

**Port Hills Geotechnical Group
Assessment of GNS Model Applicability for Cliff Collapse Risk**

Sector: 1 Address: 88 BULLOCK BAY

Current S124 Notice? yes no

Cliff Type: Natural or Man-made

Cliff Height: >15m or <15m

In LH column below, complete EITHER grey or yellow boxes, then blue box:

CLIFF BOTTOM PROPERTIES

From existing records, did debris land within 10m of dwelling?
 Yes No
 If Yes, House hit Not hit Fly rock Passed
 Previously manned? Yes No

Is dwelling within 31 deg "F" angle line?
 Yes No

CLIFF TOP PROPERTIES

Does previously mapped ground cracking pass within 10m of the dwelling?
 Yes No
 If Yes, does the cracked area include the dwelling?
 Yes No

Does the recommended risk/setback zone intrude onto the property?
 Yes No

Are there any other known mass movement issues that could increase risk to dwelling?
 Yes No
 Debris flow Landslide

Based on observations of the site, is it possible to determine whether the site risk is consistent with the GNS assessment?

Yes

No

RISK IS consistent with GNS Assessment

SITE REQUIRES MORE DETAILED EVALUATION

Is an S124 Notice Required?
 Yes No **ALREADY PLACED**
 Cannot make this assessment from available information

Comments:

Assessed for CCC/Port Hills Geotechnical Group by:

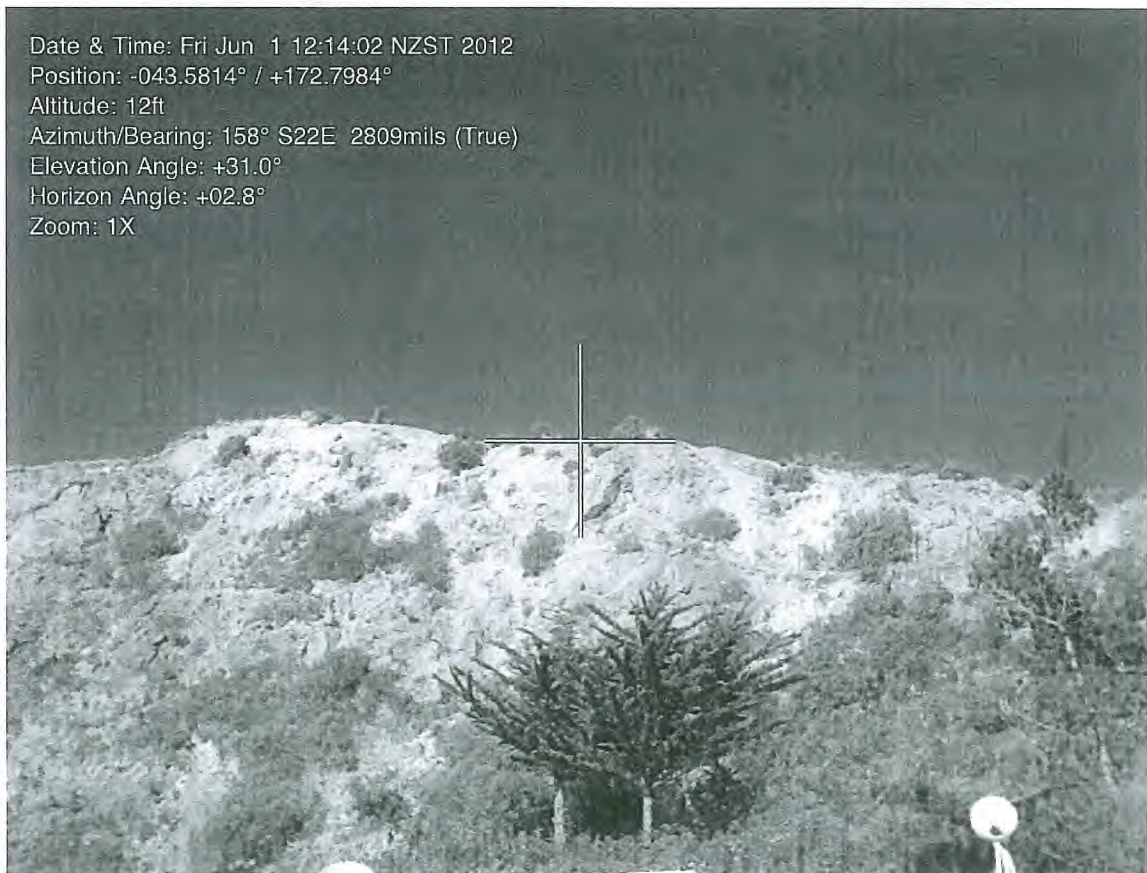
S. BARNARD
J. COOPE

Date:

1/6/12



Date & Time: Fri Jun 1 12:14:02 NZST 2012
Position: -043.5814° / +172.7984°
Altitude: 12ft
Azimuth/Bearing: 158° S22E 2809mils (True)
Elevation Angle: +31.0°
Horizon Angle: +02.8°
Zoom: 1X



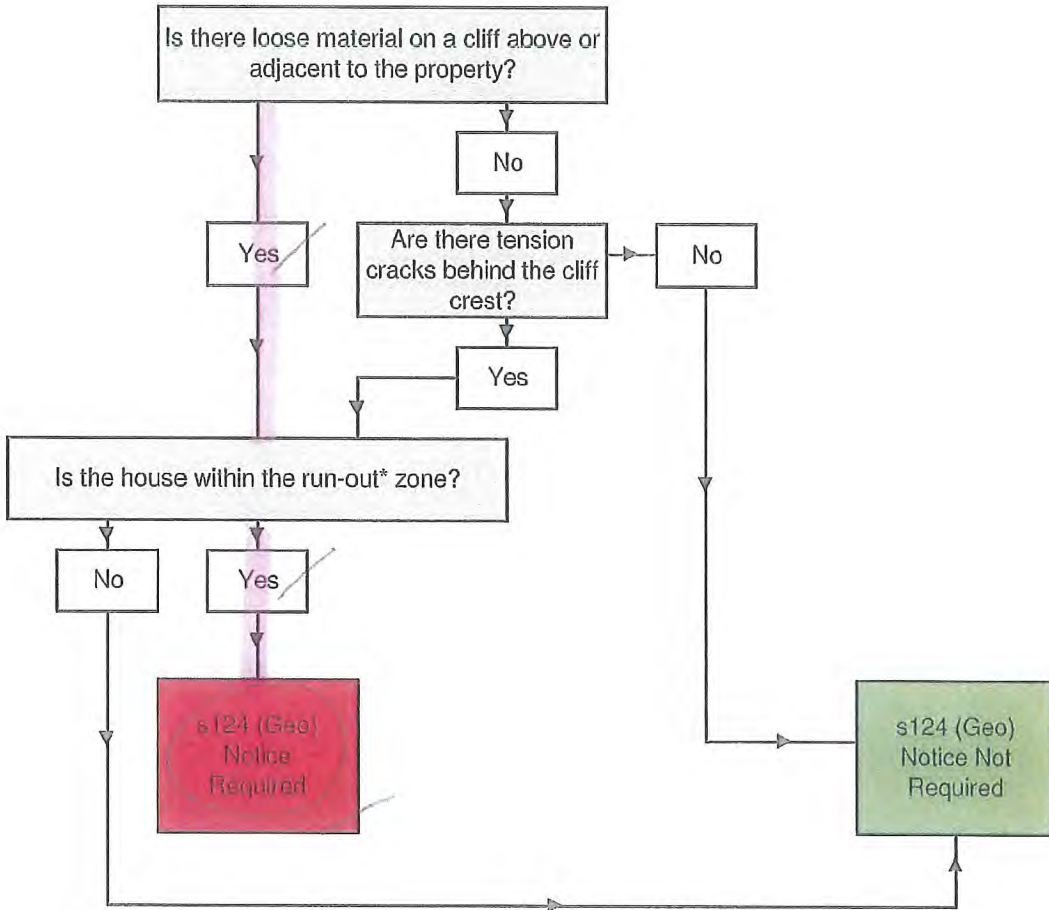
Port Hills Geotechnical Group
s124 (geo) Notice Decision Process - Cliff Collapse

Address of property: 1 BOULDER BAY

Review Date: 2/12/11

Owner: _____

Valuation No: _____



* Note: extent of run-out zone is now conservatively recognised as a 30 - 33° Fahrboeschung Angle from the cliff crest.

Check Yes/No boxes as applicable to lead to the decision.

Assessed by: SCOTT BARNARD

Checked by: Rob Green

Comments: TENSION CRACKS IN SLOPE DIRECTLY ABOVE PROPERTY.

Address: 1 Boulder Bay
Assessed by: Rori Green

Date: 24 November 2011

- The property at 1 Boulder Bay is situated at the base of a cliff.
- Portions of the cliff adjacent to the dwelling collapsed as a result of both the 22 Feb and 13 June 2011 aftershocks.
- At least two boulders fell from the cliff and landed within 10m of the dwelling
- Several small collapses of the cliff face behind the house were observed following the 22 Feb and 13 June 2011 aftershocks.
- Tension cracks are present on the cliff situated behind the property.
- There is a potential for further failure of the cliff in this area.



View from cliff top above 1 Boulder Bay (yellow dashed circle). A tension crack (yellow dashed line) is present near the cliff edge. Two boulders (yellow circles) landed near the dwelling following the 22 Feb aftershock.

Address: 1 Boulder Bay
Assessed by: Rori Green

Date: 24 November 2011



Map of tension cracks (yellow lines) on slopes above Boulder Bay. Tension cracks were originally mapped in late October 2011. Aerial photo is from late February 2011.



View of 1 Boulder Bay (yellow circle), showing debris from cliff collapse that occurred on 13 June, 2011 (red circle).

**Port Hills Geotechnical Group
Assessment of GNS Model Applicability for Cliff Collapse Risk**

Sector: 1 Address: 587 2 BARNER BAY

Current S124 Notice? yes no

Cliff Type: Natural or Man-made

Cliff Height: >15m or <15m

In LH column below, complete EITHER grey or yellow boxes, then blue box:

CLIFF BOTTOM PROPERTIES

From existing records, did debris land within 10m of dwelling?
 Yes No
 If Yes, House hit Not hit Fly rock Passed
 Previously manned? Yes No

Is dwelling within 31 deg "F" angle line?
 Yes No

CLIFF TOP PROPERTIES

Does previously mapped ground cracking pass within 10m of the dwelling?
 Yes No
 If Yes, does the cracked area include the dwelling?
 Yes No

Does the recommended risk/setback zone intrude onto the property?
 Yes No

Are there any other known mass movement issues that could increase risk to dwelling?
 Yes No
 Debris flow Landslide

Based on observations of the site, is it possible to determine whether the site risk is consistent with the GNS assessment?

Yes

No

RISK IS consistent with GNS Assessment

SITE REQUIRES MORE DETAILED EVALUATION

Is an S124 Notice Required?
 Yes No
 Cannot make this assessment from available information

Comments:
S124 in place already

tension crack at cliff crest

Assessed for CCC/Port Hills Geotechnical Group by:

J. Good
S. PARNABO

Date:

01/06/12
1215.



Date & Time: Fri Jun 1 12:15:57 NZST 2012
Position: -043.5815° / +172.7982°
Altitude: 54ft
Azimuth/Bearing: 195° S15W 3467mils (True)
Elevation Angle: +31.5°
Horizon Angle: -03.0°
Zoom: 1X



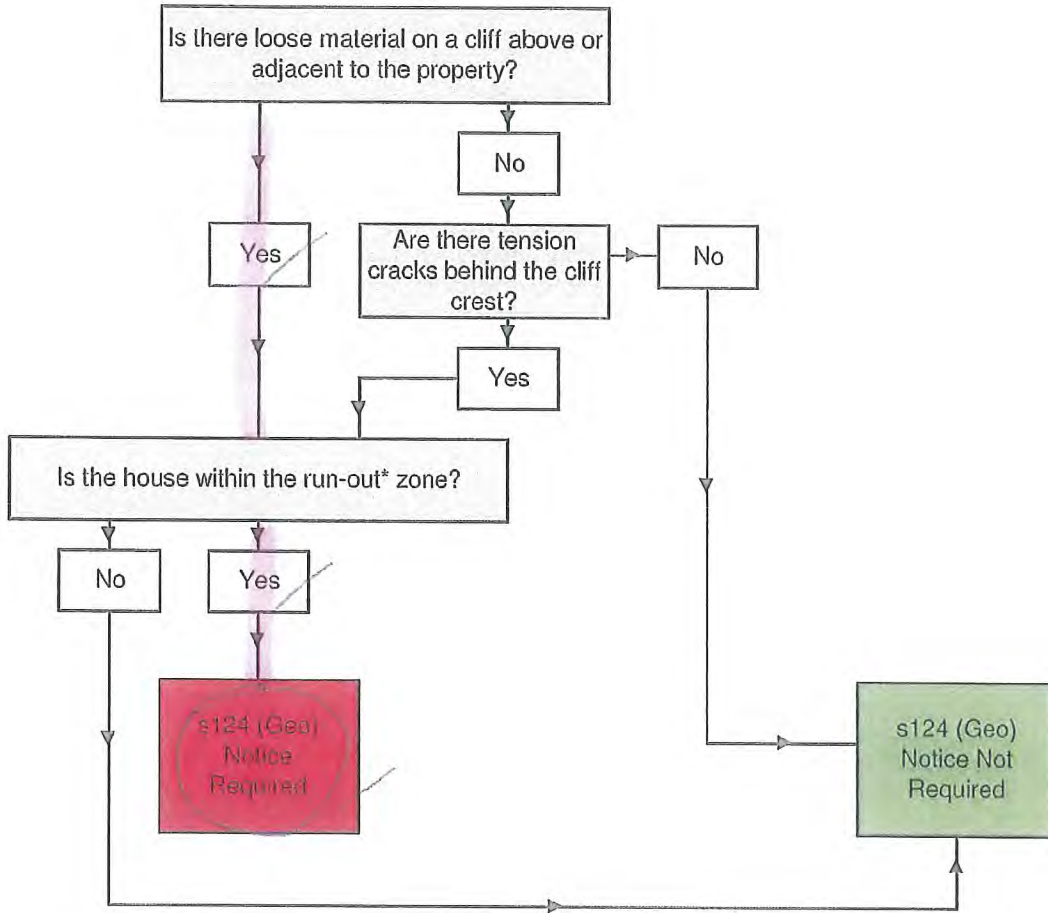
Port Hills Geotechnical Group
s124 (geo) Notice Decision Process - Cliff Collapse

Address of property: 2 BOULDER BAY

Review Date: 2/12/11

Owner: _____

Valuation No: _____



* Note: extent of run-out zone is now conservatively recognised as a 30 - 33° Fahrboeschung Angle from the cliff crest.

Check Yes/No boxes as applicable to lead to the decision.

Assessed by: SCOTT BARNARD

Checked by: RJG Rev. Green

Comments:
 TENSION CRACKS IN SLOPE DIRECTLY ABOVE PROPERTY

