

**ROCK ROLL SCENARIOS – NOT GOVERNMENT POLICY ; 14 JUNE 2012**

**Purpose:** This A3 sets out rock roll scenarios to inform discussions between the Minister for the Canterbury Earthquake Recovery Authority and the Christchurch City Council Mayor regarding the Port Hills. 4 broad scenarios are developed, with specific scenarios relating to whether the desired risk level is met through a mix of protection works (e.g. bunds) and a voluntary offer, or through use of a voluntary offer alone.

**Requirements:** The approach chosen must result in (geotechnically-related) section 124 notices that are associated with rock roll being managed within a reasonable timeframe and through a reasonable process. The approach must also be promulgated as quickly and clearly as it possible. Some caveats (eg. fences will be built conditional on detailed design) are acceptable. It also must reduce as much as practicable residual risk on any party. Removing s124 notices remains a Christchurch City Council decision.

GENERAL SCENARIO	1. Manage to a risk level of 1 in 1,000 based on 2012 seismicity (94 properties)		2. Manage to a risk level of 1 in 10,000 based on 2012 seismicity (435 properties)		3. Manage to a risk level of 1 in 1,000 based on 2016 seismicity (22 properties)		4. Manage to a risk level of 1 in 10,000 based on 2016 seismicity (290 properties)	
	<i>Rationale</i>	<ul style="list-style-type: none"> <li>Focus effort on those most at risk, recognising that risks for those not covered will reduce over time.</li> <li>Reduce risk of expenditure with an associated low level of safety improvement.</li> </ul>		<ul style="list-style-type: none"> <li>Extend response to a broader group</li> <li>Risk level similar to risk of road accident death</li> <li>Provide community with greater assurance and stability (though some may feel this is an over-reaction).</li> </ul>		<ul style="list-style-type: none"> <li>Focus effort on those with the worst long-term risks</li> <li>Reduce risk of expenditure with an associated low level of safety improvement relative to scenario 1A and B</li> <li>By the time fences/bunds can be put in place risks are likely to have reduced</li> </ul>		<ul style="list-style-type: none"> <li>Focus effort on those with long-term risk – to bring risk to the same level as road death</li> <li>Reduce risk of expenditure with an associated low level of safety improvement relative to scenario 2A and 2B</li> <li>Recognise that by the time fences/bunds can be put in place risks are likely to have reduced</li> </ul>
<i>Variant</i>	<ul style="list-style-type: none"> <li>Provide property owners whose properties lie between 1 in 1,000 and 1 in 10,000 an option to receive financial assistance with accomodation costs for 2 years if they wish not to return to their house immediately</li> </ul>				<ul style="list-style-type: none"> <li>Provide property owners whose properties lie between 1 in 1,000 and 1 in 10,000 an option to receive financial assistance with if they wish not to return to their house immediately</li> </ul>			
<i>Specific Scenario</i>	1A. Protect and vol. offer	1B. Offer only	2A. Protect and vol. offer	2B. Retreat only	3A. Protect and vol. offer	3B. Offer only	4A. Protect and vol. offer	4B. Offer only
# Properties protected	29	nil	340	nil	15	Nil	181	nil
# Properties retreat	65	94	95	435	7	22	109	290
Overall Cost (\$m)	\$30-40m	\$54m	\$110-180m	\$234m	\$4-8 m	\$9m	\$65-120m	\$156m
	Withheld under section 9(2)(f)(iv)		Withheld under section 9(2)(f)(iv)		Withheld under section 9(2)(f)(iv)		Withheld under section 9(2)(f)(iv)	
	Withheld under section 9(2)(f)(iv)		Withheld under section 9(2)(f)(iv)		Withheld under section 9(2)(f)(iv)		Withheld under section 9(2)(f)(iv)	
<i>Comment</i>	In scenario 1A, there is very little protection work implied, so this could be completed within 12 months.		Would undertake work immediately -- estimated 18 months to complete		In scenario 3A, little protection work is implied, so this could be completed within 12 months.		Would undertake work immediately -- estimated 18 months to complete	

**Items common to all scenarios :** Can protect important roading through Wakefield North in all scenarios if desirable through construction of a bund ; If protection is to be built, provide all property owners who will be protected with the option of financial assistance until fences are built ; Planned evacuation strategy and assistance with relocation to avoid aftershock risk.

**Also Note :** In the 1 in 10,000 scenarios (scenarios 2A, 2B, 4A and 4B), the expenditure involved to save one statistical life is at least an order of magnitude (10 times) the expenditure required to save a statistical life in transport.