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Royal Commission

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Christchurch

Dr Marion Irwin Canterbury Earthquakes Royal Commission Submission

This is a submission to the Royal Commission on the Canterbury Earthquakes, Issue 3- Inquiry into Legal and Best Practise Requirements and Issue 6-Future Measures.

I wish to be heard in support of this submission.

Yours sincerely,

Dr Marion Irwin

Executive Summary

I support the development of National Standard Procedures, rather than just recommendations, for Rapid Assessment of Buildings after earthquakes. I believe this should include separation of Structural and Geotechnical Assessments, standardisation of placards, data collection sheets and methods of data transfer, regular training of Structural and Geotechnical Building Assessors, including technical training and also in relevant psychological skills such as stress management in an emergency and in dealing, sometimes as as a 'first responder', with people on site, who are also under stress. I believe training should be coordinated in peace time via CDEM groups/ councils, and procedures should be set in place for the debriefing and monitoring of the wellbeing of responding staff.

I also believe that authorising of placards under the CDEM Act during the response should be better coordinated with ongoing placarding in recovery under the Building Act, and that there should be more clarity for the public on the different meaning of the differently coloured stickers, and on the need for further, more indepth, engineering assessments for affected buildings.

Full Submission

1. General

- I was in Christchurch for four weeks after the earthquake of 22nd February. I am a structural and engineering geologist (ex Auckland University 1988-2004, 2010-2011, and ex Tonkin and Taylor, 2004-2009) and at the time was working for the Civil Defence and Emergency Management Department of Auckland Council. I believe that as a somewhat independent observer to a wide range of issues and situations during the response phase, I have valuable insights into some of the procedures that were followed, and improvements that can be made. I attended some meetings of the Port Hills Geotechnical Group and also spent time in the field with geotechnical staff conducting assessments on potential rockfall and land movement. I also had much discussion with Geotechnical Staff from Tonkin and Taylor who were conducting assessments of buildings affected by liquefaction in the Eastern Suburbs, and was present at some of their debrief meetings. I had extensive discussion with engineers, geologists and social scientists from Canterbury University, GNS, many engineering consultants, Environment Canterbury, Christchurch City Council, MCDEM and, more latterly, CERA.
- Although I am no longer employed by Auckland Council, I passionately believe that as a nation we need to learn all possible lessons from these earthquakes, and therefore wish to contribute my insights to the Royal Commission. I emphasise that my insights represent my own opinions only and cannot be taken to represent the views of Auckland Council, nor any of the agencies I worked alongside during my time in Christchurch.
- This submission related to Issue 3 section e: "The legal and best-practise requirements for the assessment of, and for remedial work carried out on, buildings after any earthquake, having regard to the lessons from the Canterbury earthquakes."
- In addition the submission relates to Issue 6- "Future Measures."

2. Content

I worked alongside geotechnical staff who conducted early/rapid geotechnical assessments in the Port Hills. I attended some meetings of the Port Hills Geotechnical Group and also spent time in the field with geotechnical staff doing these assessments. I believe that much time and geotechnical information was lost, particularly in the early stages, because inadequate procedures were in place prior to the earthquake for standardisation and gathering of geotechnical information. This made it very difficult for geotechnical engineers and geologists from a large number of different consultants to find a consistent, coordinated and unified approach to conducting assessments. Consequently, there was much rehashing and revisiting of sites required, especially during the early days/weeks. Some of these sites were red stickered and therefore responders were required to go back into an already recognised dangerous situation.

In addition, much confusion arose because of confusion where a house may be perfectly intact, therefore “green stickered” by structural engineers, but “red stickered” by geotechnical staff because of a threat from rockfall or other land movement. There were some instances of geotechnical red stickers being removed by structural engineers who did not recognise the geotechnical threat. Again, this resulted in the need for constant monitoring of databases and revisiting dangerous sites. More work, more stress, more danger for responders. Data was not always collected in a consistent way, and sometimes databases did not show which properties were affected by geotechnical issues. Much information fell through the cracks as it was passed from geotechnical staff to data entry staff.

I believe that separating the two issues would relieve some of this confusion. That having separate placarding processes for structural and geotechnical issues would be advantageous.

I believe that placards and placarding processes, along with training of geotechnical consultants in these procedures should be developed and standardised nationwide, and that training should be repeated regularly, so that as a nation we are prepared for future emergencies that involve response staff from all regions. These should also be congruent with international best practise, so that international responders are also familiar with procedures. It would be advantageous to address all geotechnical issues- liquefaction, rockfall, landslide, erosion due to flooding, etc (notwithstanding the fact that each situation will have unique characteristics.) I believe that training for geotechnical responders should be coordinated via CDEM groups/ councils, and it may be advantageous conduct training with staff from several consultancies at the same time to ensure they are “on the same page” right from the word go, as different consultants may have different approaches to the same situations. Discussion between staff from different consultants during peacetime would give a head start during an event, and reduce time loss while a coordinated approach is agreed.

Similarly, regular training for structural engineers and standardisation of process for structural assessments, data collection and stickering would leave the nation much better prepared for large scale emergencies.

I recognise that the urgency felt to conduct such training tends to wane over time, especially when there is a long interval between large scale events and I believe that this needs to be addressed with a high level ownership of the issue, within councils and consultants alike.

3. Content

Geotechnical staff working in the Port Hills were somewhat isolated from the EOC, and many of them were members of smaller consultancies, or selected staff from larger consultancies that were also trying to conduct “business as usual” (particularly as time went on). Consequently, I believe that there was not sufficient personal support for these responders. Most of them were not dedicated, experienced emergency responders, and all had their own personal stresses to deal with- whether they were locals and dealing with family situations and damaged homes of their own, or whether they were from out of town, and dealing with separation from their own families, and all were constantly the facing dangerous situation of visiting potentially unstable land with a constant threat of aftershocks.

In addition, particularly in the early days, the assessors, both geotechnical and structural, were frequently the first “official” point of contact for homeowners who may themselves be traumatised and need to talk. This was an added stress, and something for which the technical staff were usually untrained, and towards which they were not necessarily predisposed.

Some of these issues were excellently addressed by Tonkin and Taylor, who were mostly working in the Eastern suburbs on EQC claims. Their two dedicated leaders had excellent oversight over a variable pool of geotechs, as volunteers came and went from other regions and consultants.

The whole team was coordinated from one office, meeting together morning and at the end of the day for report writing and daily debrief, including airing of any issues of any kind arising during the day by

the team members. The debrief also included input from/ access to an industrial psychologist, who helped the team manage their stresses, and hence perform better, more healthily and more sustainably.

I believe that training for technical staff should include psychological insights to help them do their job. This should include how to manage their own stresses and how to deal with other stressed people. I believe that procedures also need to include adequate support, advice and debrief for the staff themselves.

4. Content

In discussion with engineers during the recovery phase I became aware of the issues arising at the transition from response to recovery, when the placards placed under the authority of the CDEM Act expired along with the cancelling of the state of emergency, and that replacing them with stickers authorised by the Building Act were subject to a more lengthy process. I support the clarification and better coordination of these two acts, to address this issue and enable a smoother, less complicated transition.

There also needs to be clarification to the public of what the stickers actually mean and especially of the need for more indepth engineering assessment, where it is necessary.

5. Conclusion

I support the development of National Standard Procedures, rather than just recommendations, for Rapid Assessment of Buildings after earthquakes. I believe this should include separation of Structural and Geotechnical Assessments, standardisation of placards, data collection sheets and methods of data transfer, regular training of Structural and Geotechnical Building Assessors, including technical training and also in relevant psychological skills such as stress management in an emergency and in how to deal with stressed or traumatised people they may encounter on site. I believe training should be coordinated in peace time via CDEM groups/ councils, and procedures should be set in place for the debriefing and monitoring of the wellbeing of responding staff.

I also believe that placarding under the CDEM Act during the response should transition more smoothly into placarding in recovery under the Building Act, and that there should be more clarity for the public on the different meaning of the differently coloured stickers, and on especially on the need for further, more indepth, engineering assessments for affected buildings.

The importance of looking after the people involved in response should not be overlooked. The disaster is only a disaster because of the people. Addressing technical procedures is only one part of what is required. The oversight of responders and helping them cope with the many, varied stresses is a crucial part of a good, sustainable response.