely to occur; and
 - iii. indicate any options and recommended locations for the proposed land use, transport features and other infrastructure recommended by the geotechnical engineer.
- b. All geotechnical reports in respect of liquefaction potential are to be prepared by a Chartered Professional Engineer with experience in geotechnical engineering or a Professional Engineering Geologist (IPENZ registered), and should contain all relevant geotechnical information, presented in both a factual and interpretive manner.

5.7.2 Additional information requirements for resource consent applications within Slope Instability Management Areas

- a. Plans and accompanying information shall show:
 - i. the geological and geotechnical constraints across the site, including any relationship to or effect on areas of actual or potential instability of the site, including the location of any inferred faults.
 - ii. the location of the site in relation to the natural hazard, or the location of the hazard on the site itself, and the location of building platforms in relation to the hazard.
 - iii. the nature of the proposed activities on the site and the impact on other sites potentially affected by the natural hazard, and the effect of the hazard on the activity and vice versa.
- b. All geotechnical reports are to be prepared by a Chartered Professional Engineer with experience in geotechnical engineering or a Professional Engineering Geologist (IPENZ registered), and should contain all relevant geotechnical information, presented in both a factual and interpretive manner. The design of rockfall protection structures must be carried out by a Chartered Professional Engineer with specific experience in the investigation, design and/or construction of rockfall protection structures, who has registered with the Council.

5.7.3 Additional information requirements for all resource consent applications for subdivision

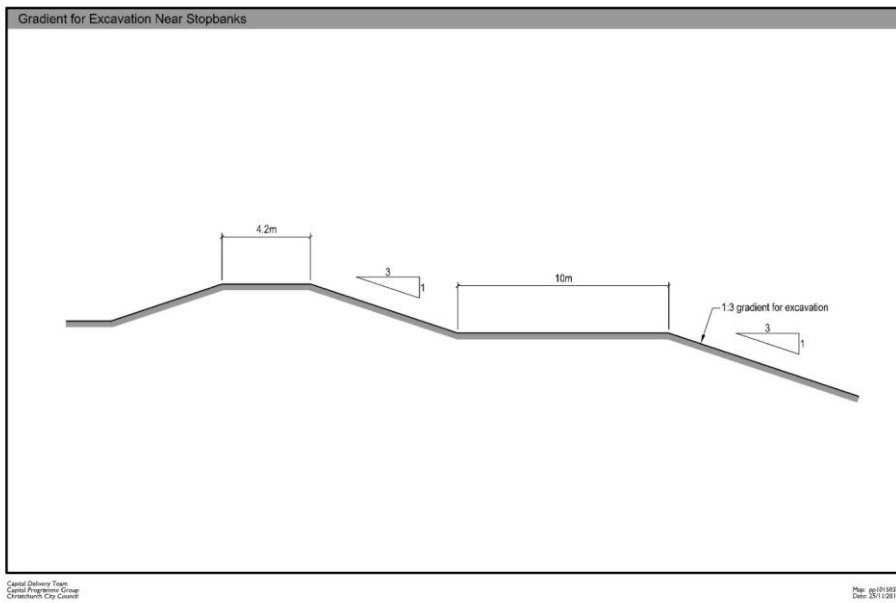
5.7.3.1 Liquefaction Management Area

Liquefaction potential

- a. At subdivision consent application stage, detailed liquefaction susceptibility assessment and reporting will be required in accordance with the densities, depth, methods and reporting specified in *Ministry of Business, Innovation and Employment (December 2012): Part D of "Guidance: Repairing and rebuilding houses affected by the Canterbury Earthquakes": Guidelines for the geotechnical investigation and assessment of subdivisions in the Canterbury region: Minimum requirements for geotechnical assessment for land development ('flatland areas' of the Canterbury region)*.
- b. Subdivision consent applications will be required to include sufficient information and proposed measures to satisfy the Council that liquefaction risk (if present) can be adequately avoided, remedied or mitigated, including the potential effects of lateral spread within 200 metres of the edges of rivers, streams, lakes, wetlands, stormwater detention areas, swales or other areas with a sharp change in ground elevation.
- c. Subdivision plans shall show:
 - i. any areas which require particular ground strengthening or other mitigation measures, and recommendations for such mitigation;
 - ii. any areas which should be excluded from built development due to geotechnical constraints, or which require geotechnical setbacks; and
 - iii. any features of subdivision layout recommended by the geotechnical engineer, for example any recommended locations for proposed land uses, transport features and other infrastructure as a result of geotechnical constraints.
- d. All geotechnical reports with respect to liquefaction potential are to be prepared by a Chartered Professional Engineer with experience in geotechnical engineering, or a Professional Engineering Geologist (IPENZ registered), and should contain all relevant geotechnical information, presented in both a factual and interpretive manner.

5.8 Appendices

Appendix 5.8.1 Gradient for excavation near stopbank for Rule 5.4.3.5.a. ii



Appendix 5.8.2 Residential Unit Overlay within the High Flood Hazard Management Area for Rule 5.4.6.2 RD2

