IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of a submission in respect of the **PROPOSED WAIKATO DISTRICT PLAN** by **AMBURY PROPERTIES LIMITED** pursuant to Clause 6 of Schedule 1 of the Act to rezone 178ha of land at Ohinewai

STATEMENT OF REBUTTAL EVIDENCE OF PHILIP BRENT WHEELER

1. **INTRODUCTION**

1.1 My name is Philip Brent Wheeler. I am an economist at Brent Wheeler Group Limited.

1.2 I have outlined my qualifications, experience and commitment to comply with the Environment Court Expert Witness Code of Conduct in my evidence in chief (**"EIC"**).

1.3 I have read the statements of evidence of the following witnesses:

(a) Mr Blair Keenan of the Waikato Regional Council; and,

(b) Mr Ken Tremaine of the agency Future Proof.

Purpose and scope of rebuttal evidence

1.4 This statement of rebuttal evidence does not restate matters addressed in my EIC but addresses one issue raised in the evidence of Mr Keenan.

1.5   In response to a query from Mr Keenan, this statement of rebuttal evidence identifies how the calculations in my EIC relating to the cost of capital were calculated.

1.6   Specifically, this statement addresses the following:

(a)   The query raised by Mr Keenan (Section 2);

(b)   An overview of how the cost of capital is treated in my EIC (Section 3);

(c)   My calculations of cost of capital in respect of the proposal (Section 4).

2.   **QUERY RAISED BY MR KEENAN**

2.1   Mr Keenan states at paragraph 7.4 of his evidence that:

> *"Dr Wheeler's capital investment analysis is a potentially useful alternative methodology. Dr Wheeler notes that the weights and return estimates are shown in 'Attachment A' . However, it is difficult to interpret the investment schedule that makes up Attachment A. It does not clearly show how the proposal cost of capital was reached, nor the method for the 'risk adjustment' mentioned in Dr Wheeler's evidence. I therefore cannot verify Dr Wheeler's estimate of the proposal cost of capital of 6.73%, and cannot place any weight on this."*

2.2   Below I set out in more detail how the calculations I undertook for my evidence were developed and should be interpreted.

3.   **COST OF CAPITAL**

3.1   The cost of capital is a forward looking or expectational variable when used both as a benchmark and in respect of the proposal when considering likely future impacts. Historical data provide but one input into estimates. Others include asset prices and liquidity to the extent that these parameters are capitalised into securities prices and thus returns.

3.2   The estimation process necessarily involves subjective judgments. Thus, while arithmetic calculations are made, these nonetheless rest on subjective judgments about likely future conditions. The key

principle used to guide the making of judgments is the notion that investors will operate on average and over the long run in a manner which improves their net benefit to the greatest extent possible consistent with costs.

3.3 Both of these considerations, common to all investment analysis, should be borne in mind when interpreting the analysis in my EIC.

4. **OHINEWAI PROPOSAL - COST OF CAPITAL**

4.1 The estimates of cost of capital were developed using the Capital Asset Pricing Model (CAPM)[1]. The CAPM is widely used in financial economics and corporate finance for this purpose.

Benchmark Cost of Capital

4.2 While there are many variants, I have adopted that of Armillary capital (4.98%) for New Zealand as estimated in their most recent publication[2].

4.3 A comparison using US data[3] shows the following:

4.61%	US bond
3.00%	Equity Risk Premium
-2.00%	NZ Country risk
5.61%	Imputation
4.61%	

4.4 The Armillary estimate of 4.98% may therefore be regarded as reasonable and "tilts" the estimate in favour of a lower estimate of economic impact rather than a higher one.

4.5 This provides the base for calculating the expected positive economic impact.

Proposal cost of capital

4.6 The steps used to calculate the costs of capital expected for the proposal are set out in my EIC

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[1] Described with additional references in:
https://corporatefinanceinstitute.com/resources/knowledge/finance/what-is-capm-formula/nd
[2] https://www.armillary.co.nz/wp-content/uploads/2019/06/2018-ROCE-Report-final.pdf
[3] https://www.bloomberg.com/markets/rates-bonds

4.7   I clarify points raised by Mr Keenan as follows:

(a)   In line with investment convention, estimates of risk are derived from the securities prices commonly found to be associated with the assets in question.

(b)   As noted, Damodaran provides estimates of beta, the primary risk parameter used to estimate risk for the asset classes[4]. These in turn are used to provide estimates of return for the asset classes.

(c)   Thus, in respect of, for example, Sleepyhead, estimates of risk and observations of security prices across companies comparable to Sleepyhead yield an estimate of 9.0%.

(d)   Where exact replicas of assets are not available various methods such as averaging (weighted), combining assets, or comparing comparable companies, are used to produce proxies and estimates.

4.8   Levels of investment in the proposal have then been used to determine the contribution of each asset or asset group. These then allow weighted risks to be calculated so that the sum of "risk adjusted returns on investment" can be calculated.

Brent Wheeler

24 August 2020

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[4]   http://pages.stern.nyu.edu/~adamodar/New_Home_Page/data.html