ANNEXURE D
Geotechnical Assessment
Prepared by Swanney Geotechnical and Civil Engineering Ltd
31 October 2016

SB Drummond
34 Teapot Valley Road,
Brightwater

Waimea West Subdivision – 34 Teapot Valley Road, Brightwater
Geotechnical Assessment Report

Introduction
It is proposed to subdivide the property at 34 Teapot Valley Road (Lots 1, 2 & 28 DP17701) into six new lots. Lots 1 – 3 will be under one title and contain the existing house on the property. Lots 4, 5 & 6 are to be developed with building platforms and accessways prepared.

Swanney Geotechnical and Civil Engineering have been engaged to provide a geotechnical assessment of the proposed development of lots 4, 5 & 6. This assessment covers the new accessways, building site earthworks, geotechnical hazards and stormwater disposal. The assessment is based on a review of the Tasman Resource Management Plan requirements, NZGS 1:50,000 Geological Map N27 Richmond 1982, aerial photos from the Council GIS system and a site inspection.

Site Description
The 26.5 hectare property is located on the elevated land immediately west of Teapot Valley Road and Waimea West Road, approximately 2km northwest of Brightwater. The existing house is near the high point on the property, with ridges leading away to the north and northeast from this point and minor watercourses within the gullies. Typical gradients present on the side slopes off the ridgelines are 15° - 25°. The ridgelines slope gently to the north to northwest at <10°. The aerial photos of the site indicate some very minor localised instability on steeper ground and gully heads, and also soil creep/terraces on the steeper ground.

The property is predominantly in pasture, with several small exotic plantations present.

The Tasman Resource Management Plan (TRMP) does not indicate any geotechnical constraints (slope instability/fault hazard) relating to the area.

The proposed lot layout and the locations of the proposed building sites and accessways are shown on the appended Resource Consent Application Plan.

Geology
The 1:50,000 geological map for the Richmond area shows the site to be on Moutere Gravel Formation, which is a clay-bound gravel with near-surface soils typically
weathered to a clay. The landform is inherently stable, with instability limited to shallow surficial instability of the weathered layer on steeper, wetter areas.

**Development Description and Assessment**

The proposed building sites on Lots 4, 5 and 6 are located high on the site. The site on Lot 4 has been located slightly west of the ridge overlooking Brightwater on slopes of 10° - 15°. The building sites on Lots 5 and 6 are located directly on the ridges. All three building sites are on areas of open pasture. There are no indications of instability present on the proposed building sites, however there is some minor instability within the gully below the Lot 4 site, which is to be taken into account with the design of the building platform earthworks. Access to each new building site is to be via the existing accessway and new accessways along the ridgelines.

It is proposed to carry out earthworks to form the accessways and building platform on each of Lots 4, 5 & 6. Engineering certification of each of the building sites is to be prepared detailing ground and foundation conditions and any specific development constraints present following the development works. The building sites are expected to be straightforward to develop as a standard cut/fill earthworks operation. All structural fills will be certified by the overseeing engineer.

**Stormwater Control**

Stormwater flows from the building sites are to be controlled and discharged clear of any building foundations and areas of fill and directed to an existing drainage pathway.

**RMA Section 106 Assessment**

Section 106 of the Resource Management Act (RMA) states *inter alia*

> “a consent authority may refuse to grant a subdivision consent, or may grant a subdivision consent subject to conditions, if it considers that:
> a) The land in respect of which a consent is sought, or any structure on the land, is or is likely to be subject to material damage by erosion, falling debris, subsidence, slippage, or inundation from any source; or
> b) Any subsequent use that is likely to made of the land is likely to accelerate, worsen, or result in material damage to the land, other land, or structure by erosion, falling debris, subsidence, slippage, or inundation from any source.

The proposed building sites on Lots 4, 5 & 6 are not likely to be subject to material damage from the geohazards listed.

It is our opinion that the proposed development will comply with section 106 of the Resource Management Act.
Recommendations/Conclusions
It is our opinion that the proposed building sites and accessway for Lots 4, 5 & 6 of the subdivision at 34 Teapot Valley Road are appropriate for the geotechnical setting, and development in accordance with the recommendations below will result in future buildings on the building platforms being at low risk of being adversely affected by instability arising from high frequency rainfall or seismic events.

It is recommended that development of the building platforms on each lot is monitored by a chartered geotechnical engineer. Following development, certification of each building site is to be prepared by the geotechnical engineer, including any building constraints. The certification plan and any building constraints are to be covenanted on the title.

All stormwater flows from roofs and hard surfaces discharged in a controlled manner into existing water channels clear of any building foundations or areas of fill.

If you require any further information, I can be contacted on 548 9870 or 021 882011

Yours faithfully

Jeff Swanney
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Appended: Resource Consent Application Plan