BEFORE INDEPENDENT HEARINGS COMMISSIONERS APPOINTED BY CANTERBURY REGIONAL COUNCIL AND SELWYN DISTRICT COUNCIL

IN THE MATTER	of the Resource Management Act 1991 ("the Act")
AND	
IN THE MATTER	Applications by Fulton Hogan Limited for resource consents necessary to establish, operate, maintain and close an aggregate quarry (Roydon Quarry) between Curragh, Dawsons, Maddisons and Jones Roads, Templeton

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EVIDENCE OF IAN DAVID CLARK ON BEHALF OF THE NZ TRANSPORT AGENCY

14 October 2019

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1 Qualifications and Experience

1.1 My name is Ian David Clark.

1.2 I am a Director of Flow Transportation Specialists Limited, which was established in February 2005. Prior to October 2005 I was the Manager of the Transportation Planning Section at the Auckland office of Opus International Consultants Ltd. I was employed by Opus for eight years.

1.3 I hold a Bachelor of Arts in Geography from the University of Wales and a Master of Science in Transportation from the University of London. I am a member of the Chartered Institute of Logistics and Transport, the Chartered Institution of Highways and Transportation and the Australian Institute of Traffic Planning and Management. I am also a member of Engineering New Zealand (formerly the Institute of Professional Engineers of New Zealand), and I was formerly a board member of the Trips Database Bureau and Chairman of the New Zealand (Transport) Modelling User Group.

1.4 My work experience includes over 30 years in transport planning, working in both New Zealand and the United Kingdom.

1.5 My experience in New Zealand includes responsibility for the transportation planning of numerous major transport schemes, including the State Highway 20 (SH20) Manukau Harbour Crossing, the SH18 Upper Harbour Motorway, the SH1 Esmonde Interchange, the SH1 to Highbrook Drive interchange, the City Rail Link, and the Northern and Southern Corridor Improvements projects, all in Auckland. I was also responsible for the transport planning of the SH1 Russley Road/Memorial Avenue project in Christchurch. I was also involved in the early planning work for the Christchurch Southern Motorway Stage 1, between around 2001-2003, this being the motorway that now extends as far west as the roundabout at Springs Road/Halswell Junction Road.

1.6 I have also been responsible for reviewing a wide range of transport projects and developments, both for transport agencies and developers, including:

1.6.1 I reviewed the predicted effects of the Victoria Park Tunnel and the SH20 Waterview Connection projects, for the former Auckland City Council.

1.6.2 I reviewed various applications relating to Eden Park, for Auckland City Council and Auckland Council.

1.6.3 I reviewed the effects of a proposed Waterfront Hotel in Dunedin, for Dunedin City Council.

1.6.4 In Christchurch, I presented several briefs of evidence to the Independent Panel for the Christchurch Replacement District Plan, both on the transport chapter and on a variety of site specific proposals, in 2015. Prior to that I provided evidence to several plan change hearings, including those relating to the Styx Centre, and at Marshlands and to the Environment Court hearings relating to development at Belfast, in 2006 and 2011.

1.7 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Practice Note 2014, and I agree to comply with it as if this hearing was before the Environment Court. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

2 Scope of Evidence

2.1 In this evidence I cover the following:

2.1.1 My role in the project;

2.1.2 The location of the project;

2.1.3 The assessment of the project;

2.1.4 A consideration of the effects of the project.

3 Background and Role

3.1 In August 2019 I was commissioned by the NZ Transport Agency to provide advice on the transport modelling carried out in support of the proposal for a quarry at Templeton, known as Roydon Quarry.

3.2 I reviewed the following information:

3.2.1 Roydon Quarry Integrated Transport Assessment (ITA), Stantec, November 2018.

3.2.2 Roydon Quarry Project Model Assessment by Stantec, September 2019.

3.2.3 A further technical note by Stantec, dated 9 October 2019, with results of a modelling sensitivity test.

3.2.4 The submission by NZ Transport Agency, June 2019.

3.2.5 The evidence of Mr Andrew Metherell and Mr Tim Kelly.

4 The location of the Project

4.1 The site is north of Jones Road, between Dawson Road and Curragh Road. It is situated close to Main South Road but is separated from that road by the Main Trunk railway.

4.2 Main South Road forms part of State Highway 1. It therefore currently serves an important transport function, but its importance will decrease significantly following the completion of the Christchurch Southern Motorway Stage 2 ("CSM2"), which is currently under construction. While Main South Road will continue to have an important transport function, as it will continue to be the main route between Rolleston and State Highway 1 around Christchurch ("the Western Corridor"), it will cease to be the main route between Rolleston and central Christchurch.

4.3 As a result, the intersection of Main South Road/Dawsons Road will be less critical following the completion of CSM2, although the proximity of the intersection to the level crossing is of acute interest to the Transport Agency. This intersection is to be changed from a priority intersection to a roundabout layout, as part of CSM2.

4.4 The proposal is for a quarry to the north of Jones Road, with heavy vehicle access to Jones Road. The intersection of Jones Road/Dawsons Road is to be realigned, to give greater separation from the level crossing, and it is to become a roundabout.

5 The assessment of the Project

5.1 The ITA provided an assessment of the range of trips that may be generated by the quarry, based on data from the existing quarry at Pound Road.

5.2 While the quantum of heavy vehicle trips likely to be attracted to the quarry is difficult to estimate with accuracy, the use of data from a local quarry, which the new proposal is intended to replace, seems very relevant, and the analysis has considered a typical day and a maximum day.

5.3 The distribution of trips seems sensible and plausible.

5.4 In the ITA, the assessment took into account the anticipated effects of CSM2, and it considered the operation of the intersections of Main South Road/Dawsons Road and Jones Road/Dawsons Road using SIDRA, and it considered queuing back from the level crossing.

5.5 For the additional assessment, a detailed PARAMICS model was developed, to assess in greater detail the likelihood of queueing between the level crossing and the roundabouts to the north and south. More importantly, the additional assessment considered the probability of a northbound queue extending back from the level crossing (when a train causes the level crossing barriers to be lowered) to the Main South Road/Dawsons Road roundabout, which would block the State Highway. The results were provided as Table 2, under paragraph 121 of the evidence of Mr Metherell. There were two points of interest from that table:

5.5.1 It suggested that the probability of queueing in the morning peak was greater without the quarry, than with the quarry;

5.5.2 It suggested that the probability of queueing in the evening peak would be greater on the quarry median day than the quarry busiest day.

5.6 The above two points did not feel correct, but Stantec suggested that the results may be due to the change in layout at the intersection of Jones Road/Dawsons Road. However, the change in distance due to the proposed realignment to the proposed roundabout is likely to have negligible effects on travel times, and the forecast delays at the roundabout are also unlikely to affect routing.

5.7 It was subsequently noted that the PARAMICS model had assumed a change in the perception of the attractiveness of Dawsons Road, due to the change in layout at the realigned roundabout (of Dawsons Road/Main South Road). The effects of this input to the model were tested by Stantec rerunning the model without this factor. It should be noted that Stantec did not necessarily support that change, but they provided the results as a sensitivity test.

5.8 At the same time Stantec advised of a minor error in compiling the results for Table 2 of Mr Metherell's evidence. The updated results (with the perception factor) and the results of the sensitivity test (without the perception factor) are provided in the table below.

Table 3-1 from Stantec's sensitivity test report (9 October 2019)

Peak Period	Scenario	Estimated Probably of Occurrence of Queue Length Greater than 50m		
		Reported Network Scenario (Evidence)	Reported Network Scenario (updated analysis)	Sensitivity Network Scenario (updated analysis)
AM	Do Min	43%	30%	1.0%
	Median Quarry Day	41%	34%	
	Max Quarry Day	59%	49%	8.9%
IP	Do Min	8%	4%	0.0%
	Median Quarry Day	29%	17%	
	Max Quarry Day	43%	36%	7.2%
PM	Do Min	14%	9%	1.6%
	Median Quarry Day	32%	21%	
	Max Quarry Day	25%	17%	1.4%

5.9 The above table indicates that:

5.9.1 The morning peak results are now more logical (with the "reported network scenario, updated analysis"). That is to say, the development is predicted to increase the probability of a queue greater than 50m, from 30% (without the quarry) to 34% (with the quarry, on the median day), and to 49% (on the maximum day).

5.9.2 The inter peak results (again with the "reported network scenario, updated analysis") indicate that there is a low probability of a queue of greater than 50m without the development, namely 4%. The quarry is predicted to increase this to 17% (on a median day) or 36% (on a maximum day). The latter is a large increase, although the probability is lower than during the morning peak.

5.9.3 The evening peak results (again with the "reported network scenario, updated analysis") indicate that there is a fairly low probability of a queue of greater than 50m without the development, namely 9%. The quarry is predicted to increase this to 21% (on a median day) or 17% (on a maximum day). These increases are lower than those in the inter peak, presumably as lower trucks are forecast (per hour) after 3pm. However, the reason for the probability of a queue still being higher on the median day than on the maximum day is not clear.

5.9.4 It should be stressed that these percentages relate only to when the level crossing barriers have been lowered to allow a train to pass.

5.10 The results with the sensitivity test give significantly lower probabilities of queues above 50m. As noted above, it is my understanding that Stantec are not placing high dependence on these results.

6 The effects of the Project

6.1 From my review, I consider the key issues relating to the proposed access to be as follows:

6.2 I accept the point made by Mr Kelly, that it is very useful (in a transportation sense) for quarries to be in a location that is convenient for the intended market (in this case, close to the Christchurch urban area). It is also important that such facilities are located close to the primary road network, to minimise adverse effects of trucks travelling along unsuitable roads.

6.3 I also note that the proposed Roydon quarry will "make use of" the fact that the main point of access onto the primary road network (ie the intersection of Main South Road/Dawsons Road) will be significantly relieved (that is, bypassed) by CSM2, and it will be upgraded to a roundabout as a result of CSM2. The quarry will not become operational until CSM2 is open.

6.4 The proposed quarry will include an upgrade (and realignment) of the Dawsons Road/Jones Road intersection, which currently has a poor crash record.

6.5 The above points indicate that I am quite supportive of the proposal. However, the key issue of concern relates to the potential for queueing to extend back on Dawsons Road, from the level crossing to the State Highway. The updated analysis (summarised above) indicates that the frequency of a queue extending back to the State Highway will be fairly low, but the consequence of such an event could be quite significant, as it would cause unexpected queueing at the Main South Road / Dawsons Road roundabout. As such, I suggest that measures to mitigate this issue are explored by the applicant, in consultation with Kiwirail. Such mitigation could be in the form of queue warning (variable message) signals on Main South Road, which would become operational when the level crossing barriers are lowered.

7 Conclusions

7.1 My conclusions are as follows:

7.2 There are several features of this proposal that I can support from a transportation perspective, as noted in the preceding paragraphs. However, I recommend that the Applicant establishes mitigation measures to ensure that the adverse safety

consequences of potential queueing back from the level crossing to Main South Road are minimised.

Ian David Clark

14 October 2019