

I, **MARK JOHN RYBURN** of Wellington, Structural Engineer, state:

1. I hold a BE (Civil) (Hons). I am a member of the Institution of Professional Engineers New Zealand. I have 11 years experience as a civil engineer and construction project manager. Between 22 April 2010 and the present day I have been employed by Opus International Consultants Limited (**'Opus'**) as a structural engineer.
2. In January 2011 I was seconded to the Christchurch City Council (**'the Council'**) to carry out inspections under the direction of its building recovery office (**'BRO'**).
3. The inspections of buildings carried out by me and which are relevant to this inquiry were re-inspections of buildings which had previously been subject to Level 1 or 2 Rapid Assessments.
4. I carried out re-inspections of buildings as directed by Council staff at daily briefings. For the period that I was seconded to the Council I rarely visited Opus's offices. My day would typically begin with a briefing at the Council where I would pick up a manila folder for each property that I was designated to re-inspect. The contents of the folders varied but would include a Council re-inspection form filled out by the Council with the address of the property and sometimes my name and cell phone number as per the form for 187 St Asaph St.
5. From memory, the file would sometimes include, where available, other rapid assessment forms, photographs and any correspondence available. The files generally had limited information. They did not include drawings or building plans. The purpose of the re-inspections differed. Inspections were predominantly re-inspections carried out for the purpose of identifying damage caused by the September 2010 event or aftershocks that had not been previously identified, re-issuing the placarding and, in the case of Building Act notices, requiring that works be completed by owners and recommending a time frame within which works must be completed, within the context of the standard notice requirements of 60 days.
6. At the end of each day, or the following morning, I would hand back my completed re-inspection reports to the Council. Any significant concerns were discussed as part of the feedback briefing and separated for more urgent action or review.

7. The re-inspections were visual only. They were not detailed structural engineering evaluations and did not involve calculations of load bearing capacity.
8. As I was working alone I generally did not enter any buildings unless I felt they were safe and there was another person present.
9. By the time of my inspections in January and February 2011, all of the buildings I inspected and which are the subject of this inquiry had been inspected one or more times and there was an existing placard. I was not authorized to downgrade the existing placarding. I was, however, able to escalate the placarding from, for example, yellow to red.
10. At the time of the inspections I did not have any information from GNS or any other source regarding the likelihood, location and extent of further aftershocks, other than that generally available. My assumption was that aftershocks would continue generally following a standard aftershock decay sequence. My re-inspections were carried out within the context of that aftershock sequence and were governed by the damage I could observe, my engineering experience and judgement of the building characteristics. They were not governed by calculations or analytical assessments of residual or original capacity. I was generally aware of the Council's Earthquake Prone Building policy but my re-inspections were not carried out for the purpose of quantifying building strength under that policy.
11. I carried out about 10 inspections each day. Each inspection would take about half an hour, sometimes more sometimes less.

### **187 St Asaph Street**

12. I have been advised that the area of interest for counsel for the Commission is the inspection of this building and in particular the fact that the 187 St Asaph frontage was yellow placarded, but that the front of the same building on Colombo Street was green placarded, and that this difference was maintained by a number of engineers who looked at the building.
13. On 14 February 2011 I inspected the property at 187 St Asaph Street. This was on the corner of Colombo Street. The Colombo Street frontage was 593 Colombo Street.

14. I refer to my reinspection report **[BUI.COL593.0008M]**. This does not indicate whether I specifically inspected both frontages. My practice was to firstly look at the building generally in a "step back" view, to look for damage and hazards. I would do this before looking for particular damage that may have been identified in previous inspection reports on my file. My recollection is that there was cordon fencing along the front and I have seen a photograph indicating that a shipping container had also been placed along the front of the building **[BUI.COL593.0007A.5]**. I do not recall whether I inspected the Colombo Street frontage or whether access was available to that frontage. I have recently seen a report for a Level 1 inspection of 593 to 599A Colombo Street on 5 September 2010 **[BUI.COL593.0008B.1]** recording that a green placard had been recommended by the inspector for that side of the building, and that there was minor or no damage recorded in that area.
15. My reinspection report refers to cracking between numbers 187 and 189 St Asaph Street and records that there had been "no work to secure an overflow since 12/10" **[BUI.COL593.0008M.1]**. I believe that I had with me during my reinspection an earlier Level 1 inspection report which required that works be carried out on this area of the building. My reinspection report noted that I considered that there was still a safety risk between 185 and 187 St Asaph because the works had not been carried out and I noted in the report that the wall of 185 St Asaph had collapsed with the roof and wall left unsecured. I recall that I looked at 185 St Asaph to check that it had been red stickered, which it was **[BUI.COL593.0007A.5]**. There was a lane or accessway running between those addresses and I recommended that this area be fenced off to prevent the risk of injury from falling masonry until the works were completed. I have recently seen a report of Spencer Holmes Ltd dated November 2011 **[BUI.COL593.0045.1]**, which notes that Holmes Consulting Group were commissioned to design temporary shoring work and a concept design for strengthening work for 187 St Asaph which apparently was submitted just before my inspection. I was not aware of that at the time of my inspection.
16. 187 St Asaph Street was previously yellow stickered. I changed this to a red sticker. I also recommended that the works be carried out within 30 days. I generally regarded 60 days as a starting point reasonable time frame, but here the information available indicated that the owner had not complied with an earlier instruction to carry out stabilizing works.

**382 Colombo Street**

17. I am advised that the Commission's areas of interest for this building are why I inspected the building, my recollections of the damage I observed, and the thinking behind my comments and recommendations for further action.
18. My reinspection report records that I inspected the building on 4 February 2011. The report noted that the buildings were abandoned, although there were signs of occupation in the upper storey. I did not attempt to enter the back of the building or approach it closely because of comments from someone in the vicinity that the occupants were "slightly unhinged" [BUI.COL382.0009].
19. My report noted moderate damage and/or structural hazards and that propping and strengthening of the canopies was required, or that fencing be extended in front of the shops. Here I was referring to number 382 and the shops to the north since these buildings were similarly constructed of brick with similar parapet designs. The shop to the south, number 380 (Tasty Tucker) was a different more modern structure.
20. I also replaced the yellow sticker with a red sticker.
21. My recommendation of "[p]ropping to canopy and strengthening of canopies" was made in order to secure and strengthen the canopies themselves but not to specifically affect the loading on the existing gable wall.
22. The gable wall on the south side of number 382 is not specifically mentioned in my reinspection report, and as I recall I did not examine that part of the structure. I recall that access and visibility to that area was limited from both the front and rear of the property. It is likely that if I had identified a problem with the gable wall I would have noted this under items 1.1 and/or 2.1 of the Re-inspection Report.
23. I do not recall why I fixed a date of 4 April 2011 for the owner to carry out make-safe work. As I have already said, I generally regarded 60 days as a starting point reasonable time frame for owners to carry out works in the absence of information indicating that a shorter time frame should be recommended, as I did for 187 St Asaph Street for example where I recommended 30 days. I am now aware that the Council had earlier served a section 124

Building Act notice requiring works to be carried out. I do not believe I was aware of this at the time of my inspection.

24. I have been asked by counsel assisting the Commission whether I advised neighboring occupiers of the hazards at this property. I do not recall giving specific advice to neighbors of 382 Colombo Street. The sticker system was the primary means of giving advice to the public about the status of particular buildings and the fencing was a further means of communicating the risk. If I had considered that the building at number 382 presented a safety risk to the neighbouring building, I would have red stickered that building.

Dated December 2011

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Mark Ryburn