Appendix A

Development Site

A4

PRELIMINARY

Rev.	Date	Revision Details	By
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Drawing Title:

LOCALITY PLAN
SELWYN DISTRICT COUNCIL
REZONING APPLICATION
PREBBLETON

	Signed	Date
Surveyed		
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Appendix B

Geotechnical Report

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4 October 2007

Maurice Coffey
25 Cairnbrae Drive
PREBBLETON

Dear Maurice,

GEOTECHNICAL SITE APPRAISAL
LOT 105 DP331951 AND PT LOT 104 DP 24908, CAIRNBRAE DRIVE, PREBBLETON

Introduction
Maurice Coffey is proposing to rezone a 17.7 ha block of land at the end of Cairnbrae Drive in Prebbleton. The site has the legal description of Lot 105 DP 331951 and Pt Lot 104 DP 24908.

As a part of the proposed residential development Maurice Coffey has engaged Connell Wagner to undertake a geotechnical site appraisal in order to provide geotechnical advice on developing the stormwater treatment system.

This report presents the results of geotechnical investigations and provides engineering consideration for the proposed stormwater treatment system.

Site Description
The site is located at the end of Cairnbrae Drive in Prebbleton. The legal title is Lot 105 DP 331951 and Pt Lot 104 DP 24908.

The site is irregular shaped and becomes narrower in the north. It is orientated in a northeast-southwest direction.

The site is bounded to the northeast by Blakes Road, to the east and south east by a residential area and to north and southwest by tree lines and vegetated pasture land.

Access to site is via Cairnbrae Drive in the south east or via Blakes Road in the northeast.

The site is flat, with a residential dwelling located in the south. The area surrounding the dwelling is used as a private garden and is bounded by trees, gorse and fences. The remainder of the site is vegetated in pastoral grass. A gorse hedge runs through the centre of the site, from the west to the southeast, effectively dividing the site into two similar size areas. Gorse and large trees grow along the boundaries.

The 1:100,000 scale, "Geology of the Banks Peninsula" map, published in 1993 by the Institute of Geological & Nuclear Sciences, indicates that the site is underlain by "dominantly alluvial sand and silt."

The review of the GNS Active Faults Database shows the site is approximately 27km south of the closest active fault.

Geotechnical Investigation

Physical site works included test pitting at different locations of the site. Test locations are shown in Figure 1. All soil samples and testing were logged by a geotechnical engineer in accordance with NZ Geotechnical Society "Guidelines for the Classification and Field Descriptions of Soils and Rocks in Engineering" and the Connell Wagner "Site Investigation Manual".

Seven test pits were dug out with a 12t excavator, see Figure 1. Excavations indicated a layer of topsoil underlain by different types of sand and silt to a depth of about 2.5m, followed by sandy gravel with cobbles to the maximum test pit depth of 5m. In the northern part of the site (TP3) we were unable to find the gravel layer at the maximum test pit depth of 5.2m. The test results are attached in Appendix A.

Samples taken at a depth of 4.5m in TP4 were sent to the laboratory for testing in order to determine the permeability of the gravel layer. The laboratory test results of the Particle Size Distribution are attached as Appendix B.

The classification was made by sieving the oven dried material. The results indicate the following distribution and soil type:

- 5% Silt
- 14% Sand
- 81% Gravel

Based on the laboratory results we were able to classify the tested soil sample as sandy-GRAVEL.

Groundwater was not encountered in any test pit. The maximum test pit depth was 5.2m.

Engineering Consideration

Based upon the above test results and review of published geological information we infer the following geological model for the area below the centre of the site:

- 300mm Topsoil overlying,
- 1700mm to 2000mm of Sandy SILT overlying,
- Sandy GRAVEL to depth

For the northern part of the site we infer the following geological model:

- 200mm Topsoil overlying,
- 2000mm Sandy SILT overlying,
- Silty SAND to depth

The determined permeability value presented by Lambre and Whitman in 'Soil Mechanics', 5th ed. is:

$$k \approx 500mm/h$$

Due to the sandy-gravel underlying the southern part of the site we suggest that the soakage pits are located towards the southern end of the site. In this area the stormwater is likely to drain into the highly permeable sandy-gravel soil.

Limitations
The contents of the report are for the sole use of the Maurice Coffey and no responsibility or liability will be accepted to any third party. Data or opinions contained within the report may not be used in other contexts or for any other purposes without our prior review and agreement.

The recommendations in this report are based on data collected at specific locations and by using suitable investigation techniques. Only a finite amount of information has been collected to meet the specific financial and technical requirements of the Client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.

Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.

Subsurface conditions, such as groundwater levels and slope conditions, can change over time. This should be borne in mind, particularly if the report is used after a protracted delay.

This brief report is not to be reproduced either wholly or in part without our prior written permission.

Obtaining any required consents from the local territorial authorities is the clients responsibility.

Should you have any queries regarding this letter or the project please do not hesitate to contact the writers.

Yours sincerely

Dr Jan Kupec
Geotechnical Consultant

Enc: Figures
Photos
Appendix A - Test Pits Logs
Appendix B - Labrotory Report