

### **FAQs – Guidance for building in toe slump areas of mass movement in the Port Hills (Class II and Class III areas)**

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The questions below provide further information around the development and application of the Ministry of Business Innovation and Employment's (MBIE's) technical guidance for repairing and rebuilding houses in toe slump areas of mass movement in the Port Hills (Class II and Class III areas). These questions should be read in conjunction with the technical guidance document.

#### **Q1. Why has MBIE developed technical guidance?**

Following Christchurch City Council's (the Council's) release of the Stage One GNS Science Report on mass movement in the Port Hills MBIE has developed technical guidance to help engineers, designers and Council building consenting staff to confidently repair and rebuild buildings in Class II and III areas affected by mass movement from the Canterbury earthquakes and to meet the requirements of the Building Code.

#### **Q2. Which mass movement areas will MBIE's technical guidance apply to?**

The MBIE guidance is for houses in the Class II and Class III toe slump areas of mass movement in the GNS Science Port Hills Slope Stability - Stage One Report. It does not apply to the Class I areas. Further GNS Science reports will look at Class I areas as a priority and give more guidance about development of this land.

#### **Q3. What is in MBIE's guidance?**

MBIE's technical guidance for the toe slump areas of mass movement will summarise the geotechnical issues as they relate to houses, provide high level design principles for foundations and associated aspects such as infrastructure services and information on the recommended house layouts for toe slump areas.

#### **Q4. What are toe slump areas of mass movement?**

A number of hillside areas on the Port Hills have been affected by varying scales of mass movements as a result of the 2010/2011 earthquakes. The GNS Science Report defines mass movement as 'the geomorphic process by which material (rock and/or soil) moves down-slope, typically as a mass, under gravity'.

As identified in the GNS Science Stage One Report, toe slump areas of mass movement are located on some lower slopes of the Port Hills and are formed in loess-derived soil deposits (ie, clayey soils) that are typically underlain by volcanic materials. At the toe of many slopes where there is a permanent water table the recent earthquakes have triggered slumps of the toe slope. The movement is evidenced on the site by tension (cracking), compression (bulging) and block translation (general sliding).

#### **Q5. How extensive are the areas of mass movement and how many houses are affected?**

The exact number of properties affected has changed and is likely to change again as further investigations are completed. To view the GNS Science Stage One Report, visit [www.ccc.govt.nz/porthillsgeotech](http://www.ccc.govt.nz/porthillsgeotech).

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## QUESTIONS AND ANSWERS

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### **Q6. How much movement can be expected on these sites?**

In the toe slump areas maximum cumulative movement across the mass movement area could vary between 300 mm and 1.5 m in large earthquakes according to GNS Science research. This level of movement could affect homes and infrastructure.

### **Q7. Who is the Guidance for?**

The Guidance has been prepared specifically for structural and geotechnical engineers, architects, and insurers to work out the best design solutions for specific sites and to help the Council's building consenting staff make consenting decisions.

### **Q8. Is it mandatory to follow the MBIE guidance if repairing or rebuilding in Class II and III areas?**

The MBIE guidance isn't mandatory but is based on the general performance of houses in toe slump areas. Following the guidance should reduce the chances of damage in a large earthquake. It will also make gaining a building consent more straightforward. However, with additional site investigation and specific engineering design using the engineering criteria provided, it may be possible to demonstrate compliance with the Building Code without following the specific recommendations in the guidance.

### **Q9. What does this situation mean for homeowners whose rebuilds are already consented and underway or on hold?**

While it is legal to continue building, an owner in this situation might choose to reassess using the guidance to see if any of the new recommendations could also be incorporated into the house design.

### **Q10. What does this situation mean for homeowners whose rebuilds are completed?**

It is best to discuss this situation with individual insurers and Council as each situation will be different.

### **Q11. What does the timing of MBIE's guidance mean to rebuilds that are already consented but not yet begun?**

Your building consent has been issued and is valid so you can proceed with your current design. However, you might want to reassess your current design solution to ensure that it is still appropriate for your site. You should discuss this with your engineer, your insurer and the Council.

### **Q12. Why didn't MBIE stop all rebuilding in the Port Hills?**

Consents are issued on the best information available at the time, so it is still legal to continue building on those sites where consents have been issued. Building guidelines, codes and requirements do change with time as new information and research becomes available, and this is not a reason to halt all buildings that might be affected. MBIE does not get involved with work on any individual properties unless we have been requested to undertake a determination regarding an issued building consent.

A determination is a binding decision made by MBIE. It provides a way of solving disputes or questions about the rules that apply to buildings, how buildings are used, building accessibility and health and safety.

### **Q13. What additional costs will MBIE's foundation guidance add to the cost of a rebuild in the Port Hills?**

Every site and house will have differing circumstances depending on the size and complexity of the house design. It is not possible to give a definitive figure on additional costs (if any) to rebuild in these areas.

### **Q14. Is this a new issue?**

Climate triggered land instability in the Port Hills is not a new issue and geotechnical assessments have always been required for all building development on Port Hills properties. However the GNS Science Stage One Report provides new information about previously unrecorded slope instability mechanisms associated with strong earthquakes, in some areas of the Port Hills.

### **Q15. Should these areas be built on at all?**

The toe slump areas are considered to be suitable for rebuilding on provided appropriate house design solutions are adopted. MBIE's technical guidance does not cover rebuilding on Class I areas. Further Council-commissioned GNS Science reports – stage two and three – will look at Class I areas as a priority and give more guidance about development of this land.

### **Q16. What special foundation designs will be needed to build on these areas?**

Site specific foundations have always been required in parts of the Canterbury region such as the Port Hills or on the flat areas where peat is present. The foundations need to be designed to allow for renewed movement on the site. Some of the observed design features that performed better for toe slump sites included – houses with braced timber pole foundations, houses with conventional pile foundations and raised timber floors with good access underneath, lightweight structures, houses with small overall plan footprints, and houses that are aligned across the slope rather than down the hill.

### **Q17. How long has MBIE been working on this guidance?**

MBIE developed the guidance at the request of the Christchurch City Council, and has been working on it for the last few months with its Port Hills geotechnical engineering advisors in conjunction with GNS Science, the Council and CERA. MBIE commissioned a survey of houses in the affected areas to determine what types of construction worked well and what did not perform satisfactorily. The results of this have been incorporated in the MBIE guidance.

### **Q18. Why is this guidance only being released now?**

In the context of producing high level guidance that encompasses many technical issues the guidance has been produced very quickly.

The guidance is strongly linked to information in the GNS Science Report and could not be released in advance of that report. This is because MBIE needs to ensure that its foundation guidance for Class II and III areas is appropriate for repairing and rebuilding on the toe slump sites.

A series of technical questions and answers have been developed by MBIE to repair and rebuild on the toe slump mass movement areas. This guidance has been tested and refined following a recent further survey by MBIE's engineering advisors of affected building sites in the toe slump areas of the Port Hills.

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## QUESTIONS AND ANSWERS

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### **Q19. Who has been involved in the development of the MBIE guidance?**

The development of the technical guidance has been a collaborative effort with GNS Science, the Christchurch City Council, CERA and MBIE's engineering advisors.

### **Q20. Does MBIE agree with some insurers' approach to putting rebuild jobs in the Port Hills on hold?**

Yes, it seems to be a responsible approach to enable the design of appropriate foundation solutions for these sites. MBIE would encourage all engineers repairing or rebuilding houses in Class II and III areas to take into account the MBIE guidance.

### **Q21. What implications does MBIE's foundation guidance for the Port Hills have for the Government's Port Hills Zoning Review announcements?**

MBIE's foundation guidance and Christchurch City Council's Port Hills Slope Stability - Stage One Report prepared by GNS Science are not related to CERA Port Hills zoning decisions. The Port Hills Slope Stability - Stage One Report prepared by GNS Science is intended to inform the Council's decision making around the District Plan. The red zone identifies where the Crown is prepared to make an offer to purchase eligible properties that have an unacceptable level of risk to life.

### **Q22. What implications will MBIE's guidance have for houses with section 124 (prohibited access notices) already on them?**

A section 124 (s124) prohibited access notice is issued by the Christchurch City Council to a dangerous building to ensure public safety including the safety of the occupiers. In the case of Port Hills' properties, s124 notices have been issued where the property is considered dangerous due to hazards in the area such as potential rock falls or unstable land that threatens the property. The removal of any s124 notices will be up to the Christchurch City Council once they have considered the MBIE technical guidance and any mitigation undertaken by the owner. A notice can be lifted once known hazards have been removed or made safe to the extent the building is no longer considered dangerous.