

**BEFORE THE HEARINGS PANEL
FOR THE PROPOSED QUEENSTOWN LAKES DISTRICT PLAN**

IN THE MATTER of the Resource Management Act
1991

AND

IN THE MATTER of the Queenstown Lakes Proposed
District Plan

AND

IN THE MATTER of Hearing Submissions Seeking
Amendments to the Planning Maps
covering Queenstown and
Queenstown Rural (Excluding
Wakatipu Basin)

**SUMMARY STATEMENT TO PRIMARY EVIDENCE OF NICHOLAS KARL GEDDES ON
BEHALF OF**

Noel Gutzewitz & J Boyd

(Submitter #328)

Dated 22nd August 2017

INTRODUCTION

- 1 QLDC Planner Mr Robert Buxton filed rebuttal evidence 7th July 2017 (evidence) in relation to submission 328. Primarily, I would like to address matters raised in his evidence.
- 2 The land contained in the submission area is legally described in the primary submission and outlined on the plan contained in Attachment A. For the purpose of my summary evidence I refer to this land as the site.

Water Conservation (Kawarau) Order 1997

- 3 Paragraph 8.2 of Mr Buxton's evidence records that I have omitted to mention that the Kawarau River is subject to an Water Conservation Order and is listed as an ONF in the Otago Regional Plan – Water.
- 4 The Water Conservation Order (the Order) seeks to protect outstanding characteristics of the Kawarau River mainstem from Scrubby Stream to Lake Wakatipu Control gates. Scrubby Stream appears to be the transition point between Lake Dunstan and the Kawarau River.
- 5 The outstanding characteristics listed in the Order are:
 - *Wild and scenic characteristics;*
 - *Natural characteristics, in particular the return flow un the upper section when the Shotover River is in high flood;*
 - *Scientific values, in particular the return flow un the upper section when the Shotover River is in high flood;*
 - *Recreational purposes, in particular rafting, jetboating, and kayaking.*
- 6 Based upon my assessment contained in Part 5 of my primary evidence I do not believe the proposed re-zoning will compromise any of the natural, scientific or recreational characteristics listed above.
- 7 The Order does not confine “wild and scenic characteristics” to any particular section of the river. Rather this characteristic applies along the mainstem of the river between Lake Wakatipu and Lake Dunstan.
- 8 I consider the section of the Kawarau River above the confluence with the Shotover River (4km) to be somewhat different to the remainder of the river (38km) for the following reasons:
 - a. Above the confluence the river has dissected an ancient alluvial fan making a typical and uniform cross section in the landform while

below the Shotover the river is directed by rising mountain ranges and is gorged below the confluence with the Arrow River.

- b. Above the Shotover the river is placid losing little elevation between the control gates and the Shotover river delta making it prone to backflowing into the Lake during flood conditions. Below the Shotover the river is swift.
 - c. The rivers margins above the confluence are fortified by a willow trees which only appear on occasion throughout the lower section.
 - d. The upper section of the river has an obvious influence of human activity with signs and marker buoys along with commercial jet boat operations seven days a week during daylight hours. Except for the Roaring Meg power generating facility the lower section does not have an obvious human influence.
- 9 Based upon (a) to (d) above, I believe the “wilder characteristics” associated with this river would be characteristics apparent below the confluence with the Shotover.
- 10 I am not suggesting the section of the Kawarau River above the confluence of the Shotover is without character. But, I believe it is a different character. A character which is more influenced by human activities while the natural character must be limited to the surface of the river and its immediate margins.
- 11 A marginal strip extends along the southern banks opposite the land contained within the submission area and this is outlined in purple on the plan contained in Attachment B. The ONL boundary extends along the landward side of this strip so the marginal strip and the surface of the Kawarau River are recognised in the PDP as an Outstanding Natural Landscape. The assessment contained in the primary evidence of Dr Marion Read did not raise any issue with the proposed re-zoning in relation to this feature.
- 12 The rebuttal evidence of Dr Marion Read does not correct any of her primary evidence with respect to the Water Conservation Order or Otago Regional Plan.

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- 13 I believe the ONL classification in the PDP recognises and protects the characteristics listed in the Order and within the Otago Regional Plan for Water.
- 14 As outlined in my evidence towards hearing stream 2 and 12 I believe that the restricted discretionary consent regime to identify residential building platforms in the Rural Lifestyle Zone is sufficiently robust to ensure that any adverse effects from built form upon the values or characteristics of the Kawarau River (adjoining ONL) can be avoided, remedied or mitigated.
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Natural Hazards

- 15 I accept the evidential burden is upon the submitter to provide this geotechnical information I had not included it in my primary evidence as no issues of natural hazards had been specifically raised by Council until the rebuttal comments of Mr Buxton on the 7th July 2017.
- 16 Mr Paul Faulkner, Geotechnical Engineer has assessed the proposed re-zoning and we both undertook a site inspection on the 10th of May 2017. Based upon discussions with Mr Faulkner I was confident any natural hazards could be addressed at the time of subdivision. In response to the comments of Mr Buxton I asked Mr Faulkner to provide a summary of our discussion in May which is contained in Attachment C.
- 17 Mr Faulker provided evidence on submission 336 where his qualifications are set out in part 1 of his evidence and I have reproduced these in Attachment C for reference.
- 18 Part 6 of Mr Faulker's letter indicates development within some areas of the site will be feasible but subject to assessment and analysis to identify the most appropriate locations. The submitter accepts that at the time any subdivision is contemplated a detailed geotechnical investigation will be required. Any subdivision consent application which seeks to locate building platforms will be required to demonstrate how these platforms can be built upon and whether any specific remedial works or foundation design is required.
- 19 Due to flooding, instability and liquefaction hazards which all appear on the immediate margins of the Kawarau River it is highly likely residential building development will be limited to the upper terraces of the site.

Spot Zoning

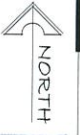
- 20 I have discussed "spot zoning" in Part 9 of my primary evidence and within my evidence towards Hearing Stream 12.
- 21 The site already contains two residential dwellings and has been used as a tree nursery. A use which has been confirmed by the land owner as uneconomic and is no longer being pursued. The site has been identified as being able to absorb a level of residential development. As set out in part 5 of my primary evidence, I believe residential development on the site will not result in any adverse effects upon the surrounding area and I do not believe residential development will compromise the integrity of the surrounding Rural zone. Therefore, I consider that Rural Lifestyle zoning is appropriate despite the size of the site.
- 22 I consider the most efficient land use for a site should demand what zoning is applied. I recognise that additional rules which apply only to spatially limited areas appear somewhat inefficient. However, I believe this is an administrative inefficiency only and this inefficiency is insignificant by comparison to the physical efficiency of allocating the most appropriate zone on the land.

Nick Geddes

22nd August 2017



Attachment A




PROPOSED RURAL LIFESTYLE ZONE
11.0 ha

SECTION 43
BLK XII CONEBURN S.D.
6.52ha

SECTION 42
BLK XII CONEBURN S.D.
2.42ha

LOT 4
DP 24790
0.69ha

LOT 5
DP 24790
1.08ha

 **Clark Fortune McDonald & Associates**
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21 Reece Crescent, P.O.Box 550, Wanaka
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Rev.	Date	Revision Details	By
A	16.10.15	PLAN OF PROPOSED ZONE	NM

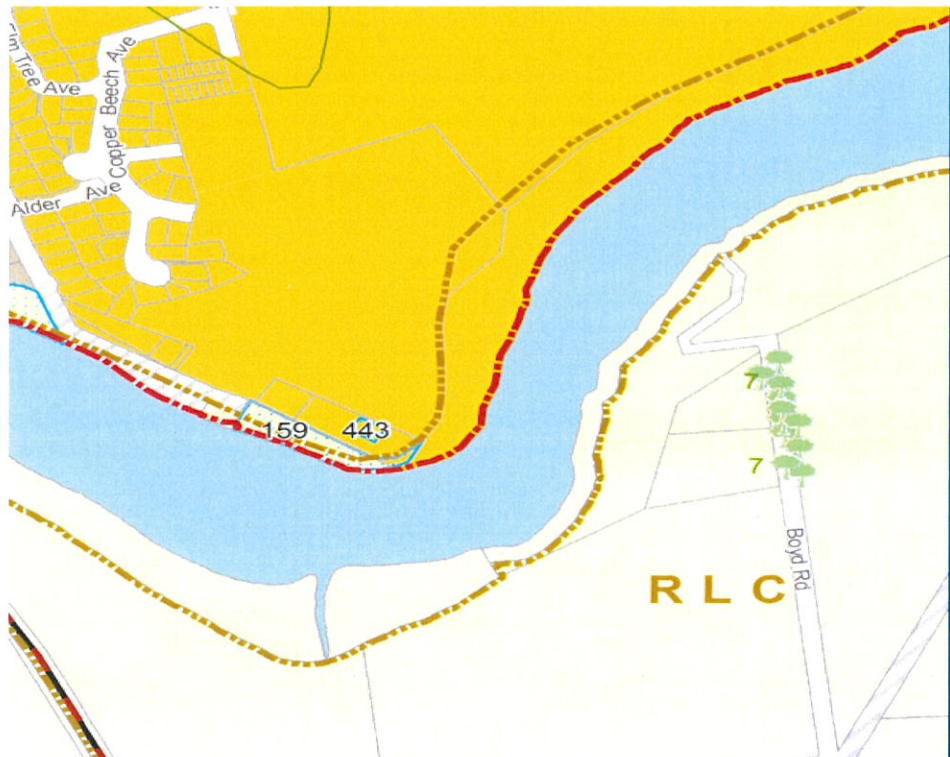
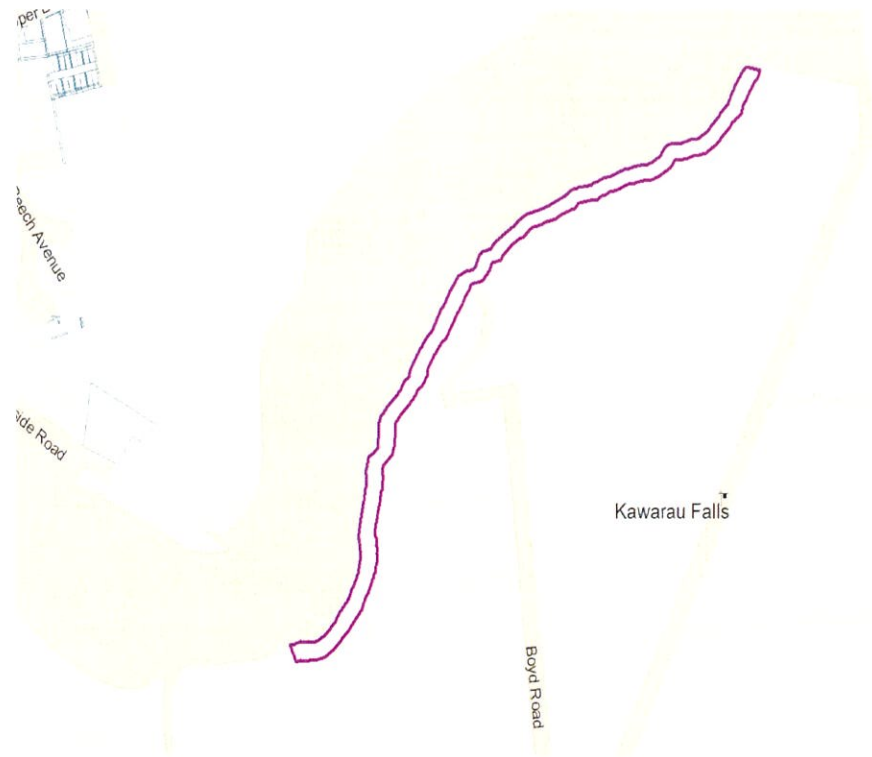
PROPOSED RURAL LIFESTYLE ZONE OVER SECTIONS 42 & 43 BLK XII CONEBURN SD & LOTS 4 & 5 DP 24790

Client	Surveyed	Signed	Date	Job No.	Drawing No.
N R GUTZEWITZ, J R BOYD	NM	Signed	16.10.15	12119	01
	Drawn	Signed	16.10.15	Scale	1:1500 @ A1
	NM				1:3000 @ A3
	Designed	Signed	16.10.15	Datum & Level	Mt Nic 2000 & MSL
	NM				Rev. A

Notes:
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- Ensuring the information is the most recent issue.
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Attachment B

Location of Marginal Strip:



Attachment C

1.0 QUALIFICATIONS AND EXPERIENCE

- 1.1 My name is Paul George Faulkner. I hold a degree of Bachelor of Science majoring in Geological Science and I completed a Masters in Science specialising in Engineering Geology, Leeds University, United Kingdom.
- 1.2 I have sixteen years' experience working in the engineering consultancy industry. Initially I worked in the United Kingdom before spending the last 8 years working in the Otago / Southland region.
- 1.3 I specialise in rock and soil slope stability in terms of associated risk assessments and remediation, geological hazards and undertaking construction on steep slopes and areas with unfavourable ground conditions. I have worked on a wide range of projects including large commercial/private buildings and associated deep excavations, assessments of rock slopes for highways and commercial operations, and high end residential developments.
- 1.4 I have provided emergency response services for rocks fall incidents in the Queenstown Lakes District region and completed risk assessments for unstable ground in high mountain environments.
- 1.5 I am a Fellow of the Geological Society, London and Senior Engineering Geologist in the Queenstown Office of Geosolve Ltd.



Noel Gutzewitz & Jo Boyd
PO Box 32
Queenstown
Sunvale.meadows@xtra.co.nz

Attention: Noel and Jo

Boyd Road, Queenstown.
Sections 42 & 43 BLK X11 Coneburn SD & Lots 4 & 5 DP 2479
Preliminary Geotechnical Assessment for Plan Change

1.0 Introduction

This letter details the results of a preliminary geotechnical assessment completed by GeoSolve Limited for the above site on Boyd Road, Queenstown, with respect to a proposed plan change. The work described in this letter has been completed in accordance with the terms and conditions outlined in Geosolve proposal reference number 170689 dated 23 August 2017.

The opinions and conclusions presented in this report are based on the following sources of information:

- A walkover inspection and mapping of the site by an engineering geologist;
- A review of historic information currently held on the Geosolve database for other sites in the local area and developments in similar geological environments;
- A review of the Queenstown Lakes District Council Hazard Register Maps, and;
- A review of the published geological map, 'Institute of Geological & Nuclear Sciences Ltd, Geology of the Wakatipu, 1:25,000 Geological Map 18'.

No Intrusive investigations have been completed for this report and all opinions and conclusions that are presented are preliminary in nature. The geotechnical conditions will need to be confirmed by site-specific investigations, engineering assessment and inspections during future consenting stages by an appropriately qualified and experienced Geotechnical Engineer and/or Engineering Geologist.

2.0 Site Description

The site borders the southern bank (True right) of the Kawarau River, approximately 2km down river from Lake Wakatipu.

The site has a well-defined upper level landform that borders the southern boundary. This level is approximately 15-20m above river level. On the northern side of the upper bench the ground surface slopes down to the Kawarau River. The slope gradient is steep to sub-vertical in places and gentle to moderate in others. Much of the northern low lying area is only a short distance above river level (1.5 – 3.0m).

The site has an existing dwelling and associated outbuildings in the central area. The buildings are in the lower lying part of the site, or partially on the slope which climbs up to the upper level.

Much of the site is utilised for agriculture with dense vegetation being present elsewhere.

To the south and west of the site the low lying undeveloped valley between the Remarkables mountain range and Peninsula Hill is present. This valley extends for several kilometres in a southerly direction.

The eastern end of the site borders directly against the toe of the Remarkables mountain range slopes, which climb steeply up for 1000 m+.

3 well defined drainage paths extend down the slopes of the Remarkables and reach the toe of the slope close to the site. The northern most path has incised a steep gully which is present directly on the eastern site boundary. The central path enters a flow channel and heads across the valley floor to pass through the central area of the site close to the existing dwelling. The southernmost path is less well defined and enters a field area and associated irrigation ditches 350 m to the south of the site.

3.0 Expected Geology

Published geological information (Institute of Geological and Nuclear Sciences (IGNS), 1:250,000 Geological Map 18, Geology of the Wakatipu) indicates the geological materials present beneath the site comprises old lake deposits, described as 'laminated silt and mud'

No intrusive investigations have been completed for the purposes of this report; however, examination of local soil and rock exposures, and information contained on the Geosolve database, indicates the stratigraphy beneath the site is likely to comprise:

- Variable thickness of topsoil
- Significant deposits of lake sediments
- Silts, sands and gravels deposited at the eastern end of the site by overland flow from the drainage path that extends down from the Remarkables in this direction.
- Schist bedrock is expected to be at considerable depth at the western end of the site (available drilling data indicates depth of 60 m+). Depth to rock will be shallower at the eastern end close to the toe of the Remarkables.

A significant thickness of lake sediments are likely to underlie site and extensive deposits where observed, particularly at the western end where the slopes to River comprise sub-vertical exposures of this material.

No active fault traces are known to exist in the immediate vicinity of the site. An inferred inactive fault is indicated on geological mapping approximately 1.5km to the north.

4.0 Hazards

Seismic

The seismic risk in the area is significant due to rupture of the Alpine Fault which runs along the west coast of the South Island. A high probability exists that an earthquake of magnitude 7.5 or greater will occur on the Alpine Fault within the next 50 years. An earthquake of this magnitude is expected to result in strong and prolonged ground shaking in Queenstown. This risk is regional wide and not specific to the site.

Slope Stability

QLDC hazard mapping indicates the northern part of the site has been identified as 'Landslide' (OPUS 2002), or at risk of landslide. The mapped hazard covers the lower (northern) area, and some of the upper area. Southern and western areas of the site, adjacent to Boyd Road, are outside this mapped feature. Site observations indicate an area of level in-situ ground is present in this location.

Local instability was identified around the flow path at the eastern end of the site. Over land flow has incised a deep channel in this location which is expected to be subject to local instability issues.

Many areas of the site are steeply sloping. The lake sediments often stand at very high angles when dry, which can be observed at the western end of the site. These areas will need to be assessed for long term stability and appropriate set-backs provided for building platforms.

Liquefaction

QLDC hazard mapping indicates the site is classed as liquefaction investigation category (LIC) 1 (P) in eastern areas and LIC 2 (P) in western areas with respect to this hazard. Appropriate methods of investigation are outlined by the QLDC for these categories, and further investigation will be required to define the risk and any specific development requirements e.g. foundation types or ground improvement.

Low lying areas of the site, where groundwater is present at shallow depths, are preliminary assessed to have a relatively high risk of liquefaction. For upper areas the risk will be considerably reduced due to the expected increased depth to groundwater. Standard engineering and foundation solutions are expected to be suitable for the upper area with respect to liquefaction.

Alluvial Fan

QLDC hazard mapping indicates the eastern end of the site is within an alluvial fan area identified in 2007 by GNS during a regional study. Otago Regional Council mapping indicates alluvial fan activity is present a short distance beyond the eastern boundary, but does not extend into the site.

Mapped alluvial fan areas are associated with the flow paths which drain from the toe of the Remarkables. Preliminary site observations indicate typical flows are relatively well contained in their existing flow paths and should avulsion occur flows are likely to be sheet like due the smooth unconfined nature of the farmed landscaped. Development has been completed in similar environments however assessment will be needed to determine of any building location restrictions, or if other requirements, e.g. raised floor levels or diversion bunds, are appropriate.

6.0 Future Development

Preliminary assessment indicates development within some areas of the site will be feasible from a geotechnical perspective. Detailed assessment and analysis will be required to identify the most appropriate locations. Further assessment during future consenting stage should consider the geotechnical and natural hazard issues outlined in Section 4.0.

7.0 Report Closure

This report has been prepared for the benefit of Noel Gutzewitz & Jo Boyd with respect to the particular brief given to us and it may not be relied upon in any other context or for any other purpose without our prior review and written agreement. Please don't hesitate to contact us if you have any questions on the content of this letter.

For GeoSolve Ltd by:



Paul Faulkner

Senior Engineering Geologist

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