Before Independent Commissioners Appointed by the Canterbury Regional Council and Selwyn District Council

In the matter of	The Resource Management Act 1991
And	
In the matter of	Applications by **Fulton Hogan Limited** for all resource consents necessary to establish, operate, maintain and close an aggregate quarry (**Roydon Quarry**) between Curraghs, Dawsons, Maddisons and Jones Roads, Templeton

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REBUTTAL EVIDENCE OF MICHAEL OLIVER CHILTON ON BEHALF OF FULTON HOGAN LIMITED

AGGREGATE DEMAND AND SUPPLY

DATED: 21 OCTOBER 2019

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Introduction

1. My name is Michael Oliver Chilton and I am a consulting quarry engineer. My area of expertise includes aggregate demand and supply.

2. I have previously provided a written brief of evidence in relation to the Roydon Quarry Proposal. That evidence is dated 23 September 2019. I confirm my qualifications and experience as set out in paragraphs 4-7 of that evidence.

3. I also confirm I have read and agree to comply with those parts of the Environment Court Practice Note that bear on my role as an expert witness, in accordance with paragraph 8 of my earlier evidence.

Scope

4. In my rebuttal evidence I address evidence of the following witnesses:

   (a) Mr Arthur Oliver Turner (Civil Contractors New Zealand Inc.) – the importance of extending the supply life of aggregate;

   (b) Mr Wayne Scott (Aggregate and Quarry Association of New Zealand) – the importance of aggregates to society, sustaining supply and sterilisation of resources;

   (c) Mr Robert Campbell Officer (Allied Concrete Ltd) – shortening the life of quarries that produce concrete aggregate; and

   (d) Mr Martin Flanagan – the softening of aggregate demand and the increased costs of aggregate to the Canterbury community.

5. I will also identify matters not discussed in my primary evidence but which are raised by these witnesses and with which I agree.

Mr Arthur Oliver Turner

6. In his evidence, Mr Turner discusses the importance of aggregates to the lives of every New Zealand citizen for providing social, cultural and economic well-being of citizens and communities and maintaining critically important infrastructure such as roads, buildings and the three waters (potable, stormwater and sewage). He also mentions the relatively high usage per capita compared to most countries. This is consistent with my evidence (paragraphs 10-11).

7. On page 2, he mentions the concern that CCNZ has on behalf of its members of aggregate shortfalls in the medium-term future, and the importance of having long-term security for aggregate supply. In my opinion there is basis for his concern. In my evidence (paragraphs 45-46) I conclude that the currently consented supply of aggregate in Greater Christchurch will be depleted around 2043. If no further quarries are consented before that time, there will be shortage of aggregate in the medium term.

8. Also on page 2, he outlines the importance of the proximity of quarries to their intended markets to minimise transportation costs. He specifically mentions the growth areas in west and southwest Christchurch that could be serviced from Roydon Quarry. This is consistent with my evidence in paragraph 15.

Mr Wayne Scott

9. In his evidence, Mr Scott explains the importance and wide range of uses for aggregates (paragraphs 9-11) and that demand is "essentially driven by population growth and infrastructure development and maintenance" (paragraph 13). This is consistent with my previous evidence and was the basis for my aggregate demand forecast.

10. In paragraphs 15-17, Mr Scott lists the reasons why consented aggregate supplies are dwindling. I note he mentions sterilisation of resources by encroachment of urban development in paragraph 15. The solution for this is forward planning to identify and protect strategic resources such as is mentioned in my evidence (paragraphs 16-17).

Mr Robert Campbell Officer

11. Mr Officer's evidence addresses the usage of aggregates in concrete and therefore how the supply of aggregate influences the supply of concrete, in emissions (paragraphs 10 and 19-22), cost (paragraphs 17-18) and quality (paragraphs 8-11).

12. His concern is therefore the downstream effects of changes in aggregate supply to the readymix supply. He notes (paragraphs 13-16) that although the proposed Roydon Quarry is intended as a replacement for Pound Road and not as a supplier of concrete aggregates, if Roydon is not consented then the basecourse demand will need to be met from a concrete aggregate-producing site such as Miners Road, placing stress on the concrete supply chain. I agree with his statement.

Mr Martin Flanagan

13. On page 1 of his evidence, Mr Flanagan states that due to the majority of the earthquake-related and northern and southern motorways work being near completion, there will be an "ongoing net reduction in quarry related work". I agree there will be a reduction in aggregate demand compared to the post-quake demand levels. But the reduction will merely bring demand and supply back to a "business as usual" scenario with aggregate demand of 9.6 tonnes per person per annum compared to the post-quake 12.6 tonnes (Table 1 from my evidence). This business as usual model predicts consented aggregate supplies to be exhausted around 2043 instead of the current trend of around 2038.

14. Given the length of time required to locate and consent a new quarry resource (see evidence from Mr Craig Stewart paragraphs 40-51), and the reality that quarries will be exhausted at different times during this period, placing pressure on remaining resources, in my opinion it is essential to continue to identify, protect and consent future aggregate resources. I note from the "Our Space" (2019) report[1] that by 2043 there is expected to be over 17,000 homes built in the Selwyn District (and over 62,000 in Greater Christchurch). This has the potential to result in further sterilisation of aggregate resources, if appropriate protection of resources does not occur and if quarry owners are reluctant to seek consents owing to dwellings having established nearby. If extraction can occur first then other development can follow and the land can deliver on two important uses. If development for housing goes first, the gravel resource is sterilised.

15. On page 2 of his evidence, Mr Flanagan concludes the extra cost to a Canterbury resident of an equivalent quarry 10km further away is $5.25 per year. The other concern with moving quarries further away from the area of demand is that more trucks will have to be used to deliver the aggregate. This is not because the total amount of loads increases, but because of the loss in productivity. The extra 20km of travel in my experience and that of Mr Kelvyn Jolly adds another 20 minutes onto each journey. The quarry operator then needs to add more trucks to that job or increase quarry opening hours to compensate. More remote rural roads can be less suited to quarry traffic volumes as they are generally narrower with less resilient pavement design.

[1] Available from http://greaterchristchurch.org.nz/ourspace/

Conclusion

16. I note from the evidence of Messrs Turner, Scott and Officer that they see the importance of aggregates, relatively high usage per capita in New Zealand and importance of continuity of supply close to the point of demand consistent with my previous evidence.

17. I agree with Mr Flanagan that aggregate consumption in Greater Christchurch will return to a business as usual rate. I note, however, the business as usual consumption of aggregate in Greater Christchurch will still require considerable resource and create pressure on the remaining consented aggregate resources as they near exhaustion.

18. It is important to identify, protect and consent future aggregate resources, so the land can deliver on more than one important use.

19. Siting quarries further away from the area of demand causes productivity losses and potentially moves quarry traffic onto less suitable roading networks.

Michael Chilton
21 October 2019

Annexure to Rebuttal Evidence of Michael Chilton – Correction to Paragraph 45 of Primary Evidence

In my evidence dated 23 September 2019, I said:

45 There have been three quarries consented since Mr English's work in 2015 when he calculated 130Mt of aggregate resource remaining. These three new consents have added a total of 7.9Mt to the consented gravel volume in the Greater Christchurch area.

This was incorrect. Paragraph 45 should have been:

45 There have been three quarries consented since Mr English's work in 2015 when he calculated 130Mt of aggregate resource remaining. These three new consents have added a total of **9.1Mt** to the consented gravel volume in the Greater Christchurch area.

This consequently has slight changes to Figures 10 and 11, shown below.

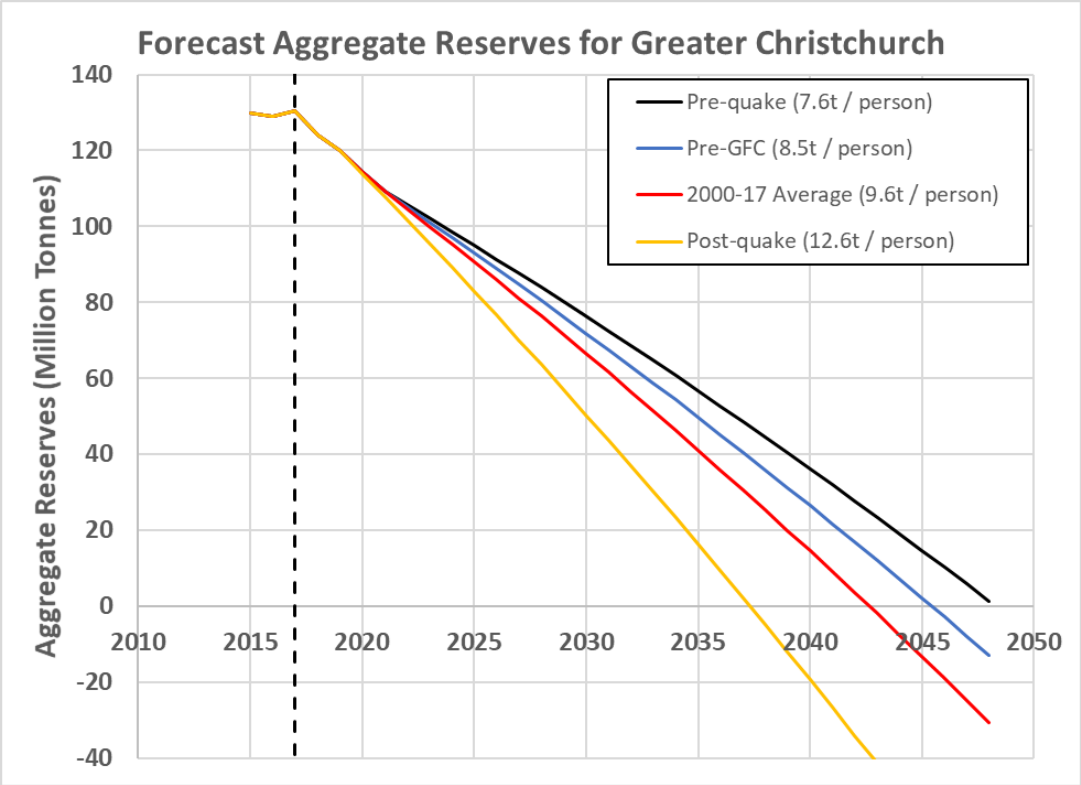

Figure 1 - Forecast aggregate reserve depletion

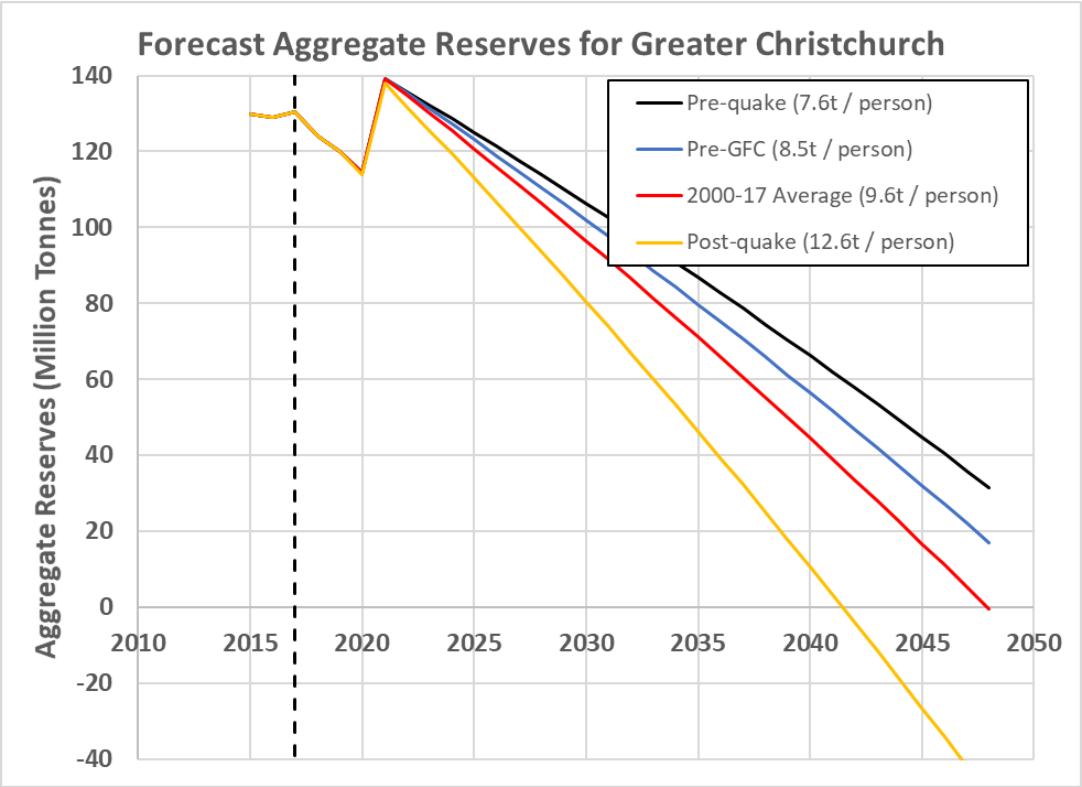

Figure 2 - Effect of consenting a 30Mt resource in 2020