

Independent Hearings Panel

Christchurch Replacement District Plan

Te paepae motuhake o te mahere whakahou a rohe o Ōtautahi

Christchurch Replacement District Plan

CHAPTER 5: NATURAL HAZARDS (PART)

TRANSCRIPT OF PROCEEDINGS

Heard at: Christchurch Plan Independent Hearing Venue
348 Manchester Street, Christchurch

Date: 18 March 2015

Hearing Panel: Sir John Hansen
Judge John Hassan
Sarah Dawson
Ms Jane Huria
Dr Phil Mitchell

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DAY 10 – 18 MARCH 2015**[9.40 am]**

5 SJH: Thank you. Can we just have Mr Maurer sworn or affirmed.

MR WINCHESTER: Yes.

<FREDERICK MAURER, sworn

[9.41 am]

10

MR MAURER: I have distributed copies of some of the figures that I will be referring to. They are also available in our previous submittals, but I just wanted you to have a hard copy right in front of you.

15

My name is Frederick Maurer, Junior. I am a Principal Geotechnical Engineer with Coffey Geotechnics. I have practised as a geotechnical engineer in California, and for the last 34 months in Christchurch - New Zealand for 36 years.

20

My qualifications are further described in my previous submittals. I have presented evidence on behalf of Susan Mary Stubenvoll, submitter 845, in respect of her property at 40 Brenchley Road, Lyttelton.

25

In relation to rock fall I have previously given evidence in and served on the slope hazard expert caucusing undertaken in the matter of priority hearing 5 on the provisions regarding natural hazards/slope hazard in the Christchurch Replacement District Plan, under the guidance of Dr A J Sutherland as facilitator.

30

I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2014, and that I agree to comply with it in respect to my evidence.

35

Coffey's initial 4 November 2014 Report submitted as evidence on 20 February 2015 for this property did not identify rock fall hazards that could affect the land of Ms Stubenvoll, see figure 3 from our initial report attached, that is the first figure that you will see.

40

Based on our site visits and studies, rock fall source area 1 on this map was indicated as potentially affecting land north of the site, but not the site.

45

Rock fall source area 2 on figure 3, likewise was deemed as potentially impacting land north of the site as well as the eastern gully north of the site. You can see the eastern blue line on figure 3 - the two blue lines are the gullies that enter the site.

5 Dr Mark Yetton, however, on behalf of the Council performed source area mapping, ie ground truthing, of the source areas potentially affecting the site. Dr Yetton, based on the original GNS rock fall hazard area mapping as well as the CERA 3D Rock Fall Model, and the GNS Rock Fall Risk Model, identified four potential rock fall paths that could potentially impact the site. He therefore required further evaluation in the form of 2D modelling for Ms Stubenvoll's property.

10 Dr Yetton's plans 16/3 and 16/4 are attached for clarity. Plan 16/3 is the CERA 3D Rock Fall Model, and plan 16/4 is the GNS Rock Fall Risk Model.

15 Dr Yetton also identified a rock fall path, and herein after I will refer to the rock fall paths as transects, that could be used as a calibration run, if you will, to calibrate the evaluations.

20 Let me just say, this actual rock fall path or transect was one that actually occurred in the Hilton Heights area, and we know how far further the rock fall out went, and the calibration was therefore very well taken and did indeed predict that rock fall.

25 The final transects that we analysed are shown on appendix A, figure 1 of our second 20 February 15 report, which was also submitted as evidence on that same date, and that is also attached, that is appendix A, figure 1.

30 These transects were agreed to by Dr Yetton in our mediation session here in the Chambers. Coffey Engineering Geologists, Adam Broadbent being one of them, and is one of our experts as well, subsequently performed ground truthing of our own, of all of the transects and of the topography and the site specific features, and modelled these transects using LiDAR determinations of the Canterbury Geotechnical database, which were modified based on the ground truthing, and then put into CAD initially, which allowed us to transport it into our rock fall programme, which is the same programme that the Council experts use, it is called "Rock Fall".

40 **[9.45 am]**

45 The result of the modelling indicated that two of the transects are not viable rock fall hazards to the site, transect one and transect two. In addition, transect three was shown to impact the site on its north eastern rural extent, as it had previously been mapped, but not to impact the residential area to the west.

5 Our 2D modelling work was submitted to Drs Yetton and Macfarlane for peer review. Dr Yetton then proposed corroborative rezoning of the north-western residential portion of the site. This would reduce the rock fall hazard management areas, zones one and two and the residential area north-west portion of the property that is shown on Dr Yetton's plan R3.2, which is also attached in your package.

10 We requested the slope stability Panel approves Dr Yetton's proposed zoning changes, both the rock fall hazard management zone one and RHM zone two of the north-western residential portion of 40 Brenchley Road.

15 We also respectfully request that the Panel consider similar such zoning changes on the southern portion of the RHM zone mapping, ie changing the perimeter of RHM zone one to RHM zone two, as depicted, using hand insertion by myself on Dr Yetton's plan R3.2, which again is attached. This is requested because available information shows this area to be at less risk than the adjacent RHM zone one to the north.

20 Finally, on 25 February, just a few weeks ago, the Council filed a notice of cross-examination on behalf of Christchurch City Council, this listed those experts Council would like to cross-examine, and neither I nor Dr Quigley - who is going to be up - next was listed. We therefore did not appeal to cross-examine any of the Council's experts. We questioned them why cross-examination of Dr Quigley and I was added on Monday 16 March to today's indicative hearing schedule. Thank you.

30 SJH: Mr Winchester?

MR WINCHESTER: Simple answer to that last question, sir, this evidence was late.

35 SJH: Exactly. Your evidence was not on time, that is why it was a late application, and they were given the right to do so. There are time limits which have been ignored by this submitter.

40 MR MAURER: Can I comment on that?

SJH: No, you will be cross-examined, okay?

MR MAURER: Yes.

45 SJH: Yes, Mr Winchester.

<CROSS-EXAMINATION BY MR WINCHESTER [9.49 am]

MR WINCHESTER: Thank you, sir. Now, Dr Maurer - - -

5 MR MAURER: Excuse me, Mr Maurer.

MR WINCHESTER: Sorry, Mr Maurer.

MR MAURER: Yes, I have the Masters but no PhD.

10

MR WINCHESTER: Thank you. Sorry. Now, your report identifies there are boulders in the ground surface area on your client's land, in the gully features and over the so-called backbone feature, doesn't it?

15 MR MAURER: There are no rock fall hazard boulders in the back bone area.

MR WINCHESTER: Yes, but there are boulders in those areas, aren't there?

MR MAURER: Yes.

20

MR WINCHESTER: And they are the result of a past debris flow, aren't they?

MR MAURER: Probably multiple.

25 MR WINCHESTER: And debris flow is a slope stability hazard, isn't it?

MR MAURER: Yes.

30 MR WINCHESTER: And in terms of life risk, which is what this Plan is dealing with on the Port Hills, in terms of slope stability, a coarse debris flow of this type would be damaging and potentially life threatening to the occupants of houses in its path, wouldn't it?

MR MAURER: Yes.

35

MR WINCHESTER: And so bearing in mind that position why does your report not analyse or provide any evidence at all about this particular natural hazard risk?

40

[9.50 am]

MR MAURER: Sure. We were tasked with evaluating only rock fall for cliff collapse, if you will, that this Panel was going to hear, or mass movements, for example, because this Panel hears that too. We are very well aware that there are debris flow hazards that those two gullies, the two blue lines on the plan detect.

45

5 However, those are very mitigatable and the whole intent of this hearing and our work for Ms Stubenvoll for rock fall risk was to have the zones of actual rock fall risk evaluated. Debris flows are not rock fall, so that is what we concentrated on.

10 We completely acknowledge Dr Yetton's comment that at the point, if and when it occurs, that either resource consent for a subdivision, for example, or building consent for homes occurs by Ms Stubenvoll or her developer or a future owner that that is something that we, for the geotech on it, we would have to look at very seriously and look at whether or not there is existing mitigation. There are now - because these debris flows that you see the evidence of, that Ms Stubenvoll has always called the "backbone" and I think it is labelled on her figure 3
15 as the backbone, these debris flows are quite old, so they pre-exist a grading up there.

20 There has already been some grading done, including roadways with culverts crossing through them. They are actually heritage culverts from what I understand, that would help mitigate that to a certain extent. But what we would have to do is we would have to model the size of the debris flow that would come down each of these gullies, and we would have to figure out just what kind of engineering controls we would have to put in to prevent if we are going to develop those areas,
25 like you say, damage to a building or loss of life.

MR WINCHESTER: Okay, thank you. So the short point is there is a natural hazard in the form of a debris flow risk that poses a potential life risk to the property and occupants of dwellings, that is a fact, isn't it?
30

MR MAURER: If residential development was consented or was proposed to be consented in the gullies.

MR WINCHESTER: And have you done any analysis or calculations of what the AIFR risk would be as a consequence of that natural hazard, that debris flow risk?
35

MR MAURER: Not for debris flow, no.

40 MR WINCHESTER: And you have read the supplementary or the rebuttal evidence of Dr Yetton of 27 February 2015, and he says that the debris flow issue is a significantly more serious risk to life and property in the gully areas of your client's property than rock fall, do you agree with that opinion?
45

MR MAURER: Could you read it again, sorry?

MR WINCHESTER: 7.6, Dr Yetton says - his rebuttal statement – “In my professional opinion the debris flow issue is a significantly more serious risk to life and property in the gully areas of 40 Brenchley Road than rock fall, however, I am not qualified to provide an expert opinion on the degree of flood risk”.

MR MAURER: In the gully areas I would have to agree with that. Just as an aside, you know, I have been doing this for 35 years and I have never seen any applicant propose to build a structure in a gully such as these. What we have to do is if somebody decides to try to consent a home or a residential structure on the backbone we would have to evaluate whether the debris flows coming down the gully could impact that end or any access to that.

MR WINCHESTER: And there is also mention of a flood risk quite apart from debris flows and there was mention during the mediation session of Ms Stubenvoll kayaking down the gullies in periods of high flows, are you aware of that?

MR MAURER: I saw Dr Yetton’s testimony on that. I frankly do not remember her saying that, I think it was just a casual comment that she made. I do not know, I did not hear it.

MR WINCHESTER: And so bearing in mind, irrespective of the source of the risk, it is a hazard and it poses a risk to life on this property, doesn’t that then provide a foundation for hazard mapping and specific consideration of - - -

MR MAURER: I am not a flooding expert. Sorry to interrupt. I am not a flooding expert but I would say you would have to ask somebody that may be involved with some of the FMA hearings.

[9.55 am]

MR WINCHESTER: Thank you. Now, if I can just my question again. Given that there is an acknowledged hazard related to slope stability and you have acknowledged there is a risk to life as a consequence of this hazard, wouldn’t you agree that it is appropriate that this property is mapped in a slope stability hazard area so that it is expressly assessed for those risks in the event of subdivision or development?

MR MAURER: Within the context of the current zonations that the Council has, that is flood management areas, liquefaction zones, mass movement zones and rock fall hazard and cliff collapse, I do not see that this hazard fits into any of those. However, if there is no provision

5 in the district plan or in the resource consent process, and of course there is, to have a geotechnical analysis of any proposed subdivision site then perhaps it should be included in some kind of mapping. But, like I said, of course there is a process, I have done it for several subdivisions in the Port Hills, of geotechnical engineers evaluating all hazards associated with development of land and clearing them or providing mitigations for those.

10 I cannot imagine that any Christchurch geotech would look at this site and miss the debris flow, plus it is now on record within these hearings, the testimony, that it needs to be evaluated.

MR WINCHESTER: Thank you, Mr Maurer. Thank you, sir.

15 SJH: Any re-examination, Ms Stubenvoll, of your witness?

MS STUBENVOLL: Is it okay to ask a question of Mr Winchester?

20 SJH: No.

MS STUBENVOLL: Okay.

SJH: You can ask a question of your witness that arose from the cross-examination, but not of Mr Winchester, no.

25

<RE-EXAMINATION BY MS STUBENVOLL [9.57 am]

30 MS STUBENVOLL: Thank you, sir. Could you tell us what size are these boulders that are on the backbone?

35 MR MAURER: Most of them are partially buried so it would be difficult to estimate exactly. Some of them are certainly the iceberg phenomenon too where only maybe 10 or 15 percent of them show. So I would think that, you know, if I may cut to probably what the source of your question is, Ms Stubenvoll, these would certainly be the size that would pose a rock fall risk if they were falling from a cliff or a rock fall source area, but the sizes vary.

40 MS STUBENVOLL: And the boulders which you have seen on the backbone, would it be possible for them to be carried down to that site by water?

MR MAURER: By debris flows, yes. Maybe, Mr Winchester, would you like me to explain what a debris flow is quickly?

45 SJH: No, thank you.

MR MAURER: Okay.

SJH: I think we have had evidence of that already.

5 MR MAURER: Water is included in a debris flow so it is.

MS STUBENVOLL: Okay. And would you, from your estimation, like to
comment on the age of the rocks compared to the gullies on either side,
following the conversation that we had where we surmised that rocks
10 had previously fallen a very long time ago and had subsequently worn
away two streams on either side of what I call the backbone, would you
like to comment on that?

MR MAURER: I would have to defer to a geologist. I am a good
15 geotechnical engineer but geologic history sometimes baffles me. My
understanding of the depositional characteristics in your area are that
the gully was probably one large gully at one time and that debris flows
coming down the two gullies plugged up the centre of it and then the
water was forced around that and the gullies continued to flow. So,
20 you know, we are talking about thousands of years obviously but my
understanding geologically is that the gulley preceded, pre-dated the
backbone.

[10.00 am]

25

MS STUBENVOLL: .And the final question, are you confident from the
transects which were agreed with Dr Yetton, and which were analysed
by your staff, and were shown to not be a rock fall risk to that gully, are
you still of the opinion that your assessment and Mark Yetton's
30 corroboration in accepting that evidence is the correct outcome?

MR MAURER: Yes, and those diagrams are kind of hard to read.
Mark Yetton's new mapping essentially puts the east side of the gully –
excuse me, the east side of the backbone, that is the blue line along the
35 east side of the backbone within Rock Fall Hazard Management Zone 2
and then the remainder of the north-eastern part of her property is then
Rock Fall Hazard Management Area 1. So if you could show his latest
submittal which is just on a topographic map. That shows it with the
zone changes shown, so you can see that Rock Fall Hazard
40 Management Area 2 came much more to the west previously and he is
now having that, just a tongue as he called it, along the eastern gully
and then the rest of the Rock Fall Hazard Management Area 1 is
upslope and east of that. Yes, I still am a very definite proponent of
this new mapping of Ms Stubenvoll's site.

45

MS STUBENVOLL: Thank you, sir, I have no further questions.

SJH: Dr Mitchell?

DR MITCHELL: No, I have no questions, thank you.

5

SJH: Ms Dawson?

MS DAWSON: I have just one question, thank you. Mr Maurer, you also in your statement today have asked that the southern portion of the site be changed to Rock Fall Management Area 2. Can you point us to the evidence that you wish us to use as the basis for this?

10

MR MAURER: Yes, some of it you have in front of you. So if you look at the plan 16.4 which is the zonation on a topographic map, the former zonation, you will see that upslope of the area designated 1, Hazard Management Area 1 on Ms Stubenvoll's property, there is quite a bit of blue, which is a very, very low risk of rock fall. There is the GNS mapped red line source area but you can see that it stops just past the northeast corner of Ms Stubenvoll's property, therefore that source is the one that is responsible for the 1 zonation over much of the northeast corner of her property. But the potential for that hazard, and there is no potential really from the blue hazard, generating rock fall along the southern boundary of that mapped area 1 is very low. In my opinion it is more like 10^{-5} or 10^{-6} and 1 is of course intended to be a 10^{-4} risk area. So we would request similar to how Dr Yetton proposes to have the western-most or boundary of that on the west be Hazard Management Area 2. We would propose the bottom of that boundary also be 2 instead of 1.

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MS DAWSON: But not including that corner, the southwest corner of the site that is identified as 1?

30

MR MAURER: Do you have the last photo, I actually hand drew what I would propose.

35

MS DAWSON: Yes, but it does not cover the whole site, does it?

MR MAURER: Right, yes, I just wanted to use Dr Yetton's figure. So it would enlarge as it approaches the east boundary of the property.

40

MS DAWSON: Right, thank you very much. That is all, thank you.

MS HURIA: No, thank you, sir.

45 SJH: Judge?

JUDGE HASSAN: No, thank you.

SJH: Right, this hasn't been given a formal exhibit number yet, this is proof of documents exhibit 20, thank you.

5

[10.05 am]

EXHIBIT #20 – SUPPLEMENTARY MAPS OF 40 BRENCHLEY AVENUE

10

SJH: Mr Winchester, anything from the Panel's questions?

MR WINCHESTER: No, sir.

15

SJH: Ms Stubenvoll, anything from the Panel's questions?

MS STUBENVOLL: Sorry, could you repeat please?

20

SJH: Any questions arising from the Panel's questions, from Ms Dawson's question?

MS STUBENVOLL: No, sir, I thank the Panel for taking such an interest.

25

SJH: Thank you, you may stand down.

30

MR MAURER: If I may make one more comment, Mr Chairman. We requested this but I do not know if got into the minutes. Mr John Young is here too and I am his expert, and is there any way that you folks could ask me any questions you have about that now? I did not submit anything for him today, I was not going to appear.

SJH: We understood that Mr Young had actually reached agreement with the Council.

35

MR MAURER: Yes, that is correct, but he just wanted to cover all bases.

40

SJH: No, I understand that, I fully understand. I will just check with the other members. Do you have any? Mr Winchester, you can confirm that agreement has been reached with Mr Young on his property?

MR WINCHESTER: Sir, I can.

SJH: Thank you. No, thank you.

45

MR MAURER: Thank you very much.

<THE WITNESS WITHDREW [10.06 am]

SJH: Now, Dr Quigley is next I think.

5 <MARK QUIGLEY, affirmed [10.06 am]

SJH: Dr Quigley, rather than evidence you have basically confirmed your report and then there is some additional evidence, can you confirm that you filed those various statements of evidence?

10

DR QUIGLEY: Yes, I confirm that, sir.

SJH: And you confirm your full name and your qualifications?

15 DR QUIGLEY: Yes, I do.

SJH: And do you confirm the contents of those are true and correct?

DR QUIGLEY: I do.

20

SJH: Thank you. And you want to put some more in as well. So we had better give those, we will staple them together and make that exhibit 21.

25 **EXHIBIT #21 – BOULDER VOLUME, MODERN v PALEO-ROCK FALL**

Yes, thank you.

30 DR QUIGLEY: I just have a brief written statement that I would like to read out here. So I have confirmed my name already. I am an Associate Professor in Active Tectonics and Geomorphology at the University of Canterbury, where I have taught since 2008. I am a winner of the New Zealand Prime Minister's Prize in Science Communication and a
35 Fellow of the Geological Society of America.

I have been an earthquake scientist for more than 12 years. My research specialities are in earthquake geology, geomorphology, paleo-seismology and cosmogenic nuclide dating. I am a leading expert on
40 the science of the Canterbury earthquake sequence having published more than 25 peer reviewed scientific journal articles and reports since 2010. I have participated in the Christchurch Replacement District Plan pre-hearing on 12 and 13 January 2015. On February 27, 2015 I submitted into evidence the research paper Mackey and Quigley 2014,
45 Strong Proximal Earthquakes Revealed by Cosmogenic Helium Dating of Prehistoric Rock Falls in Christchurch, New Zealand.

At the request of Sue Stubenvoll, submitter 845, I also submitted the supplementary information accompanying that paper into evidence at that time.

5

This study is the authoritative study regarding the return times of earthquakes analogous to the February magnitude 6.2 and June magnitude 6.0 earthquakes in the Christchurch area based on geologic proxies. The study site has been a research focus of two PhD students and a Rutherford post-doctoral fellow at the University of Canterbury since 2011, and has been continuously monitored for rock fall since 2010. Individual rock fall boulders have been studied in unprecedented detail and thousands of prehistoric boulders have been mapped and studied, seismic shaking intensities during rock fall events have been recorded nearby and estimated for the site.

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We used peak ground velocity rather than peak ground acceleration because PGAs are often very high in frequency, such that the momentum transferred to the potentially unstable rocks can vary widely. PGV is proportional to the “peak kinetic energy” transmitted and is thus a significantly better metric to use for quantifying rock fall triggering ground motions.

20

The conclusions drawn from this study are as follows: The youngest prehistoric rock fall boulders at Rapaki with a similar spatial extent to the Canterbury earthquake sequence boulders were placed between 6,000/8,000 years ago. Five of the 19 sampled boulders gave this age. We hypothesised that a preceding rock fall event may have occurred at 13-14,000 years ago, seven of 19 boulders gave that age.

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[10.10 am]

The 6,000 year hiatus between the penultimate and the Canterbury earthquake sequence events constrains the timeframe between successive significant rock fall events at the study site. We acknowledge the possibility that isolated boulders may have been dislodged and deposited elsewhere over that time but we did not find any evidence for that in our study.

35

The timeframe encompasses major known earthquakes in some of the most hazardous but more distally located faults in New Zealand – I add the Alpine fault and Hope fault to those faults – our data suggests that earthquakes from these faults in isolation are unlikely to cause rock fall of the severity and extent encountered in the 2011, February and June earthquakes.

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5 The modelled ground velocities required to cause rock fall initiation at the study site are 13 plus or minus 2 centimetres per second. When we modelled median PGV from all other active faults identified in New Zealand none exceed this threshold and only two sources exceed 10 centimetres per second.

10 We use these model results to compute the maximum distances that future fault ruptures could be to the study site and still cause peak ground velocities high enough to trigger a major rock fall. We conclude that this maximum distance is 10 kilometres for magnitude 6 earthquakes and 20 kilometres approximately for magnitude 7 earthquakes. This is consistent with the absence of significant rock fall at the site in the magnitude 5.9 2011 December earthquake, which was only 10 kilometres from the study site.

15 There are currently no known active faults within this spatial domain and magnitude range. We cannot completely discount the possibility that these faults could still exist, but at this juncture see no evidence in support of their existence.

20 Our further analysis involved the mapping of 1,015 prehistoric boulders at the study site. By comparing their distribution to 279 modern boulders (ie boulders that were deposited during the CES) identified at the site, we find that their maximum run out distance of paleo boulders is approximately 560 metres, some 200 metres or 26 percent shorter than the maximum run out distances of Canterbury earthquake sequence boulders.

25 We argue that existing native vegetation at the time of prehistoric rock fall events created a resisting effect sufficient to lower boulder velocities and reduce run out distances. We argue that established vegetation can have a significant effect of reducing run out distances of rock falls for this and analogous (**ph 10.12.46**) sites.

30 At this juncture I would like you to turn your attention to the two handouts that I provided you with – the first is an aerial map showing the distribution of individually mapped boulders, comparing the distribution of modern rock fall boulders which came down in the February and June 2011 earthquakes, which with paleo or prehistoric boulders that had been mapped at the study site. You can see a significant spatial overlap between those boulders on the upper parts of the slope, within the bound of the two black lines, which are the study site boundaries. As you move further down slope to the area outlined in yellow you can see that only modern boulders reached that area, there are quite a few boulders mapped in that area. But we failed to

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identify any paleo or prehistoric boulders at that area. So that was the initial justification for the conclusion that I just drew.

5 And secondly, the other plot shows elevation versus run out distance. You can see again that the numbers of boulders mapped, and this shows in a very similar way how the red triangles (the modern boulder) have a run out distance that greatly exceeds any individual mapped paleo boulder at that study site.

10 I just have a couple of final points here. I want to acknowledge the limitations of our study and these are as follows:

15 Number one, we cannot dismiss the possibility that future earthquakes or other non-seismic triggers could induce rock falls at lower thresholds than we calculate, given the currently weakened state of the rock mass. However, we do not expect rock fall of the severity of the 2011 February and June earthquakes unless similar ground motions occur. At present there is no concrete evidence that major mass movements analogous to those experience in the February and June earthquakes occur more frequently at any other location in the Port Hills than we have obtained in the study that I have presented the results for.

[10.15 am]

25 We cannot distinguish between single and multiple rock fall triggering events for the prehistoric rock falls we observed. The dating resolution means that clustered events over decades to centuries would not be distinguishable within the dating limits of our technique.

30 The high peak ground velocities required to cause a severe rock fall we document at the Rapaki site requires strong earthquakes that will also be strongly felt at Sumner and elsewhere in the Port Hills. Every Canterbury earthquake sequence event that caused extensive rock fall at Rapaki also cause severe rock fall and cliff collapse elsewhere in the Port Hills. However, it is possible that mass movement effects experienced elsewhere in the Port Hills may not be revealed in the Rapaki rock fall record. Whilst such events could have a different temporal distribution frequency to rock fall Rapaki events, there is no unequivocal evidence supporting this hypothesis at this juncture.

40 Finally, the GNS earthquake forecast model that is used for AIFR calculations is a prediction of the future, but has not been validated using other proxies and does not take into account seismic source information, for example the location of mapped active faults.

45

While our study cannot discount the possibility of other unmapped faults in the area capable of generating strong future earthquakes, the GNS earthquake forecast model cannot prove such faults do exist.

5 In the nuclear industry in the United States, geologic proxies for strong shaking or the lack thereof, are used as standard practice for ensuring seismic hazard analyses are reasonable. An important question to ask is, “How do we best combine short term statistical models of future seismicity with equally credible models informed by geology”, and I
10 I think that is particularly relevant going forward over the potential life span of this plan. That is it.

SJH: Mr Winchester.

15 **<CROSS-EXAMINATION BY MR WINCHESTER [10.17 am]**

MR WINCHESTER: Thank you, sir. Good morning, Dr Quigley.

20 DR QUIGLEY: Good morning.

MR WINCHESTER: Am I correct in understanding that the essence of your evidence is that based on your paper the assumptions and predictions in the GNS models are too conservative?

25 DR QUIGLEY: No, it depends what you mean by “conservative”, perhaps you would like to illuminate that to me.

MR WINCHESTER: Well, they overestimate risk.

30 DR QUIGLEY: At the initial prehearing I signed a statement to the account that I was in agreement with the approach used, that it was best practice. However, I acknowledge that I am not an expert in statistical seismology and we do not have anyone else other than Matthew Gerstenberger in New Zealand who is capable of assessing that study,
35 and I have no reason to think that it is not robust and sound evidence.

40 But I think that there are limitations to any dataset and uncertainties and I think that we have completely adopted that statistical model, and I think that that statistical model needs to be also informed by geology, whilst acknowledging the uncertainties therein.

MR WINCHESTER: Okay. So in terms of your expert evidence to the Panel about what they should do based on your opinion, can you just boil that down, what is it should they say that in regard to, for example Ms
45 Stubenvoll’s site, risk is overestimated based on your study?

I think that trying to take both the statistical seismology approach and the approach that I have offered here to any one specific site is quite challenging without site specific investigations, so I think that what we have seen is that site specific investigations need to be better informed by geology, and I think that is one of the points that I would like to make.

But I guess in a broader picture what I would like to see, going forward for the next two years into the future, that geology and paleoseismology plays a very important role in the assessing of life safety risk, and at the moment besides the mapping of the distribution of boulders that came down in the February and June earthquakes, and the geomorphology of the landscape, the actual geologic archive of past strong ground motion events has not been taken into account. And I think that that is something that could colour the way we look at that risk going forward.

[10.20 am]

MR WINCHESTER: Thank you, now your paper deals with and raises inference from data you have gathered in respect of one site in the Port Hills, that is correct is it not, at Rapaki?

DR QUIGLEY: That is correct.

MR WINCHESTER: I think in your summary of evidence you acknowledge that you were not able to distinguish between a cluster of earthquakes triggering rock falls, say 6,000 or 7,000 years ago or a single event, you simply cannot do that based on the geological record?

DR QUIGLEY: That is correct.

MR WINCHESTER: Are you able to be sure with regard to the Rapaki site whether an earthquake or a sequence of earthquakes were actually responsible for the rock falls that you say occurred 6,000 to 7,000 years ago?

DR QUIGLEY: No, we are unable to distinguish whether the prehistoric rock fall events were triggered in a single event or two events as would be the case if we came back and studied the February and June earthquake rock falls, 3,000 years from now we would be unable to distinguish them as being two events, so we have to acknowledge those uncertainties in the geologic record.

MR WINCHESTER: Yes, thank you. I think you did acknowledge some of the uncertainties in terms of what actually happens, and you made reference to the June 2011 earthquake, and are you aware of the

evidence of Dr Yetton, he has described that as a game changer in terms of what actually happened by way of rock fall events in terms of what was otherwise predicted based on generally accepted science?

5 DR QUIGLEY: Could you specify what you mean by game changer?

MR WINCHESTER: Well as I understand Dr Yetton's evidence it was that despite all best efforts and used the best available information that what actually occurred during the June 2011 event was a considerable
10 surprise to a lot of geotechnical experts.

DR QUIGLEY: I disagree with that statement, but I have not read the transcript that would describe to that, and I would like to acknowledge that I do not have the full story in that regard. However, I fail to see
15 how an event that generated strong ground motions, in some places equivalent to the February event, in some places higher and in other places slightly lower, I fail to see why a similar effect would not have been expected, that is some quite well known within the rock fall triggering literature.

20 For example - - -

SJH: Just pause a moment, I think it went a little further than that, Mr Winchester. In the part of my understanding of it was that the predicted
25 path of rock fall did not behave as expected in June following the work after February?

MR WINCHESTER: Yes, both the path, the volume and the source.

30 SJH: That is right, so there are discrete parts of it.

DR QUIGLEY: If I may, I think that one of the things that was established in the literature but which some people have thought about as being a new lesson, even if it is not a new lesson in my expert opinion, is that once
35 you have a very strong earthquake you release loose boulders and therefore the rock mass becomes less susceptible to future rock fall hazard going forward, and that is not the case. During very strong earthquakes, like February and June, you actually induce insipient fractures in the rock mass and therefore make it more susceptible to rock fall, or as susceptible to rock fall going forward as it was in the
40 past. And so I think that that is possibly what was being alluded to, but again, before I speak any more I would like to see the transcript I guess.

MR WINCHESTER: Thank you, fair enough. Just another couple of
45 questions. Now you would agree that in terms of the current earthquake sequence or cluster, we are not necessarily out of the woods yet are we?

DR QUIGLEY: I think that the seismicity rate has reduced greatly from the rates of seismicity prior to all of the major earthquakes that have caused any sort of rock fall in the Port Hills area. The statistical models and the basic analysis of seismicity rates suggest that we are currently, say between 30 and 40 times higher than the background rate of seismicity that we were prior to the Darfield earthquake.

[10.25 am]

From that perspective, and from the more sophisticated analysis conducted by Dr Gerstenberger, the risk of rock fall or the risk of strong earthquakes is higher now than it was. However, that rate is significantly lower than it was before and immediately after all the major earthquakes in Christchurch. By significantly I think the rates of seismicity during the Canterbury earthquake sequence were perhaps 500 to 600 times faster than background, and now we are at 35 times. By background I mean the rate of regional seismicity between 1940 and 2010 prior to the Darfield earthquake.

So I think that we do have to acknowledge that the level of seismicity and the subsequent risk, at least according to those models, has reduced significantly beyond what it was during the Canterbury earthquake sequence. However, we cannot dismiss the possibility outright of future strong earthquakes, and even though we find very little evidence for that from a geologic perspective we cannot completely discount that possibility.

A final comment on that is that if someone uses statistical seismology to say that there is a six percent chance of a magnitude six earthquake somewhere over a broad region in the next year, an important question to ask is if that event actually happens are they correct or are they incorrect in that statement.

What I am finding is there is a tension between source based geological approaches, where I am forced into somewhat of a binary position, where I have to either say there are active faults in the area close enough to cause rock fall, or there are not, therefore I can be right or I can be wrong. Whereas from a strictly probabilistic approach using overall low bulk probabilities, like say for instance six percent, I think that you, at some level you are correct irrespective of the outcome, although I know more sophisticated analysis can be done to validate those claims and test those claims.

MR WINCHESTER: Thank you, a final question and bearing in mind what you have just said about essentially hazard versus statistical probability, we have got a plan here that we are looking at for the next ten years and you are not suggesting that we should all relax on the basis that there

will not be another strong earthquake in the next 6,000 to 7,000 years, are you?

5 DR QUIGLEY: No, I am not suggesting that and I think very importantly the definition of what a strong earthquake is also very important, because that has not quantitative basis by just saying strong, so my professional opinion is that we are very unlikely to experience any future earthquakes in the short to medium and possibly even to the long term that generate peak ground velocities and peak ground accelerations analogous to those experienced in the February and June earthquakes in the Port Hills Region.

15 That is based on my understanding of active fault mapping, that is based on my understanding of the New Zealand Seismic Hazard model and so my professional opinion is as stated, however, I cannot completely dismiss that possibility, and it would be unprofessional of me to say we are out of the woods and there is no possibility of anything similar to those going forward.

20 MR WINCHESTER: Thank you Dr Quigley, thanks for your evidence. Thank you sir.

SJH: Is there any re-examination Ms Stubenvoll?

25 MS STUBENVOLL: May I ask two questions?

SJH: Well, as long as it arises from cross examination?

30 MS STUBENVOLL: I am sorry?

SJH: As long as it arises from cross examination.

<RE-EXAMINATION BY MS STUBENVOLL [10.29 am]

35 MS STUBENVOLL: Yes sir. Mr Quigley, from my understanding, as a layperson, you are proposing that instead of looking at rock cliffs and features on the surface of the ground, that our assessment of risk be informed by the fissures and cracks below the ground. Is that correct?

40 **[10.30 am]**

45 MR QUIGLEY: I think that the potential for geology and geophysics to contribute to seismic hazards going forward involves both surface investigations and subsurface investigations. The surface investigations would require further analysis of potentially paleoseismic features, and so, for instance, the frequency of large cliff

collapses in other parts of the Port Hills, other rock fall events. There is also a need to better understand the seismic structure beneath Christchurch.

5 There have been seismic reflection surveys done of active faults there. Understanding the potential of those faults to generate strong earthquakes that could cause rock fall in the Port Hills is something that needs to inform the future seismic hazard of Christchurch going forward, in my opinion and at this stage that data is not to the stage
10 where it can accurately do so.

MS STUBENVOLL: Thank you. So picking up on Mr Winchester's point, if we were to take into account your proposals to inform the District Plan, which is expected to last for 10 years, would you anticipate that we
15 would take into account the underground features of the Canterbury area when making assessments about future build or activities throughout the Canterbury area?

MR QUIGLEY: If those studies are done with utmost rigour and they undergo
20 peer review and they contribute meaningful testable data to that end then I would agree with that. I think that to take any of these things into consideration they actually need to be fully followed through with the rigour that we have done in our study here, and undergo a peer review. So it is very difficult to take those preliminary investigations
25 much further until they actually undergo careful scrutiny as our study has.

MS STUBENVOLL: Thank you. There has been a study done and been
30 checked by NIWA and was presented by Dr Kelvin Berryman to the people of Christchurch in The Dome during 2012 which showed numerous fault lines underneath Canterbury, some of which were active and some of which were old fault lines. From my understanding this work could be brought forward and used to inform more clearly - -
-

35 SJH: Dr Berryman gave evidence and I do not believe you made any application to cross examine Dr Berryman, did you?

MS STUBENVOLL: I did not see his evidence there, I only saw his evidence
40 in The Dome, I am sure it is the same.

SJH: Well, he was listed as a witness.

MS STUBENVOLL: No, I am not disputing his evidence, I am asking that
45 the District Plan be informed by his evidence.

SJH: So you are saying that all of this hazard mapping should be put on hold until this work is carried out, is that your submission?

MS STUBENVOLL: No, my submission is that the - - -

5

SJH: Well, let us be clear. What is it you are asking for?

MS STUBENVOLL: I am asking that when we look at hazards, particularly in the Port Hills where the result of a shake can be catastrophic, that we look at what the risks are under the ground, as well as on the surface of the ground.

10

SJH: All right, thank you. Did you have another question?

15

MS STUBENVOLL: No, that is fine. Thank you sir.

SJH: Thank you.

DR MITCHELL: Good morning Dr Quigley. As a scientist, do you agree with the proposition that the absence of evidence is not the same as evidence of absence?

20

DR QUIGLEY: I do agree with that in general terms, yes.

MR MITCHELL: And I take it from your evidence in the answer to questions that you are saying that there is a thrust of evidence which tends to suggest the probability of certain events happening in the future but you cannot rule out that there might not be another large earthquake in a particularly disadvantageous location with regard to rock fall at a particular location?

25

30

DR QUIGLEY: What I can say is such a structure close enough to the study site, we see no clear evidence for that, but we cannot dispute the possibility, we cannot completely dismiss the possibility that such an event could occur.

35

DR MITCHELL: All right, and given that notwithstanding that this District Plan has a 10 year life, some of the decisions made during that 10 year period will endure for a long period of time, for example, if you build structures in certain locations, they are not going to be taken away after 10 years. Given that, do you think it is wise from a scientific point of view to exercise a degree of caution when delineating where hazards may or may not occur, and how we manage them?

40

45

[10.35 am]

DR QUIGLEY: I absolutely do agree with that statement, yes. I think that we do need to acknowledge that and that was something that came out of the pre hearings as well, in the statement that I did sign. I guess the question is do we put all of our eggs in one basket, or do we need to
5 further engage in geological investigations which may have implications for site specific decisions so my answer to that would be yes.

And the second thing that I guess I would argue is that the position of
10 the AIFR lines are informed by future seismicity in part, which is informed strictly by the statistical seismicity model, and I think that seismic source information, for example, the location of active faults, should actually play a role in that study, in addition to just a purely statistical approach going forward and at the moment it is, to the best of
15 my knowledge, that that information is not playing any role in those decisions.

DR MITCHELL: But absent that information, because we have to deal with what is in front of us, and absent that information, we should use that
20 statistical information to make the best decision that we can, but exercising a degree of caution in doing so. Is that a fair summary of your evidence?

DR QUIGLEY: Yes, that is to my knowledge, in the short term, that is the
25 best model going forward, from what I understand of the model, and from what I understand of the quality of the scientist who has done the modelling. However, I do very much feel that at some stage in the next few years that the validity of that model will need to be questioned against the geologic record, which includes both the location of active
30 faults which have been imaged, and the evidence presented from works, such as my study here. In designing a 10 year plan, using a rapidly decaying aftershock sequence and a statistical model that is designed for short term seismicity, I would like to see geology play a more prominent role going forward in that sort of time scale.
35 Particularly when it comes to site specific investigations.

DR MITCHELL: So to the extent that we were able to do so, a regime that allowed lines to be adjusted as better information became available,
40 provided that we set the lines conservatively in the first place, that would be a good outcome from your point of view?

DR QUIGLEY: Yes, whilst acknowledging that the position of any individual contours is also subject to an order of magnitude uncertainty in its
45 current framework and also acknowledging the statements that I believe have been made by Chris Massey and by Matthew

Gerstenberger that those AIFR lines do evolve with time, with a decreased seismicity rate.

5 So, for instance, if we do not have any major earthquakes by 2017 that those lines should perhaps be in different places and that process will go on during the lifespan of the Plan. So I mean from a strictly geological point of view conservatism is a great thing. We do not want people living in dangerous places and I do not want to be liable if an isolated boulder come off of a rock mass in a flood or in the absence of a seismic trigger. And I know that there are still loose boulders in many places in the Port Hills which if dislodged could come down and impact on people.

15 My point is that the AIFR lines are drawn in the context of rock fall density in effects from the February and June earthquakes, and that such events are very infrequent over geologic timescales, and I see very little evidence for anything in the landscape that suggests that we could those sorts of events from other seismic sources at this stage.

20 JUDGE HASSAN: All right. Thank you Dr Quigley.

SJH: Ms Dawson?

25 MS DAWSON: No, thank you. Thank you Dr Quigley.

[10.40 am]

30 DR MITCHELL: Dr Quigley, I found your explanation there quite helpful. Indeed I had a question for you which I think you have answered in regard to the potential that still exists in the Port Hills for rocks that were shaken about by the earthquakes to come down in weather events and you have acknowledged that.

35 DR QUIGLEY: Can I just quickly say that yes, that is a possibility and it has happened but we would not expect any weather event regardless of its frequency or intensity to generate rock fall analogous to that of the February and June earthquakes in terms of severity and extent.

40 DR MITCHELL: Yes. I just wanted to ask a couple of things in terms of your theory around the importance of your discipline being applied and setting these hazard lines in the Plan going forward. And in answer to Ms Stubenvoll you commented that it was important that it be done with due rigour, peer review, contestable data and careful scrutiny I have got noted there as well. And all of those comments are entirely consistent with the comments you made in the joint statement. Are they not?

DR QUIGLEY: Yes, they are.

5 DR MITCHELL: Can you give me a sense of, assuming your team being
actively involved in this issue, assuming those elements of peer review
and careful scrutiny, thinking about how this information can feed into
a properly robust accident and risk regime in the Plan, have you got a
10 of how much time would be required in order for that information to be
gathered, peer reviewed and then make a material change to the
planning regime. Is it a matter of a couple of years or is it more than
that?

DR QUIGLEY: I think it depends on the type of approach used. So for
15 instance statistical seismicity models can be constantly refined and
updated. It does take some time and effort but it can be done in very
short terms. So for instance the earthquake forecasts can be refined
daily, weekly or monthly at the moment. To do the sort of approach we
have done at Rapaki has taken us several years. It is probably one of
20 the best studied rock fall sites in the world, and we have used a
technique that has not been used anywhere else to date rock falls.

It is quite a sophisticated technique and it involves modeling and dating
and so on. We have plans to do more of those studies but resources and
time are obviously an issue. However, I think that there are some very
25 simple solutions that could perhaps be considered by the Panel. So for
instance one of them is looking at whether grass hillslopes where rocks
travel down from source areas and impacted on houses and caused a
potential threat to human life, whether life safety risks could be
decreased by using forestation techniques on said hillslopes.

30
JUDGE HASSAN: And for that to occur, because the evidence, you may have
seen in the transcript, it is probably fair to say the scientists that
have given us evidence before us have different theories on that and the
potential significance of vegetation as a form of attenuation or
35 mitigation.

DR QUIGLEY: Yes.

40 JUDGE HASSAN: In other words the jury would seem to be out on that
before us at this stage in terms of how effective. So I think what you
would be saying there is that that is another area in which analysis and
properly peer reviewed and robust should be an input to the
consideration of the Plan regime going forward.

45 DR QUIGLEY: It is my strong opinion that that is definitely something that
needs to be considered. When you go into pine forests at the base of

rocky cliffs you can see numerous impacts from boulders and you can see boulders that have been stopped by mature pine trees for example. Each impact reduces the velocity temporarily (ph 10.44.16) of the boulder and absorbs some of that kinetic energy.

5

JUDGE HASSAN: We also heard the theory of the pinball. You know the pinball theory? Bounce off one, bounce off another, hit someone else. In theory.

10 DR QUIGLEY: Yes. I guess my main point within the context of my study is when we compare the distributions of rock falls that occurred when that exact same hillslope and that exact same source area was subject to a major rock fall event. When the slope was densely forested the rocks did not go as far as they appear to have gone when the slope was
15 deforested in the last few hundred years.

JUDGE HASSAN: Yes, but you are putting forward that theory just now as a theory, not as a peer reviewed input into the Plan. That is correct, is it not? It is not something that you can say before us now as a result of
20 proper peer review and robust study I can advise and recommend to you that you take this account of that vegetation.

[10.45 am]

25 DR QUIGLEY: I would say that the supporting document will be submitted for peer review within a month or two.

JUDGE HASSAN: So is the answer to my question yes or no?

30 DR QUIGLEY: This study has not been peer reviewed. However, it is not rock science. It is basically just mapping the location of boulders that came down in the Canterbury earthquake sequence and comparing those distributions with boulders that came down sometime before. I would imagine that anyone on the Panel or anyone in the audience
35 would be able to do that exact same study if they desired to by just going around with a GSP and plotting those points.

Not to take anything away from the rigour of the study but I am just saying it is basically based on the distribution of all versus modern rock
40 falls coming from the exact same source area down the exact same slope. And we know the age of the sediment underneath the slope is on the order of 10,000 years, so it has not changed much over that timeframe besides, trees being removed at some stage. What I would put forward is this is quite strong evidence, and it is based on the same
45 slope which was forested and is no longer forested. I would venture

that all the other evidence that has been presented to you has not looked at the problem in the exact same way.

5 JUDGE HASSAN: Perhaps I will leave that one where it is. Thank you very much.

DR QUIGLEY: Okay, thank you.

10 SJH: In answering to Dr Mitchell you acknowledged that we are actually dealing with life risk here, not theory.

DR QUIGLEY: Mm'hm.

15 SJH: As I understand it, your view is that your area of expertise needs to be combined with the GNS modelling expertise to assess risk in the longterm?

20 DR QUIGLEY: Yes. We say my area, I mean it is an area shared by many experts in New Zealand.

SJH: I was not personalising it, but your and others area of expertise.

DR QUIGLEY: Yes, correct, sir.

25 SJH: I was not suggesting you were a lone person in this. And to do the whole of the Port Hills would take some time?

30 DR QUIGLEY: There are likely to be a variety of limitations towards applying this technique to the whole of the Port Hills. I think that it needs to be focused on key sites for which we have good data and the geomorphic conditions are suitable to undertaking a study of this nature. For instance we cannot apply this technique to a gully or some other place where the boulders move around a lot after they have been deposited because we will not get meaningful information from dating them.

35 SJH: And you talked about the known faults and I know no more than the news media but my understanding is that the Darfield, the February and the June earthquakes were from what were at that time unknown faults?

40 DR QUIGLEY: That is correct, yes. The Greendale Fault responsible for the Darfield earthquake mostly, there was clear evidence for that fault, only one and a half to two metres below the surface but had been buried, and so we did not know that fault was there. The other faults were historically aseismic.

45

SJH: Look, it is a simple question: were they known or not known at the times of those earthquakes?

5 DR QUIGLEY: The exact position of the faults was not known but the seismic hazard posed to Christchurch by earthquakes in similar areas was known.

SJH: I am talking about pre-earthquake. Were they known faults?

10 DR QUIGLEY: They were not known. The locations were not known.

SJH: And you cannot assure us that there could not be other unknown faults that could cause a catastrophic earthquake tomorrow?

15 DR QUIGLEY: I cannot assure you that there is no possibility of such things existing. However, there is very little in science in general that can be said with 100 percent certainty.

20 SJH: I understand that and that is really the point. We are dealing with probabilities on one hand, whereas on the other hand, we and the Council have the responsibility of trying to protect peoples' lives.

DR QUIGLEY: That is correct.

25 SJH: So doing nothing until further work is carried out would not seem to be an option then.

[10.50 am]

30 DR QUIGLEY: No sir, and I have not advised that or said anything to that nature.

35 SJH: Now, just one other question around the question, that you talked about trees. We have heard evidence that Judge Hassan referred to, but they are mitigation, they do not remove the hazard itself, do they?

40 DR QUIGLEY: I think that is subject to significant to debate. So I am aware that the Council policy at the moment is that hazard mitigation must involve adjustments to the source area of the rock fall, but that techniques done to hill slope, for instance, will have no bearing on the policy for an individual property. What I would argue is that I think that there are some techniques that can work between the source area and a given site to reduce the life safety risk posed by rock fall, and I think that if I could look at the literature, I would find that there is ample evidence to support the fact that vegetation is an effective rock fall mitigation technique, but it does not prohibit the chance of – you

45

know, a boulder can make its way through a forest, but it will reduce the number of boulders that will make their way through.

5 SJH: So the boulders still fall, that is the hazard, but it may mitigate the hazard?

DR QUIGLEY: In my opinion, it has the potential to do so.

10 SJH: This may be something outside your area of expertise and if it is, say so, but have you given any thought of the level of regulation that would be needed to prevent the cutting down of trees, to prevent fires in trees, all of those sorts of things?

15 DR QUIGLEY: I think that that is a very valid point and a very valid question. I imagine a scenario whereby rapid-growing pine forest could be planted near the base of the rock fall source, and native vegetation could be planted below to stagger the approach, and then I could imagine someone buying the property and cutting all the trees down and running sheep on the property 10 years after the fact. I have no
20 easy answer to that, but there are very few easy answers to a lot of the issues here.

25 SJH: Well that is the issue, and we are the ones that are meant to try and find the answers. The other thing around that is that, again, it is probably outside your area of expertise, but if you wanted to protect from that hazard now with vegetation, it is going to be quite a few years before the trees are substantial enough to be of any value?

30 DR QUIGLEY: That is completely correct. There will be a lag time for the trees to grow to the point where they are actually able to effectively mitigate that hazard, yes.

SJH: Thank you. Mr Winchester, anything from the panel? Questions?

35 MR WINCHESTER: Thank you, no sir.

SJH: Ms Stubenvoll, anything from the panels questions?

40 MS STUBENVOLL: No thank you, sir.

SJH: Thank you very much, Dr Quigley.

DR QUIGLEY: My pleasure.

45 <THE WITNESS WITHDREW

[10.53 am]

SJH: Now, Ms Stubenvoll, you with to make your statement in support of your submission.

MS STUBENVOLL: Thank you, sir.

5

SJH: You are seeking to make a statement, not give evidence, is that correct?

MS STUBENVOLL: I am here to give this statement, yes.

10 SJH: So it is not evidence.

MS STUBENVOLL: But it has been submitted as evidence in evidential format.

15 SJH: All right, well you better go in the witness box and be sworn.

<MS STUBENVOLL, sworn [10.54 am]

SJH: So you have filed various documents.

20

MS STUBENVOLL: Indeed sir, I have.

SJH: And you confirm that they are true and correct?

25 MS STUBENVOLL: I confirm that the ones that I have filed on behalf of other people have been deemed true.

SJH: No, I am talking about your own one at the moment.

30 MS STUBENVOLL: Yes, I do.

SJH: All right, well if you would give me and the panel now your summary of your evidence.

35 MS STUBENVOLL: Yes, sir. My full name is Susan Mary Stubenvoll. I have lived at 40 Brenchley Grove for 20 years. I have a Master's Degree in Business Administration. I am a member of the Institute of Directors, past fellow of the Royal Geographical Society back in the UK, and past member of the British and New Zealand (INDISTINCT 10.55.15)
40 societies, with 47 years' experience in IT, including various forms of modelling and risk management. I am co-author of a textbook on project management and in my private life I am a qualified mountain ski guide, that is off (INDISTINCT 10.55.32) skiing, having people for whom, their lives I am responsible, and I am yacht master offshore
45 with approximately 45,000 nautical miles of sailing experience, again, responsible for other peoples' lives.

[10.55 am]

5 I am used to assessing, understanding, mitigating and avoiding ill effects of risk both for myself and for others for whom I am responsible, and that includes things that I am not a specialist in, where I have to learn to make an assessment on behalf of myself and other people.

10 For a newcomer to New Zealand, I have developed a deep understanding of the intrinsic values of the Port Hills, flora, fauna and history through place contact with family who owned my property for five generations and worked it for six generations. I have helped plant native trees in the gullies on dock land above my property, acted as a
15 volunteer walking guide, and planted 970 native plants in the up-slopes of my own land. This is the area where Council Geotechs came without telling me, and walked over it.

20 I have no desire to develop my property. I see myself as a steward of this land for future generations of Lytteltonians and it is a precious responsibility.

25 In my original submission, I sought relief from all rock fall hazard areas on my property on several bases which you can see there, which I will not read again, as I think you know them – unless you would like me to. I will read them, okay. Not a single rock crossed my property boundary in either direction in any event. All rocks which fell near my property were moving away from it when they stopped. I tracked every rock pass above Brenchley Road and was working with Don McFarlane
30 and others during that period.

35 No land movement or cracks have been identified on my land despite the Port Hills rising 444 millimetres and suffering the greatest upward thrust ever recorded in the world. There is no Geotech hazard posing any imminent risk or unacceptable risk to my house or life. That is the residential portion which is in the clear. If any rocks on or outside my property were to fall on my property, they would fall onto land termed rural, which has an occupancy rate of 5 percent, not 65 percent. My
40 land was zoned green by CERA and by red sticker, that section 124 notice, was removed by Christchurch City Council.

45 The barn, my current home, was issued a Temporary Accomodation Permit until 2016 by CCC and the assessment by Martin Sinclair, which supported that, was verified by CCC's Geotechs and three other Geotechs who reviewed Mr Sinclair's findings. The site-specific assessment was not taken into account in the Plan because it had been

held by another department within CCC. Since I understand the implications of rock fall hazard management areas on perceived and actual ability of anyone to put houses on my land in future, my submission was supported by a report commissioned from Geotech experts, Coffeys, which was submitted. I did not want to just rely on myself, I got expert opinion.

That report concluded that the site has low rock fall risk, I quote “and recommended that consideration be given to modifying the District Plan zoning maps to exclude the site from rock fall hazard management areas 1 and 2”. So at that time they thought the same as me, that there should be no rock fall hazard areas on my property at all.

Lyttelton-Mt Herbert Community Board supported my submission. Several submitters evidence and changes to the hazard management area boundaries by Council geotechs during this submission process support CERAs assertion in their submission that the accuracy of mapped areas which are based on wide area modelling has resulted in over/understatement of risk to some properties and has “produced an inconsistent reflection of risk in the rules and activity status for some properties”.

[11.00 am]

Council has confirmed CERAs assertion by kindly removing or proposing to remove hazard zones for several properties in Lyttelton, including my own, after reaching a better understanding of the effects of topography on rock fall risk after walking the site after assessing specific terrain and modelling rock fall behaviour. I would say that that assessment has resulted in us understanding areas of both increased risk, as well as decreased risk.

Obviously people are more inclined to put forward their proposal if they think it is going to decrease risk, but it has also shown areas of increased risk.

My thanks are due particularly to experts from Coffey and Council who worked together, even sharing intellectual property to ensure that the most accurate assessments were reached for my property.

While I support the proposed hazard areas as a default risk assessment, the apparent exclusion of site specific findings already in Council possession, such as Mr Sinclair’s report and the acceptance of hazard boundary changes during the submission process, all support Dr Ian Wright’s recommendation that ground truthing be used to set more accurate risk boundaries where possible. And I understand that there is

a time constraint and that we need to get something out in the District Plan, but I am particularly keen that we should continue this process at a slightly more leisurely pace than we have been doing so far.

5 I submit that this option should be available to all District Plan residents throughout the life of the plan as many people have been unable to face the cost and stress of making a submission and entering into an adversarial process. During the earthquakes we worked together with the geotechs and City Council, during this process there
10 was limited working together at all, unfortunately.

I commissioned my original report willingly, but by the time I had been faced with analysis of four additional transects deemed by Dr Yetton, to be hazards and subsequently shown by Coffey's Peer Review reports that proposed no risk, I was reduced to tears for the first time, which
15 did not happen during the boulder falls and I was over \$20,000 poorer. And it seems to me unreasonable that the current stewards of any property should be solely responsible for rebutting assertions of risk from Council who are quite rightly cautious but in the absence of better
20 information.

Dr Yetton has generously accepted Coffey's peer reviewed evidence and has reduced the size of the hazard areas on my property, which I accept with thanks. That is based on the best evidence available, yet is
25 clear that more time will provided all parties, not just myself, with a better understanding of the fundamental risks of living in the Port Hills, and site specific risks, the risk of another earthquake or weather event dislodging rocks in the Port Hills, the availability of cost effective mitigation approaches and the unseen effects of stress and despair on
30 the health and wellbeing of residents with hazard boundaries across their properties.

Dr Quigley's evidence and Dr Kelvin Berryman's public lecture in Hagley Park, which I believe he purported in his evidence, and other
35 research continues to clarify the extent of seismic risk to Christchurch and to differentiate between, for example the shaking of a distant rupture, such as the Greendale or Alpine fault with a rupture right under the Port Hills. Between a rupture that kicks you up the backside and dislodges rocks versus a horizontal shake, the events that bring
40 down tall buildings versus ones that destroy short buildings based on the frequency of the waves.

Within the life of the District Plan we will be better informed and maybe, one hopes wiser.

45

[11.05 am]

5 From the evidence presented by the brave, the foolhardy, the passionate and the parsimonious, we have a wealth of precedence, efficient but risks to many additional properties with rock fall hazard management areas could be clarified using all available data and best practice including applying the effects of common themes from individual submissions where relevant.

10 A good example might be above west Lyttelton where several properties share very similar terrain. Here a rock that could hit a house easily, and is by the way on land zoned hazard area 2, not 1, could easily continue down to the road which is a major route for commercial traffic. Council is responsible for the safety of our roads so could easily be deemed responsible for mitigating rocks above the road, and if a rock were to hit a fuel tanker and they pass down that road regularly, especially aviation fuel, many more than one life would be lost.

20 I support the Panel's call for methodology to be posed and agreed to make changes to the plan throughout its life. Ratepayers and Council need to share a common, independent body to gather research, initiate changes to the plan and change requests throughout the 10 year life of the plan without the current duplication of effort and disproportionate burden of cost, and hopefully going back to the collegiate way of working that we had during the earthquakes.

30 This independent body, like this hearing Panel, may gather data, initiate changes to reflect new research, validate requests for risk boundary changes, authorise experts to assess rock fall risks and authorise modifications to match for revised rock fall management areas. Each site specific analysis not only boulder hazard areas, but they also reduce the unknown risk and therefore the unnecessary margins of error which are added to our current boundaries. But they are necessary at the moment because they are unknown, but when they become more clearly known then they are no longer needed.

40 My property is part rural section on (**INDISTINCT 11.06.53**). I farm sheep, keep chooks and plant trees. If I die or leave the property many other people would make the same choices as me. A property must not be confiscated on the death or sale of the owner as has been proposed. My property has been farmed since 1823 but provides future expansion for Lyttelton for up to 20 housing units, according to a previous subdivision plan being put in for 13 large ones, since nearly half its area is zoned residential. Any effect on the subdivision or the status of my land will reduce the economic viability of local shops and businesses in Lyttelton.

5 Finally, these hearings have shown that unacceptable risk is a personal assessment. Hill country is inherently more hazardous than flat land outside the flat area but it keeps people mentally and physically fit so we can better contribute to our communities and reduce the burden of health costs to the country and its benefit outweigh the risks for those who choose to live there.

10 Thank you for your consideration, and a special thank you for your patience in accepting my late submissions in the correct format, usually I have the data but I took a long time getting them into the right format.

15 The question that you asked earlier about the report being delivered late was delivered I believe at 4.35 or 4.36 on the day of question.

SJH: No, it was other additional stuff that was received at 7.20 this morning.

20 MS STUBENVOLL: That one was from Dr Quigley, yes. I apologise the bulk of that had been submitted last month. I should also mention that Dr Yetton recommended modifying the hazard zones on my property even though he believes that the debris flows could inspect the site. His submission records both of those opinion in the same document.

25 SJH: Thank you. Dr Mitchell?

DR MITCHELL: I just have one question, thanks, Ms Stubenvoll. What do you mean in your paragraph 14 when you say a property must not be confiscated on death or sale by the owner as has been proposed?

30 MS STUBENVOLL: There was a proposal, I have read through as much of the evidence as I possibly can, not all of it do I understand but I've done my best, and in one of the proposals which was made, I believe in response to information from our planning department that properties should be – where a rock fall hazard was deemed to be unacceptable by Council, that those properties should be confiscated on the death or option to sell that property. It was put forward as a proposal, I don't know whether it's been accepted, but I would strongly combat that proposal because just because one person dies doesn't mean that there's a whole plethora more of people who would make the same choices.

40 DR MITCHELL: But it is not being proposed as part of the proposal that we're considering.

45 MS STUBENVOLL: It came in as one of the submissions which you have considered, sir.

[11.10 am]

DR MITCHELL: All right, thank you, thank you, sir.

5 MS HURIA: Yes, good morning, Ms Stubenvoll.

MS STUBENVOLL: Good morning.

10 MS HURIA: I noted in paragraph 13 you made the suggestion about a common independent body, I am just curious, have you given any thought to who might fund a body like that?

15 MS STUBENVOLL: Well, I was just thinking that the \$20,000 plus that I have spent on this evidence, of which \$14,000 was to rebut assertions proposed without evidence by Council's geotech engineer and which on assessment, in agreement with that geotech engineer, was shown not to pose a risk. That \$14,000, amongst others, could potentially be better spent on funding research and factual evidence which could serve more people than just my property. I'm not the only person, I just happen to
20 be one of the people who has had the time and the ferocity maybe to put forward some evidence in this very, very stressful process.

MS HURIA: Okay, thank you.

25 JUDGE HASSAN: Ms Stubenvoll, just taking that a bit further in terms of the experience that you've had, there's even some acknowledgement I think in various statements on the part of the Council as to the need to keep these matters under review, and better information and so forth may well inform a need to change things over time, and that's
30 obviously a given.

35 My question concerns how you would see the plan supporting that as, for instance, dealing with the risk that the Council, having got through this process and invested in it like everybody else, is exhausted for a while and puts its tools away, puts its books away, and does not initiate plan review in any timely way or the investigations that are needed to inform proper planning. Given that risk, I am just wondering whether or not you think the plan could express any helpful policy support for such an intention?

40

MS STUBENVOLL: I think that's a very good question, sir, and I note also that you previously asked Dr Yetton to provide a proposed methodology for dealing with such requests, so I understand that we're talking along the same lines. My feeling is that the rate of change of
45 our understanding is far greater than you would normally expect and that to have a plan which is going to be cast in concrete for 10 years

doesn't serve the best interests of either the people of Christchurch or of the economic value of Christchurch to the rest of the country.

5 JUDGE HASSAN: So I take it from that answer that you would be seeking something quite explicit in the plan by way of an expression of that idea, perhaps in a policy sense?

10 MS STUBENVOLL: I think that would be most helpful, and I think it would be most helpful if that policy could stress the collaborative nature of that work because when we worked in the earthquakes everybody worked together and when Mark Yetton accompanied my geotech engineers from Coffey's and me up the slope of my property to ground truth my property, it was actually his third visit to my property I have now found out, I pointed to him where a rock had fallen and reminded 15 him that there was rock fall from my property which needed to be taken into account, and which he subsequently confirmed, quite rightly, and that to me is a collaborative way of working which gets the best results from people who know their land and know their property and also with the specialists who may be new to an area, and I would like to see 20 that collaborative nature which we had in the earthquake continue with Council, and I found it very helpful working with several of the Council geotechnical engineers in the past.

25 JUDGE HASSAN: Thank you.

SJH: Thank you, you may stand down.

MS STUBENVOLL: Does Mr Winchester not want to cross-examine?

30 SJH: He's not down to cross-examine you, no.

MS STUBENVOLL: Thank you, sir.

35 SJH: You seem like you were looking forward to the prospect.

MS STUBENVOLL: I would always be interested in his questions because they're very astute.

40 <THE WITNESS WITHDREW [11.15 am]

SJH: Mr Young, would you come forward to the microphone. You would have heard the concession that was made by Mr Winchester earlier, I'm not sure if there's anything you wish to add or not.

45 <MR YOUNG [11.15 am]

MR YOUNG: Not in respect to the rebuttal evidence from Dr Yetton, the plan R2 at least gives us back one building platform and in that respect we are in agreement. I do have some other issues though which I would like to speak to just as a statement in relationship to our - - -

5

SJH: All right then. Just go ahead.

MR YOUNG: It's along the lines of the GNS reports being used for site specific verification in the plan without actual engineers doing ground truthing, as shown in our submission, there have been some in discrepancies in the GNS mapping in relationship to the Emerald Lane properties, with both being land either over or under estimated and it's sort of my concern that there are probably other inconsistencies throughout the Port Hills and to use the GNS reports verbatim for the district plan mapping, I think is not ideal.

10

15

My other issue is, reading through some of the transcripts, the suggestion from Ms Carter about red zoning residential activity on RHMA1 land I find most alarming. From my understanding red zoning is a one way street and it leaves very little room for analysis for hazard mitigation or hazard removal.

20

From talking to the Coffey engineers about the hazard that falls over our southern section or building platform and the Emerald Drive properties, the cost to mitigate that is relatively small compared with the costs of the property, they estimated around possibly, spread across four properties, it's probably going to fall around the \$15,000-\$20,000 mark to mitigate, although that wasn't their professional opinion, it was just in answer to my question, you know, is it practical, so I would hate to see properties that can be successfully salvaged from the life risk one and at least given the option.

25

30

I guess the only comfort I can take out of it is the ruling from the High Court on the outcasts where the compensation for their land was unjust or uninsurable land and possibly this might act as maybe a deterrent to the Council on making maybe hasty decisions red zoning properties.

35

I think that's the end of my statement.

40

[11.20 am]

SJH: All right, thank you, Mr Young. I'll see if the Panel members have any questions. Thank you, Mr Young.

MR YOUNG: Finally, I'd like to thank the Panel for their time and especially the time for the site visits that they managed to fit into their schedule,

45

and the secretariats for the communication, it's just been brilliant. The process, even though I'm a lay submitter and never been in this situation, the process hasn't been too difficult to follow and the information has been readily available, which I'm grateful for.

5

SJH: Thank you for that, and thank you that you have by and large managed to sort out your own personal circumstances, we are pleased to hear that.

10 MR YOUNG: Thank you, sir.

<MR J YOUNG WITHDREW

[11.21 am]

15 SJH: We'll just take Mr Farrant, we're running a bit behind schedule, but Mr Farrant, you have a submission you wish to make on slope stability.

MR FARRANT: Yes, do you want me to make it from here or?

20 SJH: Well do you want to give it as sworn evidence or just a submission?

20

MR FARRANT: I can do that.

SJH: All right, well if you wish it as sworn evidence you'll have to go in the witness box.

25

DR MITCHELL: Sir, just before Mr Farrant does commence, I should just acknowledge that I believe he's the same Mr Farrant that was a colleague of mine at Canterbury University in our post-graduate days, he looks a little different, but I think it's the same man.

30

MR FARRANT: Yes, that's right.

<MR B FARRANT, affirmed

[11.21 am]

35 SJH: Yes, just when you're ready, Mr Farrant.

MR FARRANT: I live at 49 Horotane Valley in Heathcote, I own the property. I do have a civil engineering degree, I teach structural engineering, civil engineering at Christchurch Polytech. I do have a couple of pictures here which you can look at if you want, do you want those?

40

SJH: Exhibit 22.

45 **EXHIBIT #22 – PHOTOS FROM MR FARRANT**

MR FARRANT: Two days after the 22 February earthquake I walked the boundaries and throughout my property and all the rocks, other than one, that were up against the boundary of my neighbours property were small and round, indicating that they'd rolled off the surface rather than
 5 from the rock mass above. There was one larger rock that had hit one of the trees and I understand went through the trees.

Subsequently the Council did some work on the bluffs above the property, they did some rock bolting, they also did some scaling, and currently most of the large rocks against the boundary are as a result of
 10 that scaling or blasting that they did to reduce the risk, I guess, to my property.

So I was very surprised to see that a reasonable proportion of my usable land has been zoned for rock fall risk and boulder roll risk, you probably all know about this, these are the boundaries that were drawn for that, and so I've made the submission that, that boundary is too conservative, I mean considering nothing rolled onto my property and almost nothing rolled on to the property uphill from me.
 15
 20

[11.25 am]

The comment that trees protect the land is based on some good evidence on that site, there's plenty of rocks up against the trees. As I
 25 said, a lot of them came from that scaling work and removing those rocks would probably be a good idea in case the hedge was to burn down for any reason.

The other comment I want to make is that I believe the model doesn't take into account the angularity of rocks and most of the rocks on the slope above my property that didn't even hit the hedge, whether they came from scaling or not, are angular in shape. So the angularity of the rock, I believe if it was taken into account, wouldn't create a rock fall boundary zone where it has ended up being.
 30
 35

My only last comment is that if you have a look at the boundary for number 48 Horotane Valley, it was adjusted significantly after somebody came and had a good look at it and I suspect that if somebody had a good look at mine the same would happen.
 40

SJH: Thank you.

DR MITCHELL: I just have one question, thanks, Mr Farrant. I'm just looking at the photograph that you handed up, can you just explain the buildings that are on your site? There's about four or five buildings, they're all on your site?
 45

- MR FARRANT: That's right, looking at that photo which, you know, is between the trees, there's two green houses, there's a tractor shed, there's a house and there's a packing shed.
- 5 DR MITCHELL: Okay, thank you, and is the house the second one back from the road?
- MR FARRANT: The house is the double storey one, the second one back, yes, that's correct.
- 10 DR MITCHELL: Thank you, sir.
- MS DAWSON: Just following on from that question, on this map which you should be able to see in front of you, do the buildings fall between the road and the rock fall hazard management overlay on that plan or do they extend into the overlay area?
- 15 MR FARRANT: I think it's just the tractor shed that's in the hazard area.
- 20 MS DAWSON: Which is the little shed at the rear in this photo?
- MR FARRANT: Yes.
- 25 MS DAWSON: Thank you very much, Mr Farrant.
- JUDGE HASSAN: Mr Farrant, do you have any plans to develop your property?
- 30 MR FARRANT: I don't, but it is zoned rural land so the ability to develop it is limited. I am just trying to get something adjusted that I believe is wrong.
- JUDGE HASSAN: Thank you very much.
- 35 SJH: Thank you very much, Mr Farrant. Thank you, we will take the morning adjournment for 15 minutes.
- 40 <THE WITNESS WITHDREW [11.28 am]
- ADJOURNED [11.28 am]
- RESUMED [11.44 am]
- 45 SJH: Yes, thank you, Mr Winchester.

MR WINCHESTER: Thank you, sir. The first witness on the list is Dr Wright, I call Dr Wright.

SJH: Thank you.

5

<CHARLES IAN WRIGHT, sworn [11.44 am]

MR WINCHESTER: Sir, you will recall that the Genesis' supplementary statement was a request from the Panel with regard to the Zimprich property and recent site visit. We have also taken the opportunity to provide some supplementary evidence related to the mass movement issues on Mr Alexander's property.

10

<EXAMINATION BY MR WINCHESTER [11.46 am]

15

MR WINCHESTER: Now, please confirm for the record that your full name is Dr Charles Ian Wright?

DR WRIGHT: That is correct.

20

MR WINCHESTER: And you hold the qualifications and experience that you have previously explained to the Panel?

DR WRIGHT: I do.

25

MR WINCHESTER: And you have produced a supplementary statement dated 16 March 2015?

DR WRIGHT: That is correct.

30

MR WINCHESTER: And do you have any corrections to that statement?

DR WRIGHT: I do not.

MR WINCHESTER: Thank you. Can you confirm that to the best of your knowledge it is true and correct?

35

DR WRIGHT: (INDISTINCT 0.48).

MR WINCHESTER: And before I ask you to answer any questions on that supplementary statement, were you in the Hearing room when Mr Farrant gave his evidence and submission to the Panel?

40

DR WRIGHT: I was.

45

MR WINCHESTER: And can you advise the Panel what, if any, investigations you have made in respect of Mr Farrant's property and your opinions about the presence of lines on that property?

5 DR WRIGHT: Okay, do you want me to do that now?

MR WINCHESTER: Yes, please.

10 DR WRIGHT: Okay. I have reviewed the information the Council has pertaining to number 49 Horotane Valley, that is including the boulder mapping that the PHGG did.

15 My main conclusion was that there were a lot of boulders that came down and were caught in the tree line of the neighbour's property, however, having a chat with Mr Farrant now, he has indicated that the majority of those boulders were due to the scaling works undertaken, I think it was between February and June, as part of emergency mitigation. So whilst I understand that they were essentially historically released, and weren't due to actually earthquake shaking, 20 you know, that may have sort of a – I still in my mind have not decided whether that changes the risk lines because basically it has shown that boulders, if they do fall, they are getting hung up in the vegetation.

25 So in my mind, there is still a potential risk from rock fall to this property, whether it be the GNS actual risk values are appropriate, it is difficult for me to say, but I am confident that there is a risk use of this property.

30 MR WINCHESTER: Thank you, Dr Wright. If you can just answer any questions from Counsel or the Panel.

SJH: Dr Mitchell?

35 DR MITCHELL: No, I have no questions, thank you, sir.

SJH : Ms Dawson?

MS DAWSON: Just a couple of questions thank you, Dr Wright.

40 We heard yesterday in relation to Mr Fox's property on Bridle Path Road?

DR WRIGHT: That is correct.

MS DAWSON: Where it was indicated that you had reached agreement with Mr Fox, regarding the location of the rock fall hazard management 1 or 2 boundaries.

5 Now, am I right in thinking we have not received a plan from you at any stage that shows where you consider that boundary should end up?

DR WRIGHT: I have not drafted one of my typical drawings where I recommend it, if I can elaborate a bit more?

10

MS DAWSON: Yes.

DR WRIGHT: I looked at the late sort of evidence that was submitted in terms of the Elliott Sinclair Report and from what I concluded, yes, on a site specific basis there is a justification to move the hazard lines.

15

My expressed opinion to Mr Fox over the phone and via email was that I would consider moving the hazard lines to somewhere in the vicinity of the proposed bund and not to the actual slope boundary, as was mentioned in the report.

20

MS DAWSON: Yes, I think he showed us a line, it was 145 metre line or something like that, do you have any idea whether that is anywhere near the proposed bund or, do we have any more detail than that, in other words?

25

DR WRIGHT: So yes, I am not too sure where the 145 metre comes from, but it was raised to me yesterday and I, in the absence of actually defining from where I just reiterated that, I would consider essentially the shadow line that runs, more or less, in the same place as where the bund was, to be an acceptable place.

30

So I guess we haven't, between Mr Fox and I, decided exactly where the lines would go, but I would recommend that we can move it up.

35

[11.50 am]

MS DAWSON: But you are close?

DR WRIGHT: I believe so.

40

SJH: Would you be able to file a plan showing that when you have reached full agreement with Mr Fox, as to the actual line?

DR WRIGHT: Yes.

45

MS DAWSON: That would be helpful.

SJH: Right, and perhaps we could say by Wednesday of next week?

DR WRIGHT: Certainly.

5

SJH: Thank you.

MS DAWSON: About the Zimprich property, do you have your main evidence there with you?

10

DR WRIGHT: I do.

MS DAWSON: Could you turn to page 9 of that? I just wonder if you could explain to me the rock – this is above the Endeavour Place properties – could you just explain to me the yellow line; why it is where it is and what you are intending? – which is the rock fall management area 2 line.

15

DR WRIGHT: Right. So the figure 1 which you are referring to has the blue line which is my proposed rock fall hazard management area 1, and then there is a little wedge with number 10 Endeavour, between the yellow and the blue line.

20

Now that is my extrapolation of rock fall hazard management area 2, which, as you can see on the existing picture, it pinches out to the east and all I have done is basically pulled that boundary back to a similar area on my new rock fall hazard management area 1 boundary.

25

MS DAWSON: A practical way of joining the **(INDISTINCT 1.56)**.

30

DR WRIGHT: Yes, because – what the picture does not show is that further up the rock fall hazard management area 2 actually expands so it is just, to me, a practical way of bringing it in.

35

MS DAWSON: All right, thank you very much. That is all, thank you.

SJH: Thank you.

JUDGE HASSAN: Thank you. Dr Wright, just a question in regard to this, but just further to Ms Dawson's questions to you regarding Mr Fox, and the further statement you are going to come in with on that.

40

I questioned Mr Fox around this, while I started to question Mr Fox around his supporting report by Mr Aronovich, or some have said it is easier to say A to Z, although I think to be fair to Mr Fox, he perhaps

45

was not as familiar with that report as he needed to be to answer my questions.

5 The thing that I was going to ask him about and I would ask you if you could please give some thought to this and cover it explicitly in what you come back with, was; it seemed that one of the operating assumptions for the assessment being undertaken there, was the presence of a tree line as a mitigating measure in terms of rock fall. It is mentioned in the report in a couple of paragraphs.

10 I have to say that is the area that I am particularly interested to know about, because we have heard a range of opinions around trees, I think including from yourself, and some of those opinions have cautioned us quite significantly against taking account of trees as means of dealing with hazard for the various reasons that in some way seem obvious, such that trees can fall over and burn or that they can be a source of bouncing rock, rather than stopping rock.

15 So I am just interested explicitly to know how you see that in terms of your opinion, but you do not need to give it now, perhaps cover it in?

20 DR WRIGHT: No, I can provide a statement now. I followed Mr Aronovich's evidence on a number of properties. He presents a standard format and I have had very clear conversations with him, that he needs to follow the GNS methodology if he is calculating an ARFR.

25 Now that in itself is very difficult, there are a lot of parameters that are subject to interpretation, but one of those is that they follow a bare-earth philosophy. So his calculations of, AIFR, do not take into account that either that temporary fence or the trees that were put in place there.

30 JUDGE HASSAN: Yes, that is what I was struggling with, understanding whether – because he mentions them explicitly in one part of his evidence where he comments on the AIFR and in that paragraph, there is explicit reference to the trees that left me thinking that he must be taking them into account, but if you can assist me a bit further on that.

35 All that I need to know is what your opinion is and why you do not think those trees are relevant to your assessment?

40 DR WRIGHT: Yes. I will go back and revisit just to make sure that my understanding is correct.

45 JUDGE HASSAN: Thank you.

SJH: Any re-examination.

MR WINCHESTER: Thank you, no, sir.

5 SJH: Thank you, Dr Wright.

<THE WITNESS WITHDREW [11.55 am]

10 MR WINCHESTER: Sir, with your leave, it is not listed in today's proceedings
but it is directly relevant to a matter addressed in Dr Wright's evidence
to do with Ms Clinton's property and it is just about some basic
approach and a supplementary statement has been filed yesterday of Mr
Kingsbury about liquefaction and I wonder if it is convenient just to
deal with that very swiftly now.

15 I call Mr Kingsbury.

<PETER ALLAN KINGSBURY, sworn [11.56 am]

20 **<EXAMINATION BY MR WINCHESTER [11.56 am]**

MR WINCHESTER: Your full name is Peter Allan Kingsbury?

25 MR KINGSBURY: Correct.

MR WINCHESTER: And your qualifications and experience are as set out in
previous statements of evidence?

30 MR KINGSBURY: Correct.

MR WINCHESTER: And you have prepared a statement of evidence which
specifically deals with liquefaction issues at 315 Port Hills Road?

35 MR KINGSBURY: Yes.

MR WINCHESTER: Submitter Clinton. Do you confirm that to the best of
your knowledge and belief that evidence is true and correct?

40 MR KINGSBURY: Yes.

MR WINCHESTER: Thank you, please answer any questions.

SJH: Dr Mitchell?

45 DR MITCHELL: No, thank you, sir.

SJH: Ms Dawson?

MS DAWSON: One question, Mr Kingsbury, how many other properties or
5 locations could be affected by this boundary issue between the LA1
and the MBIE categories?

MR KINGSBURY: We have not made, or I have not made an assessment of
that. I think there would be more than what had come to light through
10 the submission process, and until we actually carry out a survey, it is
very hard to tell, but I think the number of submissions will be a
relatively small proportion of the number of properties around the base
of the hill that may be affected by the need for a readjustment of that
LAA1 boundary line.

15 MS DAWSON: Of all the properties we have looked at for various
adjustments, very few of them, to my knowledge, have been around
this particular boundary adjustment.

20 But as I say, there could be others who have not come forward at this
stage.

MR KINGSBURY: Absolutely.

MS DAWSON: Thank you, very much.
25

MS HURIA: No, thank you, sir.

SJH: Thank you, Mr Kingsbury.

30 <THE WITNESS WITHDREW [11.57 am]

MR WINCHESTER: Mr Theelen next, sir. I call Mr Theelen.

35 <MICHAEL RENIER ANTONIUS THEELEN, sworn [11.58 am]

<EXAMINATION BY MR WINCHESTER [11.58 am]

MR WINCHESTER: Thank you. Your full name is Michael Renier Antonius
40 Theelen?

MR THEELEN: It is.

MR WINCHESTER: And you have previously given evidence to the Panel in
45 another matter, do you confirm that your qualifications and experience
are as set out in that previous evidence?

MR THEELEN: I do.

MR WINCHESTER: And you have prepared a statement of evidence dated 16
5 March 2015 in response to a direction from the Panel. Do you confirm
that to the best of your knowledge and belief, that that evidence is true
and correct?

MR THEELEN: I do.

10 MR WINCHESTER: And before I ask you to answer any questions on that
statement of evidence, I wonder if you would care to comment on your
understanding of the Council's ongoing programme of review with
regard to hazard lines and the data that it has and will receive in the
future?

15 MR THEELEN: I think it is fair to say that we understand that the issues and
the science that we have before us continues to evolve.

20 It is our intention as Council hosts the review here to continue to
update and review as appropriate, the hazard lines, and the use of the
overlay as has been proven and as my evidence relates to in respect of
mass movement. The details of how these lines work out on the ground
are always subject to individual review.

25 **[12.00 pm]**

30 It is certainly the intent of the Council to not only look at reviewing
these provisions in the future but also extending our reviews to other
parts of the district, including Banks Peninsula, Akaroa, and the
balance of the Port Hills in time.

35 MR WINCHESTER: And in the event that new information or further
refinement of the information the Council already holds indicates a
strong and justified case for a change, can you advise what steps the
Council would take in reliance on that information?

40 MR THEELAN: Well the work that we would do would basically be three
ways by way of plan change, so we would do one or more plan changes
to adjust those provisions as they come to light.

MR WINCHESTER: Thank you, Mr Theelan, can you remain where you are
and answer any questions.

45 SJH: Indication in the schedule is Mr Alexander is to cross-examine. Come
forward, Mr Alexander, if you could just go to one of the microphones.

<CROSS-EXAMINATION BY MR ALEXANDER

[12.01 pm]

MR ALEXANDER: Good morning. The summary 5.1, this could be by providing more evidence to the Panel that Mr Theelan and Mr Theelan’s letter here. This is exactly what we had been told by Dan Edgington (**ph 1.40**) of the City Council who we have been dealing on this with for quite a long time, some months, and he said this is what would happen to get the right zoning for this site in the new district plan. We have been working to include the new zoning for Foulk Road in the present new district plan.

The staff at CCC have advised me they had an uptime to get this included in the new district plan, more so, they simply stated when they wanted access letter, etcetera, that it was critical they get the agreement now so it would be included in the new plan. Otherwise, they say it would be very expensive, there may be long-time delays, and in short will further delay us from moving ahead with the rebuild.

Therefore, the latter option of Mr Theelan, 5.2, is exactly what all parties do not want, or were told, and is a cop out of good faith by the Council. It already is four years since the earthquake - - -

SJH: Look, Mr Alexander, your opportunity at the moment is to ask Mr Theelan questions. If you want to put him a question about why it can’t be put in the plan now and things like that, that’s fine. What you are doing now is making a further submission, which we understand.

MR ALEXANDER: So basically, Mr Theelan, when we have been dealing with the Council and even yesterday, (**INDISTINCT 3.10**) trees on this side that were going to be retained there, we were always told that this would be included in this new plan, not as what you have here at 5.2, “It appears the latter option would be more lively approach”; which is incorrect by what I have been told by the Council.

MR THEELAN: Perhaps I can respond to that.

I think what we intended to do is to say that based on the timing of how the investigations with your property and other properties could be completed, the works done, and the final solution given affect to, or we got to a point where we knew what the final solution was and it was agreed by the Geotechnical engineers to be safe, then at that point we would seek – should the Panel and this review still be underway and there was opportunity for us to bring further evidence to the Panel – to adjust those lines, that is exactly what we would do.

So that remains our intention and argue that it is possible for us to do that right up until that time that the Panel stops considering evidence, so that is some answer.

5 SJH: So you are intending us to use our re-visitation powers?

MR THEELAN: Yes, sir, that was our expectation.

SJH: Do you understand what that means, Mr Alexander?

10

MR ALEXANDER: Yes, review it again at some time by.

15

SJH: We can revisit things later, hear further evidence and change a decision before we complete our task, so we have really got almost 12 months to sort that out.

MR ALEXANDER: All right.

20

SJH: Mr Theelan, can you indicate, is that more than sufficient time or not?

25

MR THEELAN: That is difficult, sir, at the time when we wrote the letter we were confident that we probably could work within that time frame, some of this will obviously be dependent on what material is found under there and what solution is proposed. We are, as I indicated in the letter, hopeful and in the statement that I have made that we can still do that within that time, but obviously I cannot give any guarantees at this point.

[12.05 pm]

30

SJH: Well, you have got your access agreement, haven't you?

MR THEELAN: We do have our access agreement, sir, which is very helpful.

35

SJH: Things tend to be two-sided.

MR THEELAN: Yes.

40

SJH: Any other questions, Mr Alexander?

45

MR ALEXANDER: No, I agree with you. We would just like to see some certainty, Mr Theelan, and even if yesterday if we were told that once the house had been removed, which the Council had taken down, once they get underneath the house, I would like to see what is what. We are on top of the rise, we haven't got any other problems and we know it is

only one section, all the rest beside us, we know they have got it forever.

5 So they will not be rebuilt on because they are overburden; our place isn't overburdened, so I do not think we have got to worry too much about places either side because they are not going to be there and never be rebuilt on again and it is on a flat.

10 So I don't want to get mixed up with the next door neighbour properties, I think we are going to stick to this one and we want to know, we want to get ahead and rebuild there and we can't do so.

15 MR THEELAN: We are certainly mindful of your needs as an individual to get some closure around your property. The access agreement is great for us to be able to get on and actually undertake those investigations, identify what does need to be removed and determine whether we can give you back a firm building platform.

20 MR ALEXANDER: So do you think this would take, as you say the Panel is going for another year on this yet – do you think we would know more about this in, well the staff suggested probably another month, but within two months we should pretty well, once we have done the probing underneath the house, we should pretty well know what is going on, shouldn't we?

25 MR THEELAN: Well I am probably at that point, sir, straying out of my expertise, but certainly the intention is there to do exactly as you described to get under there and identify what can or cannot be done to ascertain what the right solution is.

30 If we can do that within the time frame and allow us to bring new evidence to the Panel to adjust the lines, that is ideally what we want to do as well. So we will work as swiftly as we can to solve that.

35 MR ALEXANDER: And would you have any idea when you would know, for the Council to tell me? Would it be within two months? I know the Panel will know within the year?

40 MR THEELAN: Again, it is difficult for me to crystal ball that, but we have got the access agreement, we are on the property now as I understand, so as soon as we can give you that information or keep you up to date with what we are discovering. Staff will certainly do that. Unfortunately I just cannot guarantee a time frame.

45 SJH: Well, can you undertake on behalf of the Council to ensure the matter is expedited as fast as possible?

MR THEELAN: Yes, sir, we can.

SJH: Thank you. Any re-examination?

5

MR WINCHESTER: No, thank you.

SJH: Any questions from the Panel?

10 DR MITCHELL: I just have two questions, please. Mr Theelan, good morning.

15 The question that is more generic than applying to specifically to Mr Alexander's land, and it relates to where further information becomes available to enable hazard lines to be recalculated or redrawn and I guess they could arise in one of two ways: a site specific evaluation that is done subsequent to this process or there has been some removal hazard by picking the rocks up and taking them away.

20 Once those either works had been done, or the line recalculated based on reapplying the models and so forth, do you think that as a consequence of moving that line anybody other than the landowners concerns with those readjustments would be adversely affected by the removing or moving of the line?

25

MR THEELAN: Again, I do not know the answer in absolute terms but fundamentally what we would need to be assured is that, particularly with some rocks or some landfill areas, they do apply to one or more properties so depending on the works that are done. That is generally where we can identify the group of properties that are subject to it once that has been amended, yes, one would hope that that actually addresses that particular group of properties completely, and only that group of properties.

35 DR MITCHELL: Thank you, and I suppose - - -

MR THEELAN: Sorry, can I just, sorry – so there are some incidences, and I do refer to it in my supplementary evidence where in the mass movement areas some of the effects, for example effect lifelines which are not individual properties but may affect in this case some Council roads and infrastructure, but also NZTA potentially in some instances as well.

45

[12.10 pm]

DR MITCHELL: All right, and through this process we have had expert evidence but where there has been agreement that a hazard line around a particular property can be moved essentially by putting it, re-draw, but particularly maps a property boundary; in those cases those
 5 examples have not been subject to submissions or to other people looking at them, it is simply an expert judgement, and a proponent has said it should be moved, and the Council's experts have said we agree. You are comfortable that in those circumstances nobody's adversely affected by the moving of those lines?

10 MR THEELAN: Again, it really depends on what the scope of the question, or the scope of the analysis has been. I would hope that in the main, when we have responded to that, we have taken the entire picture around that hazard, not simply a particular slice of the way that hazard
 15 impacts with some properties.

DR MITCHELL: Right, and I suppose that where this is heading is that in the conventional way of dealing with this, the only way of moving those
 20 lines would be a plan change, and if there was a plan change to be undertaken they need to be publicly notified, and the world at large need to be able to make submissions.

On the supposition that moving the lines is an issue that is confined to the person's property who is directly affected, and the Council being
 25 satisfied that they can re-draw the line based on re-running the models; do you think that from an efficiency point of view, that if it were possible to design a mechanism that did not require public notification in a formal plan change, that that would be more effective and efficient in allowing people to get on with their lives and ensuring that the
 30 planning maps, if I can call them that, match the evolving reality?

MR THEELAN: I think certainly if such a mechanism could be identified and withstand the tests of the RMA, then that certainly would be
 35 advantageous to all sorts of parties.

The two qualifications I put around that, or perhaps three; one is actually being assured that in fact all the affected parties are catered for, or addressed through that process.

40 The second one would be, I suppose having regard to the fact that in some instances we have found through these processes the risk actually changes, so we actually then capture additional properties, and that has certainly been the case when we did the mass movement work. So sometimes we are moving in the opposite direction, and I suppose you
 45 cannot have one process to take one off potentially, and have a second

process to add and adjust things. So that is, I suppose, the second point.

5 So I think, again, it is about creating that equity, and I think the third point that we would have to take care of is just ensuring that we had a very clear mechanism for saying actually, we have met an evidential test. I mean there is, I suppose, potential risk that we would have a line of people with an expert coming to the Council and saying “Well, I have got an expert, adjust my line, adjust this line”; I think we would
10 have to say, actually there was a formal process for doing that, it had to meet this evidential test, perhaps this panel of experts had to basically agree to that.

15 So it is creating the structure around that, I suppose.

DR MITCHELL: All right, thank you Mr Theelan. Thank you, sir.

MS DAWSON: No questions. Thank you Mr Theelan.

20 JUDGE HASSAN: Thank you Mr Chairman. Yes, just taking it a little bit further Mr Theelan, just so I get a clearer picture, and because I am sure you well appreciate that this particular area is really, it is really a consequence, isn't it, of the fact that ground truthing at a site specific level hasn't in a practical sort of sense, been able to be done in the time
25 frames for the Plan. Do you think that is a fair first observation, in the sense that it is reliant on area wide mapping?

30 We have heard a lot of evidence on all of that, and so forth, but it is when that evidence drills down to the site specific level that these adjustments are being made

35 And looking at the questions of equity and so forth in that equation, as I said, of course, a lot of people have said to us for instance, that the cost has effectively been transferred to that individual property owner, and the burden on them, some have expressed quite a lot of anxiety and concern about that, you have heard some of that day, and we accept that too.

40 And then we have Dr Sharpe, who has told us about what he regards as quite honestly as pretty inadequate section 32 analysis, in cost benefit terms, in terms of the benchmark of what he would see as desirable.

[12.15 pm]

45 So thinking of all that context, I want to talk to you about a couple of things. One is in answer to Dr Mitchells' question, you said the second

point that was important was to have regard to the fact that in some instances this ground truthing analysis that is being done has been shown the line has shifted in a different way. Rather than being removed it would suggest that it should be added and I think you
 5 emphasise the importance of consistency there, but I wonder about that.

I mean, isn't the point really that, if a property is subject to this line and ground truthing shows that that is not justified, then there is no need to ensure a consistency in terms of insisting on a plan change there, is
 10 there, as compared to a property where ground truthing shows the line should be included because in the second category one would say:

"Well, the individual property owners rights are going to be impacted, they ought to have a right to be heard" – and so should the neighbours, perhaps – "about whether the line should be imposed upon them". Is
 15 there not a difference between those two contexts?

MR THEELAN: Yes, there probably is a difference in so much as you are imposing something as opposed to withdrawing a restriction on
 20 somebody so it does seem to me that in a generic sense creating a consistent process is ideal but I do recognise there is a difference if you are removing something as opposed to when you are adding or imposing a new restriction on somebody, yes.

JUDGE HASSAN: Yes, and that answer might help us in different ways thinking about how to remediate this issue as best we can in process
 25 terms and you mentioned, for instance, the continuing role of the Panel and then Dr Mitchell suggested to you also this other concept that is being discussed of allowing the line to be moved by plan change.

So I want to, just in terms of the plan change option, and your suggestions around the Panel's role; has the Council got itself a financial budget for this 12 month period for plan changes to allow for
 30 ground truthing analysis to be put through plan change?

MR THEELAN: If I just answer that; at this point we do not have any proposals to do plan changes and we do not have a budget to do that.

What we are doing is as we work through the process as in the case of
 40 Mr Alexander where it becomes through different processes evident that the hazard has been removed or the hazard has been remunerated to a point where it is no longer relevant or proven to be incorrect, we have capacity to bring further evidence to the Panel to identify those, and seek the Panel's decision on those.

45

JUDGE HASSAN: Yes, so in terms of those two options, I take what you mean by that to be the Panel regime allows a pragmatic way of dealing with these sorts of things while the Panel lasts, but apart from that while the Council intends to initiate plan changes, there is no budget provision for those at least for the next financial year?

MR THEELAN: That is correct, sir.

JUDGE HASSAN: And what about in terms of the long-term plan? Is there any budget for it in the next five years?

MR THEELAN: There is no specific budget for it, sir, we do have a budget allocation for plan changes generically across the city, we do have funding for further investigations into the Port Hills, geotechnical issues, but nothing that is specifically tagged to ground truthing and reviewing the lines at this point.

JUDGE HASSAN: Yes, and given that, would I be right to understand also that if an individual was thinking about investing in – and we heard figures of 20,000, whatever the number is – investing in the right technical advice to first of all inform them whether or not they could make a case for ground truth adjustment so they get thinking about whether they employ a person for that purpose, there is significant investment in that.

Would not the next hurdle a person like that face be that the Council realistically would not initiate a plan change, simply bespoke to Mr Alexander or another individual, more likely it would deal with the plan change issues on a grouping, or clustering basis?

MR THEELAN: That is correct, sir. What would happen generally is that we would perhaps look at an annualised programme and basically say if a number of properties had come up through the year or a number of changes we would perhaps do that on a group basis, that is correct. I mean, I suppose we should also have regard to, and this may not be suitable for all people, but people can lodge a private plan change if they wish. So that is also available to individuals if they want to do that.

[12.20 pm]

JUDGE HASSAN: Yes. Now, in terms of the annualised process, we said you could perhaps do that. I take that answer to be qualified in the sense that you could perhaps do that in principle but there is no firm decision by the Council that that will happen, either this year or in the subsequent five years?

MR THEELAN: It is certainly correct that it is not this year, it has not been addressed specifically in terms of the next five year programme but that is something that could be considered by Council.

5

JUDGE HASSAN: Thank you. So if we come back to the concept of dealing with this, and the context of this enquiry by the Panel; who would be the officer at the Council that would be responsible for, if you like, shepherding this matter along, being the point of contact for people and putting up the advice to the Panel on any adjustments to the like?

10

MR THEELAN: Well I think there would be clearly no one officer that would do that in detail.

15 JUDGE HASSAN: Who would be the officer responsible for that work?

MR THEELAN: Yes, so that would fall to me.

JUDGE HASSAN: Would you be in a position to give us, submitters and participants some commitment to a process by which you would do that by way of reporting and keeping updated on a regular basis both those that may have interest in this area, and the Panel itself, so that these matters can be explicitly recorded in the Panel's decision on this chapter?

20

25

MR THEELAN: Yes, sir, I am happy to do that.

JUDGE HASSAN: Thank you, and if you were nominated, Mr Theelan, to be that person – and the Panel would explicitly say so – what else can we say about what assurance can be given to people as to their applications for ground truthing testing to be tested by the Council in order for it to be reported back to the Panel in a timely fashion?

30

MR THEELAN: Well I think in a practical sense, sir, as you have eluded to, the hazard management areas cover large areas of the district, of the Port Hills in particular. If we were to receive a large number of applications to undertake that ground truthing I think the Council and its resources and the available geotechnical engineers would likely be overwhelmed by that process.

35

40

It is possible and we have had ongoing liaison, as you have heard from Dr Wright and others through the Panel, that we have had a number of engagements with individuals along the way to look at theirs.

I suppose there is a practical limit to what we can possibly do within the next 12 months with the resources and the available skill sets we have.

5 JUDGE HASSAN: Is there something more specific that you can report to us on either perhaps through Mr Winchester to give some further clarity to that answer? For instance one other thing I just wonder about openly is are the experts that have been employed by the Council for this enquiry so far, will they continue to be available to the Council for the purposes
10 of ground truthing and analysis?

I mean obviously the Panel has been significantly assisted by the supplementary evidence to date to provide some degrees of clarification but will that resource remain on tap through the enquiries?
15

MR THEELAN: Do you mean to the Panel, sir?

JUDGE HASSAN: Yes, on the basis that the Panel can report that you would be the officer that would be responsible for keeping the Panel and submitters updated on ground truthing matters and investigations of those and reporting back to the Panel. Would you have available to you the experts that were available to us now, in order to test whether ground truthing would justify shifting of the hazard lines?
20

25 MR THEELAN: Yes, we can do that, we do have obviously our own staff and we have contracted geotechnical experts that are working with other staff on that basis and they continue to be employed by us.

JUDGE HASSAN: My question related to those experts who have given evidence to us, those are the ones that have made recommendations to us.
30

MR THEELAN: Yes, sir. I do not see why that cannot continue, yes, and we can make that happen, sir.
35

[12.25 pm]

JUDGE HASSAN: Thank you, one other matter and obviously the legal perimeters of what can be achieved under the Act are front of mind to the Panel, and we are going to be assisted further in closing submissions on those matters by counsel.
40

One idea that has been floated in regard to dealing with adjustments to lines; now, that is on the understanding that the evidence is that the lines are essentially reliable enough, and we have heard plenty of evidence on that, it is just a question of site-specific adjustments.
45

5 One methodology in regard to flood management was suggested by Mr Bob Nixon, and his suggestion was that perhaps in regard to adjustments to floor levels, the Council could allow for a process of Council certification of the floor level on application, properly supported. And that being, if you like, a qualifying standard to be a permitted activity, for instance.

10 So you would get a permitted floor level by that means, or you would have certified floor level, on which you could rely, and proceed for a period of say, Council's suggestion I think was 12 months, but for a period certain, in regard to the floor levels, and the reason why a period certain was provided there was that the modelling data was updated and so forth. So the Panel is thinking about that.

15 On the same theory, I am wondering about two things; first question is, would the Council be able to assure the Panel that it would make itself resource available for a certification process in regard to floor levels? In other words, following along Mr Nixon's theory, in reality, could the Council make resources available so that a person could apply for a floor level and have it certified by a Council officer?

20 MR THEELAN: I think the Council could be a position to do that. Again, provided that the process was well established and the information was readily available, and of course there is a lot of floor-mapping information. That data is held so that it should be readily able to be done.

30 JUDGE HASSAN: Yes, thank you, and your answer was slightly qualified. If there was any need to resile in any way from that, if you could make sure that Mr Winchester is informed of that for closing submissions.

MR THEELAN: Certainly.

35 JUDGE HASSAN: The second question I have is in regard to, following the theory of that forward for ground truthing, in regard to the slope hazard area; could the same sort of certification service be available through the Council, assuming it has to be done legally and soundly?

40 MR THEELAN: Yes, and I suppose I would probably qualify it by saying the two in my mind are somewhat different. The flood level floor management material in contrast to the slope material are relatively easy to define compared to the sort of work that would need to be done to give a degree of satisfaction regarding the rock fall or mass movement material.

45

So it is degrees of magnitude of complexity and the amount of work required, and hence cost and also availability of resource. And I suppose pragmatically speaking, what is the balance of that responsibility between the Council and individual landowners?

5

JUDGE HASSAN: Now in the case of certificates of compliance, sorry. This is my last question, I have been teasing you a while. In the case of certificates of compliance, administrative charges as set by the Council for applications?

10

If an administrative charge was payable on an application at appropriate levels, would that not cover off the resource pressures? In other words, it would be funded whether or not it needed to be external or internal to Council resources?

15

MR THEELAN: If there was some way of recovering some of those costs, yes, that would certainly be a way of achieving that.

JUDGE HASSAN: And finally, in regard to that, what steps are required in order to set those administrative charges in place so that they can be relied upon as available under the plan? Is there a time lag or a process required around that and how long it might take?

20

MR THEELAN: Normally, setting of charges by the Council is done through its annual plan and long-term plans, so they are done annually.

25

JUDGE HASSAN: And the next opportunity for that is?

MR THEELAN: Well, the long-term plan consultation document for Council has just been released.

30

JUDGE HASSAN: So the next opportunity is?

35

[12.30 pm]

MR THEELAN: If that is how the council is to proceed, I mean the Council can look at those and potentially introduce those charges. My expectation would be if it was properly resolved during the course of the year but the normal process for setting and reviewing those is annual. It could be done at any point.

40

JUDGE HASSAN: Thank you, Mr Theelan.

SJH: Mr Alexander, you came back forward, did you have a further question?

45

MR ALEXANDER: Yes, that was very interesting Mr Theelan what you said there. You were sort of generalising there I thought quite a bit in some of those questions and I just want to get back to our property in 4 Quarry Road. The Council have bought everything else there, we're the only property there which hope to have a rebuild.

So in fact there is no other, like you were saying there before, I think it is fair to say you were trying to say well look it depends on what goes with the other properties and everything else. In our one we are the only one. Every other property, there is no other that are going to be rebuilt on there. You own them all and they are not going to be rebuilt on.

Going from that stage and now you have got the access agreement and you are going to be starting on our place very shortly because you particularly want the house of the site and that is coming off and then you are going to do your probing. You would be doing too much of the probing up there and say we ring you up and it is all clear to rebuild on the site and we know at the moment it is a land movement area. Do we have to wait then for the new plan to come out removing the land movement area from our site or can we go to you and say we want to be issued with a building permit immediately.

MR THEELAN: The granting of a building permit per se, so the hazard management issues basically control the land use. The building permit would be subject to a geotechnical review.

MR ALEXANDER: We realise that.

MR THEELAN: And that had already been done through this process and certified or agreed by the geotechnical engineers then that material would be provided to the building unit as part of their building consent assessment so that material that would go to them would form part of the assessment.

MR ALEXANDER: But we do not want to be in a trap like a mouse here. I mean if you get approval, if it is approved in two months. You do the probing, it is all okay, we would apply to you then like we have made for a long time. To get the building permit you have to issue it to us as it stands at the moment. We do not have to wait for the new district plan to come out or anything else. You have got to issue it with this.

MR THEELAN: If the work's undertaken demonstrated that the site could be rebuilt on.

MR ALEXANDER: Yes, we did.

MR THEELAN: And we agreed to building the platform and you applied for a building consent you could be granted a building consent and the information that was gathered through this process that we are currently
5 would help inform the building consent staff to have to write the building consent. They have to still have regard to the fact that they still have to look at the geological risk. So it sounds a little bit roundabout.

MR ALEXANDER: It sure does.

MR THEELAN: But it is really moving information from one process because we are looking at it in terms of the relationship to the district plan lines. The building permit staff will have to have regard to the Building Act that they are applying that the same information gets used. So that is
15 why I am saying the same data that we would gather through this process would inform any building consent you were going to apply for irrespective of whether the hazard lines were still there or whether we had gone to the panel to have those removed.

MR ALEXANDER: So you are telling me that it is irrelevant what the panel here thinks. If this gets found out within say two months which it should not take a lot longer than that anyway. I mean it is only a 32 kerbed site. We can go ahead. How quick could we go ahead on building on this site once we have got this approval?

MR THEELAN: As an existing home you have existing use rights so the activities you have - - -

MR ALEXANDER: But that is bulldozed.

MR THEELAN: Yes, that is right but the right to occupy.

SJH: I think Mr Alexander is trying to find out that you get the information that satisfies you, you give it to the building people. How long will it
35 take then to make a decision on the building consent? There is a timeline?

[12.35 am]

MR THEELAN: Yes, there is, sir, and I am not entirely familiar but I think there is about 20 working days for a consent but, sorry, I am not an expert on that and I do not have the exact dates and time frames in front of me.

SJH: And Mr Alexander would be able to proceed before the hazard lines were changed but you would be providing us with the same information and recommending we change the hazard lines?

5 MR THEELAN: That is correct, sir.

SJH: So 20 days after the geotech information and your application for a building permit goes in.

10 MR ALEXANDER: Thank you, and Mr Theelan, if we get approved in two months and say all this has gone through which it shouldn't be a hard job there, bit of top soil off the top and a little bit of work. So if they say to us then that, "Yes, you can go ahead but we are going to request that you do extensive, spend half a million dollars in the ground there"
15 – and we think that is unviable, we won't be able to go ahead.

SJH: I am sorry, Mr Alexander, that is not part of this hearing process.

20 MR ALEXANDER: Okay, all want to say is if it comes and it is not viable because we can build there but because of the cost that you say we have got to put in there, the Council would still try to purchase it off us in that case, if they make it so difficult that - - -

25 SJH: Well, look, I am sorry, that is not for this hearing. And nor was the building consent matter but you have got an answer; once the geotech information is provided and the application has been made there is a 20 day turnaround time, if that information was satisfactory to the Council they would also bring that information to us to change the hazard line. The other matters are between you and the Council, they are not for the
30 Panel. I am sorry, Mr Alexander, I cannot take that any further for you.

MR ALEXANDER: No, okay. Thank you.

35 SJH: That is all right, but we do have our limit, that is all. Any re-examination?

MR WINCHESTER: No, sir, thank you.

40 SJH: Thank you, Mr Theelan.

MR THEELAN: Thank you, sir.

<THE WITNESS WITHDREW

[12.37 pm]

45 SJH: Yes, Ms Brookland.

MR WINCHESTER: Call Ms Brookland. Sir, there is a very recent supplementary statement which has come in this morning, does the Panel have that?

5 SJH: We do, thank you.

MR WINCHESTER: Thank you.

10 DR MITCHELL: Just on that, Mr Winchester, it says that it is the third supplementary statement. I do not think there is a second supplementary statement, is there? There is the first supplementary and a rebuttal statement, or have I missed something?

15 MR WINCHESTER: There is possibly one missing, Dr Mitchell. There is a second statement and the second statement deals with a possible procedure for certification and that is a statement dated 12 March 2015, it has been filed.

20 SJH: We will follow it up at lunchtime. Ms Brookland will just have to make herself available today, in case there are any questions coming from us.

25 I think people have been getting into what strikes me as a very sloppy habit of filing memoranda seeking to file supplementary evidence and annexing the evidence to it and it does not come in clearly as evidence and I am not saying that is what occurred here, but we have had a few difficulties with that, so that may be what occurred.

30 But we will follow it up at lunchtime and take it from here, Mr Winchester.

MR WINCHESTER: Thank you, sir, I will have the witness sworn in.

<IRIS BROOKLAND, affirmed [12.38 pm]

35 **<EXAMINATION BY MR WINCHESTER [12.38 pm]**

MR WINCHESTER: Your full name is Iris Brookland?

40 MS BROOKLAND: Yes.

MR WINCHESTER: And you have prepared previously a statement of evidence in chief and a rebuttal statement?

45 MS BROOKLAND: Yes.

MR WINCHESTER: And you confirm that you have the qualifications and experience set out in those statements?

MS BROOKLAND: Yes.

5

MR WINCHESTER: Now, you have prepared three supplementary statements. The first is supplementary statement dated 10 March 2015 which deals with issues relating to submissions by Castle Rock Estate Limited?

10

MS BROOKLAND: Yes.

MR WINCHESTER: You have prepared a second supplementary statement dated 12 March 2015 and that deals with both the current FMA floor level procedure and a possible certification process that you can envisage for setting a permitted floor level, under the FLFMA?

15

MS BROOKLAND: Yes, that is correct.

20

[12.40 pm]

MR WINCHESTER: Thank you. And finally you have produced a third supplementary statement dated today's date, and that is in response to direction from the Panel to undertake a site visit of 22 Rugby Street?

25

MS BROOKLAND: Yes, I have done.

MR WINCHESTER: And do you have any changes to any of those statements Ms Brookland?

30

MS BROOKLAND: No.

MR WINCHESTER: Thank you. Will you confirm for the record that to the best of your knowledge and belief they are true and correct?

35

MS BROOKLAND: Yes.

MR WINCHESTER: Thank you. Please answer any questions on those statements.

40

SJH: Mr Chapman?

<CROSS-EXAMINATION BY MR CHAPMAN

[12.41 pm]

MR CHAPMAN: Thank you, Mr Chairman. Good afternoon Ms Brookland.
I am going to raise a few questions in relation to your second
supplementary evidence which deals the certification - - -

5 SJH: Well, this is the one we do not have.

MR CHAPMAN: I accept that, sir.

SJH: No, no, no, but I am just saying we are at a disadvantage.

10

MR CHAPMAN: I appreciate that, sir.

SJH: You have got a question on it that is the only problem.

15 MR CHAPMAN: Well sir, do you want to wait and do this after lunch when
you have had a look at it, sir, or do you want me to - - -

SJH: Well, I think it would be preferable but I do not want to cause
inconvenience to you, Mr Chapman, if we can avoid it.

20

MR CHAPMAN: Well, I am here also to cross examine Ms Carter so I am
going to be here.

25 SJH: All right. Well I think that would be a better course but Mr Riach,
perhaps you would like to ask questions about the response on your
property? Thank you, Mr Chapman.

<CROSS-EXAMINATION BY MR RIACH

[12.43 pm]

30 MR RIACH: Thank you, good afternoon and can I just at the outset
acknowledge that within 24 hours you have been at our property and
had a look and done this report, clearly, from the photos at some time
in the evening. So certainly appreciate the effort.

35 MS BROOKLAND: Yes, it was a bit of short notice but I did my best, yes.

MR RIACH: Yes, I appreciate the effort that you have gone to to have a look
at our particular property. I do, however, have a couple of questions
for you. It seems to me in reading the evidence that there are a lot of
40 words that are approximate and I note that the footpath is roughly a
certain height, that you estimate the garage is a certain height, and that
it is likely that the driveway might flood. And the fine line, of course,
is in those measurements, and if you start from the likely, the rough
height of 1785, and an estimate of the garage, and a likely flooding,
45 you have taken the minimum numbers to equate to a one in 200 year
flood.

5 And then, of course, the plan itself takes that up even further under your modelling. And that for our property if you made slightly different estimates or likely or roughly's, then our contention would be proved that we should not be in the flood zone, and therefore I am really questioning the basis of assuming that our property would be affected in exactly the same manner, by some coincidence, I guess, of your earlier work, when in fact I do not think that submission does prove that.

10 MS BROOKLAND: Okay, so I will have to probably explain how I came about to start with.

15 MR RIACH: Yes.

20 MS BROOKLAND: So this model is a 2D model, it is our Dudley Creek model. And I have explained the process of delineating the floor level and fill management area in my evidence-in-chief, and I also explained that the model is based on a grid, and in this case the grid size is five metres by five metres. So the average ground, the level within this five metres is an average value. So we have taken the predicted flood level, added an allowance for a rebuild of 250 millimetres and highlighted all this model's houses that are within this elevation, even if they are not predicted to be reached in the model. And that is what the FLFMA is.

25 You have pointed out that it does not really align with how your property is in reality. So I have been, coming out last night to have a look, and I have acknowledged that the raised gardens behind the wall have not been picked up by the LiDAR data, and as the model is based on the LiDAR data, it has also not been picked up by the model.

30 What I did then is I took the model level and worked out the approximate level of the footpath, which is - - -

35 MR RIACH: 1785.

[12.45 pm]

40 MS BROOKLAND: Yes. So this is also based on the same LIDAR set, so you could argue that might not be accurate either, but actually what makes the LIDAR inaccurate on this property is the steep elevation changes, the walls that it's not being picked up by the footpath in the general area if at that level in the LIDAR data, and that's the best information I've got.

45

Then I looked at how steep the driveway is, how high the garage is and I made an estimate, that is all I could do, I had no survey gear with me - -

5 MR RIACH: Yes.

MS BROOKLAND: - - - and worked out that it was perhaps 300 millimetres above the footpath. And that gave me an indication that your driveway might flood. And I put these roughly, and perhaps things in, because I
10 have measured them, and I am not pretending to have measured it, it's just my judgement that I've applied here.

MR RIACH: Yes.

15 MS BROOKLAND: I think on figure 3 you could see how LIDAR 4 that is on the driveway, if you look at the garden wall in the background, assuming that the wall is at one level, the ground doesn't seem to change much in relation to the top of the wall. That's where my estimates came from.

20

So what I am concluding is the FLFMA might not be in exactly the right position on the property, but I am very certain there would be FLFMA on the property, and it would probably be on the driveway. That's the work I have been doing in the findings of my - - -

25

MR RIACH: Right.

MS BROOKLAND: Yes.

30 MR RIACH: So I understand that. Has there been, to your knowledge, a one in 200 year flood in the last 14 years?

MS BROOKLAND: No, probably not in the last 50 years, and it's not just a one in 200 year flood, we also have allowed for an increase in rainfall intensities as part of climate change. So the climate change has not
35 fully occurred yet, so it is a very extreme event and it's looking into the future.

40 But there has been some flooding reported at the corner of Rugby Street and - it's not noted on the map but the intersection - - -

MR RIACH: Naseby Street.

MS BROOKLAND: - - - Naseby Street, so.
45

MR RIACH: Okay, I can help you with that. There is a drain that sits underneath an oak tree, and it floods when the drain is full of leaves, and when it's been maintained properly it doesn't flood. So the flooding tends to coincide with the Council's maintenance programme of that drain rather than a fundamental problem of the land.

MS BROOKLAND: It is still possible that this drain is not designed to cope with a 200 year event, and if it is flooding in smaller events, that indicates to me there might be a flooding problem and that the model is not totally unrealistic.

MR RIACH: Yes, my contention of course, is if the leaves were cleared out on a regular basis we would then find out that it can't cope with a descent downpour because of the maintenance programme.

MS BROOKLAND: Yes, but the model assumes all drains and pipes cleared, so the model level doesn't depend on the actual amount of leaves.

MR RIACH: In which case the recent flooding there should be disregarded, because it's the blocked drain that causes the flooding not the land.

MS BROOKLAND: Yes, but in a realistic event you can get still blockages and I have no reason not believe this model in this case.

MR RIACH: Okay. Do you accept that the estimations and the modelling are very impactful for a property that is at the very edge of the outcome. So if for example a property is right in the middle of that modelling, then it's perhaps acceptable, but when you have a property that's on the very edge of that modelling, and that modelling is taking into account a lot of unknowns, and the reality is that it doesn't flood and hasn't in our experience there that the impact of your modelling on our property is unfair?

[12.50 pm]

MS BROOKLAND: No, I don't find that – if you look at all the other properties in the street, they have the same happening and therefore in a very similar position and it is not just this street, there are many streets in Christchurch. I understand that the rules only apply in the area marked as FLFMA so most of the property you could use without any restrictions from this plan.

MR RIACH: My experience is I can use the entire property as I would choose when it rains hard.

MS BROOKLAND: You can, you just need to get a resource consent, we are not saying no to anything.

5 MR RIACH: I am sensing the report may not be helpful. What I am trying to do, Panel, is explain that our property is being impacted by a lot of estimations and roundings ups, and maybes, and our contention remains that it should not be in the photo. I am happy to answer any questions.

10 SJH: Thank you, we will just see if the Panel had some questions at the already declared an interest so we can release you, Mr Riach.

15 DR MITCHELL: I just have one question just to put the modelling results in context. What is the, and I cannot see it immediately from your figures 4 or 5, what is the geographical reason why the FLFMA runs around that western boundary of this property? There is obviously some clear change in elevation there but I cannot see what it is from the photographs.

20 MS BROOKLAND: It would be stretched out from the flooding on, not the next door property, it would be two properties away. So we would add 250 millimetres to that water level and stretch it out at a maximum of 60 metres.

25 DR MITCHELL: So it is the 60 metre effect rather than something immediately on the boundary? That is helpful, I understand that, thank you, I had forgotten about that.

30 MS BROOKLAND: And the next door property is a lot lower than number 22 property.

DR MITCHELL: So it is lower?

35 MS BROOKLAND: Yes.

40 DR MITCHELL: All right, it is just not clear from the photograph. My final question is with the scenario that includes or the modeling includes an allowance for a metre of sea level rise, does the back water affect from that change, does that affect flooding in this area or is this sufficiently far away that there is no backwater effect and it is simply a matter of rainfall and the lie of the land?

45 MS BROOKLAND: At this location there is no impact of the sea level allowance. We have run this model for half a metre which we normally do and now for the proposed District Plan with one metre and there was no difference in the results, it is too far.

DR MITCHELL: Thank you, Ms Brookland.

SJH: Ms Dawson?

5

MS DAWSON: Just a couple of quick questions. In paragraph 3.2 you say that from the modelling the FLFMA would be 18.39 metres, and that includes the freeboard level already added onto that?

10 MS BROOKLAND: Yes.

MS DAWSON: Yes, so that is the level at the top of the FLFMA we have, and then over the page at the end of 3.4, your estimates, and I know Mr Reich questioned you about estimates, that the water at the top of the driveway could be up to 18.1, sorry, the level of this for the driveway could be up to 18.15 metres. So I am reading it that there is actually several hundred millimetres between your estimate of the top of the driveway and that FLFMA level.

20 MS BROOKLAND: Yes.

MS DAWSON: So it is well and truly in it, is that what you are saying?

MS BROOKLAND: Yes, it could actually include the garage as well if we mapped it that way, yes.

MS DAWSON: All right, thank you very much.

SJH: Judge?

30

JUDGE HASSAN: Thank you, Mr Chairman. Just a few questions, Ms Brookland, first of all if you go to your figure 1 and I will ask the Secretary to also have available the regional policy statement, we will come up to that soon, but looking at figure one, I take it the blue area is the streets?

35

MR BROOKLAND: The blue area - - -

JUDGE HASSAN: Rugby Street for instance. Predominantly what I mean is, you don't need to answer questions, it is already labelled there, Rugby Street runs through the bulk of that blue area and then there is another intersecting street the other way. Now, Mr Riach asked you about fairness and you answered him on saying well you are not treated unfairly because others along that street are treated in the same way as many others around the city are, and then you referred to the process of obtaining resource consent. But we're dealing here, aren't we, with a

45

line that runs on the driveway, in fact I think that's what you've answered in your evidence, that effectively this line affects the driveway to his property?

5

[12.55 pm]

MS BROOKLAND: According to my assessment I would move the line onto the driveway rather than the raised garden in the front.

10 JUDGE HASSAN: Yes, and leave it on the driveway.

MS BROOKLAND: Yes, and I actually suspect there would be flooding on the driveway.

15 JUDGE HASSAN: Just thinking about that, one would never apply for resource consent to put a building on a driveway, would we?

MS BROOKLAND: For a garage, perhaps.

20 JUDGE HASSAN: Is that really what the regional policy statement is directed towards if one looks at the regional policy - - -

MS BROOKLAND: I am not an expert on planning, I am giving technical evidence and my technical opinion is that the driveway would have flooding on it and so it should be in the FLFMA.

25

JUDGE HASSAN: That second aspect is planning evidence because you thought it was fair to do that, so are you saying that you can't give an opinion on the fairness or otherwise of the issue because you're not a planning expert?

30

MS BROOKLAND: I find it fair, if my technical investigations reside and me thinking there is water on the driveway, I would find it fair that the FLFMA includes this area and I also find - - -

35

JUDGE HASSAN: It's just this difficult word fair, it's just the difficult word fair, I think what you're saying is it's consistent with what happens elsewhere rather than fair, you're not making a judgement on whether it's fair or not, would that be fair?

40

MS BROOKLAND: Okay, we can take the word "fair" away, but it is consistent and it is not like someone is picking on this particular property to do this, and I would also find it correct to do in case someone wants to buy the property, I would not feel confident in taking any flooding area off it.

45

JUDGE HASSAN: Well, again, that's a loaded opinion because - - -

MS BROOKLAND: It is my opinion, yes.

5 JUDGE HASSAN: Well, you're saying – okay, well, I'll have to ask you
about it then, I thought you said you were dealing with it on a technical
basis but you're dealing with it on a question of fairness. You see, the
Panel has to look at this in terms of various things, including the
10 regional policy statement, are you familiar with the regional policy
statement?

MS BROOKLAND: No, not to a degree that I would like to discuss it here.

15 JUDGE HASSAN: If one looks at the question of fairness, as you put it, in
regard to putting another property owner on notice, what you are saying
is they should be put on notice, in your opinion, to the extent that they
may want to put a garage on the driveway in this property?

20 MS BROOKLAND: No, that was just an example of how it might affect them.
I think they should have the overlay on the property because it is
flooding.

25 JUDGE HASSAN: But that opinion – sorry, I may have to leave it there
because I am having difficulty with this, because I think you are really
saying it should be there, but it's based on your narrow technical
expertise and you're not trying to give planning evidence, because it
may be that I have to direct these questions to another witness. If you
can say that to me, then I will do that. Ms Carter follows you, for
instance, and I have questions that I want to ask someone regarding this
30 and its relationship to the regional policy statement. Are you the person
I should ask that question of?

MS BROOKLAND: No.

35 JUDGE HASSAN: Thank you. No further questions.

SJH: All right, thank you. Well, I think any questions arising from the Panel's
questions, Mr Radich, or Mr Winchester? All right, thank you. We will
take the adjournment and come back to the cross-examination. We've
40 got a copy of the supplementary statement now and we will read it over
the luncheon adjournment. Can we start back at 1.25 please?

ADJOURNED [12.59 pm]

45 **RESUMED** [1.28 pm]

SJH: Yes, thank you. Ms Brookland, you are still on your oath from before the adjournment, you understand that?

MS BROOKLAND: Yes.

5

SJH: Yes, Mr Chapman.

<FURTHER CROSS-EXAMINATION BY MR CHAPMAN [1.28 pm]

10 MR CHAPMAN: Good afternoon, Ms Brookland. I am going to ask you questions in relation to your second supplementary statement of evidence, and through that you have found a pathway effectively to support certification of floor levels, have you not?

15 MS BROOKLAND: Yes.

MR CHAPMAN: You helpfully outline the procedure for us in paragraph 4 of how that works?

20 MS BROOKLAND: That's how it currently works.

MR CHAPMAN: Currently works, yes. So under a certification regime the first thing that you need is the address of the property?

25 MS BROOKLAND: Yes.

MR CHAPMAN: Once you've got that address you then look at the website by the look of it to see if there's a floor level requirement stated on the website?

30

MS BROOKLAND: Yes, I would use our database, but it's the same information as on the website.

35 MR CHAPMAN: Yes, so in terms of this procedure, would you accept that this provides a rather neat outcome that avoids the need to upgrade the plan, update the plan or vary the plan from time to time to include new areas where information becomes more certain?

40 MS BROOKLAND: You mean the district plan?

MR CHAPMAN: Yes, I mean the district plan.

MS BROOKLAND: Sorry, can you ask - - -

45 MR CHAPMAN: Your website is constantly updated as information becomes refined.

MS BROOKLAND: Yes.

5 MR CHAPMAN: So there'd be no need to update, if you have a certification procedure, there'd be no need to seek a variation to the plan where areas become more certain over time in terms of the floor level.

MS BROOKLAND: Well, we would add them to the website.

10 [1.30 pm]

MR CHAPMAN: Yes, you would add them to the website, you wouldn't need to seek a variation to the plan.

15 MS BROOKLAND: No, if this process is established as I have described it.

MR CHAPMAN: Yes.

20 MS BROOKLAND: So we would update the website; if the information is not on the website, we would undertake an assessment and put the information on the website, yes.

25 MR CHAPMAN: Yes, thank you. And when you are doing this floor level assessment from your database, it seems to me that in terms of your paragraph 4, that it is pretty immediate that you are able to give a floor level for a particular address?

MS BROOKLAND: Yes, if it is in there.

30 MR CHAPMAN: If it is in there?

MS BROOKLAND: Yes.

35 MR CHAPMAN: Do you accept that it wouldn't take, and even in the rarest case, you would be able to provide a floor level within a matter of days, from the model?

40 MS BROOKLAND: With the current demand, we try and answer our enquiries within five working days, but I would anticipate after the district plan becomes operative or effective, that we get a lot of enquiries and that time might increase.

45 MR CHAPMAN: But it is unlikely that there would be a need for this panel to impose a protocol that floor levels must be supplied in 20 working days, because you are already meeting that in any case?

MS BROOKLAND: I think that is a realistic timeframe.

MR CHAPMAN: And if you turn to paragraph 5.2 of your evidence, I have
5 just taken you through that what you need to establish floor levels is the
address of the property, but on that 5.2, you refer to the need for a site
plan as well.

MS BROOKLAND: Yes.

10 MR CHAPMAN: Now, the building that goes on the property is immaterial,
from your perspective?

MS BROOKLAND: I would be interested in the location of the building if it
15 is a large site, or if the site is on the slope – I would want to know
where exactly on that property the building will go.

MR CHAPMAN: If we are dealing with flood level parameters, is it your
20 view that you will have many properties on a slope involving the need
for a flood floor level?

MS BROOKLAND: Well, the properties on steep slopes are on the Port Hills
and not subject to flood plain flooding, but there are larger properties
25 that can be affected by water surfaces, perhaps, if it is between two
roads, they can be at different levels and they have got surface flooding
on them. So you would perhaps give two different floor levels for large
sites. We have done this before.

MR CHAPMAN: And then, in answer to questions posed to you by the Panel
30 before lunch, I think you outlined that there is a great deal of caution in
terms of the way that the floor level is fixed; put another way, you refer
to the fact that is not only the 1-in-200 year flood event; it is climate
change on top of that; it is tidal influences on top of that, and then a
free broad; is that correct?

35 MS BROOKLAND: Yes.

MR CHAPMAN: So therefore, would you accept that there is a great deal of
caution in the process? That is precautionary in nature.

40 MS BROOKLAND: Caution in terms of conservatism?

MR CHAPMAN: Conservative may be a better word, yes.

MS BROOKLAND: I do not think it is excessively conservative because we
45 are planning for the future. That is why I think climate change and sea-

level rise are realistic, and we have other evidence provided here that supports that.

5 And the 400 millimetre freeboard is also a standard that has been used before by us under the city plan, we are using it currently under the building code, and I think it is good practise. So I don't find it overly cautious.

10 MR CHAPMAN: Okay, if using the word "conservative", you have suggested in your paragraph 5.6 a lapse time which is between 6 and 12 months. What do you perceive as the magnitude of change that might occur over a 6 month period, having regard to the conservative nature of the assessment that you have already outlined?

15 MS BROOKLAND: You mean in terms of floor level height, or?

MR CHAPMAN: Yes, why would you want it to lapse after six months? Is it such that the degree of change within six months is going to be highly material in terms of determining floor levels?

20

[1.35 pm]

25 MS BROOKLAND: It can be a difference of 2-300 millimetres between model upgrades, and just to give you an example; since we have done this work for the district plan we have one model update, we are finalising another model in the next one or two months and by the end of the year we are hoping to have a new city wide model based on existing models.

30 MR CHAPMAN: But to accept that there needs to be certainty in terms of locking in a floor level, and it needs to be realistic in terms of a build timeframe?

35 MS BROOKLAND: Yes.

MR CHAPMAN: Mm'hm. And for multiunit developments, a rebuild of a multiunit development, can you see a situation where that could take it out to 18 months in terms of a build timeframe?

40 MS BROOKLAND: I cannot really comment on realistic build timeframes, but I am getting uncomfortable by fixing floor levels longer than 12 months, and one concern I have, or one reason is that we also set floor levels under the building act, building code, and that would be the 50 year event. So if you had a model upgrade and you are seeking
45 certainty – so you would certainty from your certificate, but if the new 50 year level actually becomes higher than the certified 200 year level,

then the certainty is not there because at building consent stage it would come up that the floor level is not high enough.

5 MR CHAPMAN: But that scenario would apply irrespective of whether it was fixed through certification or through a resource consent, would it not?

10 MS BROOKLAND: Yes, it is just the longer you certify, the longer the fix period is the higher the chance becomes that the model updates and that the 50 year level could exceed the certified level.

15 MR CHAPMAN: Did I interpret you correctly that your degree of uncomfortableness changes if we go over a 12 month period of certification?

MS BROOKLAND: Yes.

20 MR CHAPMAN: Thank you. Do you also accept that the grandfathering provisions suggested by my client's, is again an area where there is a need to lock in floor levels during this interim phase, before the plan becomes operative?

25 MS BROOKLAND: Sorry, what is your question, if I have read the grandfather - - -

MR CHAPMAN: Yes, are you familiar with the grandfathering concept?

MS BROOKLAND: I have read that clause, yes.

30 MR CHAPMAN: And are you comfortable with grandfathering, locking in floor levels for a defined number of exemptions in order to enable the rebuild to occur?

35 MS BROOKLAND: No, I find the period of three years too long.

MR CHAPMAN: But you accept that that 2018 period is one that is commonly accepted for rebuild timeframes?

40 MS BROOKLAND: I cannot really answer that.

MR CHAPMAN: Thank you. No further questions.

SJH: Any re-examination – sorry.

MR RADICH: Your Honour, I haven't applied, or the Crown has not applied to ask questions, but like the Panel I have only seen this statement at lunchtime, I wonder, could I have your leave to put one matter, sir?

5 SJH: Yes.

<CROSS-EXAMINATION BY MR RADICH [1.38 pm]

10 MR RADICH: Thank you very much. Ms Brookland, do you have a copy of the proposal anywhere near you at the moment, the Natural Hazards proposal?

SJH: Which one because it is - - -

15 MR RADICH: Any version at all would be fine - - -

SJH: Any version will do?

20 MR RADICH: - - - thanks for our purposes, but I am looking at 5.8.1.2 the rule in question, I am going off the caucusing conference addition which is page 12 – do you have that there, 5 - - -

SJH: 5.8.1.2.

25 MR RADICH: Point two, sir, 5.8.1.2, this is the first – would it help if I gave the yellow version page number, the Panel's using that.

DISCUSSION

30 **[1.40 pm]**

35 MR RADICH: Now this is the, if I can use my learned friend, Mr Chapman's analogy, the "egg-white" area, right? We are talking here about the LFMA area, and you have given evidence, and I have just had a chance to look at it briefly after lunch, about the possibility or ability to use a certification standard.

40 Can I just ask you please to look down through the RD descriptions there and you will RD1, which is new buildings, and then comes over the page and there are RD2, 3, and 4, so again, new buildings not in the overlay, not permitted and then additions, and then 5 is the one I just want you to pause on for a moment please: "Filling or excavation, not a permitted activity".

45 Have you given thought, in terms of your evidence, where you talk about the certainty that can be achieve through setting a floor level

upon request to its application to RD5? Have you thought about it in terms of the plan, or is your evidence just to look at it very generally?

MS BROOKLAND: Only in relation to floor level.

5

MR RADICH: Okay. Am I right in thinking that filling and excavation is a considerably more complicated assessment that would need to take into account the types of factors listed in the right-hand column in RD5, and that these are matters that you have not given evidence on?

10

MS BROOKLAND: Yes. Filling does not only affect the property itself, it can affect neighbouring properties, so it is of more concern than an individual floor level.

15

MR RADICH: Am I right in understanding you to say that the matters of the type indicated in the right-hand column of RD5, are not matters for which you would see sufficient certainty to enable certification?

20

MS BROOKLAND: I have not previously considered this, but it looks more complex than setting a floor level.

MR RADICH: Yes, all right. Thank you very much, Mr Chair.

SJH: Re-examinations?

25

MR WINCHESTER: No, sir, thank you.

SJH: Dr Mitchell?

30

DR MITCHELL: Good afternoon, Ms Brookland. I have just got a couple of questions that hopefully you can help me with. Just firstly, in paragraph 4.1 of your second supplementary statement, where you are talking about the operative plan and you are referring to a 1-in-200 year flood event, should that be 1-in-50 year flood event?

35

MS BROOKLAND: No, it is the 1-in-200 already. The building code is the 1-in-50, and the current city plan is the 1-in-200. And we also apply 400 millimetre freeboard on top of this.

40

DR MITCHELL: That is fine, thank you. In paragraph 5.2, and you have already been asked a question about this, you were saying that in order to set a minimum floor level, you need to know the address of the property and a plan of what is proposed on the site. And you have said that you need the plan because the site might be steep and you might have different levels for different floors.

45

5 But if you were to make an assumption that you did not want to provide that information and you simply provided the address, would you not simply then go to the highest point on the property and set the floor level based on the highest point on the ground, and then the person whose property it is would have the problem, if you like, of having to build the whole site higher than they originally thought, but it would still therefore be above the flood level, would it not?

10 MS BROOKLAND: Yes, we could do that. That would be conservative.

DR MITCHELL: It would be more conservative but more straightforward, potentially?

15 MS BROOKLAND: Yes, we could allow for the worst case.

DR MITCHELL: Thank you, and just so that I am clear, if we are talking about the area that is in the “egg-white” rather than in the fixed floor area; the certification process that you are talking about here uses exactly the same analysis, using the same tools, as if it were in the “egg-yolk”.

20 MS BROOKLAND: Yes, but in the “egg-yolk” we have done this assessment already.

25 DR MITCHELL: Understood, but it is exactly the same assessment?

MS BROOKLAND: Yes.

30 DR MITCHELL: There is nothing different about it, you just press a button and a number pops out the end?

MS BROOKLAND: Yes.

35 DR MITCHELL: Thank you, sir.

[1.45 pm]

40 JUDGE HASSAN: Just one matter, thank you, Mr Chairman. MS Brookland, this question just arising from Mr Chapman’s questioning of you, as to the duration of certification. You mention one concern you had was as to the potential for inconsistency with what might be addressed through the building consent. I suppose I wonder about a couple of things there and whether or not they can be verbally covered off. So in that scenario it would be effectively the developer of the property would be faced in effect with having to do something more stringent than a secure building consent under that scenario, wouldn’t they? They

wouldn't get building consent, other than at that levels that the building consent set. That is right, is it not?

MS BROOKLAND: You mean the building consent level is the final?

5

JUDGE HASSAN: Yes, so the Council would deal with that application. I am just wondering, would it not be the case that when the Council received its building consent application it would set the floor levels at their level, where it would be set, in terms of compliance with the building code. And in that sense it would really be the owner's risk that occurred, rather than the Council's one. Do you accept that?

10

MS BROOKLAND: Yes.

JUDGE HASSAN: I wonder though in light of that whether the concern you have could be covered off for instance by some expression of making it explicit that the building level set on certification that it has not necessarily set the building consent level in effect making it clear that the owner needs to be aware of that.

20

MS BROOKLAND: That would be a possibility.

JUDGE HASSAN: Yes, okay. Thank you very much.

SJH: Ms Brookland, this is, as you had noted in your first supplementary statement, the issues we asked you to look at in the Port Hills Road do not impact on the hazard mapping. Do you have practical experience of waterways as well as computer experience of waterways?

25

MS BROOKLAND: Practical, in terms of physical work in waterways?

30

SJH: Knowledge of them.

MS BROOKLAND: Sorry?

35

SJH: Knowledge of them.

MS BROOKLAND: Yes, I would like to think so, yes.

SJH: So it is your view is it – and it is not relevant to the mapping I know, but it is relevant to your overall evidence as far as I am concerned. That a completely clogged waterway, clogged with weeds and vegetation is not a real impediment to river-water flows?

40

MS BROOKLAND: I have not seen the culvert blocked.

45

SJH: I am not talking about the culvert, yet. You can see – we saw that, you can see it.

MS BROOKLAND: Yes, I can see that.

5

SJH: It is completely blocked with vegetation. Your evidence is that it would hardly have any impact on flood flows or any other flows. Are you seriously telling us that Ms Brookland?

10 MS BROOKLAND: I said it is not significant. It would block it to some degree, yes.

SJH: It would only pose some restrictions?

15 MS BROOKLAND: I have not quantified it.

SJH: Well some is a lot less than significant. We also saw the culvert. You say there was hardly any gravel or silt there. I can only speak for myself; I saw a lot of silt, had it been cleaned before you had been there?

20

MS BROOKLAND: No, I was there before you.

SJH: No, you said you have gone back to it.

25

MS BROOKLAND: No.

SJH: You did not go back?

30 MS BROOKLAND: I have. I have been there as part of the site visit on - - -

SJH: 13 February.

MS BROOKLAND: Yes.

35

SJH: And you are saying there was no silt or grave there, or very little?

MS BROOKLAND: In the culvert; you can see through the culvert in the photo.

40

SJH: I know you can see through it, we were there, we saw silt. How deep is the whole culvert?

MS BROOKLAND: 1.3 metres I think.

45

SJH: And how much can you see in the photograph?

MS BROOKLAND: Well I can see the opening at the end and I could see maybe that much. How much have you?

5 SJH: You are saying what, there was about 2 centimetres of silt.

MS BROOKLAND That is what I thought I saw, yes.

SJH: That is what you thought you saw?

10

MS BROOKLAND: Yes.

SJH: Thank you. Mr Winchester?

15 MR WINCHESTER: Nothing further, sir.

SJH: Mr Chapman?

MR CHAPMAN: No, sir.

20

SJH: Thank you, Ms Brookland.

MR WINCHESTER: Thank you, sir.

25 MS BROOKLAND: Is that it?

SJH: Yes.

<THE WITNESS WITHDREW [1.50 pm]

30

MR WINCHESTER: Next witness is Mr Harrington, sir.

DISCUSSION

35 SJH: Yes, Mr Winchester?

<GRAHAM JAMES HARRINGTON, affirmed [1.50 pm]

<EXAMINATION BY MR WINCHESTER [1.50 pm]

40

MR WINCHESTER: Thank you. Now your full name is Graham James Harrington?

MR HARRINGTON: Yes.

45

MR WINCHESTER: And do you have the qualifications and experience set out in your statement of evidence in chief, 13 February 2015, and you produced a rebuttal statement of evidence dated 27 February 2015 – sorry, further rebuttal statement, second rebuttal statement dated 9
5 March 2015?

MR HARRINGTON: Yes.

MR WINCHESTER: Do you have that with you?
10

MR HARRINGTON: Yes.

MR WINCHESTER: Thank you. Do you have any amendments to that statement?
15

MR HARRINGTON: No.

MR WINCHESTER: Thank you, will you confirm that to the best of your knowledge and belief, that statement is true and correct?
20

MR HARRINGTON: Yes.

MR WINCHESTER: Thank you, please remain where you are and answer any questions.
25

SJH: Mr Lewis, will you come forward to the microphone to cross-examine?

<CROSS-EXAMINATION BY MR LEWIS [1.51 pm]

MR LEWIS: Graham, your submission talks about levels not changing much in the Henderson Basin, Mr Walsh's part. Are you aware of the maps that have been produced by LINZ, such as that one, of all the benchmarks in Christchurch?
30

MR HARRINGTON: I have sir, yes.
35

MR LEWIS: And did you look at those around the Henderson Basin?

MR HARRINGTON: I have not looked at them recently but I did take the trouble to talk about surveys.
40

MR WINCHESTER: It might be useful to produce this to the witness so he can identify what the point is being.

SJH: I think it already has been exhibited, I have a feeling it was, Mr Winchester. Did you hand this in the other day, Mr Lewis?
45

MR LEWIS: No, I did not.

SJH: Have you got a copy that the witness can see? Thank you.

5

EXHIBIT #23 – MAPS PRODUCED BY MR HARRINGTON

MR HARRINGTON: Perhaps I should explain to the Panel that that was a map that has been produced where the contribution was from Opus, the City Council and the City Council contracted a surveyor as well, to update all those benchmarks.

10

SJH: Thank you.

MR LEWIS: Graham, the benchmarks would be a lot more accurate than the LiDAR, wouldn't they?

15

MR HARRINGTON: I would expect so, they only apply to the point of the benchmark.

20

MR LEWIS: Do you think Jeremy Walsh would have known about the existence of the benchmark information?

MR HARRINGTON: That would be speculative in my part, I would have to say.

25

MR LEWIS: The problem I have got is that I cannot ask questions on Mr Walsh, and yet you have produced evidence from Mr Walsh, expert evidence.

30

SJH: Well, no, a report was produced and we have not had the chance to question either, Mr Lewis, so it is a question for us as to how much weight we can actually attach to that as you will appreciate, I am sure.

MR LEWIS: There is a question in Mr Walsh's evidence or he is saying that the catchment area is a couple of hundred hectares bigger than I had put in there, and he's speculated that I have left out the Henderson Basin. Have you got any ideas why my figures would be different to Jeremy's?

40

[1.55 pm]

MR HARRINGTON: I'm relying on Jeremy's information here.

MR LEWIS: Right, and if I said that I'd allowed half of Westmorland, because that goes into the Henderson Basin and the other half doesn't, would that make sense to you?

5 MR HARRINGTON: Yes, I suppose.

MR LEWIS: Jeremy gives an outflow figure in the Cashmere Stream as 8 cubic metres a second, you've read that?

10 MR HARRINGTON: Yes.

MR LEWIS: Is that the only outlet from the Henderson Basin?

15 MR HARRINGTON: Well there, it's by far and away the main outlet as far as I'm aware.

MR LEWIS: Sorry?

20 MR HARRINGTON: Yes, over Victors Road there is another outlet, yes.

MR LEWIS: What about Stillwells Drain?

MR HARRINGTON: Yes, to the right of it, basically.

25 MR LEWIS: Right, and that goes into the Heathcote, doesn't it?

MR HARRINGTON: Yes.

30 MR LEWIS: Right. So we had to add that onto the 8 cubic metres a second to get the total outflow of the Henderson Basin.

MR HARRINGTON: Yes.

35 MR LEWIS: And that is quite likely 10, two for Stillwells, which is a much smaller outlet, and eight for the Cashmere Stream, giving a total of 10?

MR HARRINGTON: I don't have the figures at hand.

40 MR LEWIS: Okay. I've used 2 mm per hour for infiltration as the average infiltration.

MR HARRINGTON: Jeremy's knocked that back to 1.3.

45 MR LEWIS: But I could quite easily have used 2.7, and if I had, I would have only got three-quarters of million cubic metres, whereas my average submission gave 1.1 million and Jeremy by admitting Stillwell's outlet

changing the infiltration, changing the area has managed to double that. So they're not big changes, but they are little changes that all add up, so would you say that the model or the Henderson Basin particularly would be quite sensitive to small changes.

5

MR HARRINGTON: It could be.

MR LEWIS: The problem is that when you're pouring water into a sink and you've got the plug out, you can pour it in quite fast and it all goes out, double that flow and then the sink will start to rise until it gets a real head-on and then it will stabilise. Put a lot more in and it will flood over the bench. Well perhaps not a lot more, but when you've got an inflow and an outflow and the difference between them is the storage, it doesn't take much to alter your outflow, alter your inflow to get the water flowing over the bench. Would that be correct?

10
15

MR HARRINGTON: That's a very broad question you are asking there.

MR LEWIS: Well it's a general hydraulic question.

20

MR HARRINGTON: Yes.

MR LEWIS: I have got an example here that if you had 20 cubic metres going in, 10 cubic metres going out, that would leave 10 cubic metres to sit in the basin. If you changed the input and the output by 20 percent each, you would finish up with 24 going in, 8 going out, which would leave 16 in the basin. In other words a couple of 20 percent differences adds up to a 60 percent difference. So that shows the sensitivity of basins, would you think?

25
30

[2.00 pm]

MR HARRINGTON: Well you can propose numbers like that if you like, I mean, in the modelling exercise, you have to make some assumptions and agree that is the design case and then run with it. I accept that other people might have made different assumptions.

35

MR LEWIS: In your rebuttal evidence, you say the City Council doesn't allow any additional area to be developed, for housing I presume, unless they are fully mitigated, that's not correct, is it?

40

MR HARRINGTON: I made that statement? Can you explain to me what is not correct?

MR LEWIS: Well, you are demanding that developers mitigate for a 50 year storm and yet you are setting flood levels for Christchurch on a 200

45

year storm, so that is what affects people. So for them to have those developers mitigate their extra input, surely they would want then to mitigate against a 200 year storm?

5 MR HARRINGTON: There are two different purposes being served here, one is the purpose of the District Plan, which is a one in 200 year design level, and the other is for the purposes of the Building Act where you would set a 50 year level for the purposes of the Catchment Management Plan, which does a 50 year level rather than 200 year level.
10

And in relation to the storage in Henderson Basin, that is a buffer storage for the benefit of the whole community.

15 MR LEWIS: Being one of the owners downstream of a lot of these basins, we are aware that if a 200 year storm does come along in my lifetime, it will overpower all of those basins and we will be coping with a 200 year flood plus all the extra water that has overpowered those basins. So we won't just get a 200 year flood, we are going to get more, aren't we?
20

MR HARRINGTON: No, you will get less, because those basins will have some small effect rather than what would have happened if there were no basins there. You said we would get more than you would have otherwise got. But I mean it is a bit academic really, if we start talking about the 200 year flood, why not talk about a 1,000 year flood? In a 25 1,000 year flood, it's going to be a similar situation.

We are directed by a regional policy to do the one in 200 year flood protection, so that is why that is being said and it is for a different purpose.
30

MR LEWIS: In your rebuttal evidence, you showed the Awatea Basin. What relevance has that got to Henderson Basin or Cashmere Stream or is there some other purpose there?
35

MR HARRINGTON: No, Awatea Basin – there is a couple of points in relation to Awatea Basin. One to demonstrate that these facilities are being built, and not only to deal with existing development but also retrofit – sorry, not only to deal with new development but also to retrofit existing development.
40

In this particular case, during the event of March this year, those basins were not over overfilled, so they would have provided quite a lot of protection for water that would otherwise have travelled down the Upper Heathcote and filled up some of the capacity of the Heathcote
45

River, and made it more difficult for outflows from the Henderson Basin to get away.

[2.05 pm]

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MR LEWIS: Your photo shows the downstream basin without water in it and you state that the Awatea Basin would have made an important contribution to limiting flooding in a storm. Could it be that the outlet from that particular basin was too large and therefore nothing got stored?

10

MR HARRINGTON: My interpretation is the water is flowing from the upper basins to the lower basins.

15

MR LEWIS: That is the last in line though isn't it?

MR HARRINGTON: Yes, but the other thing that happens with these particular basins is that water is actually discharged to ground, the opening part, and so that water is actually taken right out of the river network, so that is also providing another contribution to them flooding.

20

MR LEWIS: That is only about two millimetres per hour isn't it?

25

MR HARRINGTON: I don't have the figures straight off my head but it is taking it right out of the system anyway, yes.

MR LEWIS: Well you are not allowed to discharge large volumes under ECan's rules in any case are you? I don't think you are allowed to go over 20 millimetres per hour, is that right?

30

MR HARRINGTON: You are talking about infiltration rates or the medium or something like that.

35

MR LEWIS: Yes.

MR HARRINGTON: The upper pond there has quite a large medium to work with.

40

MR LEWIS: In 2.8 of your rebuttal you say that for 1D elements of the small drains are within Henderson Basin, wouldn't the Cashmere Stream be one of those?

MR HARRINGTON: Cashmere Stream, yes, it certainly is.

45

MR LEWIS: Yes, and that is a reasonable size though isn't it?

MR HARRINGTON: It is bigger than the drains through the basin, yes.

MR LEWIS: Yes.

5

SJH: Mr Lewis, you have gone well over your allocated time, so if you just be mindful of that?

MR LEWIS: I will hurry. How does your model cope, your 1D/2D model cope with the likes of the pipe that Stillwell's Basin goes down, is that simply a carryover from your 1D model?

10

MR HARRINGTON: It is part of the 1D model.

MR LEWIS: Yes, the extra culverts you put under Milnes Road and Sparks Road, would they stop the retention upstream or stop some of the retention upstream because they were originally designed to be chokes with the resource consents. You then created more ponding downstream to compensate but that has not been completed, so at the moment we are without that retention, is that correct?

20

MR HARRINGTON: That's correct.

MR LEWIS: That is simply running out of money?

25

MR HARRINGTON: According to my colleague, Mr Eastmond, yes.

MR LEWIS: Thank you, sir.

SJH: Thank you, Mr Lewis. Are you down to cross-examine, Mr Chapman of this witness?

30

MR CHAPMAN: No, sir.

SJH: Who is, there is another line saying further cross-examination but no one is identified. All right, any re-examination? Mr Winchester?

35

MR WINCHESTER: No, sir, thank you.

SJH: Dr Mitchell?

40

DR MITCHELL: Just one very simple question please, Mr Harrington. In round terms what is the reduced level of the main output from Henderson Basin?

45

MR HARRINGTON: I don't have that figure in my head.

DR MITCHELL: The reason for the question is, do you agree that any backwater affects associated with the sea level rise and the tidal cycle don't affect flooding in the Henderson Basin?

5

MR HARRINGTON: Absolutely, yes.

DR MITCHELL: All right, thank you. Thank you, sir.

10 SJH: Ms Dawson?

MS DAWSON: Thank you, Mr Harrington. The evidence has been put to us that Henderson Basin floods more frequently and more extensively than it used to say 15 or 20 years ago, before recent development in that catchment upstream occurred, is that your view?

15

MR HARRINGTON: I have seen that view expressed. I haven't seen any measured evidence to prove it.

20 MS DAWSON: Or disprove it?

MR HARRINGTON: Or disprove it, yes, that's correct. In terms of my experience with people's views the flooding, the most recent one is usually the worst.

25

[2.10 pm]

MS DAWSON: But the Council doesn't have a view as to whether it floods more frequently now than it used to?

30

MR HARRINGTON: No.

MS DAWSON: So both Mr Lewis and Mr Lee have commented to us that it is the lack of maintenance and management of the downstream waterways that are significantly contributing to what they say is the increased ponding in Henderson Basin. What is your view of that comment, is that what the Council or you consider is happening?

35

MR HARRINGTON: It is not a deliberate policy, if that is what you are saying.

40

MS DAWSON: No, I am not saying whether it is deliberate or not, but is that what is happening? They are saying vegetation is growing, there is narrowing of the waterways, the culverts are too small or not maintained clearly and that overall the effect of that has increased over

45

the last 10 or 15 years, the ponding extent and levels in Henderson Basin.

5 MR HARRINGTON: It is quite possible that more rigorous cutting back of vegetation and things like that would reduce the resistance to floods.

MS DAWSON: But is it the Council policy not to do that downstream in the Heathcote, for example, is to allow it to be more natural?

10 MR HARRINGTON: Certainly more recently the Council – not recently, over the last 10 or 15 years perhaps, the Council has taken a multi-valued approach to its management of waterways, so not only considering drainage but also ecology and landscape and heritage and various other things. So it is possible that planting and landscaping might have
15 changed in those last few years. (ph 2.10)

MS DAWSON: So does that mean then that private land upstream, such as in Henderson Basin, is being used more to accommodate flooding in order
20 to provide for those values downstream?

MR HARRINGTON: Not deliberately, no.

MS DAWSON: What do you mean “not deliberately”, was it a by-product, an
25 undeliberate by-product of this policy?

MR HARRINGTON: I don’t know the extent to which it is happening.

MS DAWSON: So just one more question. You have discussed with
30 Mr Lewis and he has covered in his evidence to us that – and I think you mentioned it, that really it’s the different assumptions between his water balance calculation and the assumptions that go into the modelling that NIWA does for you that makes the difference in how much and extent and depth of ponding that is calculated or modelled. It is not whether it is a model or it is a calculation, it is just they use
35 different assumptions, and Mr Lewis has been through some of those assumptions with you just now.

MR HARRINGTON: Yes.

40 MS DAWSON: But why should we, as a Panel, prefer the assumptions that the Council has made in its modelling, or NIWA has made on behalf of the Council for its modelling in order to set the floor level in Henderson Basin, when Mr Lewis’ calculations comes out with a different floor level and he is asking us to set a lower floor level?
45

MR HARRINGTON: Well, the modellers go through quite a lot of process in terms of, first of all looking at the assumptions in terms of whether they are reasonable or not, and then also calibrating and verifying the model output against actual storm events and then fine tuning them according to the results that they get.

MS DAWSON: But haven't we had evidence that hasn't actually been done in terms of this upper Heathcote model?

MR HARRINGTON: It has been - there have been lots of iterations of the model and upgrades and so on and each one of those you go back and you recheck whether or not the model is still performs the same way as a natural event.

MS DAWSON: So is your evidence to us that the Council's modelling process through NIWA is more reliable, more calibrated, more verified than the calculation - - -

MR HARRINGTON: Yes.

MS DAWSON: All right, thank you. That is all from me, thank you.

SJH: Judge?

[2.15 pm]

JUDGE HASSAN: Just a couple questions, thanks, Mr Chairman. Mr Harrington, can you just clarify for the record, was it you that briefed Mr Walsh for this email?

MR HARRINGTON: Yes.

JUDGE HASSAN: Did you do it by email or did you do it by phone or did you do it by a couple of methods?

MR HARRINGTON: Well, I rang up first to ask whether he would be prepared to comment and then I would have sent the evidence that was given by Mr Lewis.

JUDGE HASSAN: You say you would have sent the evidence that - - -

MR HARRINGTON: I sent it.

JUDGE HASSAN: Sent it, so you sent it by email?

MR HARRINGTON: Sent it by email.

JUDGE HASSAN: Could you provide a copy of your email and all of the attachments to the Panel for the record?

5 MR HARRINGTON: Yes.

JUDGE HASSAN: Did you provide him with the transcript?

MR HARRINGTON: No.

10

JUDGE HASSAN: Did you provide him with the code of conduct?

MR HARRINGTON: No.

15 JUDGE HASSAN: Thank you.

SJH: Mr Harrington, I just want to go back to the questions Ms Dawson put to you about the Cashmere and the Heathcote and the changes in the last 10-15 years. You said they took a broader approach to it and as a result there has been more planting and such like. Do you accept that that means the water is not going to flow away as quickly when it is partially blocked in that manner?

20

MR HARRINGTON: Yes.

25

SJH: And just to go back to the impact on the Henderson stream and reminding you that you have agreed to abide by the code of conduct, is a consequence of that mean that water will not drain away as quickly from the Henderson Basin?

30

MR HARRINGTON: Yes, that would be correct.

SJH: Thank you. Mr Lewis, any questions from the Panel's questions?

35 MR LEWIS: No thank you.

SJH: Mr Winchester?

MR WINCHESTER: No, thank you, sir.

40

SJH: Thank you, Mr Harrington, you may stand down.

<THE WITNESS WITHDREW

[2.17 pm]

MR WINCHESTER: Sir, just before Dr Yetton, were you intending to recall Mr Wright? You gave him the opportunity to consider his views about the issues raised by Mr Farrant, are you wanting to hear from?

5 SJH: If he has to file something additional in relation to Mr Faulks as well.

MR WINCHESTER: All right, or I can have him - - -

10 SJH: He can put that all in the one document I think, we just want an update, we do not actually want questions, do we?

MR WINCHESTER: Thank you, sir, sorry, I misunderstood.

15 SJH: No, no, that is all right.

MR WINCHESTER: All right, then I am up to Dr Yetton, so I call Dr Yetton.

<MARK DAVID YETTON, sworn [2.18 pm]

20 SJH: Yes, Mr Winchester.

<CROSS-EXAMINATION BY MR WINCHESTER [2.18 pm]

25 MR WINCHESTER: Thank you. You confirm that your full name is Mark David Yetton?

DR YETTON: Yes, I can.

30 MR WINCHESTER: And you have the qualifications and experience set out in your statement of evidence-in-chief, dated February 2015?

DR YETTON: That is correct.

35 MR WINCHESTER: And you have provided a supplementary statement of evidence at the request of the Panel dealing with protocols and certification requirements from your professional opinion?

DR YETTON: Yes, that is correct.

40 MR WINCHESTER: And that is a statement dated 6 March 2015, do you have any changes to that statement?

45 DR YETTON: I have the inclusion of one further word, please, on page 6, in paragraph 4.6, following on from the first use of the word "RAMS" in capital. Close a bracket there should be a "but to my knowledge", apologies for that.

MR WINCHESTER: Thank you.

SJH: Thank you.

5

MR WINCHESTER: Subject to that amendment do you confirm that to the best of your knowledge and ability this evidence is true and correct?

DR YETTON: Yes, I do.

10

MR WINCHESTER: Thank you, Dr Yetton, can you answer any questions.

SJH: Mr Smyth?

15

MR SMYTH: I thought Mr Radich was first, sir, I could be wrong.

SJH: I am sorry, yes, the Crown is now Mr Radich. They usually put your name down and they did not on this occasion - - -

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MR RADICH: Yes, thank you, sir.

SJH: Thank you.

<CROSS-EXAMINATION BY MR RADICH [2.19 pm]

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MR RADICH: Become generic. Dr Yetton, good afternoon to you, I just want to clarify one matter if I may. 4.2 of your supplementary evidence, you say there at the bottom of page 4, that in your opinion the general approach adopted is that the ground truthing could be appropriately applied as a means of basing boundary change decisions, and then that paragraph, top of the next page, you go onto say this: "I do not consider that the pro forma approach discussed, to be suitable in this instance" and you go onto mention that, I want to be clear about in my mind, about the nature of that distinction.

35

[2.20 pm]

Is the point you are making that a ground truthing approach could not in fact be a substitute as a set of criteria for lines on a map?

40

DR YETTON: There was a particular form that was used during the ground truthing of the GNS risk model on its suburb scale, and specifically that form which was suggested to me as something I might want to include with his evidence, and I considered it was not suitable. And so, it was – it is the principles that were being applied, have applicability and I go on and discuss that.

45

But the forms that were established and created at that time for the in-house assessment ground truthing of the GNS model are not the forms to use in my view.

5

MR RADICH: So to pick up on your word “applicability”, what we are talking about here is the – well the thinking about is the prospect of, instead of using lines on maps, to be able to have a sufficiently objective and definable set of criteria to use?

10

DR YETTON: That would then be used to adjust the lines, so it would still relate to the lines on the map.

15

MR RADICH: I see. So you are talking about, rather than something that might “replace” the lines, something that the lines – something that could be used as a set of criteria to adjust lines in a plan change scenario?

20

DR YETTON: Correct.

20

MR RADICH: Or in the 12 month window the Panel still has, for example, while it is continuing to consider the replacement plan?

25

DR YETTON: That was what I was meaning.

25

MR RADICH: I see, thank you. And am I right then in understanding that each of the matters you then go onto address and you have summarised them in 4.3 in subparagraphs A to D, concern the application of subjective assessments on the part of the people undertaking an assessment.

30

DR YETTON: In some cases subjective but in most cases they are actually objective or/and in some cases some quantify, because it does involve the use of 2D and 3D modelling, potentially, which are giving actual numbers. And the assessment of rock sources isn’t – there is subjectivity in making estimates of rock numbers that might be generated from that rock source, but I think we can generally find that there is objectivity around the presence of the source, its dimensions - -

35

40

MR RADICH: Yes.

DR YETTON: - - - its joints, the attitude of the joints and so on.

45

MR RADICH: Okay. On that very point you say at the very bottom of your page 5 that there is some concern, and these are not your words, but

there are some concern about possibly unrealistically or subjective views being expressed by professionals; does that remain an underlying concern in terms of using these criteria?

5 DR YETTON: It does bother me the possibility that those perhaps that were not literally sort of shaken into the reality of what an earthquake does by witnessing it, underestimate how much material can come from quite a benign looking outcrop.

10 MR RADICH: So while the criteria are definable, will different people with different skill sets, views, apply them differently and produce different outcomes?

15 DR YETTON: Potentially but this is where peer reviews are very important, the independent peer review, and I have also talked further with Dr Massey as to whether or not we can in fact decouple the boulder database from the GNS work in such a way that that provides the numbers of boulders and it be stated that this be the number of boulders that would be used for this suburb and the suburb beside it is a different number, but actually get specific with that because it is that area I think
20 where there is the most possibility of subjectivity, even with peer review.

25 MR RADICH: Could you ever see a scenario being achieved whereby the subjectivity could be removed to such a degree that criteria alone could replace lines on maps through a “check box” approach?

DR YETTON: I do not believe this is the sort of thing which suits a tick box approach.

30

MR RADICH: Thank you very much, thank you, your Honour.

SJH: Mr Smyth?

35 <CROSS-EXAMINATION BY MR SMYTH [2.25 pm]

MR SMYTH: Sir, I should make it clear that I am also appearing for Mr Collins, he instructed me at half seven last night to ask a few questions. Good afternoon, Dr Yetton.

40

DR YETTON: Good afternoon.

45 MR SMYTH: You say at paragraph 2.1 of your supplementary evidence rock source removal, as a means to entirely remove the rock fall boulder roll hazard and to ultimately remove rock fall hazard management areas what do you mean by the word ultimately?

DR YETTON: I meant that following the physical works that the work appraised and peer reviewed and then that information be provided to Council and at that point it be in some sort of holding pattern, and I am not a planner as to how that is going to be managed as to how regularly these things are looked at, but when the time was right and it was possible to make changes, that is when it would be included so the “ultimately” was the period leading up to the point in which the hazard management areas themselves in the plan could be changed.

MR SMYTH: So when you refer at 4.9 of your evidence that it is appropriate at some future time to make the relevant local changes to the boundaries of the current rock fall hazard management that is what you are meaning as well is it?

DR YETTON: That is correct.

MR SMYTH: What you are saying is that there will be a consensus that the line should be moved, but that would wait upon the Council’s convenience as to when that was appropriate?

DR YETTON: I am not saying that it would wait but it may be done that way, and that the work in the field, if this is rock removal for example, is not going to have an instant impact to change the plan. As I understood the process, not as a planner, a plan change was a significant piece of work and I was under the impression that a plan change would be happening at intervals but there would be intervals potentially of some years, now that may or not be the case because it is not my area of expertise.

MR SMYTH: You would accept that you have heard Mr Theelen’s evidence this morning that you would accept that a peer review process could be gone through source remediation could occur, the risk line could have moved on a technical basis and then the landowner would be left in a situation to wait until a plan change perhaps three years to actually reflect that on the plan?

DR YETTON: I said it does not have to be like that.

MR SMYTH: But that is what you are saying?

DR YETTON: I am saying - I do not have control over how it will be but it maybe something like that.

MR SMYTH: You would accept that the risk line would move immediately on either the peer review process deciding that the area wide model is

incorrect or on the basis of source removal, you would accept that on that basis the risk line - on a technical basis the risk line would move?

5 DR YETTON: On a technical basis the hazard line, we could reach agreement that the hazard line should be moved, how that is actually given reality is a planning issue.

10 MR SMYTH: Can I take you to paragraph 3.3 of your evidence, you say in the second sentence you refer to rock sources with a relatively small surface area and then you clarify this by saying “generally less than 500 square metres”.

DR YETTON: Yes.

15 MR SMYTH: So the rock source remediation could apply to rock sources of 500 square metres or less.

20 DR YETTON: In general. I mean the reason I put in generally is because we do need to have - - -

MR SMYTH: Site specific?

25 DR YETTON: Yes, and that is the area of sources where potentially we have got this low angled situation.

MR SMYTH: Just referring to Mr Collins property at 28 Zephyr Terrace and his daughter and his property at 1105 Dyers Pass Road those properties would they be suitable for this sort of?

30 [2.30 pm]

DR YETTON: Not of the sort where I am talking about in this first situation because the slope angles are steep.

35 MR SMYTH: Right. Would it be the case that whether a small boulder sitting on the surface, or small outcrops, that could simply be gathered up with a digger and taken off site; would that be suitable for rocks or through mediation?

40 DR YETTON: Not normally, because what has generated the boulders once can generate boulders again, and if it has not been covered up - - -

MR SMYTH: But if you removed the – if you removed the - - -

DR YETTON: The grossly loose rocks can be removed, but an earthquake with enough force, can cause failures within the rock that appears to be solid.

5 MR SMYTH: Yes, but I think Mr Collins case is that there is very few rock outcrops affecting his property and his daughter's property, and I think - - -

10 DR YETTON: Well, I can think of one outcrop within Mr Collins' property, that he may be thinking of, which is a steep fluffy area of outcrop that we saw last time with the Panel, it featured some goats walking around it and in fact, it is in one of the photographs in my initial evidence if you would like me to find the paragraph, but there were other sources outside of his property as well.

15 MR SMYTH: But they were quite – they were not very large sources?

DR YETTON: Well, five to 10 metres high as I recall the fluffy outcrop, it then had a length of probably 50 metres plus around the slope.

20 MR SMYTH: Right, he would dispute that. Can I turn to paragraph 4.1 and 4.2 of your evidence.

25 Are you conflating ground truthing which was undertaken where GNS undertook detailed investigations with ground truthing for property such as Mr Collins, and Ms Collins?

DR YETTON: What was your first word, am I?

30 MR SMYTH: Conflating, equating one with the other?

35 DR YETTON: Equating? – no, I have made the distinction earlier in answer to questions that the ground truthing procedure that was followed to the suburb scale model which applied a relatively simple tick box, is not the sort of approach that we would be doing or that is appropriate at a site specific scale.

40 MR SMYTH: So ground truthing on a site specific basis, what would you understand by that?

DR YETTON: I think I have explained it to you, I attempted to. So I have indicated here under 4.3, the points that would be considered and then expanded them further in evidence.

MR SMYTH: So that would be a detailed walk over the property, not just a look from the road or a look at gross feature, it would be a detailed examination of the property?

5 DR YETTON: That is correct, yes.

MR SMYTH: And you would check all rock sources and the geomorphology and things like that?

10 DR YETTON: Yes.

MR SMYTH: And that wasn't done on an area wide basis, was it?

15 DR YETTON: It was done on a suburb scale ground truthing level, and that is really a different level of work to a detailed site specific analysis, particularly where you are going to be looking at two dimensional or three dimensional rock fall analysis to try to pick up subtleties in topography.

20 MR SMYTH: Right. At 4.7 of your evidence you note that ancient boulders frequently fell into heavy native forest and vegetation and so stopped short of their potential runout?

25 DR YETTON: That is correct.

30 MR SMYTH: When you were cross-examined by Mr Collins about the relevance of existing bush in the Zephyr Stream Valley up the north end of Governors Bay, you were reluctant, were you not, to accept that existing bush effects the risk of boulders reaching the stream which is a band for the hazard overlay?

35 DR YETTON: I was not reluctant to accept that bush has a deterrent effect on rolling rocks, the issue is the permanence of the bush and the viability that Council can have, that fire or windthrow, or the removal of vegetation by people or animals, does not change the vegetation.

MR SMYTH: Yes. You recall Mr Collins suggested that that bush was under a QEII covenant?

40 DR YETTON: I recall he did raise that.

MR SMYTH: And you understand what that means?

45

[2.35 pm]

DR YETTON: Only loosely. I mean I understand it has protection from the things that man has perhaps a direct influence on; you cannot go and clear fell it perhaps, and I am guessing that you cannot let animals graze in there, but I am not sure that you can stop a fire in there, I mean obviously you would try to, and windthrow is another factor that affects the hills in funny ways, and sort of swirling.

MR SMYTH: Just one more, or two more questions. Would you accept, on a technical basis, that mitigation works such as bunds, would reduce the risk for properties less than 10^{-4} , if it followed the Council RPS guidelines and was peer reviewed?

DR YETTON: Yes, absolutely.

MR SMYTH: And would you accept that on a technical basis, ignoring the planning implications, that could serve to move the risk line, ignoring the Council's stated preference for not moving the risk line, on a technical basis?

DR YETTON: It changes the risk but it does not change the hazard, and that is a sort of a theoretical situation.

MR SMYTH: But the hazard line is for the life of the plan, is that not correct?

DR YETTON: The hazard line is initially derived from risk line.

MR SMYTH: No, no, I asked if the hazard line is the life of the plan?

DR YETTON: Well, one of the things that I think perhaps we are finding here, is that perhaps the hazard lines are not necessarily for the life of the plan. I mean, I guess I am hearing that consideration has been given to changing the hazard lines at intervals within the life of a given plan.

MR SMYTH: That is from Mr Theelen's evidence this morning?

DR YETTON: Well, and questions and discussions in general.

MR SMYTH: But you would accept that mitigation would serve to move the risk line which forms the basis of the hazard line?

DR YETTON: Mitigation affects the risk but the permanence of that risk reduction is a separate matter and although a bund is the lower end of the maintenance requirements, there is still important maintenance requirements for bunds, particularly in areas where they can be filled up from behind with some loose landslide material making the

entrapment area redundant, and erosion, scour erosion by water collected behind it, so there are important maintenance requirements that need to be part of that, - - -

5 MR SMYTH: Yes.

DR YETTON: - - - and it is a form of mitigation.

MR SMYTH: The risk line drops by 14 percent, - - -

10

DR YETTON Yes.

SJH: Is the hazard line based on a risk, not a risk line?

15 MR SMYTH: Yes, sir, but I am saying that the risk line which the hazard line is based on – let me put my question, sir, the risk line which is not the hazard line, as the Chairman has pointed out, decays as long as things go as they have been by a further 14 percent until 2021, is that not correct?

20

DR YETTON: Providing we do not get the infill earthquake, yes.

MR SMYTH: Yes, and at that stage would it be appropriate to review the hazard line given the fact the risk line as changed so much?

25

DR YETTON: It is an interesting point you raise, and I was giving this some thought earlier today as to what is a realistic life of a hazard zone established on seismicity from 2016, and certainly my instinct is that it is appropriate for five years, and it is time beyond that is a matter for that period to show because if we have an infill earthquake, the hazard actually – the risk goes the other way.

30

MR SMYTH: Excepting that point, but if we did not have a serious earthquake between now and 2021, which would be sufficient to cause significant rock fall?

35

DR YETTON: I think at that point an opinion, an expert opinion from the relevant seismologists and seismic experts looking at that data, would help inform the appropriate life.

40

MR SMYTH: Would you think at that stage that the risk line as fixed, up at 2016, would be quite inaccurate, versus the risk line of 2021, given the 14 percent decay?

45 DR YETTON: The risk line or – well the thing that is changing is not the ability of the rocks to get there - - -

MR SMYTH: Accepting that point, but remember we are - - -

DR YETTON: It is the triggers - - -

5

MR SMYTH: - - - the regulation.

DR YETTON: - - - it is the triggers that we are talking about. A 14 percent adjustment in the position of a line is not actually an enormous adjustment and it must also be remembered that this is all in the context of an order of magnitude estimate of risk.

10

[2.40 pm]

15 MR SMYTH: Okay, I have no further questions, thank you, sir.

SJH: Thank you. Just for the record, Mr Smyth, you are acting for Mr and Mrs Collins and Mr Collins and Mrs Collins daughter and son in law.

20 MR SMYTH: Yes, sir, he was not quite clear last night but I suspect that is right.

SJH: Well can we record that - - -

25 MR SMYTH: Yes, you can record that, yes sir.

SJH: If that is wrong you can - - -

MR SMYTH: Yes, but I am sure that is correct, sir.

30

SJH: Thank you.

MR SMYTH: Thank you, sir.

35 SJH: Dr Mitchell?

DR MITCHELL: Thank you, sir, good afternoon, Dr Yetton.

DR YETTON: Good afternoon.

40

DR MITCHELL: I just wanted to take it a little further, the questions that Mr Radich was asking you about effectively in relation to certification and whether in fact any assessment was made about moving a hazard line involved subjective or objective criteria. If we look at the genesis of this process and where we are today, correct me if I have got this wrong, first and foremost some hard and fast criteria were given to

45

GNS and said, “Based on these input criteria, run your models”. They ran their models, reduced the two boundaries and they formed essentially the starting point to when this plan was noted.

5 And the only thing that has changed from there to now has been the people have had the opportunity to make submissions and say “we think this line is wrong in respect of our property”. Following that, they have had a site specific assessment undertaken of their property which you or one of your colleagues has peer reviewed and on the basis
10 of that there is either agreement or disagreement as to whether the hazard line should be moved. Is that a fair summary of things?

DR YETTON: I think the initial purpose of the GNS risk model is an area, perhaps, that needs to be explained. The purpose of the risk model, it
15 was not established to be applied to a District Plan down the line. It was to establish what are the levels of risk people were being exposed to in reoccupying houses in the hills. And so the focus was on dwellings and the land that was already developed with dwellings in 2012 and its uses for the plan makes perfect sense, but the difference in emphasis means that there will be areas away from dwellings in
20 particular where the ground truthing part of what was done before is not enough.

DR MITCHELL: But the only way that those model lines have been, they
25 were developed in accordance with the model and they were then subject to technical assessment and peer review as to whether they should or should not be moved on a site specific basis and in doing that process, the position that we find ourselves in now is that we, for example you and one of the submitters have agreed, then all things
30 being equal assuming that the criteria does not change and we say the line should be based on the same premise as they are at the moment, the only way that we would be able to come to a different conclusion based on factual evidence would be to say if we reached a different conclusion from the two experts that have presented the information.

35 And I guess my question is, notwithstanding that there may well inevitably be something subjective about how you undertake an assessment of where the rocks are and whether they are capable of remobilising at the surface or underground and so on and so forth, if an
40 applicant made an assessment and said, “I think the risk now is 10 to the minus something else”, and you agree, what in addition other than a planning process would justify not moving the line in accordance with that process?

45 DR YETTON: I cannot see what else would.

DR MITCHELL: So the ultimate safety factor in this peer review process, I would have thought would be an independent certifier approved by the Council saying, "I do not agree with what is proposed". If that happened, then nothing could change, but if you and an applicant's consultant both said this risk line can move to there, and you both agreed on that, where is the harm leaving aside cleaning niceties of moving the line in that manner?

[2.45 pm]

DR YETTON: There is no harm per se. I guess it raises issues where there is an adjoining property and there are shape mismatches which again start to appear. Then the question comes well if the person with the adjoining property does not want to have the lines changed or is not prepared to go down that route with the expense that that applies, what happens in their situation.

MR MITCHELL: If all you were doing was moving the line on the property concerned, not smoothing it around but some other geological similarities, if all you were doing was saying I am going to move it to the back of this property because an applicant that says the risk is less than what the model predicts and you agree with him, it is a completely victimless crime is it not?

DR YETTON: Well I hope it is not a crime at all, but yes, there is no reason why.

MR MITCHELL: Thank you, no further questions, sir.

SJH: Ms Dawson?

MS DAWSON: Thank you, I was going to ask the same question so just to elaborate on that a little on the basis of what Dr Mitchell has been asking you that we could somehow, planning niceties aside for now, put some words into the plan that set up a system whereby a suitably qualified expert can go and make an assessment of the level of risk on a particular property and that is then checked by a suitably qualified peer reviewer on behalf of the Council.

Would it be possible in your view for us to list in the plan or just state in the plan the basis for that assessment, things like using the GNS methodology out of the pilot study report for example or the 2016 GNS seismicity model that is to be used, perhaps some rock volume methodology that you talked about, the ground truthing A to D sort of things that need to be taken into account?

Can you see a possible scenario where those things could be listed and expressed in the plan that with the right people doing it that would minimise or reduce the potential for inconsistencies or bizarre outcomes to occur?

5

DR YETTON: Yes, I think there is potential for that. The only thing I would say there is a matter of timing. I think it is quite important that Dr Massey be involved in the consideration of this and one of the things that we were discussing too was the possibility that the RAMS 3D method is around now and can that be actually calibrated with the rock distribution and be peer reviewed in a professionally robust way, it would give us another tool that we could all agree on.

10

These matters take time to consider and to put together so in relation to what you are saying I do not see a problem with it except that it would take some weeks and in terms of the possibility of getting the RAMS' model calibrated that is a longer term possibility that could be alluded to in what you are talking about. We cannot guarantee that that would become available.

15

20

MS DAWSON: You are saying do not rush in and do a quick checklist but you thought that by appropriate expert some form of criteria or a list of matters could be written?

25 DR YETTON: Yes.

MS DAWSON: Thank you for that, just one other quick question, you talk about in 4.1 the pilot study in appendix F and G annexed to that and I am not sure and maybe I should ask Mr Winchester whether we have ever been given that particular GNS report. We have had a couple of others but that would be useful for us to have.

30

DR YETTON: All right, I am sure Mr Winchester can get you that report, it was the first one that was done on boulder rock and by far the largest discussion on the principles that were then applied for other areas.

35

MS DAWSON: I have two other reports and I have checked those two but I could be wrong and we could have received this one as well but maybe, Mr Winchester, not immediately but at some point that would be helpful.

40

SJH: It does not need to be done now, Mr Winchester, just by the end of the week or something like that.

45

[2.50 pm]

MS DAWSON: All right, thank you very much. Thank you, Dr Yetton.

SJH: Mr Huria?

5 MS HURIA: No, thank you, sir.

SJH: Judge?

10 JUDGE HASSAN: Got a couple of questions. Dr Yetton, just a couple of further matters. Were you here at the back of the Panel's room this morning when questioning of other witnesses was occurring?

DR YETTON: I was for some.

15 JUDGE HASSAN: Yes, well - - -

DR YETTON: Dr Wright was here.

20 JUDGE HASSAN: Yes, thank you. I just appreciate the scale of work that you and the other experts have undertaken on site specific checking of properties for the purposes of **(INDISTINCT 0.40)**, which I understand has being substantial.

25 The first question is, I understand from answers this morning and just, if you were able to confirm it, that you would be available to further assist the Council through the process of this plan review to its completion in regard to the ground truthing issue?

30 DR YETTON: I believe so, with the best of my ability - I have an eye operation shortly, which is an unknown factor - - -

JUDGE HASSAN: Yes.

35 DR YETTON: - - - but to the best of my ability.

40 JUDGE HASSAN: So bearing in mind the very significant work you achieved in a very relatively few number of days for this process, can I take it as a realistic proposition that if the Council was to allow for some process of individual seeking ground truthing according to certain protocols to be tested through the processes that you have already undertaken, in order for the Panel to be informed later in the inquiry on an updated basis about how the lines could be realigned in any particular way through that process, do you see any particular impediments to that? It sounds to me like you would have more time, it would seem, at a broad level?

45

DR YETTON: We may well have, and the only point I think, this is the moment to get the protocol correct with the input of GNS, Dr Massey particularly, and - - -

5 JUDGE HASSAN: Yes, I was going to lead to that next.

DR YETTON: Yes.

10 JUDGE HASSAN: So I suppose on that question, leaving aside what the plan might ultimately provide for here by way of ground truthing growing forward, is there anything further you and Dr Massey and so forth can do to prescribe a protocol, expected to be followed for the exercise of achieving whatever refinement is possible through to the completion of this plan review?

15

DR YETTON: Yes, I believe there is a piece of work to be done there, and this is where I would like to consider the use of the boulder database to inform the number of boulders to be considered in the risk assessment.

20 JUDGE HASSAN: Now how long do you think it might take for that to be done, bearing in mind today is the day in which we are hearing closing submissions and it has only come to my mind at this point.

25 DR YETTON: Well for my own point of view, unfortunately I have my operation next week, and I don't know how long I will be out of circulation for. But its potentially some weeks I would have thought for Dr Massey and I to get a protocol established, and then we would need to meet with the geotechnical practitioners themselves I suspect and work through what we have got and what we are saying. And at
30 that point they could go forth as it were and we have got a system.

JUDGE HASSAN: And would that meeting with geotechnical professionals need any form of facilitation assistance, or could you be sufficiently competent to do that without the likes of Dr Sutherland for instance?
35

DR YETTON: I think Dr Sutherland might be useful, yes, he was certainly useful in the caucusing.

40 JUDGE HASSAN: Thank you. Well that is a matter I have only explored myself, I do not know what my other Panel members think, but I just thought I would raise it while I had the chance.

45 Now just on the question of "removal of rocks", I just had a question on this, at 3.3 where you discussed the situation where rock removal maybe possible, and you talk about that as being in relatively few sites

in 3.2. So the process of rock removal has occurred in some occasions hasn't it, in the lead up to this hearing for certain properties?

5 DR YETTON: Rarely, if in one area that I looked at, and I believe in one or two areas that Dr Wright looked at.

10 JUDGE HASSAN: Do you know for instance whether there was any particular measures required around that process of rock removal to ensure the safety of the site and surroundings, for instance fencing and/or any other protocols around the actual work of removal or was it so simple it did not need to?

15 DR YETTON: I cannot really answer that, I believe it was on a reasonable scale involving the milling machine, a rock milling machine, I would imagine there would've been some temporary fencing potentially and consideration given to those things, but Dr Wright perhaps could answer that.

[2.55 pm]

20 JUDGE HASSAN: Yes, the reason I am asking you and I perhaps can ask Ms Carter as well coming forward is, just looking at Ms Carter's proposals for chapter 5, I don't see at the moment any sort of category, for instance, of permitted activity that might allow for the processes around rock removal in order to test whether in fact a site could be regarded as being sufficiently safe with the hazard removed as a result of rock removal, so in other words this is a planning question now and I don't propose to put it to you, but it is the context for my question, that there doesn't seem to be any identified category of activity that would allow for that to occur, if you like, as of right in order to actually test whether the ground could be made safe.

35 But I take it from what you've seen, in effect that has occurred on a couple of occasions without resource consent and presumably in a way which is made relatively safe for the purposes.

40 DR YETTON: Well, in the case that I was involved with it was on a small scale. To be perfectly frank with you I suspect it probably should have had a resource consent, but the bulk of the work was done before I came to that site, and so it was a tidy up at that stage.

JUDGE HASSAN: Yes.

45 DR YETTON: In the case of Dr Wright's site, I think that was a larger scale and might have had a resource consent.

JUDGE HASSAN: In terms of, you say you need a resource consent, obviously there's different categories of that, but one of the dimensions of that presumably is the scale of activity involved for - - -

5 DR YETTON: Yes, and the potential impact on downhill.

JUDGE HASSAN: And how it's managed presumably in an engineering sense?

10 DR YETTON: Yes.

JUDGE HASSAN: And we have been invited to consider some protocols around infrastructure maintenance and upgrading in regard to earthworks and I wonder out loud, not as a question to you but maybe for Ms Carter to think about before we ask her. Thank you very much.

15

SJH: Any questions arising from the Panel's questions, Mr Smyth? Mr Winchester?

20 **<RE-EXAMINATION BY MR WINCHESTER** **[2.57 pm]**

MR WINCHESTER: Just one, sir, with your leave. Dr Yetton, do you have any sense as to the time and resources that would be required to carry out site specific reassessments for the purposes of looking at boulder roll and slope instability risks per site?

25

DR YETTON: Well, I think that it's at least a day and a half to two days of work for somebody that's experienced in it and that would include the field component – this would be on an average because some sites are going to be worse, more complicated than that, so for Ms Stubenvoll's land on Brenchley Road it is probably three days, for example, other sites will be simpler. But on average I would think it's a day and a half to two days of professional time.

30

35 MR WINCHESTER: Thank you, and in asking that question I'm assuming that the person who should be carrying out that type of assessment should be someone similar to you, or at least with your qualifications or general expertise or experience?

40 DR YETTON: Yes, and I think the point to take on board is that a lot of the potential for subjectivity is in the field assessment, once the information is gathered in and agreed on then there's actually more likelihood of people following the same procedures. From my experience places where people have blind spots, perhaps is the field work.

45

MR WINCHESTER: Thank you. Thank you, sir.

SJH: Thank you, thank you, Dr Yetton, you may stand down. We will start Ms Carter's evidence before the afternoon adjournment.

5

<THE WITNESS WITHDREW [2.58 pm]

MR WINCHESTER: Yes, thank you. I call Ms Carter.

10 <JANICE CARTER, sworn [2.59 pm]

<EXAMINATION BY MR WINCHESTER [2.59 pm]

MR WINCHESTER: Now, your full name is Janice Carter?

15

MS CARTER: It is.

[3.00 pm]

20 MR WINCHESTER: And you have the qualifications and experience set out in your statement of evidence-in-chief dated 13 February 2015?

MS CARTER: I do.

25 MR WINCHESTER: And the matters that you are recalled for, Ms Carter, relate to a document entitled "Response to the Panel's 27 February Minute in Summary of Evidence on behalf of the Christchurch City Council, dated 6 March 2013", correct?

30 MS CARTER: Yes.

MR WINCHESTER: And a supplementary statement of evidence on behalf of Christchurch City Council, dated 10 March 2015 which deals with Port specific matters.

35

MS CARTER: Yes.

MR WINCHESTER: Do you have any amendments to those documents?

40 MS CARTER: To the second supplementary, relating to the Port of Lyttelton, I omitted some activity statuses on the table on page 7. Under (j), it is just empty gaps there, I would like to fill those four gaps. The first one is "RD" which is "Restricted Discretionary". The second one is "C" for (INDISTINCT 1.07), the third one is "P" for "Permitted", and the
45 fourth is "P" for "Permitted".

MR WINCHESTER: Thank you, and so subject to that amendment or addition, do you confirm that to the best of your knowledge and ability these statements are true and correct?

5 MS CARTER: I do.

MR WINCHESTER: Thank you. Will you answer any questions?

SJH: Thank you. Mr Radich?

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<CROSS-EXAMINATION BY MR RADICH [3.01 pm]

MR RADICH: Ms Carter, good afternoon. I want to start, please, just by looking at your paragraph 4.2 and this is really the question, I suppose, if we put in terminology and a general model or the regime for hazard or slope instability management, do you agree with me that it is not actually possible given the regime that is proposed to say that there is a regime that prohibits risk above a certain level, sort of 10^{-4} and it manages it below it, it is not quite as simple as that, it is more nuanced?

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MS CARTER: No, it is not. The paragraph you said was 4.2 is that in my Port of Lyttelton supplementary evidence, or are you referring to - - -

MR RADICH: No, I am looking at your 6 March evidence, and you are talking there about a 10^{-4} intolerable line and the pragmatic buffer between different areas.

25

My question to you is not so much on that paragraph or the words of it, but to the point that the topic that it raises, that there has been discussion with the Panel through various witnesses about using the word “intolerable” or “unacceptable”, and my proposition to you is that this is not a regime that is so simple as to be able to say “here is an intolerable line, we will manage risk above it and we will prohibit risk below it”, it does not work that way, does it not?

35

MS CARTER: No, it is not as straightforward as that.

MR RADICH: And the fact is, is it not, that this is a regime that for various modelling and policy reasons, it uses different models, different frameworks and different assumptions?

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MS CARTER: Yes.

MR RADICH: And the 10^{-4} figure has, with one exception where 10^{-2} has been used, generally been a starting point, a reference, but then areas

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using that starting point had then developed, based as much on policy considerations as on modeling assumptions, would that be right?

MS CARTER: Yes, that would be the case.

5

MR RADICH: I just want to ask you a couple of questions about some of your suggestions in your evidence, and I am looking now, please, at page 12. I am just wanting to deal with the point in your 9.18, and this is in relation to the flooding risk and that criteria that you mention in 9.16 RD 5. Are you sufficiently orientated with the subject matter, it's in your 9.16 you are referring to 5.8.3.2 and criteria RD 5.

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[3.05 pm]

15 MS CARTER: Yes.

MR RADICH: And it is the same really as in 5.8.1.2, isn't it, at RD5?

MS CARTER: That is right.

20

MR RADICH: And this is the question about whether there is possible double regulation that you are assessing and in your 9.18 you make the point that it probably isn't and you refer to 8.6.8 of the earthworks chapter?

25 MS CARTER: Yes.

MR RADICH: Am I right in thinking, based on your evidence, that you would see that 8.6.8, which you have set out over the page, would have no application at all then to filling an excavation in the FLFMA or would they both apply?

30

MS CARTER: I think they would both apply.

MR RADICH: They would both apply?

35

MS CARTER: Yes.

MR RADICH: I see.

40 MS CARTER: Depending on the circumstances.

MR RADICH: Yes.

MS CARTER: So there may be in that particular case, which is I drew attention to it in the first place, that there may be a situation where there is both but by and large you would expect one or the other. But

45

the FLFMA would be the rule that would regulate the filling and excavation by and large in terms of the natural hazards' chapter.

5 MR RADICH: This is where there is a degree of overlap though, isn't there, there is no getting away from that because if you look for example at RD5, and I am looking at 5.8.1.2 but I think they are largely the same. So let us use your one 5.8.3.2 and if you look at RD5 criteria E, for example, so do you have that there 5.8.3.2? Yes, it is coming on the screen shortly.

10 In the caucusing version, which is the one in my hand, I am sorry if it is not the one in yours, it is page 28.

15 So if you line up that provision with the provision you have set for us at 8.6.8. There is overlap in slightly different language, isn't there, for example if you look at 8.6.8 it talks about ecological et cetera, natural features being adversely compromised by earthworks whereas the word in RD5E is effects on access and amenity and the various features listed. So we have got slightly different levelling words, haven't we?

20 MS CARTER: Yes, and likely different activities as well. For instance, the earthworks and subdivision chapter may be assessing a subdivision and it may be that it brings in different issues than straight out filling and excavation in the FLFMA.

25 MR RADICH: Do you regard that as a planning issue in the sense that it would be potentially confusing for a novice reader of this plan to understand what they need to do when they are dealing with earthworks in a natural hazards area?

30 MS CARTER: Well, I think a new plan is always a little bit confusing, not just for the novice reader, and given the level of questions that I have had from the public and from other consultants a new plan does create issues for interpretation.

35 But in these particular cases sometimes you need to have both to cover off the issues and it is no uncommon for a large resource consent application, say for a development, to have to apply for consent under a number of rules, some which appear to be quite similar but are addressing different effects.

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45 So in particular the FLFMA is talking about the flooding and inundation whereas the subdivision may be looking at something differently. So it is not uncommon for a resource consent application to trigger a number of parts of a plan and there may be some overlap

depending on how many activities that resource consent is requesting consent for.

5 MR RADICH: Cross-referencing would help though, do you think?

MS CARTER: Yes, absolutely cross-referencing would help.

10 MR RADICH: Okay. I am just conscious of our time constraints. If you look please at 9.27 of your evidence and we are looking here at the question of the prospect of permitted activity status and you deal first of all at 9.27 with the topic of flooding, and you are accepting, as I think is the case from those paragraphs that there is the prospect of certification for flooding?

15 [3.10 pm]

MS CARTER: I am.

20 MR RADICH: Do you agree going back to RD5 and, I do not know if you can just bear it in mind - - -

MS CARTER: Yes.

25 MR RADICH: - - - that that was filling and excavation, but that is a slightly more complex matter to have to deal with when you are looking at the assessment criteria and just certification standard for a floor level of a building with addition?

30 MS CARTER: Yes, I agree with that, and if you look at 5.8.2 - - -

MR RADICH: Yes.

35 MS CARTER: - - - the filling and excavation repair rule, it is quite substantial and it is only dealing with repair of earthquake damaged residential land, so turning resource consent application into a certified situation, it has to look at the types of conditions that might be put on lots of consents and try to do base them to the types of general conditions that they maybe encounter.

40 So, yes, it is possible but there is a lot more issues that you have to try and reign in.

MR RADICH: Some of which are layered with subjectivity?

45 MS CARTER: Yes.

- MR RADICH: Okay. Your next point in 9.28 and turn to the liquefaction rules, there has been, as you are aware, discussion with the Panel and with witnesses about the prospect of, whether or not LAA2 needs to exist at all?
- 5 MS CARTER: Mm'hm.
- MR RADICH: And about whether or not LAA1 activities could in that event or any event, become controlled activities, you are aware of that
- 10 general discussion?
- MS CARTER: Yes.
- MR RADICH: The difficulty with it, would you agree, is that at the moment
- 15 the subdivision proposal has subdivision generally as restricted discretionary activity?
- MS CARTER: Yes, that is right.
- 20 MR RADICH: And so, the position would become difficult, would it not, if you had LAA1 as controlled and LAA2 non-existent, but hived off into something that was restricted discretionary.
- MS CARTER: What is your question relating to that? The possibility - - -
- 25 MR RADICH: Do you see a difficulty in a planning sense if LAA1 became controlled and LAA2 did not exist, such that, when looking at liquefaction outside of LAA1 under the subdivision proposal.
- 30 MS CARTER: So assuming that the subdivision proposal generally stood all restricted discretionary activity so that it - - -
- MR RADICH: Yes, if that was the case.
- 35 MS CARTER: Well I think it is the – the main reason for putting these assessment matters in the Natural Hazards' chapter, is to make sure those liquefaction assessment matters were considered for a - - -
- MR RADICH: Yes.
- 40 MS CARTER: - - - resource consent application.
- MR RADICH: Yes.
- 45 MS CARTER: If there was a way of doing it so that they did not get forgotten in the process - - -

MR RADICH: Right.

MS CARTER: - - - then it could be done.

5

But one of the concerns that we have with the LAA1 areas, is that some parts are better than others, so while areas have been red zoned, there are some areas with TC3 that are actually quite reflecting of red zone. And the concern that we had, was that some people (for whatever reasons) may want to subdivide off part of their TC3 land, leave a section at the back and not do these particular works and then sell it off to someone else who unsuspectingly bought it and did not realise that they were going to have to pay substantial amounts to bring the land up to a required level.

10

15

So that was the reason for putting LAA1 at a restricted discretionary level with the baseline subdivision, so that it – on the – not the unlikely chance, but the possibility that there could be some that the Council might want to decline.

20

MR RADICH: Ideally one would look at it holistically then with the subdivision proposal as well and see - - -

MS CARTER: Absolutely.

25

MR RADICH: - - - if we could create a scheme.

MS CARTER: Yes.

30

MR RADICH: Yes, okay. Do you see any merit in another alternative of making subdivision – I think I have probably covered that – put it this way, this is probably the one alternative method in my mind of assigning controlled activity status for both LLA1 and LLA2, keep them together, keep LAA2, assign control to both.

35

[3.15 pm]

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MS CARTER: That is possible. I still that the LAA1 contains areas where liquefaction potential is quite high and that would not enable the Council, as I said before, to look at some of those sites and say well, really, if they're not going to provide the foundation improvements or the ground improvements, well, then we want to turn it down.

45

MR RADICH: That's all. Thank you very much.

SJH: Thank you, look, we'll take the adjournment. Mr Winchester and Ms Appleyard, Mr Gardner-Hopkins only notified us late this morning – well, 9.35 this morning that he wouldn't be attending and there was an issue we raised with him about talking to other infrastructure people about wording and such like, we've organised a telephone conference for about an hour if you would see the secretariat and we will - - -

MS: I've had a text from Mr Hopkins-Gardner, so he's on standby.

10 SJH: All right, so if the two of you would just go to the secretariat and we will organise that, and we will take a 15 minute break, thank you.

ADJOURNED [3.16 pm]

15 **RESUMED** [3.31 pm]

SJH: Thank you, Ms Carter. Ms Carter, you are still on your oath from before the adjournment. Mr Chapman.

20 **<CROSS-EXAMINATION BY MR CHAPMAN** [3.31 pm]

MR CHAPMAN: Good afternoon, Ms Carter. We have got a number of versions of flood hazard rules and I am going to ask you if you have seen the latest version which is attached to Mr Winchester's closing submissions?

MS CARTER: I have not seen Mr Winchester's closing submissions but I have seen the attachment because I provided it to Mr Winchester.

30 MR CHAPMAN: Yes, so you have had input into that attachment,- - -

MS CARTER: Yes.

35 MR CHAPMAN: - - - the Winchester closing version attachment and you endorse that version?

MS CARTER: I worked on it and when you say, endorse it, I am showing the direction where I think it could go, so I spent a couple of hours looking at that particular set of rules and how we could do it, so in terms of endorsing it, that might be going a bit too far, but I am showing where the direction in which a rule like that could go.

45 MR CHAPMAN: And you will see it up on the board there, and that now introduces the certification process, does it not, at the bottom of page 1 where you introduce a new 'P'?

MS CARTER: Mm'hm, it does.

MR CHAPMAN: And so whilst you say in evidence that there are drafting
difficulties, you are happy that they have been overcome, it is just
5 really which version the Panel chooses to adopt as to between, for
example, Mr Nixon's version and this version which is up on the
board?

MS CARTER: In simple terms, I would think that both sets of rules still need
10 some work.

MR CHAPMAN: And you have indicated your concerns with drafting about
the risk of setting it up and it not working properly, is one of the issues?

15 MS CARTER: Yes.

MR CHAPMAN: And so you have heard the evidence this morning of
Ms Brookland?

20 MS CARTER: I did.

MR CHAPMAN: And she seemed to confirm that there was no problem in
terms of getting height levels up?

25 MS CARTER: I do not think there is problems getting height levels up.

MR CHAPMAN: No, so that deals with the issue of it not working properly?

MS CARTER: It does in part, yes.
30

MR CHAPMAN: And you have said that another concern of yours, is the
ability to place ongoing conditions on the proposed activity, namely,
monitoring and maintenance?

35 MS CARTER: In this particular case you would not need it.

MR CHAPMAN: You would not need it?

MS CARTER: No.
40

MR CHAPMAN: No, in fact there are a number of checks and balances that
go on after this plan, are there not. There is a building consent that is
lodged, and then there is a building inspector that goes out to verify that
the height level is built in accordance with the certification level?
45

MS CARTER: Yes, I agree with that.

MR CHAPMAN: So that would not be a concern?

MS CARTER: No.

5

MR CHAPMAN: Now as between this version and the Mr Nixon version that my clients have put in, it seems that whilst you include some things, there seems to be a trade-off because effectively the grandfathering provisions, for example, are now taken away?

10

MS CARTER: I have not specifically worked on the grandfathering provision, I did have some handwritten notes where I finished that one and then decided I would then work on the grandfathering clause, but I have not written anything into the attachment to that effect yet.

15

MR CHAPMAN: Okay, so that is not a deliberate omission, you are still supportive of the grandfathering provisions as you were when you last appeared before this Panel?

20 MS CARTER: Yes, yes.

[3.35 pm]

MR CHAPMAN: Secondly, if I can turn you back to the Mr Winchester version, and if you go right to the end of 5.8.1.1 - thank you, just up a little bit please – and just there you will see that insofar as the recession plans are concerned, you have again put in the inconsistency between the egg yolk and the egg white where you are happy for there to be no issue if the recession claim within the egg yolk, but you continue to say that recession plans are a matter for consideration in the egg white?

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30

MS CARTER: I do.

MR CHAPMAN: Well, the wording up there says, “With regard to ‘P1’ and ‘P2’, and it does not effectively provide an exemption for ‘P’ as well.

35

MS CARTER: No, it does not.

MR CHAPMAN: So again, in that egg white, one would have to go through a recession claim issue were the sole factor eroding floor levels arising from the flood, new flood level set, you accept that it is reasonable for rebuild operations to have to go through a recession plane here?

40

MS CARTER: I am maintaining that view, yes.

45

MR CHAPMAN: And you have mentioned before that you participated in a hotline at the Council in relation to this plan, how would you explain the difference to someone that rings up between someone in the egg yolk and in the egg white, as to why there is a differentiation between one property and another as far as recession claims go?

MS CARTER: At the time, I would have said that you have to go through resource consent anyway for the floor level, so - - -

MR CHAPMAN: No, no, no, I mean now.

MS CARTER: Yes.

MR CHAPMAN: Move on to the version we are dealing with, - - -

MS CARTER: Yes.

MR CHAPMAN: - - - how are you going to explain it?

MS CARTER: Now - that the Council still wants to consider breaches in recession claims in this area.

MR CHAPMAN: And how do you explain the inconsistency between the two people ringing you up?

MS CARTER: One goes through a fully permitted activity, or does not go through anything, it basically gets a permitted activity status, and the Council has decided that it will not look at recession claim issues in addition, and in the other area, the Council has reserved to look at that still.

SJH: That is not actually answering the question.

MR CHAPMAN: So as a planner, you will effectively blame the boys on the top bench here for the inconsistency?

MS CARTER: Well, it was not my intention to do that. I think my earlier evidence was that if there was to be any question of inconsistency, then I would have felt that we should delete the recession claim exemptions from the fixed floor area and admit that perhaps if there is an inconsistency that people thought would be unfair, well then it would be better to delete it and consider recession claims as an issue to be dealt with throughout the whole city.

I think that was my earlier evidence, instead of expressing it across the whole of the FLFMA, that I would rather we rescinded from that position.

5 MR CHAPMAN: But where your dealing with a rebuild situation, and the only reason for raising the floor level is because of the mitigation, we are dealing with extraordinary times, are we not?

MS CARTER: Yes.

10

MR CHAPMAN: And on that basis, do you not think there is a basis for effectively avoiding loopholes for those undergoing rebuild where, through a matter of millimetres, or I think we have heard up to a degree of 900 metres, pierce through, potentially, a recession claim?

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JUDGE HASSAN: 900 millimetres.

MR CHAPMAN: Apologies.

20 JUDGE HASSAN: You said 900 metres.

SJH: That might be a cause for alarm.

MR CHAPMAN: Yes, it may well be.

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Dealing with those extraordinary events, can you support an overall recession plan exemption for the permitted activity status?

MS CARTER: No, I do not think I can.

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[3.40 pm]

35 MR CHAPMAN: You are clearly supporting it in terms of the egg yolk, you've had input into these rules and you say, yes that's fine, you just can't support it going that little bit further, there's a fringe of properties which you say ought to be subject to fully discretionary recession plain criteria when they're raising their floor levels?

40 MS CARTER: Well, as I said, in hindsight I am saying that perhaps we shouldn't have provided that exemption in the first place, if I thought that it was going to end up going over the whole FLFMA, then I may not have agreed to put it on in the first place.

45 MR CHAPMAN: Would you accept that that goes rather against - - -

SJH: It's rather for the Council to agree rather than you, isn't it?

MS CARTER: Yes, poor wording.

5 MR CHAPMAN: Would you say that that goes rather against the strategic directions for less reliance on consenting processes?

MS CARTER: It was a concession for that benefit, yes.

10 MR CHAPMAN: Before we started this process at notification stage, I am correct, aren't I, that in the egg white we had a restricted discretionary status applying to floor levels, and when one applied for that one would have had a guarantee of a floor level for a period of five years, would one not?

15 MS CARTER: Yes.

MR CHAPMAN: What has caused you to change your evidence that certification should now only last for six months?

20 MS CARTER: The certification is in terms of the permitted rule that I have put forward here, and it is really to do with the reason why we didn't have it as permitted in the first place, and that's that the models have to be updated, the floor levels set on the best available information, sometimes field verification, I think Ms Brookland has explained that
25 numerous times that we asked about it being permitted throughout the whole of the FLFMA and these were the reasons why it wasn't, so to go to the certification for a 12 month period enables those updates to occur and continue to occur to the modelling and to field verifications. So it basically gives a time for the models to catch up.

30 MR CHAPMAN: Do you accept for multi-unit developments, on the evidence you've heard, that to restrict it to a period less than 12 months would probably result in problems for multi-unit developments?

35 MS CARTER: It could do.

MR CHAPMAN: Thank you, I have no further questions.

<CROSS-EXAMINATION BY MS APLEYARD [3.43 pm]

40 MS APLEYARD: Good afternoon, Ms Carter. Have you read Mr Winchester's legal submissions?

45 MS CARTER: No.

MS APPLEYARD: Okay, well, just for your benefit there is a paragraph in his submissions that reads under the heading Lyttelton Port Company, well, two paragraphs – the differences between the Council and the Company, the LPC, are clear from your supplementary evidence and he says, in short, it is accepted that the different level of risk to the port from slope instability justifies a bespoke approach, I haven't heard from Mr Winchester yet obviously, but I take it that what that means is that the Council is now accepting there should be a specific port zone table, is that your position?

5

MS CARTER: I think that's our position that you could have one.

MS APPLEYARD: He says that one of the reasons for that is the different level of risk to the port. One of the other advantages of a bespoke table would be the ability to place the table in the special purpose port zone when the chapter arrives from the recovery plan process, would it not? A separate recovery plan process?

15

MS CARTER: So are you talking about the recovery plan as opposed to the port zone in phase two of the district plan?

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MS APPLEYARD: Well, either.

MS CARTER: Well, I would have thought that in terms of the recovery plan, I'm not quite sure whether it is within the jurisdiction of what the recovery plan was to cover, whether natural hazards is to be included in that, so that's something I do not know about, but in terms of the Port zone in the phase 2 of the Replacement Plan my understanding is that it would stay in the Natural Hazards chapter because it is city wide.

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[3.45 pm]

MS APPLEYARD: So are you telling me you have not looked at the direction with respect to the Port Recovery Plan?

35

MS CARTER: I have not specifically looked at the direction, I have spoken with planners in the Council who have been asked to produce that Port Recovery Plan input into it rather than produce it.

MS APPLEYARD: So you are not aware of the extent of what the Minister expects that plan to cover?

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MS CARTER: Not specifically, no.

MS APPLEYARD: So when you wrote your evidence did you not have an eye to the desirability for consistency between these two processes given

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that this chapter is effectively going to arrive from that process into this?

5 MS CARTER: No, I was aware of the desirability for consistency.

MS APPLEYARD: So your supplementary evidence, have you provided that to the drafters of the chapter on the Port Recovery Plan?

10 MS CARTER: Not as yet.

MS APPLEYARD: So you have not sought feedback from them as to their views on the difference in the level of regulation between what you propose and what has been proposed in that process?

15 MS CARTER: That is what I have done, I have sat around with the people at the Council office officer level and discussed the similarities and the differences to the approaches and which activity statuses would be appropriate and which ones would not be in terms of what Mr Cleese requested in his table and what was being proposed in the general table of natural hazards and use that information to determine whether there should be different activity statuses for the Port.

20 MS APPLEYARD: Did you not just tell me you were not aware of the scope of what was being considered in that other process?

25 MS CARTER: I thought you meant in terms of have I read the scope and the piece of direction from the earthquake recovery process. I have not read, but I have had discussions with officers in the Council that are dealing with the same issue so I specifically have not read it myself.

30 MS APPLEYARD: And do you know what the Minister's expectations are in terms of enablement of the Port and its recovery coming out of that process?

35 MS CARTER: I have a reasonable understanding of that.

MS APPLEYARD: And are you saying that what you have put forward is consistent with those expectations.

40 MS CARTER: Well I have not seen the Port Recovery Plan, I have not seen all of the Port zone that has been drafted, I have had discussions and I believe that those discussions are reflecting what I have heard from those officers that are dealing with those issues.

45 MS APPLEYARD: Have you visited the specific operational areas of the Port that are referred to in Mr Cleese's evidence?

MS CARTER: Not in relation to this proposal but I have visited the Port on numerous occasions.

5 MS APPLEYARD: I have no further questions.

SJH: Thank you. Mr Winchester?

MR WINCHESTER: No, thank you, sir.

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DR MITCHELL: I just have one question, thank you, sir, and it is not related to the evidence, per se, but you very helpfully produced or had produced these hazard maps for a 1 by 10⁻⁵ at rock fall hazard management area 2 boundary. If it were decided at some future point to model a different scenario with a different number, is that a complicated process or is it just a matter of asking someone to run it and they press the button and quarter of an hour you get a set of maps?

15

MS CARTER: If the modelling assumptions are the same as the ones that we had for rock fall 1, I suspect that Dr Massey could provide maps by running it out quite straight forward.

20

DR MITCHELL: Reasonably straight forward? Okay, thank you. Thank you, sir, no further questions.

25

SJH: Ms Dawson?

MS DAWSON: Thank you. Good afternoon, Ms Carter. I am just looking first at your supplementary evidence regarding Lyttelton. Have you seen the closing legal submissions of the oil companies?

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MS CARTER: No.

MS DAWSON: So what has been suggested in those submissions is separating out earthworks from activities such as repairing maintenance. You know how in the table at the moment they have repair and maintenance including associated earthworks?

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MS CARTER: Yes, I read that in the transcript from the day that the oil companies gave evidence.

40

MS DAWSON: Because one of the difficulties you seem to have with Mr Clease's activity status for such as repair and maintenance and hazard mitigation works is not about those works per se but about the associated earthworks and the scale of those.

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MS CARTER: Yes, that is part of it. The other is what constitutes repair and maintenance.

5 MS DAWSON: Yes, I saw, but that is a different question. Putting that to one side, would separating out earthworks and having a status for them may be related to their scale address that aspect of your difficulty with the status applied to repair and maintenance, for example, and allow repair and maintenance to have a more easier pathway?

10 [3.50 pm]

MS CARTER: Yes, it would.

15 MS DAWSON: All right, well thank you, well that was something that may be able to be progressed further.

20 Now I am looking – I mean, you also talk about the difference between, you think something should be “discretionary” rather than “restricted discretionary”, I am interested in why you – what do you think the difference between “discretionary” and “restricted discretionary” really is when the matter we are talking about is already quite restricted, being the matter of natural hazards, what is the difference? What in practice what would be the difference?

25 MS CARTER: I think the scope of issues that could be taken into consideration. The discretionary also sends a signal that it might – the activity might be appropriate on some sites but not necessarily every site. Whereas restricted discretionary, in my mind as a planner, you generally expect that if there were issues of a matter of discretionary could be dealt with, well then basically it would be – not necessarily “encourage” but it would be able to occur.

35 So a signal is the diff-, is one of the differences, but discretionary takes it up to that next level and says, “Well, you know, you have to be more careful here”, whereas restricted discretionary there is an expectation that, if the matters of discretion are dealt with, well then that would get consent, so that is one, but – yes, that would be the main reason.

40 MS DAWSON: So within a natural hazards’ chapter that is specifically looking at natural hazards, do you think it is reasonable as a planner to open the discretion to a wide range of non-natural hazards’ matters?

45 MS CARTER: Well I think that the issues that come up when you are dealing with, say for example, hazard mitigation works, if that is your opportunity to deal with them through a resource consent application, for example you would want to – a substantial hazard mitigation work,

5 you want to be able to consider things like the visual impact on the environment, which is not technically a natural hazard issue, but if that is the only resource consent pathway to actually look at the effects on the environment of those massive hazard mitigation works, well then you would want to be able to do that so discretionary would enable you to do that.

10 Whereas if the matters of discretion were confined, then you would be – you would have to almost ignore that these hazard mitigation works could have a significant impact.

15 MS DAWSON: So that would depend on the structure of your plan and whether you chose to keep the natural hazards' chapter to natural hazards matters and deal with the potential for other issues - - -

MS CARTER: Yes.

MS DAWSON: - - - in some other (**INDISTINCT 2.48**).

20 MS CARTER: Mm'hm.

MS DAWSON: Could I just also ask you one more question?

25 So if some sort of rule, whether it is the certification rule or whatever, is included in the plan, instead of having the mapping overlays and instead of prescribing the activities such as the blue areas on maps, what are the risks as a planner or practical planning terms, what are the actual risks to people, the environment or property of getting that determination wrong? I mean, if two experts, an original expert and a peer reviewer as Dr Yetton said, used all the right criteria and came up with a determination as to this ARFR on that property, and that was used as the determination, what is the problem? What are the risks if, somehow, they get it wrong, if you could call it that?

35 MS CARTER: Is this opposed to not having a trigger in the plan which would show the line?

MS DAWSON: That is right.

40 MS CARTER: They do not exist. So how do we know there is a problem in the first place that needs certification?

MS DAWSON: Well they are on the Port Hills, for example.

45 MS CARTER: Okay, so generally the Port Hills. The problem I would have is this issue of getting it wrong, the property gets on-sold to someone else,

5 then it will be of the risk, and then the issue gets corrected through peer review or someone else picking it up and we get the situation onwards like what we are in now, where people have bought properties in good faith, but there was no rock fall or cliff collapse or mass movement on that site, and they now find themselves in a situation where there now is. And so the certification process where you could get it wrong has the same issue as that, that someone could come along just after it had been certified and got wrong, and buy it, thinking it is fine, and then find out maybe a year or so later when they go to put in the building consent that someone got it all wrong.

15 And I think we have heard examples through the last couple of weeks of that happening, where geotechnical advice was given and they thought their site had no rock fall, and now it is quite clear that on a closer examination, there is rock fall.

[3.55 pm]

20 So I think that is the problem with any process that we set up of getting it wrong. It is not necessarily just for certifications. It is any process that we set up where it is going to rely on, even our resource consents rely on expert evidence at the hearing, and that hearing process goes through and everyone is in agreement but they get it wrong. So I guess in that respect - - -

25 MS DAWSON: How different is it then from the same experts going along to a resource consent and giving all the evidence, and the decision be made that it is fine. Is there any additional risk going through the certification, if you could call it that, process. So two experts, an original expert, a peer review, all got to be accredited people. So they are as good as we can get or those same people come along to a resource consent that is heard, what is the additional risk?

35 MS CARTER: If it is set up in a way that you could have ongoing conditions of consent for the certification process that could be monitored, if the certification process has those experts and those experts agree that there are certain conditions through the certification process that they can put onto this particular situation that we ensure works were done and that they were ongoing into the future, then I do not see any difference.

40 MS DAWSON: I am not talking about mitigation works here. I am talking about just, the risk is not as high as 10^4 or 10^5 .

45 MS CARTER: So two experts agree that the risk is not as high, therefore it does not need mitigation.

MS DAWSON: Does not need mitigation.

MS CARTER: No, I would not have thought there was a lot of difference between those two processes.

5

MS DAWSON: No, all right. Thank you very much. That's all my questions, thank you.

JUDGE HASSAN: Good afternoon, Ms Carter, just a few questions actually. You were here for Ms Brookland's questioning and I asked some questions of Ms Brookland in regard to Mr Riach's position in Rugby Street.

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MS CARTER: Yes.

15

JUDGE HASSAN: And that was after Ms Brookland gave evidence that the flood hazard lines should be moved but should remain over the existing driveway of the property. Do you recall that?

MS CARTER: Yes.

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JUDGE HASSAN: I take it that the flood hazard lines shown in the plan cover the roads, don't they? I have not checked but they do cover the roads, don't they?

25

MS CARTER: Yes, they do.

JUDGE HASSAN: Even though the controls do not.

MS CARTER: That is right.

30

JUDGE HASSAN: And Mr Riach described an issue which pertained to if you like the information being on his LIM presumably would get through to there informing the market if you like about something which the plan shows i.e. a flood hazard line across his property. And then Ms Brookland mentioned some aspects of this as including the fact that a person could apply for a resource consent and so forth.

35

But is it not the case if we boil it down to what we are trying to address through flood hazard mitigation that in fact this sort of intrusion onto the property, ie in an area of someone's driveway right on the street. If we look at the rationale of what the plan is trying to control I find it really hard to see that there is any rationale. Do you agree with that?

40

MS CARTER: In terms of the small amount that covers Mr Wright's property.

45

JUDGE HASSAN: Yes, we will perhaps explore one aspect of it which if we look at for instance the example Ms Brookland gave of a garage being able to be put on that land. But the plan itself intends that garages up to a certain dimension are permitted activities, does it not?

5

MS CARTER: It does.

JUDGE HASSAN: And then if we look at the regional policy statement and that has been obviously something which the plan has to give effect to and you are well familiar with the policy there.

10

MS CARTER: Yes.

JUDGE HASSAN: So that particular policy has exceptions, does it not, to the intended direction given and those have been covered in various ways through the hearing.

15

MS CARTER: Yes.

20

[4.00 pm]

JUDGE HASSAN: One of those is something that is ancillary or incidental to the development, and again it springs to mind a garage could be of that character or often is. Just to put your car in the garage is probably ancillary to the use of the house. Do you agree with that?

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MS CARTER: I do.

JUDGE HASSAN: So bearing that in mind, do you also agree that in the case of Mr Riach and others really a resource consent track provides no solution to the concern that he has. In other words why would he apply for resource consent he does not want to but the line remains on his property nevertheless.

30

MS CARTER: For a garage he would not have to if it was less than 40 square metres so he would not have to, the rule does not apply.

35

JUDGE HASSAN: But the property has still got this blue line on it and the mischief I am wanting you to think about is not so much impediment to use of the land but the stigma of a blue notation over somebody's property. That is relevant for us to think about is it not in terms of costs and benefits.

40

MS CARTER: It is relevant and when going through deciding which ones where there was a small amount of the FLFMA on the property it was difficult to come up with a set of criteria that would work in every

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single case and make it easy to say well this one we should just take it off and this one we should not. But what we did come up with is focusing on the rules that would apply to the site and also the front yard setback in this particular case.

5

JUDGE HASSAN: Because my understanding of the concept of this plan, tell me if I am wrong, is an electronic plan one can draw down into the detail. That is what we are doing on the screen there to see the double triangular blue on this person's property. So much like the correction to the hazard lines for rock fall you have given some evidence as to the ability to smooth the lines out.

10

MS CARTER: Yes.

JUDGE HASSAN: Are you telling us that it is not possible with the technology that the plan is supported by to go any further than that and effectively make that little blue triangle green?

15

MS CARTER: You could do that and you could setup a rule in the plan that said at a certain size you deleted it. So you could get the GIS people to put some parameters in. My understanding is that what Ms Brookland was saying about this site is that that little blue patch is incorrect. It is actually a lot larger. So that was my understanding from Ms Brookland's evidence that the information there is it is showing the large part of what would be the eastern side. Actually, I cannot tell which side of the street it is on but the bit near the front of the site where that little blue patch is, it actually is a longer patch so in terms of whether we could reduce the mapping on this one it would not meet the criteria that we used about the front yard setback not being affected so there is quite a lot of submissions that had this issue but I have only got a little bit. Well, how much is a little bit and how much can we say the rules are not triggered but this one - - -

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JUDGE HASSAN: I find it difficult to see the difference there between that and the situation where experts have given evidence that the lines should be adjusted in regard to rock fall hazard because there is not a hazard.

35

MS CARTER: Yes.

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JUDGE HASSAN: And in this case, I think you accepted before that when you look at the rationale of this type of protection regime there is no rhyme or reason why this property needs to have a blue bit in it at all.

MS CARTER: What I was saying that in terms of a garage, do we get the exemption from the plan but this particular one from my understanding

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of what Ms Brookland was saying is that it would be more than the 4.5 so a house potentially could be redeveloped on this site over a 4 - - -

5 JUDGE HASSAN: Is that your understanding of her evidence? Sorry, I may have taken it for an understanding I had taken from it and I will look at the transcript again but she was describing the fact that it could be reduced a bit but that it should encompass the driveway and then she gave evidence that well the driveway could end up having a garage on it.

10 MS CARTER: Yes, but it could also, if it is beyond the 4.5 metres set back my point is that it could also have a house on it in the future. Now, this is an existing situation, the house looks pretty much like it is going to be there for a long time but my point was that when we've gone through all the others we have used the 4.5 setback in this living one and in that case it would trigger, if a house was going to be located on it, the house would be on the footprint of the FLFMA, so that is where I have used the distinction between ones that I feel I could say, yes, let us not worry about this one.

20 JUDGE HASSAN: So let us look at that, then. So what you are saying is, well and I understand what you are saying. On a forensic analysis, case by case, one might find the potential and I am not dismissing it, I am saying that it may be theoretical but nevertheless the potential for a habitable dwelling extension to go into the area that is blue. But then every other cases would not be on a forensic analysis where that potential is not realistic.

[4.05 pm]

30 MS CARTER: That is right.

JUDGE HASSAN: And so do you think, therefore, for those ones, again, there is a case for enabling a modification, if possible, through the plan?

35 MS CARTER: Yes.

JUDGE HASSAN: And without undue process?

40 MS CARTER: Yes, we have looked, before notification we have looked at various other sad news in the GIS to look at various rules that if there was less than a certain proportion of the site affected then you delete it or less than 200 square metres then delete it, that creates some bizarre results so we have not explored it any further at the time of notification but I do think that it is possible to provide a rule that would deal with this issue.

JUDGE HASSAN: Yes, okay, or some other basis in which the issue could be really rated in terms of the stigma that can apply to a property as a result.

5

MS CARTER: Absolutely.

JUDGE HASSAN: Now, just finally, just on the question of earthworks, the sloping stability issue, I should say, and presumably an element of earthworks, I asked Mr Yetton and I indicated I might need to ask you about this, when he referred to rock fall and the capacity to remove rocks, and therefore in some cases remove the hazard as a result and so we talked about the fact that there had been one or two cases in the lead up to this hearing where that has occurred and I discussed with him what seemed to be a bit of a gaff in the activity categorisations and he said it is not his area it is yours. Have you thought about this, in other words, would it not be helpful to have a rule with sensible parameters and limits so that it was not excessive that allowed for that degree of earthworks that involves safe rock removal in order to best enable someone to make their case that the hazard has been removed without having to get consent to move the rocks because that is not in the plan at the moment, is it not, as an activity category?

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MS CARTER: It is not. So you are talking about rock removal for the purposes of mitigating or removal of?

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JUDGE HASSAN: Within sensible perimeters, I just see at the moment you have got a restriction on earthworks that is generally expressed.

30

MS CARTER: Yes.

JUDGE HASSAN: And activity categorisations all requiring consent and to be fair, Dr Yetton commented that he thought probably a resource consent from his expert perspective, but he also acknowledged that there could be perimeters set that might govern this, and I am sure you would be well familiar with that.

35

MS CARTER: Yes.

JUDGE HASSAN: There is an analogy here I think with the maintenance of within certain limits in regard to infrastructure.

40

MS CARTER: Yes.

JUDGE HASSAN: So thinking about all that, do you think there is a capacity to have something like this to be a little bit more enabling in the rule activity categorisations for this.

5 MS CARTER: I think there is, but I think that in terms of getting the parameters around it, that would be satisfactory. In all the different cases that we potentially have on the Port Hills in the higher areas.

JUDGE HASSAN: But if we break that down, presumably one of them is scale
10 and size?

MS CARTER: Yes, volume.

JUDGE HASSAN: In terms of the rocks being removed, perhaps.
15

MS CARTER: Mm'hm.

JUDGE HASSAN: Perhaps the nature of the machinery applied?

20 MS CARTER: Yes.

JUDGE HASSAN: Perhaps some process whereby the earthworks' methodology was properly considered and perhaps even certified for the purposes of the Council knowing that engineers have thought about
25 how they were doing it, do you think that would be another parameter?

MS CARTER: Absolutely, yes.

JUDGE HASSAN: And can you think of any other parameters that might be
30 relevant?

MS CARTER: I am thinking about effects on neighbours in situations where the rocks have been dislodged.

35 JUDGE HASSAN: So if the certification ensured that the Council received the engineer's advice on how, for instance at the moment it is happening already, isn't it, it is already happening informally, but if it was a little bit more formalised and risk management was all part of the regime that engineers had to think about for the neighbours, would that cover
40 that off?

MS CARTER: I think so.

JUDGE HASSAN: Yes, well perhaps you might be able to give that some
45 further thought, if it can assist the Panel in time.

MS CARTER: Yes.

JUDGE HASSAN: Thank you very much.

5 SJH: Do you have any questions arising Mr Radich?

MR RADICH: No, thank you, sir.

SJH: Mr Chapman?

10 MR CHAPMAN: No, sir.

SJH: Ms Appleyard?

15 MS APPLEYARD: No, sir.

SJH: Mr Winchester?

20 MR WINCHESTER: No, sir.

SJH: Thank you Ms Carter, you may stand down.

<THE WITNESS WITHDREW [4.10 pm]

25 MS CARTER: Thank you.

SJH: All right, well we will come to closing submissions. We will continue on until these are finished.

30 We have the written submissions, of course, the first one Mr Gardner-Hopkins is relying on his written submissions and is not appearing, so we will go straight to you Mr Fowler, and invite you to speak to your submissions.

35 MS APPLEYARD: Can I just indicate, I didn't intend to speak to mine either, so unless the Panel had any questions.

40 SJH: Well if you are happy to rely on, Ms Appleyard, on your written submissions, you may be excused.

MS APPLEYARD: Thank you, sir.

SJH: Thank you.

45 MR FOWLER: Thank you, your Honour, I appear for Southern Response Earthquake Services Limited, and I would ask the Panel to note that

these submissions are presented as part of a joint presentation between Southern Response and IAG. Between the two insurers they manage approximately two thirds of the residential properties that will need to be rebuilt in Christchurch following the earthquakes.

5

In my submissions and through the presentation that has been made by Southern Response and IAG, there has been promoted to the Panel a suite of targeted amendments to the Proposed Plan which endeavours to strike an appropriate balance between the competing objectives of assessing the risk of property damage in the future and the more immediate concern to avoid delay, cost and frustration to the residential recovery programme.

10

And the presentation is focused on four key issues, your Honour, and the first is to do with the need for a transitional provision, which is the proposed grandfathering clause, the second is to do with resource consent requirements for finished floor levels outside the overlay, which is now being discussed in the context of a certification process as a permitted activity rule. The third is a recession plane exemption, and the fourth is a filling and excavation exemption.

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20

Since the lodgement of my submissions, your Honour, Mr Winchester has filed his closing submissions for the Council, and these submissions include a proposed permitted activity certification rule, his appendix A, which in my submission goes a long way to answering the relief sought by Southern Response on this issue, and my submissions today will be limited to addressing the remaining matters at issue on that matter.

25

30 SJH: Thank you.

MR FOWLER: Mr Winchester's submissions do not address the grandfathering clause or the proposed recession plane exemption and the filling and excavation exemption, your Honour. I understand from speaking with Mr Winchester this morning that he intends to abide the Panel's decision regarding those matters.

35

I have set out for you some comments in my written submissions, a legal framework, and I gratefully adopt the submissions of my friend for the Crown, and the matters that he has included in his opening submissions. I don't propose to address that matter further, your Honour.

40

I have also drawn the Panel's attention in my submissions to the Strategic Directions Chapter, the Replacement Plan, and the Panel's decisions on that, and I do think there are findings, this is at my

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5 paragraph 11.1, of the Panel that are particularly relevant to this Hearing and the matters raised by the Southern Response and in particular, the Panel's finding that in an overall sense, the challenges facing Christchurch in a post-earthquake recovery, quote "marks Christchurch out as an exemption from the pack", and effectively requires a new sort of Plan to meet the unique circumstances of Christchurch.

10 And I think, your Honour, that at times, the starting point, if I can put it that way, of the Council with respect to natural hazards and flooding has been rather unduly orthodox and unduly conservative, and do not sufficiently cater for the changed circumstances that are now confronting Christchurch.

15 So looking then at the four changes or amendments to the provisions which Southern Response seeks, and firstly with regard to the grandfather clause. The purpose of the clause is outlined in my submissions, and I do not intend to cover that further, your Honour.

20 A question arising though is whether the grandfather clause is necessary or appropriate, and in my submission such a clause is necessary to provide for the cohort of rebuilds that will be affected when the Replacement Plan comes operative.

25 There was some discussion to the questioning of Mr Hurren about whether it may be possible to alter their construction programme to reduce the number of rebuilds within the affected cohort and my submissions note that Southern Response upon further investigation of that line of questioning is rather cautious about introducing a
30 significant change to its construction programme before the Replacement Plan becomes operative.

35 And to understand what is the purpose behind the line of questioning that is put to Mr Hurren, but there are some changes around perhaps implementations of the approach that was put to Mr Hurren.

[4.15 pm]

40 So it means that, your Honour, in my view, that a grandfathering clause remains necessary. In terms of scale, the number of properties that will be affected is small, being approximately 600 against the context of 25,000 properties overall that will be included within the new FLFMA. At that micro level, it is a very, almost negligible number of properties,
45 but at the micro level, your Honour, of individual property owners, this is a significant issue and some change as proposed, would enable a faster, more certain and legal process for those affected landowners.

5 That is a level of individual insurance companies also, your Honour. The benefit would also be substantial because the affected cohort represents approximately eight months of work for the insurance companies.

10 Finally, your Honour, I would make the point regarding the grandfathering clause, that what we are here dealing with is a transitional provision that would apply to only a small number of properties caught on the cusp between the existing FMA rules and new FLFMA rules.

15 The grandfathering provision simply allows a small cohort to be built under the existing rules in order to avoid frustration to a residential rebuild programme.

20 There was some debate at the Hearing about the appropriate trigger point for the grandfathering clause, as to when that should operate and the debate was as between whether it should – the trigger point should be at the time of the building consent, your Honour, or at the time of the PIM.

25 I will not dwell on this because it is discussed at length in evidence, but the simple point is the problem of using a building consent as a trigger point, is that the benefits of any grandfathering clause are much reduced to the insurance companies and to affected landowners, and for that reason, Southern Response and IAG much more support in the approach of using the pin application stage as being the trigger point where the grandfathering rule would take effect.

30 There was, in some discussion at the hearing and questioning of witnesses. Alternatives for a grandfathering clause were discussed, Your Honour, I have set out what I understand the alternatives to be in my submissions and in my view, none of those alternatives are better than the proposed grandfathering clause, compared to the grandfathering clause they are less simple, less efficient and less certain in terms of information requirements and outcomes, and overall I think they would be a less effective method of responding to the problem identified by Southern Response and IAG.

40 Turning then, Your Honour, to resource consent requirements outside the overlay and the proposed certification process, there seems to be, Your Honour, only two matters that remain at issue between Southern Response, IAG and the Council, namely when a request for a certificate should be made and when should a certificate lapse. Both of those matters are addressed in my written submissions. The main difference

5 between the parties with respect to when a request for a certificate should be made is that the Council promotes an approach where the certificate application should be made at the time of a complete PIM application. The alternative rule promoted by Mr Nixon does not specify when the certificate application or request should be made, and that is the preferred approach of Southern Response and IAG because it allows them to lodge a request for a certificate earlier in their design and documentation process.

10 And as we have heard from Mr Case and also from Mr Jenkins, the earlier the insurance companies can receive that critical piece of information about finished floor levels, the better it is for them in terms of a streamlined design and documentation process. So there are some reduced benefits arising from the approach that is promoted by Ms
15 Carter as per the attachment "A" to my friend Mr Winchester's submissions. Your Honour, there does not seem to be any material prejudice that I can see in terms of the evidence that has been presented as to why a certificate could request could not be made earlier than the PIM stage. I think the benefits outweigh any cost to the community in
20 that respect.

[4.20 pm]

25 When should a certificate lapse is the second issue that is between Southern Response, IAG and the Council. My friend's submission refers to a lapse period of six to 12 months. A six month period simply is not workable for Southern Response. Mr Hurrin's construction
30 timeline at paragraph 18 of the evidence and it might be worthwhile bringing that up, of Mr Casey's evidence. Oh, it is on a separate document so it may be that you can refer to it later, Your Honour. But that is the timeline that is shown in this document. It shows that a typical rebuild takes eight months from conceptual design to issue of a building consent, so a six month period is just too tight to complete that
35 exercise. A 12 month period for certification to building consent would be workable for Southern Response and IAG in respect of most residential rebuilds, but there is a caveat to that, Your Honour, in the sense that not all building projects are uniform and there are buildings that are larger or more complex in which a period of greater than 12
40 months would be required, and so for that reason Southern Response and IAG would prefer a longer period of 18 months to two years.

45 In that context you would have heard the line of questioning from my friend, Mr Chapman, where he mentioned this afternoon that had we stayed with a restricted discretionary streamline approach for setting floor levels rather than a certification process, a resource consent would

5 have provided certainty for a period of five years, what is now proposed is one where certainty is reduced to six to 12 months. So one is far too short, the other you may feel far too long, but there must be a happy compromise somewhere in the middle that would be much more satisfactory than six to 12 months.

10 With respect to the recession plane exemption, the issue arising here is the area to which the exemption should apply, your Honour. Southern Response and IAG seek the exemption be extended to apply across all land with the FLFMA, irrespective of whether the properties are within the overlay or outside the overlay.

15 I have some real concerns with the approach that is being promoted through the evidence of Ms Carter, and I feel that my submission cannot be justified in legal management (**ph 4.23.50**) terms, and three key reasons, your Honour.

20 First, there is no basis in terms of effects for the distinction that is being made. Secondly, it creates an artificial distinction between the overlay and the area outside the overlay, and so for rebuilds outside the overlay it allows a forum to be created to argue the protection of a neighbour's amenity is more important than protection of the affected building from inundation, then finally results at an inconsistent approach in the absence of a reasonable justification, which in my view creates inequity between landowners.

30 This issue, your Honour, in my view is significant. In my submission the Replacement Plan should provide clarity on this important policy issue. In the absence of such guidance, decisions on this policy issue will need to be made on a site by site basis as to whether floor levels should have priority or whether recession plane intrusion should have priority. The process for which intrusion is made is of course the resource consent process administered by the Council, and in my view that outcome will not assist the recovery of Christchurch, because there is inherently uncertainty in time and labour costs associated with a resource consent process.

40 My submissions touch upon the issue of scope, as to the inclusion of the recession plane extension, and in my view, for the reasons set out in my submission, there is ample scope for the Panel to make the changes requested by Southern Response and IAG.

[4.25 pm]

45 Finally, your Honour, with respect to filling and excavation, this matter has not received a great deal of attention during the course of the

5 hearing because it has not been significantly an issue, but nonetheless it is an important matter for Southern Response and IAG. They simply seek the extension of the exemption that currently applies for filling and excavation within the overlay area so that it also applies within the fixed overlay area so there is a consistent rule on this matter throughout the FLFMA, and Mr Nixon's amended attachment A includes **(INDISTINCT 4.26.34)** amendment which would achieve that outcome.

10 The difficulty if that change is not made, is that excavation associated with repair and rebuilding of many earthquake damaged residential buildings may require consent as a restricted discretionary activity, and Southern Response considers that that outcome is inappropriate and unnecessary given the nature of the works and the reason for why they
15 are being undertaken, which is essentially to create a fixed floor level that complies with the new natural hazard rules around floor levels.

So, Your Honour, those are some briefs of walkthrough of my submissions, I am happy to answer any questions arising.

20

SJH: Thank you very much, Mr Fowler. Dr Mitchell?

DR MITCHELL: No, thank you, sir.

25 SJH: Ms Dawson?

MS DAWSON: Just one quick thing Mr Fowler. You did not mention it in your walkthrough, but I noticed that you support the approach of the certification process for the floor levels being applied throughout the entire FLFMA, including in what is currently the overlay area and so
30 from Southern Response's position you would be happy for the same certification process to apply everywhere?

MR FOWLER: Yes, the advantage from Southern Response's perspective is there's a consistent approach so that project managers who are dealing with these claims need to distinguish between one area and the other, it is the large machine that is Southern Response, simply needs to deal with that issue on the same basis throughout the FLFMA.

40 MS DAWSON: So even if that meant that a floor level, say a model is updated above and beyond the ones that are currently specified in the plan that may come through with a slightly changed floor level. That is less important to Southern Response than having just one process to go through?

45

MR FOWLER: Yes, that is correct, Commissioner, but one perhaps proviso and that is particularly the lapse period of a certificate, because at the moment if a lapse period is a reasonable period to allow the documentation to occur prior to building consent approval, then that concern about fluctuations can be managed. Clearly, if there need be a period of say, 18 months to two years, if you take that period for example, that would be understood and known by Southern Response that it needs to work through the programme within that period and of course, if it cannot achieve that then it may need to reapply. So there would be some incentive for it to work within the lapse period. So that would be the one downside, if you like, of a consistent approach throughout is that there may be some differences in the duration of the level that is provided by the Council. So provided that issue were addressed, then I think a consistent approach would be helpful.

MR: Thank you, Mr Chairman. Mr Fowler, I have just got a couple of questions of clarification for you. Just firstly on the grandfathering regime in the Regional Policy Statement, and I am reading your paragraph 31, I just had another look at policy 11.3.2 of the RPS.

[4.30 pm]

And, as I read that, the operative aspects of it are in regard to whether it is new subdivision use and development. And I wonder whether you have any submission on that aspect, as to whether in fact, looking at the land use involved in terms of what your client is dealing with here, whether and by its nature it is in fact not a new use insofar as it is in character. A residential house is rebuilt, it may be a different design but it is not a change to another type of activity.

I just wonder if you had any submissions on that, I think your submission in substance is it is de minimis and therefore you really don't need to be concerned given the relatively small number of properties involved in terms of the entire equation. We do have to give effect to the RPS but are you able to help us any further as to whether you thought about that aspect of new?

MR FOWLER: I haven't given it any great thought before your question, your Honour, however my response would be that it may be possible to distinguish between something that is new and something that is essentially replacing what was an existing use on the land, but beyond that I haven't really given it a lot of thought.

I understand the distinction that you may be trying to draw, it potentially is available but beyond that I am not really able to help you a great deal further, your Honour.

JUDGE HASSAN: Thank you. The other aspects in regard to recession planes, going to paragraph 60, and you summarised in that process the various rationales for why. I took a note of your oral comments around
5 about paragraph 50 of my set and one of the points you made was around equity.

MR FOWLER: Yes.

10 JUDGE HASSAN: So one of the things the Panel has to be mindful of is the provisions as notified and the provisions which the Panel may decide upon by way of the proposal, and if there is a material change to those that can trigger a Council requirement for renotification.

15 I am mindful in asking this question that an operating assumption was that the exemption to recession planes was intended to be on a non-notified basis in any event, but I wondered what was your view on the question, on whether the Panel can safely treat this as non-material, for the purposes of the Order in Council?

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MR FOWLER: Your Honour, my understanding of the relevant clause that you are referring to in the Order in Council is that it applies in circumstances where the Panel wishes to make a change to the replacement plan that is not specifically raised in the submission by a
25 submitter.

JUDGE HASSAN: Well, it is not necessarily confined to that but I hear what you are saying, that what is raised by submissions may be relevant to how we look at it. In other words whether it is material or not it is not
30 driven from submissions but it is driven from whether there is a material change from the proposal but nevertheless considering submissions.

35 So I take your point to that extent, that it certainly may be relevant to the question of materiality that a submitter, such as your client, has actually sought the exemption to go further. In other words putting people on notice for further submissions and response should they wish to. It is just a base we have to cover safely.

40 MR FOWLER: Yes. Well, I suppose, your Honour, the issue has more bite to it if it is not raised in a submission because clearly there is potential for persons to be disenfranchised because a change may be contemplated by the Panel which is not within the scope of submissions that were raised and so in that context I think that materiality becomes very much
45 a live issue.

5 I think if the matter has been raised fairly and squarely in submissions and persons have had an opportunity to comment on it, then the concern around materiality is of a less moment, because the issue is, if you like, in the public domain and is able to be debated and discussed in the usual way through the hearing process.

[4.35 pm]

10 JUDGE HASSAN: Yes, and that goes to the question of materiality in your submission. Thank you.

SJH: Yes, thank you, Mr Fowler. Mr Chapman?

15 MR CHAPMAN: Sir, I do not propose to take up any of your time, I have lodged written submissions, I adopt those submissions with my friend, sir, and I do not propose to speak to my submissions, but I wonder if I might just add to the questions that the Panel has asked of Mr Fowler.

20 So just in relation to the matter raised by Commissioner Dawson, IAG also adopts a one plan approach and the advantage I think, that comes from that, is that when we started this process, the idea that further information would come to hand to provide greater certainty about the flood levels in areas within the “egg-white”, it would require an update of the plan, be it by variation or some other process, whereas I think
25 what we have heard today is that there is a website which is able to articulate with certainty where there is certainty in terms of a level around the city.

30 And I think the level that the insurers are advancing would be a very simple way which would provide for updates in the robustness of the plan to simply be accommodated on that website, it would be very clear where the Council was able to stipulate that when applications are being made in this area, there is already a certain floor level.

35 It would almost pave the way for my clients or anyone for that matter, to go direct to a building consent because they would have the certainty that when that land was checked off, the website in the plan was stipulating a reliability floor level that they could have relied on.

40 So I think it has advantages in avoiding updates, variations, in the plan that are complicated and expensive as well.

45 In relation to the issue raised by Judge Hassan in relation to policy 11.3.2, I have turned my mind to the explicit wording there, and I do say that when we are dealing with a rebuild, it is not in the frame of being a new activity.

I say that because one is able to apply for existing use rights relating to the dwelling that has been on the site, but moreover, the wording of policy 11.3.2 goes slightly further and it does have the modifier of saying, “Unless there is no increased risk to life.”

And we have heard evidence that really, the 1-in-200 floor level issues relate to building resilience more than any issue about loss of life. I know the Panel has asked a number of questions in that regard, so I do not even think that you need to ascribe that issue, the fact that it is de minimus or minor, I think there is already a pathway that can take you to 11.3.2 and show that the plan that we are dealing with is fully consistent with the RPS.

Thirdly, with regard to the issues about the Order in Council and the words “Material change”, I think that probably what those words were designed to signal is where the Panel wanted to embark on an, in effect, a 293 procedure under the Resource Management Act, that they would need to act with great care.

I do not think we are in that frame in terms of what we are considering here with respect to recession claims because of the fact that my friend has mentioned, that recession claims are mentioned explicitly and I adopt a very simplistic approach as to what a material change is.

In my submission, it has to be something that is left field. Namely, something that the plan has not contemplated; so you are going into a new area and in that left field phase, in my submission, that takes you back to say, well, there is good justification in terms of why we should re-notify by this plan.

But for the reasons that it is a live issue in submission, that it is already mentioned when the plan was notified, I do not place it in that left field category, and I do not place it in the same category as 293 application under the Resource Management Act either.

So they are the only points that I wanted to clarify unless anyone else has got any questions.

SJH: Thank you Mr Chapman. Ms Walsh?

MS WALSH: Thank you, sir, good afternoon. These submissions presented for progressive enterprises, and they have interest in 23 sites in Christchurch, six of which fall within the FLFMA free within the overlay.

I have referred to my friends legal submissions, Mr Fowler, and I gratefully adopt much of those so if I perhaps just start to crux of my submissions at paragraph 5, in relation to the timing of the certification application.

5

It is also my submission that an applicant propose to use land within the FLFMA for building, a floor level should be able to be certified at any time and requiring that the application be tied to a completed PIM in my submission is unnecessary and it is unjustified and that is because the establishment of a floor level is what I would call a rudimentary piece of information that is required at the start of the design process.

10

It is almost as rudimentary as knowing what zone you are in or what the area of your site is and until you can establish that piece of information you cannot really start your overall site design; you don't know how many levels your building is going to be able to extend to, to what extent recession plans might be breached, and if those matters are breached then that in itself may in turn require repositioning of the building on site and flow on effects in terms of where the car parking can go and those sorts of things.

15

20

At paragraph 8 I talk about the information that is required as part of a PIM, and I refer to attached sections 33 of the Building Act and form 2, which lists the information that is required as part of a PIM, and I also point out that section 33, the part of the Council to require further information beyond those matters as well in form 2.

25

So if an applicant was required to have completed a PIM they would have had to have shown the number of levels the building will have, the total floor area of the building and an indication as to whether there will be new or altered access and at paragraph 9, it is therefore in my submission, impractical and unworkable for the certification to be prior to the PIM stage, because the PIM information is simply not available at the start of design.

30

35

It was also accepted by Ms Carter in cross-examination that establishing the floor level very early on in the process was desirable and it would have already potentially significant costs of redesign. Just a bit of evidence from the bar, sir; yesterday I spoke to my client and I asked him what it would cost them to redesign their plans if they got the floor level wrong and they said just for that aspect it would cost \$100,000 alone, and that is not taking into account other potential flow on effects in terms of car parking, etcetera.

40

45

5 A further reason why it would be inappropriate to tie a certification rule to the PIM is that a PIM is no longer a mandatory requirement under the Building Act and so if the permitted activity regime was tied to that it would in effect be making that PIM mandatory for those respective properties.

10 That brings me to the use of land and being certified and the information requirements at paragraph 12. It is the position of the insurance companies and progressive that the only information required by the Council to determine the minimum floor level is the property address and a legal description.

15 And the question then follows, and was similarly posed by your Honour, Judge Hassan; what is the use of land in terms of section 2 and 9 of the Act that has been certified where building and site plans are not included with the application, if I understand your question correctly, sir.

20 It is important in my submission to note that the Council has confirmed in the evidence of Ms Brookland that it does not need details of the proposed building itself to determine floor levels. Rather, the floor level assessment looks to the range of criteria set out in Ms Brookland's supplementary evidence at paragraph 4.10, and in there she notes – they look at things relating to the coverage by one or more
25 flood models, the likely flood mechanism, limitations of individual models at particular locations and so on.

[4.45 pm]

30 And in my submission they all relate to the flood model characteristics and there are some limited cases where that might involve the site characteristics, but none of those matters relate to the result of building itself.

35 So then exact location of the building on the site in its exact form are not relevant in determining that level, and it may well be that once the exact form of the building is finalised that the resultant building plans comply in every respect with the remaining rules of the plan, in which case that development could proceed without further resource consent.

40 By way of example, I tested this this morning, I looked at the commercial zone rules for a supermarket, and in all bar one of the commercial sub zones a supermarket is – the building and the activity itself are both permitted, so provided you can comply with the bulk and
45 location requirements. So my point there is that, there is an activity that is capable of being consented.

5 Just returning to paragraph 15, in the middle of that paragraph, if a building was not able to comply with those other standards then that would obviously need additional resource consents, and that in my submission is no different to any stage development or a large complex development where consents might be required as later breaches become apparent.

10 So consequently the use of land being captured under the rules is still capable of falling within sections 2 and 9, being the use of land for building within the FLFMA at a minimum floor level. However, as the only matter for determination by the Council is the minimum floor level, which is not reliant on the form and location of the building, plans of the exact building are not required.

15 Turning to the last issue, the lapsing date for certification, Ms Brookland and Mr Winchester have suggested 6-12 months for certification. Mr Fowler proposes 18 months to two years, and while I agree that that might be appropriate for residential rebuilds, that
20 timeframe does not provide any certainty at all for large scale commercial developments where the design phase alone can often take two to five years, and in many instances much longer. For those projects a lapse date of only 12-18 months could put those proposals at risk of having to redesign, and in my submission the certification
25 process would be of no benefit to such projects. You may as well just return to a restricted discretionary or controlled activity regime where you have the five year consent duration.

30 So in my submission at paragraph 20, a more certain lapse date would therefore be five years, which is more effective of a complex design phases and also more consistent with duration for a resource consent.

35 It is also more consistent with the Statement of Expectations, and now the objectives that we have in the Strategic Directions, that the Replacement Plan will assist within an expedited recovery, foster investment certainty and minimised transaction cost and reliance on resource consent processes.

40 Thank you.

SJH: Thank you, Ms Walsh. Mr Smyth?

MR SMYTH: Good afternoon, Ms Walsh.

45 SJH: Yes, sorry, I forgot to see if there was questions here – I am sorry.

MR.....: No, thank you, sir, you have read my mind.

SJH: Ms Dawson?

5 MS DAWSON: Just one quick question. You were here when Ms Brookland gave her evidence?

MS WALSH: I was not, but I have read the transcript.

10 MS DAWSON: So she said that in some instances on a large site the location of the building on the site maybe relevant, in that it may be between two roads and sometimes they have had to specify different – well they need to specify different floor areas in different parts of a site, depending on the hydrology coming from each side for example, so
15 would Progressive Enterprise accept that in some instances on a large site the Council may need to know, not exact location, but the general location of the building on that site?

MS WALSH: I think that would be acceptable, provided it was not pinned
20 down, because the difficulty I have is that, as soon as you base certification on an approved plan or a certified plan, then if that plan is going to change later in the process, even if it is by half a metre or something like that then does that mean that you need to go for a recertification?

25

[4.50 pm]

So that is the issue that I really have with it. And so I think perhaps, thinking on my feet, you could do something along the lines of
30 provided the certification was, you know, like condition 1 of a resource consent “generally in accordance with the location plan” that would probably be a way to get around that. So, you know, if you move it a metre that way or a metre that way or whatever that you don’t have to go through the whole process again.

35

MS DAWSON: All right, thank you very much.

JUDGE HASSAN: Thank you, Mr Chairman. Just very briefly, I am assuming the certification process that we have been discussing is the one that
40 Mr Fowler endorses now but subject to the question of duration?

MS WALSH: Yes.

JUDGE HASSAN: Just on that matter of duration though, if you go to
45 paragraph 18 of your submissions, can you identify for me any

evidence which has been led on large scale commercial developments as to the two to five year timeframe you refer to there?

5 MS WALSH: Yes, I can. This was, I undertook some re-examination of Mr Nixon on that point and, yes, he - - -

JUDGE HASSAN: So that is the only evidence, it is the re-examination question, I remember you putting it to Mr Nixon?

10 MS WALSH: Yes, that is the only evidence, sir, given how this has evolved for the process we were not in a position to be able to obviously file evidence earlier than that so had to mop it up that's all.

15 JUDGE HASSAN: So given that is all we have got to go on, what you are really saying is you want more than 12 to 18 months and your nominated period there is two years, which is at least supported by the evidence that has been called by Southern Response, upwards to five where I think you run a bit thin on evidence apart from Mr Nixon's comment in response to your question, would that be right?

20 MS WALSH: Well, I would also perhaps just add to that, sir, that the Council had originally proposed that it would be part of a restricted discretionary regime. So, you know, if we hadn't have gone to a certification process they were happy with the five year consent duration as part of that so - - -

25 JUDGE HASSAN: The difficulty I am having with it is, just so that you know, on the one hand we have got to consider the fact that information can go stale and we have heard plenty of evidence on that. We have got to consider the regional policy statement and its requirements. And from Mr Nixon's answer I don't really know how much turns on it in the sense that it might take five years to run a supermarket project from go to whoa but where along that chain of go to whoa does this issue come up, fixing floor levels, going to detailed design, getting a consent, well, then you can go ahead. That might be three years, it might be two, I don't know whether it is five or not. Is that fair?

MS WALSH: That is fair, sir, yes.

40 JUDGE HASSAN: Thank you.

MS WALSH: Thank you.

45 MR SMYTH: Thank you, sir. Good evening and I just literally want to touch on the slope hazard caucusing statement and I note in particular paragraph 3 of that statement that the area wide mapping and modelling

is not always sufficient to determine risk on a site specific basis. And then the opportunity to undertake individual site assessment must be provided for in the plan.

5 At 4.1 the caucusing statement went on to say, explain that the GNS Science modelling and/or mapping of slope hazard was undertaken at an area wide level, a site specific estimation of risk can be provided to support any future plan change or resource consent application.

10 So why is a site specific assessment necessary to support future plan changes or resource consents but is not required to support the current proposed plan?

15 Paragraphs 3 and 4 of the expert caucusing statement is a clear acknowledgement by all of the experts that the area wide mapping and modelling is not always sufficient to determine risk on a site specific basis.

20 I say that following the area wide model will do rough justice to some landowners and if the Council get their way it will at least in RHMA1 areas be required to endure the significant cost and uncertainty of applying for a non-complying resource consent to do any future development on their property.

25 Ms Carter’s opinion is that there should be a strong presumption against granting non-complying activities in RHMA1. The option of obtaining a plan change on the basis of a site specific report showing that the property is not at risk is likely to be even more costly and is essentially unrealistic for individual landowners.

30 The expert views set out in the caucusing statement are reinforced by Dr Yetton’s supplementary evidence at paragraph 4.2 which the Panel heard from this morning.

35 **[4.55 pm]**

I then go through individual submitters’ properties and the evidence that is used in respect of those.

40 Firstly, I would like to deal with Richard and Heather Larson at 6 Avoca Valley Road.

45 Dr Wright in his rebuttal evidence admitted that the Council is actively working towards OPS funding with the owners of 4, 4A and 6 Avoca Valley.

He admitted that the intention is to remove the sources of rock fall risk, he acknowledged that the Geotech, the company hired to do it, have the suitable technology and experience in the Port Hills to do this. He acknowledged that no rocks were found at 6 Avoca Valley Road. He acknowledges in cross-examination at page 190 of the transcript, that there is an intention by the Council to remove the rock sources above 6 Avoca Valley Road, and he does not have any undue concerns about the technical ability of removing the rock sources.

I then mentioned that substantial trees behind 4 Avoca Valley Road, and Dr Wright's admission that it was probably not likely that rocks would reach 6 Avoca Valley Road. Mr Bell has given evidence to the effect that 6 Avoca Valley Road is on a site specific basis at a risk less than 10^{-4} . Mr Bell is an expert in his field, he has 40 years' experience. He has done site specific geotechnical investigations and the Crown and Council have not done so in relation to this property.

It is my submission that this property should be excluded from RHMA1 zoning, but if the Panel are minded to reject that submission, at the very least the property should be either given deferred zoning status and in the outcome of remediation works mentioned in Dr Wright's evidence or the Panel defer making a decision in respect of the property pending the outcome of the remediation works referred to in Dr Wright's evidence, or they could come to an interim decision and I am indebted to my friend, Mr Pedley's submissions, and I would adapt paragraphs 32 to 40 of his opening submissions in this regard for KR (**INDISTINCT 2.14**) commercial.

Roland Logan and Sharon Ng of 5 Hammerton Lane.

Mr McFarlane accepts that in respect of the house that it is protected, he says at page 151, "I would accept that the house is protected." When asked did he think that this protection would stop the rocks, he said "yes". He accepted that the house itself was a risk less than 10^{-4} and he accepted that if the area wide mitigation works are in a technical basis, the line could be removed, or could be moved, the risk line.

He accepted that the Council had in principle agreed to carry out mitigation works for Hammerton Lane, and I just note, sir, in the transcript, the Hammerton Lane is referred to as Hamilton Lane, and that is an error in the transcript.

Mr Bell in his evidence, noted that the property at 5 Hammerton Lane was protected so that the house at 5 Hammerton was protected with the current protection measures and that if area wide mitigation is

completed properly, would reduce the risk for the balance of the property.

5 So the Council witness accepts that the house at 5 Hammerton Lane is protected. It is common case between the witnesses, if the balance of the property is at risk, that area wide mitigation would sort that out, and that, I understand, is going to occur.

10 And again the possible outcome such as an interim decision or the Panel's ability to revisit would be appropriate in this circumstance in relation to the balance of the property.

15 I say that the house itself should be excluded from RHMA1 on the basis that it is protected, indeed it would be perverse to put a zoning on the house in these circumstances.

And then we turn to Mr Mason of 18 Hay's Rise.

20 Mr Bell accepts that parts of the property are currently at a greater risk than 10^{-4} . He says the bund at 3.5 metres high would reduce this risk to less than 10^{-4} . He said the main house, and the properties in Governors Bay, I should say, the larger properties, they are not your normal five or six hundred metre suburban property, they are much bigger than that, so the risk is more variable on these properties so parts will be at less risk than other parts, and it is not the submitter's positions or Mr Bell's position, that these properties are at no risk or some of these properties are not at a greater risk than 10^{-4} .

30 He accepts that there are in relation to 18 Hay's Rise, he says the house, because it is at the end of a spur and a ridge, that that part of the property was presently at a risk of less than 10^{-4} . Dr Wright accepted that the risk to the dwelling may be low on the basis that it was at the end of a ridge and topographical force could cause boulders to go either side and that's at page 187 of the transcript.

35 **[5.00 pm]**

40 He did not accept it was below 10^{-4} but he did not have any site specific analysis to actually decide whether it was above or below that threshold. He accepted that risks varies on the property if you look at local topographies. Mr Bell has taken into account a particular topographical feature which affect the AIRF or attached at the dwelling in this property which the area wide model did not take into account and his view is that the house is at less than 10^{-4} .

45

5 The Council have no evidence other than the area wide model to set against this and in these circumstances I submit it is appropriate to at the very least to exclude the house from the rock fall management zone and the mechanism be put in place to allow the balance of the property to be rezoned and the hazard lines removed in the event that permanent litigation is put in place. Again, perhaps the line is mentioned previously.

10 The Trips, 42 Zephyr Terrace at page 192 of the transcript, Dr Wright, under cross examination, accepted that the property is covered in dense forest and further accepted that this would have a reasonably significant effect in **(INDISTINCT 1.50)** rock fall. He accepted that this had not been taken account in the model itself. At page 194 of the transcript he accepted that the house of 42 Zephyr Terrace is a low risk and accepted
15 he could not be assured that the house is a greater than 10^{-4} risk in a site specific basis.

20 Mr Bell in his evidence suggests that the RHMA zoning should be lifted from an area 10 metres south of the Godley running through the property, he suggests that the house and surrounds are at less than 10^{-4} risk and, again, that evaluation is a site specific geotechnical investigation that evaluation is a site specific geotechnical investigation, not an area wide one and it should take precedence of the evaluation carried out by GNS.

25 58 Zephyr Terrace, Gurnsey and Crane, Dr Wright again accepted that the property was specifically placed in its current position on the basis of geotechnical advice, in fact it was Dr Yetton who advised in the placing of this house before it was built. Dr Wright accepted that the
30 house was at less risk than the **(INDISTINCT 3.07)** property and he accepted that no site modelling had been completed by the Council in relation to dwellings.

35 He accepted that the house may be at a low risk but it was hard to say. This is kind of semantics to me because what is low risk? Well I would say low risk are, at least in this case, regulatory risk is less than 10^{-4} . Mr Bell has carried out site specific geotechnical evaluation of the property, he has inspected the house and the bluffs behind the house. He accepts the part of the property is greater than 10^{-4} but he said that
40 the house is at a lower risk due to its position on the end of a ridge and due to the effect of topographic forcing which he says the area wide model does not take enough account of. He also notes that the area wide model does not take into account any effect the vegetation might have. Again, I have said the Panel should prefer the site specific
45 investigation over the area wide model.

5 The last property I am submitting on today is Ms Connor and
Ms Woodley, 8 Balmoral Lane. At page 123 of the transcript the
second (INDISTINCT 4.30) 15, Dr Massey accepted that he has no
site specific data in relation to 8 Balmoral Lane and because of this he
has used quite a conservative report with regards the inputs into his
model. At page 125 with the transcript I have put to Dr Massey that
Mr Charters and Mr Josephs carried out a more site specific and
detailed analysis of the geology of the site. Dr Massey acknowledged
this because he had not looked at the site specific geology. He
10 accepted that he had not carried out a site specific assessment of the
property. He criticised the basis of Mr Charters' calculations and Mr
Charters provided further evidence after considering those criticisms,
detailed evidence, and Mr Charters accepted three of the four criticisms
made by Dr Massey in relation to his calculations and he recalculated
15 the AIFR, even site specific inputs.

[5.05 pm]

20 Now, I think the only area of disagreement between Dr Massey and Mr
Charters was the debris amount that would come off the cliff and that is
dealt with Mr Charters' supplementary evidence and is dealt with in
detail in cross-examination by Mr Charters as a result of my friend, Mr
Winchester's questions.

25 Mr Macfarlane at page 157 of the transcript did not dispute Mr
Charters' description of the failure mode or the geology of the property.

30 In this particular case we have three geotechnical experts, Mr Charters
and his internal peer reviewer, Mr Justice, and Mr Bell saying that the
property is at a low risk from cliff top recession and that the area wide
model is wrong based on site specific analysis and calculations.

35 And if you could just turn to a point that his Honour made, his Honour
Judge Hassan made in respect of cross-examination of Mr Charters, he
suggested that there might be a possibility of somebody extending out
the house towards the cliff, and I would have thought that even if that
possibility existed under the current rule or under the new rule of the
plan, that the building consent process would control that, but you
know, you are not going to get a building consent to build right to the
40 edge of a cliff, so it should not – the plan provision should not be
looked at in isolation in that regard. We have the Building Act and the
Building Code to also assist in regulation.

45 Turn to paragraph 25 in my submissions, the Council's experts are
saying that the area wide model is correct based on an area wide model
which is because it is area wide contains very conservative

assumptions. It is not based on site specific investigations or first-hand knowledge of the site, Mr Charters has applied assumptions based on his site specific knowledge of the property and its geology.

5 It is no answer to say, as Mr Winchester suggested in cross-examination that if you used inputs based on an area wide model, you would get a greater risk level. That is an area wide model. A site specific model, of course the inputs can change because you take into account the site specific circumstances.

10 Despite the caucusing statement is reinforced by Dr Yetton's supplementary evidence, the Council has not put forward any site specific evidence to contradict the evidence proffered by Mr Charters and Mr Bell. And I say again the Panel should prefer the evidence of
15 Mr Charters and Mr Bell.

And just one other matter in relation to his – there was some comment about “cliff face regression”, it was a 10 square metre area, that area is my understanding does not form part of the rock fall 1 or 2
20 management - - -

SJH: We have seen the clip, Mr Smyth.

25 MR SMYTH: Yes, sir. Turn to paragraph 27, is it the lack of submission of the submitters that site specific analysis should have be done before site specific zoning should apply to the submitters. The Council have stopped further investigations after completing area wide investigations.

30 The submitters have gone to the trouble and significant expense of getting site specific geotechnical information, which establishes that their properties or at least parts of their property should not be rezoned or zone in the way the Council say they should.

35 The Council witnesses say they are not happy with Mr Bell's or Mr Charters site specific modelling, but do not put up any site specific modelling of their own for comparison.

40 Mr Winchester did not cross-examine Mr Bell in relation to the local topographical features that effect either the three Governors Bay properties or six Avoca Valley Road, nor did he cross-examine in respect to the existing protection works that protect the house at 5 **(INDISTINCT 4.48)** Lane. Mr Bell's evidence therefore is unchallenged and should be accepted.

45

Mr Bell confirmed in his supplementary evidence and again under cross-examination from Mr Winchester that he followed the GNS methodology.

5

[5.10 pm]

The only difference being compared with the rock fall area 4 that Mr Bell did take into account site specific topographic features. The seismicity, vulnerability and occupancy factors remained as for the GNS model.

Mr Winchester criticised Mr Bell for failing to produce his calculations. However, the Crown and Council witnesses didn't put their workings in evidence. The Council didn't even exhibit the pro forma ground-truthing forms as part of their evidence.

And I would just like to touch very briefly on Mr Winchester's submissions, his closing submissions filed early this morning at 7.13, 7.29 and 7.3. I am particularly concerned by the suggestion at 7.13 that property owners commissioning geotechnical reports which play with different inputs and assumptions to reach a 10^{-4} target have some inherent problems as demonstrated by the property at 8 Balmoral Lane.

Well, the inference I have taken from that is that Mr Winchester is suggesting that my client's experts are guns for hire and they will say what they are paid to say and I refute that and my experts refute that. If that inference is being made we wholly reject it.

The suggestion that Mr Charters or Mr Bell did not explain their methods again is not – and that suggestion is made in 7.29 and 7.30 – again I don't accept that that is correct.

Turning back to my own submissions. I would say that Mr Bell has done what Dr Yetton suggested in paragraph 4.3 of his supplementary evidence, he has done site specific analysis, the Council have not. I again refer the Panel to the experts from Hansard and refer to my opening submissions.

Dr Wright and Dr Yetton admitted under cross-examination that they used their professional judgement to change the risk lines where they felt the model had got it wrong. It is somewhat ironic in these circumstances that the Council are taking such a firm position about this happening post the plan coming into force.

Essentially Dr Yetton admitted today under cross-examination that the model will be out of date at least halfway through the life of the plan.

He accepted that the rock fall risk drops by a further 14 percent up to 2021.

5 Regarding certification. I found this very difficult conceptually because it would obviously suit enormously my client if certification would work. As a matter of law I think I am in agreement with my very learned friend, Mr Radich, if there is significant elements of subjectivity I just don't think it will work. However, Dr Yetton seemed to suggest today that the subjectivity in relation to slope instability was 10 less than perhaps people had understood or believed and that is something at least is worth exploring.

15 I would say that certification is probably more likely to be appropriate in mitigation circumstances because you have got concrete structures being put in place and if those structures are in accordance with the RPS technical guidelines that the Christchurch City Council have promulgated it is likely that experts will be in broad agreement as to the level of protection that they afford.

20 So we are not dealing with the potentially subjective issue of are there rock sources or how many rocks will fall in a future shake or saying we have got a bund which is x-metres high and x-metres long will that stop the rocks or we have got mesh which is of a certain tensile strength, it lasts for x-number of years will that stop the rocks? And I think that is 25 probably more likely to be available.

[5.15 pm]

30 Again I mention the zoning overlay maps that it contradicts policy 11.3.6, that is just so you do not forget my opening submissions your Honours and Commissioners. Again I mention the lack of the section 32 analysis.

35 And coming towards the end, I think there should be at least a distinction, if the Panel were minded to accept the Council's position, there should be a distinction made between existing landowners with houses on their property's and future subdivisions. Future subdivisions is clearly an intensification of use. Adding an extra bedroom or building a bigger kitchen is arguably not really intensification, you 40 might; a purist say it technically is, but I think it is on margins.

And again, I point out that any building works carried out by a member of the public will subject to the Building Act.

45 His Honour, Judge Hassan, caught me slightly flatfooted in my opening submissions in relation to section 106 of the Resource Management

Act, as to whether that applied just to property or people, and I have looked at that and have considered it, and I accept that it applies to property, but that is of little moment, because the language in this section clearly connotes a risk based approach been applied to assess the hazard, and GNS have admitted that they use the same vulnerability inside the houses/outside the houses; point five – and that is based on the ability to see and get out of the way.

Arguably houses, the risk in relation to properties will be settled in more conservative level because houses cannot move, so they are more vulnerable to rock fall than people, in a sense. Again, there has not really been much discussion about that.

Turning to the Canterbury Regional Policy Statement and at 11.2.1, it seeks to avoid new subdivision use and development of land that increases risk. I accept that that is correct. It is also noted that, where a development may otherwise be appropriate in high hazard areas, where avoidance is not possible. Mitigation measures may provide an alternative means of achieving the overall objective.

Neither I or my clients, are suggesting for one moment that existing landowners should be allowed to use and develop their property without taking into account any existing natural hazards. If such hazards are found to exist in relation to properties, it is clear that any future development would require either proper mitigation in respect of those hazards or the removal of the hazard, such to the extent that an entire risk no longer exists.

However, I state in my opening submissions, non-complying status, at least for existing landowners with existing dwellings, is too high a threshold.

And again I mention CPRS, policy 11.3.5 in the precautionary approach, and then I turn to how the Panel might treat risk from a legal perspective and again this caused me quite a lot of trouble, until I came across this passage in Long Bay, which quoted the Supreme Court of Canada, in *Athey verse Leonati*, which said:

“The future events need not be proven on the balance of probabilities. Instead they are simply given weight according to the relative likelihood” – and the quote in Long Bay accepts that that is the correct approach.

And I would accept that the weight given to probability or likelihood, needs to be looked at in the context of the severity of the effect. So obviously in this case the severity of the effect is quite large, because of

deaths, which you cannot get more serious than that. But if the effect is very severe and the likelihood is very low, both balance each other out from regulatory perspective.

5 And I then just mention the minute of the hearings Panel and I cannot really add anything that my friends for the Crown or Council haven't added, and I am available for any questions that the Panel might have.

[5.20 pm]

10

SJH: Thank you Mr Smyth. Dr Mitchell?

DR MITCHELL: No, thank you, sir.

15

SJH: Ms Dawson?

MS DAWSON: No, thank you.

SJH: Ms Huria?

20

MS HURIA: No, thank you, sir.

SJH: Judge?

25

JUDGE HASSAN: Look, just very briefly. On that section 106 matter, Mr Smyth, the issue that I raised with you was not so much about its analogies with risk, it is simply that it is a section that has a certain purpose which is for controlled activities that gives the Council and decision makers a discretion to decline consent and confine circumstances. And the point of my question to you was that those circumstances relate to property, which I think you accept, rather than risk to life.

30

MR SMYTH: Yes, sir.

35

JUDGE HASSAN: Thank you.

MR SMYTH: If I can just add, sir, that I think by protecting property I think they would also effectively protect life, that is the only point I would make there, sir.

40

JUDGE HASSAN: Thank you.

MR SMYTH: Thank you, sir.

45

SJH: All right, thank you, Mr Smyth.

MR SMYTH: Thank you.

SJH: Ms Watson, would you now like to speak to your submission?

5

MS WATSON: Very briefly, sir.

SJH: Thank you.

10 MS WATSON: If I just take you to paragraph 12.

15 I just want to make some comments on the certification process in relation to that I accept that it is problematic. Unlike my friend, I accept that it is problematic where mitigation is going to be put into place. I would have thought to have a certification process, and I can understand the Council's preference for going through a resource consent process where mitigation is required to address the risk or the hazard.

20 The question or the suggestion I have is that the certification process could be to allow corrections in terms of the area wide approach that has been taken, in terms of sites where an independent expert report, then verified by peer review, can show to the Council's satisfaction that the risk is actually less than the 10^{-4} , and so that there has been some error.

25 The Council has stated as to how there haven't been a lot of errors discovered, but in my submission it doesn't show that there is not a lot more to be discovered, because a lot of people haven't gone to the trouble, or haven't gone to the expense of getting geotechnical work done.

30 My second point, sir, is just that the adoption of the non-complying status in terms of the rock fall hazard management area, I can understand why the Council's wanting to take an approach of pushing people, or encouraging people to move away from a risk where they have set the risk is to be "intolerable". But I am concerned in the circumstances where the risk can be mitigated, that the process is going to get side tracked in with arguments about plan integrity and precedent, where it should simply be focusing on the technical expertise and the mitigation that has been proposed by the engineers that can actually address the risk.

35
40
45 And I submit that that will increase the costs of the hearing process, the consent process involved, in terms of the lawyer costs, planners and the like.

5 My final point, sir, is I just wanted to make sure that the Panel had noted in my cross-examination of Dr Wright, where he accepted that – I haven't covered this in my original submission, sir, I have just recalled that I needed to comment on this – that 38 Morgans Valley could be excluded from the RHMA2 area, based on reliance on the report that was prepared by Elliot Sinclair for 52 Morgans Valley.

10 Nothing further, sir.

SJH: Thank you. Dr Mitchell?

DR MITCHELL: No, thank you, sir.

15 SJH: Ms Dawson.

MS DAWSON: No thank you, sir.

20 SJH: Ms Huria?

MS HURIA: No, thank you.

SJH: Judge?

25 JUDGE HASSAN: Do you have the transcript reference?

MS WATSON: Sorry, I don't. I could email that in.

30 SJH: Thank you. That would be a help. Thank you Ms Watson. Mr Radich?

MR RADICH: Thank you, sir. If the Panel pleases, I went through my allocated 15 minutes and I will identify through the submissions what they cover and the salient points, but if I can do what one should never do when reading fiction, that's go right to the end and look at the conclusions because the point is that this really is and it goes without saying, perhaps, a challenging policy decision for the Panel and those of us involved in trying to provide some assistance and that is to what extent, as they say in 97, should regulators decide for members of society the risks that they should and should not take and the lifestyle choices they make.

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[5.25 pm]

45 In the face of the quality of the information that we have seen in the context of this hearing, a (**INDISTINCT 0.35**) would clearly be well short of the minimum levels of protection that society would expect but

5 an unduly conservative approach would certainly be too onerous in so
 many regards and I come back and the last paragraph had a comment
 that Charles Wright made in his evidence that he thought the proposed
 regime strikes an appropriate balance between seeking to avoid some
 10 risks and providing appropriately for land use in Christchurch over the
 next decade and with the number of the refinements that have been
 discussed in the course of this hearing and that have been discussed in
 the submissions and that the Council is accepting of, the Crown
 believes that the appropriate balance is struck, it isn't as Ms Carter said
 15 at one point, in some cases the most elegant set of solutions but it is a
 set of solutions based on risk and sound material that in turn to that
 societal choice the choice that needs to be made by a responsible
 regulator hits in the Crown submission the balance to an appropriate
 extent acknowledging, of course, that over the course of the next few
 years that matters can be improved.

20 Just to go through matters briefly in page 1 of the submissions I
 provide an overview of the Crown's position on each of the three areas
 and I will go through them one by one. Paragraph 3, flooding,
 permitted activity status, we say an RD 1 to RD 4 is appropriate. RD 5
 presents some problems. Liquefaction, certainly there is much to be
 said for the notion of changing matters to take liquefaction to out and
 then you are using controlled activity status to liquefaction one but as I
 25 was discussing briefly with Ms Carter this morning or this afternoon,
 there is the real possibility for inconsistency in duplication there based
 on the current subdivision rules and unless those rules were to be
 changed the only way that Crown can see that this should be dealt with
 fairly at this stage is to give controlled activity status to a subdivision in
 30 LAA1 and LAA2 while retaining discretionary activity status for
 LAA1 and 5.9.3 and that is to say other than subdivision, I'll come
 back to these in a moment.

35 Then slope instability half way down paragraph C there, I say, again,
 that it is not as elegant as it might be, there are sound reasons for that,
 and while very attracted to the notion of being able to exchange
 perhaps the lines on the maps for clear criteria, the inability to delineate
 that criteria to put it on paper clearly enough causes difficulties and it's
 not clear that the trade off from adding that extra layer of regulation
 would necessarily be warranted here if there was a way in which it
 40 could be provided for if the Crown is certainly attracted to it.

45 So turning to flooding, without repeating what I have said on page 3
 and on the following few pages there are illegal principles set out for
 certification processes and permitted activities. I will not read it all but
 just to note salient points, Turner and Allison, a settled case in
 paragraph 8, it talks about using one's own skill and judgement, this is

in the context of conditions in a resource consent so very similar principles, rather than delegating something that resided in the decision maker themselves.

5 Canterbury Cricket, the same point, the Court cannot delegate the making of substantive decisions in paragraph 9. The Twisted World case talked about needing in terms of certification in particular, specifically, called for objective – that should be call, rather than fall for objective – assessment, Carter Holt Harvey I mentioned for some of
10 page 4 and that was a case where there was what was regarded by the Court as a very complex rule. It was calculating nitrogen discharge allowance from a farm and while there was a, as I mention in paragraph 12, a high level of expert involvement involved there in a consistent approach, the Court found that the objectivity was not really
15 achievable. The interpretation of others as is said in paragraph 12 of these submissions, involves input of site specific considerations, should I say, site specific expert analysis and judgement, but cannot be adequately specified in a permitted activity rule. And they are a good example of the parameters in some of the issues that have been arising
20 in some cases here.

[5.30 pm]

25 Paragraph 14 and 15 talk about the advantages in terms of record keeping of the controlled activity status and the costs of administration and monitoring.

30 Paragraph 16. Peer review has been mentioned from time to time and I just notice or note in the Manukau City case the fact that there was a peer review process, in fact involving a team of three, to establish noise levels and that was held to be an acceptable process for a condition to be valid and so peer review in and of itself, is not an impediment to certification or stands to go across that line.

35 The Panel has noted the EBS case and I make some comment on it in paragraphs 17 and 18, and there is a peer review panel there too, and in that case, just going to the bottom of page 18, given the expertise involved, that it is inevitable, in that case it did not constitute a component of decision making, it ought to be carried out by the Board
40 so in that case a set of objectives, baseline reporting, a peer review panel, they were all things that did not cross that threshold across to the unacceptable subjectivity levels.

45 I go on to then look at the application of the principles to the FLFMA and on page 6, and over to page 7, I note some of the evidence that has been given. I will not go through it, it is there in case it is of any use to

5 you, but Ms Carter talked about sufficient certainty, and you have heard from her further today. Ms Brookland similarly, Andrew Willis thought that there was merit in taking this measure. Darryl Millar for Ngai Tahu Property and Michael Rachlin for Environment Canterbury, all supported it and evidence references are given.

10 So at 25, we say therefore it is possible to give that status on the basis of modelling, a suggestion is given, it is very similar to that suggested by my learned friend, Mr Winchester, in his closing submissions, and I think that, in that regard, without having swapped notes in advance, the Crown and the Council have landed in the same place on this issue.

15 RD5 I note in paragraph 25 is a little different, as I have mentioned to a couple of witnesses today, filling an excavation on the basis of the current assessment criteria, and for good reason, it involves more than the objective tick box criteria.

20 And I guess if we were to use my learned friend, Mr Chapman's egg analogy, this is where "Humpty Dumpty would have a great fall," because that RD5 criteria just does not support that objective level that is needed.

25 But that does come on to the issue that I mention in Page 8 and it was raised by Panel members during the Hearing, could be a resource consent issue for floor levels alone, and the answer following the analysis that flows over the next few pages in the Crown's submission is, yes.

30 These submissions look at section 9, they look at the definition of use, they look, over on page 9 of the submissions, at the Shell Oil case talking about having several activities forming part of the same class of use, and that is at the very end of my paragraph 36.

35 Paragraph 37, the NZ Development v Auckland City case talks about a connotation of physical activity, something done in relation to land. And that particular case is distinguishable because it was about whether or not there could be a resource consent application for a financial contribution level to be set alone, so could you apply for that through a resource consent, and it was found in that case that, no, that is not particularly related to a use of land as such, but in the Crown submission, it is a little different here, a consent to enable a floor activity to be fixed, as part and parcel of the activity, and the building on which the floor, the determined level, will form a part and so, as we say in 40; if so, a restricted discretionary activity status, if it was to be retained for RD1 to 5, or controlled activity status, then it is another

45

way of cutting through the red tape to a degree in providing for some certainty.

[5.35 pm]

5

I mention some minor amendments that I will not go through - - -

SJH: With additional cost, Mr Radich.

10 MR RADICH: Yes, sir, yes.

SJH: There is two elements of the red tape.

MR RADICH: You are quite right, sir.

15

SJH: Red tape and the cost.

MR RADICH: And so that points only made in the event that the Panel ever found it necessary to use that as a fall back, but I do not know that it would.

20

So minor amendments are suggested, just small tidy up points that I will leave with you, and in the event that there was a change of the sort that is being contemplated, a suggestion of the type of wording that might be considered for a policy 5.3.4.

25

SJH: Thank you.

MR RADICH: Liquefaction on page 11, and this is the liquefaction assessment area 1 is the area where liquefactions is most likely to occur. Unlikely we say in 44, the discretionary matters of the type listed in rules 5.9.2 and 3, could be easily replaced by activity standards for permitted activity, but guidance would be useful as has been raised with witnesses.

30

35

But as we say in 46, liquefaction assessment area 2 is different, we have heard evidence of there being little damage in that area, 47A, 47B evidence that there is no real basis to decline a consent and given the evidence references for this in paragraph 48 from Peter Kingsbury, Janice Carter, Nick Crayland (**ph 2.04**), Andrew Willis, Michael Jacka – but Michael did make the point that with LAA1 that is considerably more complex given the variability of the land and he did not think that, to use his term and may be this is where it has come from, the “tick box” exercise was suited to that area.

40

45

5 So there is a fair case to say, as we say in 49, that there is no need at all
for liquefaction area 2 and if that was done then it comes out altogether
and simply an assessment matter for subdivision, that there is a real
attraction for that, but as we say in 51 that is at present not without its
difficulties, the subdivision proposal is that difficulty and it gives the
restricted discretionary activity status at the moment, and of course,
things could well change but that is where matters sit in and so it would
seem counterintuitive, as we say at the end of page 12, for liquefaction
to be assessed in LAA1, that is controlled but restricted discretionary
10 outside of LAA1 under the general rules where in fact the risk is lower.

JUDGE HASSAN: Mr Radich, just on that, I wondered whether that
conundrum could be overcome if in fact we just looked at the natural
hazards chapter as defining obligatory assessment criteria, leaving the
15 categories of subdivision activity for the subdivision chapter, just
making sure the assessment criteria were defined in natural hazards so
that they had to be applied according to the activity category described
in the subdivision chapter.

20 I am just thinking about that because, I see this one is a little bit
different, liquefaction from rock fall hazard, where in fact there is a life
safety risk, whereas here the activity categorisation does not suggest it
has to be locked into something more severe that might apply
typically?

25 MR RADICH: I think that is a fair way of putting it and a fair solution, sir,
given the slightly disjointed nature of the way we are going about this
process necessarily, but I think that would work, yes.

30 JUDGE HASSAN: Thank you.

MR RADICH: Yes. So I pass over now to the top of page 14, there are some
consequential amendments in the event that, in the event that restricted
discretionary activity status for LAA1 or 2 was to be retained, and that
35 is the need for some of the discretionary matters that are listed there,
and then a policy suggestion in the event that changes were to be made.

[5.40 pm]

40 Slope instability, pages 15 through 16, 17 of the submission, grapples
with the issue of terminology, and I say “grapple” and not because it is
unduly confusing, it is just that although in Mr Taig’s very clean
approach, and one that has a lot of attraction in its own right, to risk
modelling, there is the notion and the advice given to Council that is
45 reflected in paragraph 46 of these submissions that there should be a
risk line and you will prohibit risk below it or above it, whichever way

you look at it, and manage it on the other side. It is not strictly the way it works though, and along the line of the very brief conversation I had with Ms Carter this afternoon, as we say in 65 is the fact here is that there are different models used, um, and they've defined areas using more or less conservative assumptions as we all know, each having the 10 to the minus 4 figure as a point of reference, but producing different sized areas based, in part, upon modelling and in part upon policy choices about the size of areas within which heavier restrictions should be imposed on property owners.

And different modelling assumptions have been used to make those policy choices as to the level of, or the size of the areas in which the most restrictive requirement should be imposed. And we handed up as Exhibit #3 a document that gave some examples of the sort of wording that might be included in an introductory section, and that was really, at that stage, based along the line of Mr Taig's quite simple above and below the line approach, but it is really not that simple the more you get into it. Paragraph 67 has suggested, just to make this point that really, if you look at it carefully, this is the way it should be defined. So risk levels are defined on the maps using a general underlying premise.

Different modelling assumptions determine areas in which that level of risk is present, or higher levels of risk are present used with different hazards. And within those areas themselves two of the different modelling assumptions are used to identify where the risks are greatest and within those areas in some cases things are prohibited, in some cases they are allowed. These points continue to be made but there is really no one size fits all, and it is not the case that, as we say in 70, that once you get beyond the outer boundaries, suddenly you're deemed to be acceptable because the remainder reports over Banks Peninsula slope and stability management areas are there to cope with that.

And so as we say in 71, it does produce something of a patchwork quilt, but it does, in the Crown's view, manage risk appropriately while the mapped areas were produced to an area-wide approach, ground trooping was built in. Any unfairness that might be produced through a necessarily conservative approach is taken into account in the inherent uncertainty in the modelling that's offset through resource consenting ability and proof to be able to put at that stage. Mr Taig put the position in a way that, we have taken an extract there and there in the next paragraph, the points are made that this is the line that has to be drawn at some point by the Council, by the Panel. Are there are ways, we say in 73, or we ask you to make things simpler and fairer. Over on page 18, is it possible to extend the permitted activity status, or is it, in fact,

possible to replace the modelled hazard mapping with a sufficiently clear set of criteria?

5 And again, we've gone through and identified parts of the evidence that
address that and you have heard further evidence on that today through
the supplementary evidence in questions, Mr Taig, Dr Massey talked
about some of the risks, the subjectivity, the appalling risk assessments
that Mr Taig said that he had seen. The need for a peer review and I
10 mention there the King Salmon Case that I have mentioned in passing
but said that that in its own right is not an impediment. Over to page
19, Don Macfarlane was having some discomfort about revisiting
hazard lines because of the uncertainties as to what would manifest in a
subsequent earthquake. Dr Wright talking about the subjectivity, Dr
15 Yetton you've heard him recently today talking about the fact that he
could see the modelling being useful and he could well design a
product, but not sufficient for a tick-box approach.

And I will develop this further in just a moment, but another question
that arises is should then the number of slope instability management
20 areas be reduced? Is that a better way of trying to deal with the red tape
in this patchwork quilt? So one could a pick mid-point, suggested at the
top of page 20, a couple of possible midpoints with the modelling that
is being introduced, but the problem is of course that that makes areas
that are more problematic for some people and less for others. It creates
25 its own difficulties in the sense that, the risky areas could be bigger and
the areas in which risk should be managed would shrink.

[5.45 pm]

30 So the next question on page 20 is, "Can the slope instability areas be
defined through criteria rather than lines on the map" or perhaps a point
that was developed today, is there a mechanism that could enable lines
to be adjusted without a plan change, so the lines stay, but is there a
mechanism? And that is not something that I've in preparing the
35 submissions looked at sufficiently deeply on the basis that there could
be an assessment and then some very clear criteria.

Certainly, we as counsel, tried very hard to find a way that we could
replace the lines on maps or written criteria, tried very hard indeed
40 because there is huge attraction in this as being an appropriate approach
to reduce - - -

SJH: So the Crown accepts that we do not want to put people through the
45 horrors and I say that not lightly, but quite deliberately, if we are going
through a plan change. It is safe and legal and the evidence supports it.

MR RADICH: Yes, if there is a way, sir, if there is a way to be specific, you know, I - - -

SJH: I think we are all on the same page.

5

MR RADICH: Yes.

SJH: There is such difficulties around that - - -

10 MR RADICH: Yes.

SJH: - - - coupled with the fact that, dare one say it, experts have not had the greatest track record around Christchurch with some of the subdivisions that suffered in the earthquake.

15

MR RADICH: And that is the fears of it - - -

SJH: I can understand the Council's very grave concerns.

20 MR RADICH: Yes, that is the fear and I do not profess expertise in planning or in the technical areas but I endeavour to sit down for some hours with a pad and a paper to find a way through this, but I ended up with a lot of rolled up paper. I ran out of technical ability, that is not to say others will not, but, yes, because I was certainly attracted to it, but
25 could not find a way to do it so as to remove that very concern your Honour.

Mention on page 21 and on the next page the legal principles on using materials outside a plan because it is a point that was raised in the event that, that if there were to be references to maps outside the plan. If that
30 was the case then I imagine the way it could be done is, they are not incorporated into the plan but are just used as guides, but of course that assumes that one could define criteria in the first place and for the reasons just given I do not think we could.

35

But the analysis is set out there and it would not support plans that could readily be modified but it could support plans that were not incorporated but just were a ready reckoner. If there was a method, if
40 there was a pathway to define lines through criteria rather than maps, then if it was a ready reckoner and not an incorporated map then there is a way through that.

Paragraph 92 makes the points that I think I have made, there are just these difficulties in terms of applying these criteria in a sufficiently
45 suitable way and so one can only return to the points that Mr Taig made about the fact that at the end of the day the regulators need to draw the

lines somewhere that they regard as being sufficiently fair and on balance, although it is ineloquent and it is a quilt, the regime at present, in the Crown's submission, is fit for purpose.

5 There are some additional points made on pages 24 and 25, I would ask the Panel please to take note of them. Time will prevent me going through them now, but they are just tidying up points, and so if the Panel pleases I am very happy to answer further questions but they are the submissions for the Crown.

10

SJH: Thank you. Dr Mitchell?

DR MITCHELL: Thank you, sir. I have just got a couple of things if you could perhaps help my understanding, Mr Radich. Firstly at paragraph 15 31 and onwards, you explore this issue about whether a floor level is an activity or a use, and I am not sure what the legal situation would be regarding this, but there are a number of provisions in plans that say, "An outlined development plan", an activity that is undertaken in accordance with an approved outlined development plan has a certain 20 activity status, in an activity that is not accompanied by any such plan is a different activity status and in fact some of the wording in those provisions do not draw any distinction at all between the activity and the preparation of the document and in fact some of them have even referred to an outlined Development Plan is a restricted discretionary 25 activity.

[5.50 pm]

30 I am just wondering, notwithstanding perhaps some of the poor drafting that is used there, that technique is very widely used and I wonder whether that is in some way a door opener for the matters that you raise in paragraphs 31 onwards.

35 MR RADICH: Yes is the short answer. I think that is a very fair point, Dr Mitchell.

DR MITCHELL: Thank you. Second point, at pages 12 and 13 where you essentially identify the potential inconsistency between controlled activity status in liquefaction area 1 and restricted discretionary in the subdivisions chapter, is that not just a question of bundling? I am 40 struggling to understand what the real problem with having those two different activity statuses are. It is just simply saying that in terms of natural hazards matters, subdivision is control whereas if subdivision is ordinarily restricted discretionary, I do not really understand what the practical problem is in the same way that in land use section 9 terms, 45 you might trigger 63 rules. Some will be controlled, some will be

discretionary, some will be non-compliant and then they are all just bundled together. Is it more complicated than my simple approach?

5 MR RADICH: It may not be, sir, but the concern I guess is in terms of the fact that what you then have is a controlled activity for the area that is at most risk so if you are in LAA1, you have got a spoke set of rules that you then deal with and that is controlled whereas if you are in a non-existent what was LAA2, for the same liquefaction risk you have actually got to deal with it through a restricted discretionary set of
10 criteria even though the geotechnical aspect of that may be limited, it is just the fact that when you line the plan up and look at it as a coherent document, that is a bit of a disconnect.

15 DR MITCHELL: Would it not be a permitted activity in the natural hazards section because you are not controlled in any other way so you would therefore be permitted, so there is no inconsistency.

20 MR RADICH: But you have then got to deal with liquefaction, presumably as assessment criteria within the subdivision rules which are restricted discretionary activity rules but I see the point that you make.

25 DR MITCHELL: All right, okay, thank you, and finally, at paragraph 25 where you list the floor level criteria, flood/floor level criteria, and then you go on to say that is capable of certification and so forth. I suppose the question that is troubling me is that even though those criteria are quite explicit in the sense of saying 1 and 200 year flood event, **(INDISTINCT 3.45)** level sea rise and so on and so forth, the only way that those criteria are given effect to in a practical sense is by
30 somebody running a model to say whether it does or does not satisfy that.

35 What I am struggling with is alongside that listed some criteria for rock fall and said it was a $1 \text{ by } 10^{-4}$ annual individual fatality risk based off 67% occupation of dwellings using 2012 seismic data and making no allowance for aftershocks. Why is that any different?

40 MR RADICH: It comes back to the points that Dr Yetton was making this morning. The ground truthing exercise that was carried out which must be part of that but if you just ran the model itself which creates the area wide maps and you did not have any ground truthing component at all then, yes, I think that is right, I think you could just put in those modeling assumption seismicity, aftershocks, et cetera.

45 DR MITCHELL: But the flood levels require all sorts of ground truthing, it requires levels of ground, it requires you to know where culverts are, there is a bunch of things in those models that are assumptions some of

which are region life and some of which are ground truthed, I would have thought.

[5.55 pm]

5 And I understand the factual situation might be different, but it seems to me that conceptually the two are exactly the same.

MR RADICH: I understand your point. As I understand it, Dr Mitchell, the modelling for slope instability can't build in sufficient ground-truthing to take into account the more extreme particular circumstances of particular properties. That is the case with the flood modelling, which on the evidence seems to be able to produce a robust and definable set of criteria in each case.

15 As I understand the position with slope instability the ground-truthing that is carried out that would enable the lines on the maps to be adjusted, along the lines that has been the outcome of some of the submissions in this hearing, it is considerably more than the level of ground-truthing undertaken in the first place to draw the lines on the maps and that the subjectivity involved in that is too much to enable that to happen. Were it not for that I agree entirely with you.

DR MITCHELL: Except in circumstances where a proponent and the Council's independent certifier agree that a line can be in a particular location. What is the effective and efficiency reason for not trying to find a way to address that, other than having to go through the complicated extensive process of a plan change? That is what I am trying – and you have said it is novel and I accept that it probably is, but given the submissions that you made on strategic directions about enabling and all those sorts of things, it would seem to me that this is about substance or about form over substance in large part.

MR RADICH: Would embrace it entirely if there is a way to achieve it. There was mention made, and the way I have put it in these submissions “is can you replace the lines on the map with a set of criteria?” That is where I fall short and that is where looking at the evidence I see the subjectivity coming in through actual ground-truthing but is there - and perhaps this is the distinction that I wasn't appreciating, if I am right in thinking this - is there a mechanism in the plan itself that could enable lines to be adjusted without a plan change? The lines are there, but there is a mechanism in it in the event that effects that it had on neighbours. Now, that is something that I think has real merit.

45 DR MITCHELL: All right, that is helpful, thank you. And I guess just finally, again at paragraph 25, this relates to the flood standard which

5 you don't have a problem with. But in my recollection, and you will probably have to take my word for it, but for the purposes of the question, the proposed Auckland Unitary Plan has no flood maps at all. It has essentially a slightly different numerical value but essentially it has what you have set out in paragraph 25.

10 So, notwithstanding what we have just said before, if the Council included that sort of data on a GIS overlay outside the plan, but the rule was inside the plan, why is that any different to that flooding situation in terms of the way they deal with it in Auckland? And the overlay or the GIS information is updated all the time. They say, "We have now got some new modelling, we have got something else".

15 SJH: Is that actually in effect yet or - - -

DR MITCHELL: It is only proposed.

SJH: It has got to go the Council yet, doesn't it?

20 DR MITCHELL: And that is a fair comment. But I think that approach is taken elsewhere although I could stand to be corrected but there is a lot of information stored on the Council GIS database. Is that a possible mechanism for defining what is inside and outside the plan and actually having policy direction that directs people to look there?

25 MR RADICH: I would have thought there is attraction for that, and I was interested today to hear submissions made on behalf of insurers to say "One model only would be better, thank you".

30 DR MITCHELL: Okay, all right, thank you, Mr Radich. Thank you, sir.

SJH: Ms Dawson?

35 MS DAWSON: No, further questions, thank you, Mr Radich.

SJH: Judge?

40 JUDGE HASSAN: Just a few thanks, Mr Chairman. I am going to tire you out, Mr Radich, it is time to pick your brains. I just want to come back to this question of your paragraph 80 and the issue around modifying the hazard lines up there in the hills.

MR RADICH: Page 80, sir?

45 JUDGE HASSAN: Modifying the hazard lines for rock fall and so forth. Sorry, your paragraph 80 is a good reference point starting this off.

5 I am very mindful of one thing in looking at this and I go right back to it and it is an acknowledgement which all of the experts in this area agreed to, and one of those acknowledgements was mentioned by Mr Smyth. The other one is at paragraph 3 of the joint statement, and it is an acknowledgement that area wide mapping and modelling is not always sufficient to determine risk on a site specific basis.

[6.00 pm]

10 And it goes on to say, “The opportunity to undertake individual site assessment must be provided for in the Plan.” And it identifies that at section 4.

15 And so it is one of these, it is a very hard question, but it troubles me that at this stage of the Inquiry, I wonder whether we have got to the bottom of how to deal with it properly through the different suggestions that have been made.

20 And some of those suggestions are, as I think yourself acknowledge in the comment about the rolled up pieces of paper, is that as lawyers we struggle when the evidence does not, for instance, provide a precise answer in some of these areas on which to work with.

25 So firstly, I guess an open question about process. So here we are, and the Panel has got to do a Section 32AA further evaluation, and it has got evidence before it, and many submissions which have touched on this area.

30 But as compared to strategic directions, we do not have the same degree of competing, planning, drafting logic in front of us to test.

35 In process terms, how do you see us best deal with that, for instance, is it appropriate or not for the Panel to draft these provisions for further testing by submission in terms of these processes on the basis of the evidence before us?

40 MR RADICH: Can I ask in the context of answering, or endeavouring to answer it, whether the Panel was thinking in that sense of endeavouring to create some models that would then need some further input from experts before rules were perfected.

JUDGE HASSAN: Well perhaps on the basis of the evidence that’s before the Panel - - -

45 MR RADICH: Yes.

JUDGE HASSAN: - - - that lawyers have tried their best with that, that the Panel is in a position to give some further considered thinking to that, but in process terms whether the better course under 32AA is to simply bite the bullet and do it and issue decision, or issue some thinking for further submissions in response, and whether the latter is available to us.

MR RADICH: I am personally all for biting the bullet, your Honour, but I think that in process terms, you of course have the ability to regulate your procedure as you see fit, and if the Panel finds itself attracted to a particular course and it needs something further in terms of testing some parameters and suggestions that it has, and it is unable to do that and end up, as I was, throwing paper around the room, then I think certainly there is merit in coming back with some defined questions or suggestions for input.

DR MITCHELL: And notwithstanding the fact that if we compare our processes for those for Boards of Inquiry, in the national significance track in the Act, we do not have the draft decision step the Order in Council.

MR RADICH: That is quite so, sir, and there are analogies with that, yes.

SJH: I think it is a real impediment though, that is the problem, and we would need to be satisfied we could legally adopt such a course, or find a way to do so.

MR RADICH: Yes.

SJH: Because it has been a clear, so much of the Board of Inquiry procedure has been drafted, a clear decision has been made not to include the draft decision process - - -

MR RADICH: Yes.

SJH: - - - possibly because of the urgency that is perceived here.

MR RADICH: Yes, an interim decision, yes. Is that a possibility? I wonder if there is a possibility of that or whether there is a possibility to keep the Hearing open, you know, while that sort of - - -

JUDGE HASSAN: So an adjournment with a Minute which raises questions but does not say that the decision has been made and makes it clear that it hasn't.

SJH: I think we can indicate we will be adjourning and not closing the Hearing because there are so many difficult questions that we are still wrestling with that we made need assistance on.

5 MR RADICH: I can certainly see that, sir. And so the position that the Crown gets to, for example, in slope instability, is that at the moment it was too challenged to be able to find a way through the doorway of using criteria to provide further economic fairness.

10 [6.05 pm]

If the Panel can think of a way, and therefore the Crown was saying, what there is now is a socially acceptable balance that ticks sufficient boxes and if the Panel was of that view too then that would be a regime that would be in place for a number of years, subject to the ability for there to be plan changes when further information comes out. That is reluctantly the Crown's position.

20 However, if there is the ability for a mechanism to enable adjustments to made without a plan change in the Panel's mind that would benefit from further testing through experts, then that would have the Crown's full support.

JUDGE HASSAN: Potentially, I suppose it could be on a more limited basis that assistance is sought on whether in fact it is legally sound.

MR RADICH: Yes.

JUDGE HASSAN: In other words by legal submission based on the evidence before the Panel.

MR RADICH: Yes, I see. Yes.

JUDGE HASSAN: I wonder out loud for instance about the capacity to have a zone map which defines an area but within that a capacity for ground truthing and a ready reference map that allows for certain properties once ground truth to be determined to be hazard free then to have it in mind locked to a permitted activity regime at that point for activities on that land possibly.

40 I mean that is probably a lot to take in at 6.05 pm, and it is only a half formed thought but those are the sorts of things that you end up testing which are not drafted in any sense but maybe things we need to think about on the evidence before us.

45

MR RADICH: Yes, if there was a pathway along those lines, your honour, then that would be embraced. We have struggled with finding it. That is not to say it cannot be found. If there was a pathway then I think it should be pursued because we have all heard the effects that lines of the maps do have, and there is no doubt about that at all.

JUDGE HASSAN: Yes, and I suppose the other thing we do have available to us, limited though it is, is some flexibility on time and when the final decision should issue.

MR RADICH: Yes, that is so, sir. I guess the concern is – and this is a more challenging chapter in this sense, perhaps than some others where you may be able to bite the bullet more readily and close a hearing fully. It would be problematic for the Panel obviously if they were all left open for a while but this is one of them where I think the evidence has reached a point where if the Panel thinks it can find a pathway then rather than biting the bullet, I think an adjournment along the lines you suggest, sir, could well be appropriate.

JUDGE HASSAN: Yes, thank you very much. Thank you Mr Radich.

SJH: Thank you.

MR RADICH: Thank you, your honour.

MR SMYTH: Sir, may I please withdraw?

SJH: Of course, Mr Smyth, yes. All right we will take a five minute break and then come back to you any conclusions that you made today.

MR WINCHESTER: Thank you.

ADJOURNED [6.08 pm]

RESUMED [6.15 pm]

SJH: Everyone's deserted us.

MR WINCHESTER: Just the hardy few, but they have no choice. Mr Carranceja probably does.

SJH: Thank you, anyway.

MR WINCHESTER: Yes, thank you, sir. Now, you have got my written closing.

SJH: We have.

MR WINCHESTER: As often happens, you write a closing and then things
5 happen during the course of the day whereby some of the submissions
you have made will need to be reconsidered, and I will attempt to do
that, because I will say that I prepared the submissions on the basis of
the evidence as I understood it, and there has been some shift today,
and there has also been some interchange between the Panel and
witnesses and counsel, which I detect you want to run the same
10 questions past me.

So in areas these submissions are rather blunt, and they do reflect the
fact, I suppose in the understanding that we are in a reasonably tightly
constrained process. If, however, there is the opportunity, and in my
15 submission there is an opportunity to extend matters a little bit and give
ourselves a bit of breathing space, then there is also the opportunity to
solve some of these real conundrums, whereby there seems to be a
glimmer of light.

20 SJH: I think by in large most people are on the same page of what they want
to achieve, it's just can we achieve it.

MR WINCHESTER: Yes, that is right, and so the intention of my
submissions was really to say, well, here is the law in terms of an
25 orthodox position of the law, and what you can do with it, and then
really up to the Panel as to what you do with that position and where
that leaves us now as to whether you want to bite the bullet and issue a
decision or say to the parties "we've got some reservations, we need
some more information, we want you to work harder."

30 And in my submission that is available to you, and to the extent that
there are specific areas, and I think they are sort of starting to emerge
here.

35 SJH: I suppose the other thing is that given that they are part chapters
anyway, can we issue part of a part chapter, because I think it is
probably fairly obvious it is a rock fall one that is creating the greatest
difficulty.

40 MR WINCHESTER: Yes.

SJH: Four people as well as for Panel, for the citizens who are involved. And
I do not want you to answer that now; it is an ill formed, at even later
than Judge Hassan's one, at five past six, but you might like to just put
45 it into play if we ask for any more information.

MR WINCHESTER: Thank you, sir. What I would also say, and it will become apparent as I work my way through these, and I will not dwell on matters at great length. There is some real symmetry between the position of the Crown and the position of the Council in terms of the legal principles, there is some difference in terms of some of the detail around level of regulation etcetera. But we are largely on all fours, and coming from a very similar direction.

So without further ado I will plunge in. I say in section 2, and I think there is no real dispute about it, about the acceptance of a risk based approach, and there is plenty of evidence which says this is a good thing, it is an appropriate approach for the purposes of the circumstances of Christchurch, and indeed for resource management practice in New Zealand.

At paragraph 2.4, I guess it is an issue of understand-ability about what the Council has done; ultimately it seems that members of the public may not – you know the GNS model is a real black box, they don't understand necessarily how it works, but they do understand what it has resulted in and the way it has been used by the Council in terms of the way lines have appeared on maps.

[6.20 pm]

There seems to be a ready understanding from most members of the public about, “well, here's the product, we don't necessarily know how we got it here, but we understand the thrust of it and how it works and generally how we are affected” and that is not an end in itself, but it is in my submission something that deserves some weight. And I will get to that issue a little bit further when I talk about how the Council got to the lines, particularly in terms of rock fall, and I am largely saying the same thing as my learned friend, Mr Radich.

Section 3 of my submissions. I feel there would be concept of conservatism, and in my submission a conservative approach has been adopted but not an unduly conservative approach in the circumstances, so conservatism is not necessarily a bad thing. It has been in my submission, targeted and carefully considered conservatism, and it has recognised that there are areas where regulation is probably unavoidable and where a conservative approach is simply - there is no other appropriate way to approach some of these issues. And at paragraph 3.5 I refer to one metre sea level rise, the use of freeboard in terms of setting floor levels, and Dr Yetton's approach to certification of a rock hazard removal, as opposed to mitigation.

And again, there's an example of where the written evidence has been slightly nuanced in terms of the way it came out today. What I detected is a reasonably hard line about that. Possibly Dr Yetton has given it further thought and he has obviously advised the Panel of his views there, so there is a bit of a change.

So paragraph 3.6, the Council's approach and that of its witnesses has, however, sought to recognise that a balance needs to be struck and this is reflected in a responsible and carefully considered provision to lines that have been agreed on site specific basis.

While there have been a number of agreements to revisions of lines, there have also been plenty of situations where the Council has said "no, we are satisfied that the lines are appropriate" and that has been done on a rational and transparent basis in my submission.

Section 4 of the submissions, is really just for the sake of completeness and deals with the higher order issues in terms of the LURP, the RPS, and there is no material dispute that I have said at the course of these proceedings, that the overall thrust is not consistent with, or does not achieve those documents. Really the issue is the how and the detail and the regulatory approach versus non-regulatory approaches or other methods.

Turning to the question of liquefaction. What I say there is that the evidence is pretty clear that for LAA2 it is simply looking at the issue by itself, restricted discretionary activity status for subdivision in that area is simply not justified on the basis of the risks, so clearly it needs to be at least controlled because that is the most permissive status that you can have in this country really, at a practical sense for subdivision.

I don't see there being the same problem that my learned friend, Mr Radich grappled with, in terms of maybe dispensing with LAA2 completely and making LAA1 controlled. There seems to be a strong evidential basis as to why LAA1 would be restricted discretionary in any event.

We have had evidence from Mr Kingsbury and Mr Traylen about the fact that in some of these LAA1 areas there is some quite difficult geotechnical stuff that needs to be dealt with, and again the concept of peer review has emerged as an appropriate mechanism whereby to test the quality of the geotechnical thinking that would go into foundation design and land remediation in that area.

Paragraph 5.6, I deal briefly with the application of an LAA1 area to the Port. It is not strictly liquefaction but it does not seem that

Mr Anderson's evidence is necessarily challenged on that, and there was an interchange with the Panel about, "Well, is it in the Court's interest to be designing something dodgy?"

5 And the answer I recall from Mr Anderson was, "Well, no, but these are major, major developments which are proposed and it is appropriate to have a level of oversight dealing with geotechnical risks which everyone accepts exists at the port".

10 [6.25 pm]

Dealing with flooding; I don't really intend to read this out, and that we have really delved into this in a considerable level of detail today, and we have got a couple of models in terms of rules for the Panel that seem to work, particularly around the "egg-white", and we have got a process in terms of certification, it is not a classic certification approach, in that it is owned by the Council, and so it is not a third party certification. But nobody has raised a concern about that. It extends what already happens in practice under the existing city plan.

20 In terms of the reliance on models; everyone again seems to accept that the models are regularly updated, they are the best available mechanism we have, they are owned by the Council, there is no suggestion that, other than perhaps by Mr Lewis in a slightly different context, that the Council is not doing an appropriate modelling job. So for the purposes of the FLFMA, the models are certainly fit for purpose.

30 Now we have got some areas of contest, but in terms of the legal principles which apply, I would suggest that probably Mr Nixon's rule, and definitely Ms Carter's rule, are vires and I deal with the reasons why I say they are vires – and particularly Ms Carter's approach in paragraph 6.10 and 6.11.

35 And I suppose the simplicity of Ms Carter's approach is, it is the fact of the certificate which is objective and it is certain it exists or it does not. Add to the process whereby you get to the certificate that too can be interrogated and it is a degree of objectivity around that and there are standards which apply to it.

40 Paragraph 6.12 dealing with this question of the duration of certification; I must admit I was slightly surprised at the submissions for Progressive and some of the insurance companies in terms of saying that the PIM is not the appropriate time or the appropriate trigger for certification to be achieved.

45

I have actually understood from their evidence that that was a suitable time, but if, for example there is way whereby sufficient certainty can be achieved before the PIM stage, I mean the Council's – that it is no skin off the Council's nose – it really then raises the question of; “What is the appropriate duration of such a certificate?”. If it going to crystallise, or take effect, before PIM stage, then what is a reasonable timeframe to get to the building consent stage?

And I have heard the submissions of my learned friends today, and the Council's preference I guess, if it had to land somewhere, is 12 months, and it seems that the evidence is that in the majority of cases that will suffice for residential.

As to whether you need to take a different approach for the duration of a certificate for commercial activities, well multiunit, there is rather thin evidence on that in my submission, and it maybe that the Panel reaches a conclusion that in terms of the risk, and that we have heard from Ms Brookland that the range is potentially as much as 2-300 millimetres in terms of what might change between a level certified, at one point even a level certified a couple of years later.

[6.30 pm]

I suppose a submission I would make about that and there's no specific evidence about it is that that type of range is potentially dealt with by the question of free board in any event. So as to whether it is a major risk I will leave that in the Panel's hands.

The single management approach I had suggested was not appropriate but I have heard today from my learned friends for the insurance companies that they are comfortable with a certification regime provided it applies across the board. And so they are prepared to the FMFO approach and the Council would certainly abide by the Panel's decision on that point.

Turning to the question of what is an activity I think my learned friend, Ms Walsh, for progressive and my learned friend Mr Radich for the Crown, we are all on a similar page here and there is I suppose a degree of artificiality about having to say what is the activity. In my submission when you look at section 9 the critical issue is does it breach a rule in the plan or standard in which case it is an activity that is regulated and even though it might be something as blunt as what is the minimal floor level. But these sorts of issues crop up time and time again, particularly in a residential context. What is the maximum building height? Do you need a consent just for a breach of a recession plane?

5 So in those instances usually you have got a greater level of detail so I suppose it depends upon the context. But in my submission if there is a standard and the standard is clear and you either comply with it or do not comply with it particularly if you do not comply with it then it is an activity. There is a Court of Appeal case. It is relatively old now, I think it may have been one of the precursors to the Gold Finch case. Smith v Auckland City Council that says a broad interpretation of use that accords with the general purposes of the RMA.

10 And if one took an unduly narrow approach to it, particularly around detailed permitted activity standards that apply in a residential context it would become quite hard workable planning documents if you needed to somehow identify the activity in that way and in a concrete way. I deal with the scope of the assessment matters and there has been quite a bit of toing and froing about that. Again the Council will abide the Panel's decision on that. It has taken the view that the natural hazards chapter should be a one stop shop and it thought that there were sound reasons for doing that. If the Panel has a different view then that is entirely in the Panel's province.

20 I suppose there is a mechanical issue as to how you do it and that you simply do not approve certain parts and then somehow bring them back in a later part of the proposal. I do not see that as being an insurmountable issue for the Panel.

25 In terms of the issues raised by Mr Lewis and he is in an advanced a position about the Council not actively managing its assets sufficiently or taking sufficient steps to mitigate flood risk and rather putting the onus on land owners. Well, in my submission the simple answer to that at this stage at least anyway and I make no submission on whether or not Mr Lewis's criticisms are warranted or not. The evidence is not particularly clear on that point in my submission. But the simple point that at the moment the Council is required to comply with and give effect to the relevant policy of the regional policy statement. And policy 11.3.2 requires this Council to avoid new subdivision use development unless new buildings have an appropriate floor level above the 0.5% of A and B.

35 40 SJH: That is absolutely right but I think in the fairness to Mr Lewis we had the concession today from Mr Harrington.

MR WINCHESTER: Yes.

45 SJH: That the Council's change of attitude over the last 10 to 15 years has impeded Hendersons Basin as an example so I think you are right. We

have got to give effect to that. You can see why people were concerned.

[6.35 pm]

5

MR WINCHESTER: I can, sir, and it occurs to me that it would have been helpful to have more evidence about the Council's approach, and you got a glimpse of it today with Mr Harrington talking about a multi value approach and there is a bunch of different factors at play here, it is not as simple as simply carving out - - -

10

SJH: There is also the concession it is impacting on private land.

15

MR WINCHESTER: Yes, I think that was Mr Harrington's evidence, yes, although the extent to which that is happening it not obviously.

SJH: Absolutely, for obvious reasons?

20

MR WINCHESTER: Yes, turning to slope stability.

There are criticisms of the model and on the one hand, and the approach in terms of the generality and the use of an area wide approach, it is important to bear in mind however, that this area of wide approach was ground truthed through adversity, it was not simply the product of a model.

25

You have heard evidence from Mr Macfarlane and Dr Yetton about the fact that lines were produced and then they went out with the pro forma and they actually did reality check it on the ground.

30

What we have now had is, largely as a consequence of the notification of this proposal, and the impetus that it has created in terms of giving people the opportunity or a forum to challenge is further refinement and testing, and that has been, in my submission, a helpful exercise.

35

But it is also, in my submission, based on the evidence and this is my submission and clearly different from what Mr Smyth had to say, has validated the GNS model and approach, but in terms of how it has been used, the evidence is that there has been elements of pragmatism and balance brought to bear as to where lines could be relocated given a specific rate risk based by individual properties.

40

So we are not compromising the model, we are not saying the model is broken, but simply a matter of site specific assessment whereby section 32 factors as they apply to a specific property, have been applied and put under the microscope.

45

JUDGE HASSAN: And the experts are all agreed that that regime needs to be built into the Plan.

5 MR WINCHESTER: Yes, and that was a useful reminder from your Honour, as to what was in the caucusing statement and I think it has somewhat got lost during the course of this Hearing, and, or possibly, just put in the ‘too hard’ basket as to actually how to construct that process in the context of this proposal.

10

But it seems there is a willingness to do so.

JUDGE HASSAN: Thank you.

15 MR WINCHESTER: Paragraph 7.5, and this is an important point, that while the GNS model involves an area wide approach, it also involves an averaging approach to risk.

20 So it has always been clear, and I think Dr Massey was clear, that individual properties could, and indeed will have a lower or higher site specific AIFR, and in my submission, there is a danger in using site specific AIFR calculations as a target for individual properties, in that the bigger picture and the whole purpose of the lines in the model maybe lost.

25

And it has been a bit of a one way street to date, in that the line has been shifting and it has been moving off properties, but the original lines were an average, and I developed the submission in 7.6, in that if the approach to risk is averaged as in this case, there will come a point at which further changes or reductions and the extent of the hazard lines without a very clear and objectively justified basis, will not represent the actual overall risk to the community.

30

35 Put another way, there will be overs and unders and the changes cannot always be overs, depending – they cannot all go in one direction and there is an example of that in Dr Yetton’s evidence-in-chief, but his rebuttal evidence, having done site specific assessment of some properties he said, “Well actually, those guys, we changed the line there but I have had a closer look and down the slope there is ones that clearly should have been in.”

40

So there is a “swings and roundabouts’ approach” here, we need to be mindful of that.

45

[6.40 pm]

SJH: We inspected a property where that such was the case.

MR WINCHESTER: Yes. Now, my learned friend, Mr Radich, took you
 5 through his understanding of how the Council has got to where the
 lines are and what the terminology really means, and fundamentally we
 are saying the same thing and we rely on some of the same evidence
 when we say it.

10 So it has been unfortunate that there are two intolerables and you have
 had people like Mr Taig saying it doesn't - you know, he likes an
 intellectually pure approach, something that makes sense to him. This
 approach doesn't make sense.

15 I also say that there has been a focus on the 10^{-4} AIFR number as being
 a bright line when in fact, if you think about how it has been developed,
 it is not a bright line at all. And that illustrates the risk of going to
 individual properties and doing a calculation and saying, "We're under
 the magic number".

20 So I say that the Panel, certainly at this stage, should not unduly focus
 on the terminology but rather consider the reasonableness and
 workability of the approach that has been proposed. And
 Ms Beaumont has explained, I think quite helpfully, how the 10^{-4}
 25 starting point was used and then how it was adjusted and different
 assumptions were used.

30 And, as I submitted at the outset, the regulatory result is clear and I
 think, your Honour Sir John, you asked a question of Ms Carter at the
 end of her evidence-in-chief and you said, "Well, as a matter of fact
 Rock Fall 2 represents lower risk than Rock Fall 1". So however you
 get there it is a different risk. And in my submission the fact that it is
 based on 10^{-4} AIFR is confusing, but it doesn't make it wrong.

35 I also note that in terms of what is truly intolerable Rock Fall 1 doesn't
 seem to be truly intolerable if you apply Mr Taig's approach to that
 either and that development can occur in there. There is a path to
 consent in almost all instances in Rock Fall 1.

40 In terms of the pragmatic approach, that is illustrated in Exhibit 8,
 which has been referred to this afternoon, the maps produced by
 Ms Carter which show what the effect of using the same assumptions
 and 10^{-5} are. So there is a political element in there. Is it politically
 acceptable for the Council to take an intellectually pure approach
 whereby it results in that effect on a significant number of additional
 45 properties? And I think in excess of 1,000 according to the table

produced. And Mr Taig would say, “Well, yes, it is” but he is not a politician.

5 At 7.12, in terms of this whole gradation of risk, we have got Rock Fall 1, Rock Fall 2 and it must be borne in mind that the remainder, which is all the rest of the Port Hills, is still a slope instability area and where risk is still managed. So the result is a graduated approach to risk in terms of the regulatory approach.

10 7.13, I was tackled by my learned friend, Mr Smyth, about the adverse inference that might be drawn about Mr Charters. Well, in my submission there is a major question mark there. And the reason I say that, is in the instance of 8 Balmoral Lane there were two reports, they were prepared some weeks apart. Significant changes in the
15 assumptions were adopted in the second report, they weren’t explained clearly and they weren’t made in response to Dr Massey’s comments and then we ended up with a different number.

20 I am not questioning Mr Charters’ honesty, all I am saying is it is a classic illustration of why there is a real danger in using 10^{-4} as a target, and the need for a certification or peer review process, whereby you don’t simply get people adjusting the inputs or assumptions in a way that can’t be tested.

25 **[6.45 pm]**

MR WINCHESTER: I do not accept the submission from my learned friend, Mr Smyth that the evidence of Dr Bell or Mr Charters is unchallenged.

30 SJH: You do not need to take that further.

MR WINCHESTER: Thank you. I thought it useful to deal with the question of what is the burden or alleged unfairness here in terms of why is there a line or why is there this approach being adopted and it is one of those
35 parts of the submissions that is pretty blunt and if we have got an opportunity to take matters further and do some further work on it then a lot of these issues possibly need not be expressed quite so bluntly.

40 I am first to put my hand up and say when I talk about absence of evidence, the Council is as culpable as any other party about putting in about there being an absence of the evidence about costs and benefits but in terms of site specific evidence, I do not think there has been any evaluation evidence produced to the Panel at all which provides an expert assessment of what the economic impact - - -
45

SJH: You are absolutely right apart from a little bit about the flood thing in the North Shore, there is a sharp which seemed almost minimal but the one thing that concerns me, there is no mention here about the psychological cost there is to people of what happens with their property, it is real, and when you go and visit the sites it becomes palpable so even if there is not an enormous demonstrated financial loss there is a very significant cost in Christchurch with these things, Mr Winchester. We should not lose sight of it. We cannot cure it.

10 MR WINCHESTER: I accept that, sir, and I certainly do not mean to say it does not exist. The problem we have got is that it is difficult to - - -

SJH: Absolutely.

15 MR WINCHESTER: And so, thinking about the lines and in terms of the costs of the lines, and I develop the issue in a little bit of detail further on, where they live does not seem to make too much difference to what the costs are that they are likely to impose. Where there is the potential for those costs to be ameliorated is through a process if one can be developed whereby if there is a rational basis to change them they can be changed and that relieves the burden so I certainly accept that and I modify these written submissions precisely to deal with that particular concept.

25 I say in paragraph 7.20 that there is an important question as to whether the lines are justified and do they assist the Council to carry out its statutory functions towards the achievement of the RMA's purpose. And you have heard from Dr Yetton and I think Ms Carter today that at the moment there is no other suitable mechanism other than lines so if we accept that and I think we have to accept that the question is then where do they live? Are they inside or outside the plan? If they are outside they are still going to appear on a LIM and have an impact on people's property value and then what is the mechanism if there needs to be one to change and obviously the expert evidence all says in terms of the caucusing statement there does need to be a mechanism.

35 I sound a note of caution at 7.21, I will not read that out it is simply there for completeness. I will not read out 7.22 or through to 7.24 to 5 in that based on my understanding of Dr Yetton's supplementary evidence, I had understood a slightly hard line approach but he did modify that today so I think we have to accept that and see what we can do with it.

45 In terms of permitted activity status and use of certification, I am with my learned friend, Mr Radich, on this. We fundamentally say the same thing and I do note that irrespective of what approach is adopted

whether it is certification or plan changes or lines within or with the outside plan, it is absolutely unanimous, I think, from the geotechnical people that they need independent peer review and certainly one of the issues with Mr Charters and Mr Bell is that that independent peer review of the evidence they produced was absent and I do use the term “independent” deliberately and there is evidence before the Panel about the consequences of bad decisions and bad advice in the past. I will not repeat the earlier submissions I have made. In terms of 7.28 to 7.32 that is all basically. It is all along the same theme. I suppose the question is what do we do about it and I am obviously happy to have a discussion with the panel about that when I conclude these submissions.

[6.50 pm]

I have said in the next section 7.34 through to 7.43 and that is very much based on the position at the moment and on the assumption that the panel was going to issue a decision immediately rather than adjourn the hearing and perhaps take additional steps. That it is not possible at the moment to come up with a suitable set of objective criteria which express the geotechnical risk that a property is exposed to as an alternative management mechanism whereby lines on the map were unnecessary and could be dispensed with.

And we have all thought about it pretty hard and Mr Radich has thought about it hard as have I and I have pushed the witnesses on this issue as well and it is difficult. But I think we seem to be getting closer. It is happening in small steps. I do caution against throwing out tried and true RMA mechanisms simply because the circumstances are unusual for Christchurch. We need to be careful that we get it right and we still have something that works and is a lawful approach.

I do have a concern about this concept of maps sitting outside the plan. Certainly on the basis of the current approach the way in which they are so deeply knitted into the regulatory approach to actually try and unpick them and set them aside and say we do not necessarily need to have them in the plan. We will just use them as an external document when in fact they absolutely fundamentally influence the way the regulatory regime works and it is conceptually quite difficult. And I know that part three of the first schedule was put in place to essentially codify what was a long line of case law that you cannot simply have external documents which you refer to or external resources which you refer to for the sake of convenience and then change on a whim because that changes the effect of the plan.

That is the sort of territory we are getting into here but obviously I have heard about the approach anecdotally in the Auckland Unitary Plan. I

am not sure whether my firm has advised on that particular approach in terms of the flood lines. I do not know what my advice would be. I would need to take a closer look but there is a difficult issue there in my submission in terms of having a resource that is effectively regulatory in effect sitting outside the plan.

JUDGE HASSAN: Often the best way of getting to a solution is to confront difficult issues. Leave that till later.

MR WINCHESTER: Yes, sir. I will take that on board. I also raise some issues there and these are all resolvable ones in terms of 7.39 through to 7.41 in that if the panel was to essentially say well we are going to go down a different path there are some difficult issues there because of a lack of evidence as to how an approach might work. And there is a distinction there with the Auckland Unitary Plan process and the Council's actually thought about this in advance and counsel in Auckland was advancing a process whereby it had lines outside a map and had thought about it and had done that process design. We do not have that process design here. So if the panel was to say this is how it is going to work off you go Council and have a process outside the plan whereby you change the lines. That in my submission leaves a real problem area of uncertainty.

SJH: But that is telling us the Auckland Council thought about it and the Christchurch Council did not think about it?

MR WINCHESTER: Sorry, sir?

SJH: That is saying the Auckland Council thought about this and the Christchurch Council did not think about it.

[6.55 pm]

MR WINCHESTER: Well again, it is a horses for courses approach. Auckland Council, in terms of flood risk, it seems to be that the evidence about flood risk is it is much more amenable and much more certain and much less subjective.

SJH: I understand that, but we would like to think before it gets to us, everything has been thought about.

MR WINCHESTER: That would be the ideal, sir. I will accept that. In terms of where we are at the moment, further work can be done on this that would resolve some of these issues in terms of the uncertainties and the potential legal challenges that the Council may encounter. I have recorded my position just for the sake of completeness, on clause 20A,

and I do not think, there is clearly better ways we can do it than the line in clause 20A or clause 16 in terms of changing plans to suggest that there may be errors. I have dealt with the Lyttelton Port Company and also the issues related to utilities are at large, sir, as a consequence of our discussions this afternoon, so I will not go through that. But I think I have pretty much dealt with the Hearing Panel's minute, and the final matter that Your Honour Judge Hassan asked me to consider was the relevance of planning practise to a non-complying activity.

I have set that out there. Essentially what I think the answer is that there is a line of case law which talks about the true exception for non-complying activities, and that being a relevant consideration. And I think, to be fair to Ms Carter, she is simply trying to apply that line of legal reasoning to an element of planning practice rather than suggesting there is a gloss on Section 104D.

JUDGE HASSAN: Yes, I mean in theory, I suppose you better have a plan regime that deliberately defined non-complying and set appropriate objectives and policies, somewhat like the Transmission Gully one, and contemplated the testing to be done, but not necessarily with the gloss that it was contrary to planning practice.

MR WINCHESTER: That is right. Absolutely, sir. I am entirely in agreement with that. So those are my submissions and I am happy to answer any questions.

SJH: Thank you, Mr Winchester. Dr Mitchell?

DR MITCHELL: No, I am not sure that I do. I think that the issues that have been raised by My Winchester that might be of mechanism for getting some further clarity on some of the questions that are being raised. So I do not think anything could be advanced by asking the same questions I asked before.

SJH: Thank you. Ms Dawson?

MS DAWSON: I think we are done, thank you.

SJH: Ms Huria?

MS HURIA: No, thank you.

SJH: Judge?

JUDGE HASSAN: It is on the same basis that we understand this is a step along the way and some half-baked thinking is probably not helpful

now. More formulated through a process of further submission may be helpful.

MR WINCHSTER: Yes, I agree, sir.

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SJH: All right, well thank you Mr Winchester. On that basis we will not close the hearing, we will simply adjourn it. I also would reiterate that in accordance with our minute of 7 January our liberations are in private.

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I think it would be useful to add to the, given that there may be some delay in the decision because of the difficulty of one particular we have discussed, to add that in circumstances where submitters on the Council have reached agreement around amendments to various hazard lines and such like, well that will have to await our decision. It would take something pretty unusual for us not to accept a recommendation we have received jointly from the Council and the submitters on those particular questions, and I think as far as we are able at this stage, we should put submitters' minds to rest on that, on the record.

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All right? But we are grateful, thank you. Hope you get a bit of a break before residential.

MATTER ADJOURNED AT 6.59 PM ACCORDINGLY