



Customer Services

P. 03 353 9007 or 0800 324 636

58 Kilmore Street

PO Box 345

Christchurch 8140

P. 03 365 3828

F. 03 365 3194

E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

9 February 2012

Canterbury Earthquakes Royal Commission
PO Box 14053
Christchurch Mail Centre 8544

Dear Ms Gilliland

Environment Canterbury's response to the Enfocus Report

Thank you for the letter dated 22nd November 2011 inviting Environment Canterbury to respond to Enfocus Ltd's report for the Canterbury Earthquakes Royal Commission regarding how Environment Canterbury and Christchurch City Council dealt with earthquake risk in relevant planning documents.

Environment Canterbury has considered the report prepared for the Royal Commission and our reply respects the principles of working towards ensuring that the learning's from this natural disaster are cemented in the future resilience of Christchurch, Canterbury and wider New Zealand.

We hope that our response can assist the Commission in its work in investigating the issues that have arisen as a result of the Canterbury Earthquakes. Should the Commission require any further information or clarification please do not hesitate to contact us.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Bill Bayfield".

Bill Bayfield
Chief Executive

Our Ref:
Your Ref:
Contact:

**Environment Canterbury's response to the Royal Commissions report on the
Management of Earthquake Risk by Canterbury Regional Council and Christchurch
City Council**

9th February 2012

Executive summary:

This response to the report prepared by Enfocus Ltd has three sections; 1. background to the report; 2. general comments on the Enfocus report as it relates to Environment Canterbury's role in earthquake mitigation; 3. detailed comments on the report's findings. The response was formally approved in Council on the 9th of February 2012.

Environment Canterbury agrees with the general tenor of the report, but it considers that a number of the specific findings either do not accurately represent the situation, or warrant additional comment. Some of these matters appear in the executive summary, but for more information please refer to our full response.

Under the Resource Management Act 1991 Environment Canterbury has carried out a wide range of investigative work to assist in the mitigation of the risks of earthquakes across the Canterbury region. Most of these investigations were undertaken in collaboration with the relevant territorial authorities to ensure that the information collected would be useful to them in carrying out their legislative responsibilities. Reports produced as a result of these studies (listed in Appendix 1) were provided to territorial authorities with the expectation that it would specifically inform their land use policy and planning, building consenting, local emergency management planning, asset management, public education and Land Information Memoranda. Environment Canterbury uses these reports, to inform regional land use policy, regional water quality planning, regional emergency management planning, asset management, public education and Land Information Requests.

Issues, objectives and policies relating to general natural hazards management were included in Chapter 16 of Environment Canterbury's Canterbury Regional Policy Statement 1998 which included the management of earthquake hazards. Central Government has to date chosen not to implement either a National Policy Statement (NPS) or a National Environmental Standard (NES) about earthquake risk. Environment Canterbury supports the review of the Resource Management Act and in particular in relation to natural hazards and looks forward to statutory amendments to provide greater national direction.

The operative RPS was very much a product of its time and reflected prevailing environmental and societal conditions. Lack of specification around roles and responsibilities with regards to planning for natural hazards needs to be seen in that context. However, one implication of the Enfocus report is that all parties were unclear as to their respective roles. We do not believe this to be the case in practice. Even though, on the face of it, the operative RPS may have lacked clarity, the actions of both Environment Canterbury and Christchurch City Council in their decisions relating to subdivision and building consent responsibilities indicated that both organisations had a clear sense of their respective roles. Environment Canterbury considers that the actions of both parties were consistent with the planning requirements of the time as set out in the RMA and RPS.

We agree with the report that the opportunities which regional councils generally get to formally advocate at the land development stage are limited and that in most cases subdivision and land use consent applications on land already zoned are rarely publically notified. However, the concept of "formal advocacy" as identified in the report, represents only a small part of the role the regional council has played in engaging with territorial authorities in land-use planning processes. In this regard we acknowledge that the bulk of the work conducted by Environment Canterbury staff was informal, primarily because opportunities for formal interactions through statutory processes at the time of subdivision and land use are more limited. In this context the Enfocus report singles out Plan Change 28 (PC28) as an example where Environment Canterbury should have but did not formally advocate on the issue of liquefaction. We are concerned that this statement fails to appreciate the history of the site and Environment Canterbury's previous involvement in

earlier processes which culminated in, and informed, PC28 in relation to the issue of liquefaction.

The report suggests that a regional council should continue to have a role in land-use control issues even where primary control is with the territorial authority. Environment Canterbury agrees with this approach but if the process is to be effective and efficient for all parties then a far stronger and clearer legislative definition and framework for these roles is required. Given the existing framework, Environment Canterbury continues to use a very collaborative and partnership-focused approach in which the development and sourcing of information relating to natural hazards and environmental information is made available for territorial authorities and other key partner organisations. Due to the lack of any statutory mechanism to be more directive, it is then up to each territorial authority to make the best use of this information with additional support available from the regional council if requested.

The issue of “avoid” versus “mitigation” of the liquefaction risk has attracted some attention in the report with the author suggesting that it was “...*a dubious approach*”. We would suggest otherwise, and that view is reinforced by a recent Environment Court decision. With respect to Change 1 of the RPS, liquefaction was taken into consideration, but was not seen as an “avoid” issue. The Enfocus report states that:

"...a council should not identify an area of land for actual or potential development that is known to be susceptible to liquefaction unless there are no other/better alternatives."

We disagree with the assessment of our role in relation to the management of liquefaction risk. Liquefaction is but one factor amongst several that must inform strategic planning for urban growth as undertaken for Change 1. We maintain our view that such land can be appropriate for urban growth subject to the liquefaction risk being appropriately managed through building and foundation design and/or ground improvement, subject to the economies of the exercise. The appropriate stage for this is at the subdivision stage. If subdivision is not involved then the building consent stage provides the appropriate trigger point.

In conclusion, Environment Canterbury supports the promotion of natural hazard information to the forefront of RMA land use planning processes, and recommends clarification of regional and territorial authority roles and responsibilities in sections 30 and 31 of the Act, clearer definition of natural hazards and the “effects” of their occurrence, and further clarification in s106 of the ability of territorial authorities to decline development on seismic hazard grounds.

Environment Canterbury supports the targeted review of the RMA in light of this report and the work already underway by the Minister’s Technical Advisory Group (TAG) to give the management of natural hazards greater clarity and definition in the Act.

Outside of the work by the TAG and in order to fully support relevant changes to the RMA, however, Environment Canterbury also recommends that a National Policy Statement be developed to ensure a nationally consistent approach to natural hazards and that the learnings from the Canterbury earthquakes are fully recognised in the land-use planning activities of regional councils and territorial authorities throughout New Zealand.

Overall we view the summary in section 8 of the report a very useful conclusion to its findings, specifically that:

"... to the extent that there have been issues with seismic hazard management under the RMA in Christchurch, those issues are largely

systemic in nature rather than issues related to the competency or commitment of the local authorities concerned.

“By systemic I mean a lack of clarity about the level of risk that should be planned for, ingrained public expectations about the right to develop suitably zoned land and statutory provisions that are not overly supportive of planning in the absence of perfect information.

“This may be addressed, in part at least, by the Minister’s review of the RMA. There are, in addition, improvements in planning practice that could be introduced. By and large, these seem to have already been recognised by the councils concerned. However, greater central government guidance for local authorities on planning for earthquake risk may be warranted.”

Environment Canterbury have taken this review by the Royal Commission of the planning framework that existed at the time as an opportunity to reflect on the planning and process used and to ensure that the future planning system may cope better with the occurrence of natural hazard events.

Environment Canterbury have discussed in some detail within the response a number of components of the Enfocus Report (planning framework, avoidance v mitigation, advocacy role and information limitations), and have challenged certain findings for accuracy. Ultimately, the response has been presented to ensure that not only is an accurate picture painted of the entire planning framework around natural hazards, but that future learning’s may result from our feedback to the report. More work is needed on the planning framework in relation to natural hazards and we look forward to assisting the government achieve greater clarity in the management of risk in New Zealand.

Environment Canterbury's response to the Enfocus report

1. Background to the report:

Environment Canterbury has functions and responsibilities with respect to natural hazards under several pieces of legislation. These include:

- Resource Management Act 1991 ("RMA") (in particular ss30, 35, 60, 62 and 63);
- Civil Defence Emergency Management Act 2002 ("CDEMA");
- Building Act 2004 (with respect to dam safety) ("BA");
- Local Government Act 2002 (in particular s11a) ("LGA").

Environment Canterbury shares the responsibility for natural hazard management in the region with the territorial authorities and other organisations¹. In particular, environment Canterbury's roles in earthquake risk management in Canterbury to date have been to:

- in collaboration with territorial authorities, collect and provide information on earthquake hazards and risks;
- set objectives, policies and methods for managing natural hazards within the Regional Policy Statement;
- control land use to avoid or mitigate earthquake hazards but generally limited to circumstances where the impact of the activity or land use results in effects such as on water quality;
- consider the potential adverse effects of earthquake hazards, where required, when processing resource consent applications that fall within regional council functions (to take, use, dam, or divert water, to discharge contaminants to land, air and / or water, to use land for certain limited purposes, activities in the coastal marine area);
- as a member of the Canterbury Civil Defence Emergency Management Group ("CDEMG"), provide technical information and advice on earthquake hazards and risks to the Group;
- as a steering group member of the Canterbury Lifelines Utilities Group ("CLUG"), provide technical information and advice on earthquake hazards and risks to the Group;
- provide public education;
- as a Building Consent Authority, process building consent applications for dams, and, as a regional authority, enforce dam safety provisions of the Building Act including adoption of a Dangerous Dams Policy.

Environment Canterbury's roles do not include:

- consenting subdivisions under the Resource Management Act 1991;
- consenting the erection of buildings under the Resource Management Act 1991;

¹ See paragraphs 2.2 to 2.4 in Appendix 1

- consenting buildings (excluding dams) under the Building Act 2004;
- adopting or implementing an Earthquake Prone Buildings Policy under the Building Act 2004.

Information held by Environment Canterbury on earthquake risk:

Since 1995, Environment Canterbury has carried out a wide body of work to assist in the mitigation of the risks of earthquakes across the Canterbury Region.

Environment Canterbury has the roles of identifying, assessing, and managing risks under the Civil Defence Emergency Management Act 2002, and gathering information, commissioning research and monitoring the state of the environment to enable it to carry out its functions under the Resource Management Act 1991. As a part of these, and other, statutory roles, Environment Canterbury has commissioned 26 earthquake hazard and risk investigations. The general nature and dates of these reports are listed below (and in further detail in *Appendix 1: Studies undertaken or commissioned by Environment Canterbury since 1995*):

- Late Quaternary geology and faulting in Kaikoura area (1995)
- Earthquake hazard and risk assessment options and issues (1997)
- Earthquake hazard and risk assessment: earthquake source characterisation (1998)
- Earthquake hazard and risk assessment: probabilistic seismic hazard assessment (1999)
- Waimakariri liquefaction hazard investigation (2000)
- Hurunui District natural hazard assessment (included earthquake hazards) (2000)
- Timaru District earthquake hazard assessment (2001)
- Christchurch City liquefaction hazard investigation (2001-2005)
- Ashburton District earthquake hazard assessment (2002)
- Waimakariri River Gorge landslide dam hazard assessment (2002-2004)
- Impacts of earthquakes on hazardous substance containment structures (2003)
- GIS active faults database development (2004)
- Consent conditions for small dams (2004)
- Hanmer and Hope fault mapping (2004-2005)
- Earthquake risk assessment study – review of methodologies (2006)
- Selwyn District earthquake hazard assessment (2006)
- Revision of probabilistic seismic hazard assessment (2006-2007)
- Waimate, Mackenzie and part Waitaki districts earthquake hazard assessment (2008)
- Hunters Hills Fault Zone investigation (2008)
- Update of earthquake source characterisation (2008)
- Waimakariri District earthquake hazard assessment (2009)
- Kaikoura District earthquake hazard assessment (2009)
- Ashburton active fault assessment (2009)
- Mackenzie active fault assessment (2010)
- Twizel active fault assessment and fault avoidance zonation of the Ostler Fault (2010)
- Greendale Fault investigation (2011).

Most of these investigations were undertaken in collaboration with the relevant territorial authorities to ensure that the information collected would be useful to them in carrying out their legislative responsibilities. In most cases, territorial authorities were also involved in developing the project brief and reviewing the work.

Copies of reports produced as a result of these studies were provided to territorial authorities with the expectation that those reports would be used by territorial authorities to specifically inform their land use policy and planning, building consenting, local emergency management planning, asset management, public education and Land Information Memoranda (LIM). Other interested parties, such as lifeline utilities and emergency services, were also supplied with copies of reports.

This earthquake hazard information was provided to territorial authorities for their use. For example, readers of Christchurch City LIMs were referred to indicative information on liquefaction held by Environment Canterbury, and advised that they could obtain further information from the Environment Canterbury website or from its Customer Services team.

Environment Canterbury uses these reports to inform regional land use policy, regional water quality planning (with respect to sewerage networks and underground storage tanks on or near known active faults), regional emergency management planning, asset management, public education and Land Information Requests.

The collection and dissemination of earthquake hazard and risk information provides information and understanding to Environment Canterbury, territorial authorities and other organisations so that the risks of earthquakes can be mitigated via planning, subdivision, building, asset management, and related methods. That information is also available for emergency management planning and for public education purposes.

Consistent with its Regional Policy Statement, Environment Canterbury has been active in producing public education material based on the results of investigations that it has initiated. This includes:

- Active fault poster (1998)
- Q-Files earthquake booklet (2001 and revised 2007)
- Q-Files liquefaction booklet (2002)
- Q-Files liquefaction poster The Solid Facts on Christchurch Liquefaction (2005)
- Q-Files hazards booklet (2007).

These publications, with the exception of the active fault poster, are available on the Environment Canterbury website at www.ecan.govt.nz/qfiles.

Further information on earthquake hazards and risks in Canterbury was made available for territorial authorities, consultants, and the public on the Environment Canterbury website at www.ecan.govt.nz.

Environment Canterbury provides information on specific properties through non-statutory Land Information Requests (LIRs). LIRs contain information that Environment Canterbury holds for the property, including earthquake hazard, flood hazard, resource consents, wells, contaminated sites, pest enforcement, surface water, erosion hazard, Regional Plan provisions, Land Improvement Agreements and air quality. Environment Canterbury views its role in this case under section 35 of the RMA, to gather such information, commission such research as is necessary to carry out effectively its functions, and to keep reasonably available at its offices records of natural hazards to the extent appropriate for the discharge of its functions.

Earthquake hazard information in LIRs will include, depending upon the information available to the parcel of land, any known active earthquake faults on or near the property, regional-scale ground shaking hazard, district-scale liquefaction susceptibility,

landslide susceptibility and tsunami hazard. The provision of this information is dependent upon the availability of the information for inclusion

Planning framework:

Environment Canterbury is required to have a regional policy statement (RPS) in place at all times. District Plans² must give effect to an RPS³.

Issues, Objectives and Policies relating to general natural hazards management were included in Chapter 16 of Environment Canterbury's Canterbury Regional Policy Statement 1998. This included the management of earthquake hazards. The introduction to that chapter identified that the most severe regionally significant natural hazard, in terms of importance, was a large magnitude earthquake affecting Canterbury. In accordance with s62 of the RMA, the RPS also sets out the ways in which the overlapping functions of the regional council and territorial authorities will be dealt with in regard to the control of land use for the avoidance or mitigation of natural hazards purposes.

Following a five year development period, Environment Canterbury notified a proposed Regional Policy Statement in 2011 (the "proposed RPS"). The proposed RPS contains a specific policy to manage earthquake fault rupture risk and liquefaction risk, as well as policies for a general risk management approach, natural hazard information collection, critical infrastructure, and emergency management readiness.

With particular regard to liquefaction risk, Environment Canterbury and other local authorities in Canterbury have regarded liquefaction and lateral spreading as natural hazards that could be mitigated by appropriate engineering provisions at the time of subdivision and/or building. This was the position both prior to and after the 4 September 2010 earthquake. In terms of the RPS, this meant that liquefaction was not viewed as a hazard that was to be "avoided" or which required rules for that purpose in regional plans. Rather, it was a natural hazard to be mitigated through appropriate engineering measures controlled by the territorial local authorities at the time of subdivision and building.

Earthquake risk assessment:

The 2006 Opus earthquake risk assessment report recommended that Environment Canterbury commission an earthquake risk assessment for Christchurch. Environment Canterbury accepted that this assessment should be carried out. However, this project was superseded by the national Riskscape project which started at approximately the same time.

The Riskscape project is a collaborative project between GNS Science and NIWA to develop a multi-hazard risk assessment model for New Zealand. Hawke's Bay, Westport and Christchurch were chosen as pilot locations for the project. The project is funded through the Government's public good science funding (now the Natural Hazards Research Platform).

2. General comments on the Enfocus report:

Overall Environment Canterbury agrees with the majority of the conclusions of the report. We specifically acknowledge the following points:

² Prepared by territorial authorities.

³ Section 75(3) RMA (as amended in 2005). Prior to 2005, district plans were required to "not be inconsistent with" an RPS.

2.1. We agree with the assessment on page 1 of the Enfocus report where it identifies that the Resource Management Act (RMA) does not specifically refer to earthquake risk, but rather regards earthquakes as one of several natural hazards. The act states that Regional Councils must “*control the use of land for the purposes of the avoidance or mitigation of natural hazards*”. Neither liquefaction nor lateral spread has been specifically defined within the RMA as a natural hazard. This lack of clarity and specific attention within the RMA proves a harder position to advocate from.

2.2 We agree with the assessment on page 2 of the significance of s106 in relation to subdivision consenting process which gives the ability to territorial authorities to decline applications “*where the land in question is “likely” to be subject to certain natural hazards*” but as noted was not often given effect to.

2.3 We agree with the Enfocus report’s findings that Central Government had the ability to clearly influence the way in which the RMA was to have been adopted within the various planning documents, including the Regional Policy Statement. Central Government has to date chosen not to implement either a National Policy Statement (NPS) or a National Environmental Standard (NES) with regard to earthquake risk. Environment Canterbury supports the review currently being undertaken by the Technical Advisory Group (TAG) and looks forward to the statutory amendments as a result of the findings from this group.

2.4 We acknowledge that Central Government has produced two non-statutory best practice guidelines for hazard management to assist councils to exercise their hazard management functions. However both documents remain silent on the planning issues surrounding liquefaction and lateral spread risk resulting from an earthquake.

As is noted further in the Enfocus report in section 4.1, Environment Canterbury’s Regional Policy Statement’s (RPS) “*...policies do not specifically address earthquake risk management (notwithstanding that it is identified as the most significant risk) but focus on hazards generally...difficult to understand how some of the policies could, or should, be applied to managing earthquake risk*”. Considering the lack of guidance in statute this perceived lack of specific reference in the 1998 RPS is consistent with the national approach at the time.

2.5 We agree that the operative (1998) RPS was very much a product of its time and of the environmental and societal conditions present. That lack of particular clarity around roles and responsibilities with regards to planning for natural hazards potentially reflected the “*context in which they were developed...early stages of RMA implementation and bedding in of regional council and territorial authority relationships*”.

2.5.1 However, as noted in the report, the 1998 RPS is unlikely to have had a material effect upon the quality of hazard planning over the region in the past decade.

2.6 However, we would wish to point out that the implication noted in the report relating to role clarity is that all parties were not clear on their respective roles. We believe this to be an incorrect assessment. Even though the 1998 RPS may lack clarity in words on the face of the document, the actions of both Environment Canterbury and Christchurch City Council in their decisions based on sub-division and building consent responsibilities appear to be quite clear in that both organisations did know what their roles were. This is evident on page 13 where it states that:

“...Christchurch City has been issuing LIMs with broad statements as to whether the site is within a “liquefaction study area” and referring the reader to Environment Canterbury for further information...”

and that:

“...every subdivision consent contains a note advising that subsequent subdivision or building may be subject to a requirement for further site investigation”

Environment Canterbury views the statements as a clear indication that the actions of both parties were consistent with the planning requirements of the time as set out in the RMA and RPS.

2.7 We agree that, ultimately, the specific function of land-use control rests with, and is the responsibility of, the City Council, as noted on page 3 of the report.

2.8 We agree with the report that the opportunities that Regional Councils generally get to formally advocate at the land development stage are limited and that in most cases subdivision and land use consent applications on land already zoned are rarely publically notified. However, as noted in the report, when such opportunities were available to Environment Canterbury, they produced a positive result (e.g. Pegasus Town) with regard to risk mitigation. We will cover the advocacy role which we have adopted further in this response.

2.9 We challenge the report to clarify and explain what is meant by the concept of “formal advocacy”⁴ as noted in the included quote by City Council staff identifying that they “...have not identified any cases in which Ecan have played a formal role on a Plan Change or resource consent application in relation to assessment of earthquake risk”. As has been noted already in the report, opportunities for formal advocacy at the land development stage are limited since the majority of subdivision and land use consent applications on existing zoned land are processed non-notified. That the bulk of the work conducted by Environment Canterbury staff was “informal” due to this lack of formal opportunity was an appropriate response to the planning environment of the time. Clearly, the territorial authority would seek any information it felt necessary to support its (subdivision and building consent) decision-making process.

2.10 The Enfocus report singles out Plan Change 28 (PC28) as an example where Environment Canterbury failed to formally advocate through submissions on the issue of liquefaction at the site. The report states that;

“...Environment Canterbury was a submitter on Change 28 (to the Christchurch City District Plan) but does not appear to have raised concerns about liquefaction risk even though this has proven to be an important issue”

We are particularly concerned about the inclusion of this statement within the report as this is an incorrect assessment of Environment Canterbury’s actions with regard to PC28. In particular the statement does not take account of the history of the site and Environment Canterbury’s previous involvement in earlier processes which culminated in, and informed, PC28. (Please refer to *Appendix 2: Plan Change 28*, for a detailed assessment of Environment Canterbury’s role in the Plan Change and *Appendix 3: Copy of the Environment Canterbury Submission to Plan Change 37*)

2.11 Following on from the issue noted above, and as noted in section 4.3 of the report, Environment Canterbury, in order to fulfil its obligations under the RMA and through the

⁴ We have interpreted the report’s use of the term “formal advocacy” to mean advocacy undertaken within a statutory process.

RPS, conducted its role as information provider for territorial authorities as a direct response to the planning environment the organisation faced. As a sub-set of this process, Environment Canterbury also expected territorial authorities, in order to fulfil their responsibilities under the RMA, to seek further detailed information at the time of issuing consents to subdivide. Environment Canterbury was never made aware of any issues around a lack of information availability and, as the report notes on page 14 *“Environment Canterbury should get credit for its technical work on risk identification/assessment and information dissemination”*.

2.12 We acknowledge the report’s assessment on the comparison of the 1998 and the proposed RPS and the significant improvements made to the proposed 2011 RPS through its detailing of a more prescriptive and clear set of policies to confirm roles and responsibilities.

2.13 We note in the report, page 4, that *“...a regional council ought to continue to have a role in land use control issues...even where primary control is exercised by the Territorial Authority. This is achieved by having a clear policy on where and how risk ought to be avoided or mitigated against and advocating that policy in district plan preparation and individual resource consent applications”*. Environment Canterbury is prepared to accept this role but if the process is to be effective and efficient for all parties then a far stronger and clearer legislative definition and framework will need to be in place.

2.13.1 In the absence of a clear legislative framework we anticipate little future change. Our experience of advocating on environmental issues, including natural hazards, has not been a popular task and is one which the development community and territorial authorities of Canterbury at times only begrudgingly accept as necessary. As a recent example, even whilst the people of eastern Christchurch were dealing with the aftermath of the earthquakes there were concerns in the media about the increased cost of rebuilding due to floor levels aimed at minimising flood risk.

2.14. To achieve the above approach, Environment Canterbury supports the promotion of natural hazard information to the forefront of land use planning processes as addressed within the RMA and recommends the inclusion of clear role and responsibility statements into the Act in s30 and s31, clearer definition of natural hazards and the “effects” of their occurrence, and attention on s106 for territorial authorities to further clarify the ability to decline development based on an avoidance approach.

2.15. We agree with section 6.2 in general and we deal with this matter further on in our response in sections 3.2: Avoidance and Mitigation and 3.4: Information Limitations.

2.16. We agree with section 6.3 and acknowledge that even if we had undertaken a complex risk assessment prior to the earthquakes, duplicating the GNS Science/NIWA Riskscape project, it may have been of little use given the lack of acceptable risk standards. We would welcome more binding national-level guidance on this issue.

2.17. Overall we view the summary in section 8 of the report a very useful conclusion to the findings of the report, specifically that:

“... to the extent that there have been issues with seismic hazard management under the RMA in Christchurch, those issues are largely systemic in nature rather than issues related to the competency or commitment of the local authorities concerned.

“By systemic I mean a lack of clarity about the level of risk that should be planned for, ingrained public expectations about the right to develop suitably

zoned land and statutory provisions that are not overly supportive of planning in the absence of perfect information.

This may be addressed, in part at least, by the Minister's review of the RMA. There are, in addition, improvements in planning practice that could be introduced. By and large, these seem to have already been recognised by the councils concerned. However, greater central government guidance for local authorities on planning for earthquake risk may be warranted."

Environment Canterbury supports the targeted review of the RMA in light of this report and the work already underway by the Minister's Technical Advisory Group (TAG)⁵ to give the issue of natural hazards greater clarity and definition in the Act.

Outside of the work by the TAG and in order to fully support the changes to the RMA, Environment Canterbury also supports the need for a National Policy Statement to ensure that greater guidance through a nationally consistent approach to natural hazards is developed and that the learning's from the Canterbury Earthquakes are firmly grasped for other local authorities to enact within their regions.

3. Specific comments on the report's findings

Environment Canterbury now wishes to make further detailed comment on the following items included within the report to clarify information that we believe is not an accurate reflection of the current resource management environment, specifically issues relating to the planning system and approach, the issue of avoidance and mitigation, risk mitigation advocacy and information limitations.

3.1 Planning system and approach

3.1.1. Within the conclusions on the role of Environment Canterbury in relation to its land use policy decisions there appears to be a misunderstanding of the manner in which earthquake risk (in particular liquefaction and lateral displacement) has been viewed. This is evident on p14, third bullet point, where it states that:

"Environment Canterbury has not seen its role as extending to consideration of earthquake hazard risk in its land use policy decisions. Change 1, which extended urban limits, did not take account of earthquake risk on the basis that liquefaction and lateral spread are considered to be issues to be addressed by territorial authorities at the time of subdivision and development".

3.1.2. This approach is then criticised as potentially not being best practice and that Environment Canterbury was relying on a territorial authority process (at the subdivision and development stages) which did not adequately manage the risk.

3.1.3. We disagree with this assessment of our role in relation to planning policy and approach. We believe that the third bullet point on page 14 should read;

*"Environment Canterbury with Change 1 to the Regional Policy Statement, **did** take account of earthquake risk, in the knowledge that liquefaction and lateral spread are considered to be issues to be addressed by territorial authorities at the time of subdivision and development"*.

⁵ For more information on the scope of the TAG go to <http://www.mfe.govt.nz/rma/central/amendments/background-info-phase-ii-reforms/technical-advisory-group-terms-of-reference.pdf>

3.1.4. The Enfocus report, on page 14, suggests that Environment Canterbury's reliance on the ineffective processes of the territorial local authorities was ill-founded. As addressed earlier in this response, it must be noted that it is the local authority's responsibility to have all the information it requires to make a decision on a consent application or plan change that it is processing.

3.1.5. Environment Canterbury adopted, and still chooses to adopt, a very collaborative and partnership-focused approach in which the development and sourcing of information relating to natural hazards and environmental issues are collated and made available for territorial authorities and other key partner organisations. Due to the lack of any statutory prerogative to impose a directive approach, it is then up to each territorial authority to make the best use of this information with additional offers of support from the regional council.

3.1.6. Environment Canterbury, in the absence of any national guidance, has found that a more directive and authoritative approach with our partners often produces a negative response, because each territorial authority carries the ultimate land use accountability and often seeks to retain that independence.

3.1.7. Within a national context, the development of the first generation Regional Policy Statements reflected the context in which they were developed (the early stages of RMA implementation and bedding-in of regional council and territorial authority relationships) as noted in the Enfocus Report (p.2). What Environment Canterbury produced in 1998 was consistent with other regional councils and the legislative requirements in effect at that time.

3.1.8. We believe it is important for the Royal Commission to be aware of the context within which the Regional Council found itself operating in relation to the management of natural hazards, particularly in the early years of the RMA. This is illustrated in the attached Court of Appeal's Judgment in *Canterbury Regional Council v Banks Peninsula District Council*⁶ (attached as Appendix 4, *CRC v BPDC*) in which the Canterbury Regional Council sought to try to clarify the roles of regional councils and territorial authorities in relation to a number of matters including the management of natural hazards.

What becomes evident from the decision is the resistance by territorial authorities to the regional council having a role over managing land use in relation to natural hazards, and the overlapping nature of their respective roles. It is also worth noting that the whole issue of whether the Regional Council controls extended to avoiding or mitigating the effects of a natural hazard or simply to the occurrence of the natural hazard event itself (refer to page 13 of Appendix 4) is discussed. It is noted that the Ministry for the Environment was a party to these proceedings.

3.1.9. Furthermore, the planning environment did not empower any regional council to undertake any auditing of process within local authorities which process the land use consents for subdivisions. Whilst regional councils had the ability to seek that the territorial authorities 'give effect' to the RPS through the objectives, policies, rules and methods in District Plans, it could not audit how those rules and methods were actually implemented in the land use and subdivision processes.

⁶ *Canterbury Regional Council v Banks Peninsula District Council - Alt cit Canterbury Regional Council Application by* (1995) 1B ELRNZ 415; [1995] 3 NZLR 189; [1995] NZRMA 452

3.1.10. This lack of influence by regional councils (or for that matter by any single organisation over the entire process) is also identified as an issue in the Canterbury Fact Finding Project (August 2011). However, Environment Canterbury holds the view that there should not need to be any audit role for a regional council as long as the roles and responsibilities are clearly articulated through the RMA and other relevant legislation. This could also include the development of a National Policy Statement to further direct the roles of the relevant organisations. The RPS should then reflect with more certainty the standards and roles in hazard mitigation. As it stands, we hold the view that ultimate responsibility was known and that the role of land use consenting remains the role of territorial authorities.

3.2 Avoidance and mitigation

3.2.1. The issue of avoidance versus mitigation of the liquefaction risk has attracted some attention within this report with the author suggesting that it was "...a dubious approach". Furthermore:

"...Environment Canterbury did not, through the exercise of its urban growth management responsibilities, see it necessary or appropriate to consider liquefaction risk as a relevant constraint." (p11).

3.2.2. Liquefaction was taken into consideration in Change 1, but was not seen as an avoidance issue. The report states that:

"...a council should not identify an area of land for actual or potential development that is known to be susceptible to liquefaction unless there are no other/better alternatives."

3.2.3. We disagree with the assessment of our role in relation to the management of liquefaction risk. It is but one factor among several that must inform strategic planning for urban growth as undertaken for Change 1.

3.2.4. We maintain our view that such land can be appropriate for urban growth subject to the liquefaction risk being appropriately mitigated through building and foundation design and/or ground improvement. The appropriate stage for this is at subdivision. When no subdivision consent is required the building consent stage provides the appropriate trigger point.

3.2.5. Whilst we generally accept a principle for natural hazard management across the region of "avoid where possible, then mitigate" in the case of Christchurch, where a great deal of the land is susceptible to liquefaction to some degree, avoidance would be impractical and unnecessary, as Tonkin & Taylor Ltd identify in their Christchurch Central City Geological Interpretive Report (December 2011).

"Christchurch is not unique in being located on soils susceptible to liquefaction within a seismically active region. There are a number of cities and large urban centres around the world (including Wellington on the North Island), where the level of seismic hazard is similar to or greater than that at Christchurch.

"Presuming that it is economically feasible to utilise appropriate foundation / ground improvement systems, there are few sites that would be considered unsuitable for development purely on the basis of a liquefaction hazard.

“A number of projects have been successfully completed in recent years within Christchurch central city, using a combination of detailed geotechnical investigations and appropriate ground improvement and/or foundation and structure design, to mitigate the identified liquefaction hazard.” Christchurch Central City Geological Interpretive Report (December 2011). Tonkin & Taylor Ltd.

3.2.6. In many areas where land is susceptible to minor liquefaction and otherwise valuable and suitable, land can be treated or appropriate foundations used at a relatively low cost so that the land can still be developed and reach the potential identified within the zoning process. This was the approach taken by Environment Canterbury, and is the approach still being promoted by the Government post-earthquake in outlining technical category areas of Christchurch to assist in the rebuild. We note that the Government has put a lot of effort into determining the types of ground treatment and foundations that will reduce the risk of damage from future liquefaction in areas where it may occur again, and these methods can also be used for future development.

3.2.7. We also note that the recent Environment Court decision on Plan Change 43 ruled in August 2011 that the key issue of liquefaction is a natural hazards matter that is able to be mitigated during the design phase of the development, and is best to be dealt with at the time of subdivision and building consent. The decision from the Environment Court (refer to Appendix 5 for the full decision of the Court) specifically noted that:

“Geotechnical constraints:

[25] Evidence was admitted by consent from Mr A Fairclough, a civil and geotechnical engineer. He advised that the site's geotechnical conditions are typical of those which underlie large parts of Belfast and Christchurch... However, he was confident that no geotechnical issue is expected to be within the site that cannot be appropriately addressed during the detailed design and/or construction phases of the proposed development.

“[26]We accept this evidence and observe that the City Council will need to give the geotechnical issues raised in the evidence of Mr A Fairclough careful attention at the time when subdivision and building consents are sought.”

3.2.8. The only areas that the Government has deemed unsuitable for redevelopment are the "red zone" areas along the lower Avon River, Brooklands/Spencerville and Kaiapoi. In these areas liquefaction risk reduction is currently considered uneconomic; however it may become economic in future. Having said that, there are also other reasons why this land is now not appropriate for redevelopment, including increased flood and tsunami risk due to subsidence, which is considerably more difficult to mitigate - so it might be that these areas are never redeveloped because of a range of hazards, not just liquefaction and lateral spread hazards.

3.3 Risk mitigation (reduction) advocacy

3.3.1. The issue of risk mitigation (or reduction) advocacy is called into question in the statement from p5, as follows:

“... advice received from the City Council, and as discussed above, that does not appear to have been the case in Christchurch City.”

3.3.2. Firstly we wish to note that the original letter from the Royal Commission (noted below), that the 31 August letter responded to, asked us what we had done to reduce earthquake risk in Canterbury in the last 16 years, not specifically what we had done in Christchurch City.

"Since 1995 what action has Environment Canterbury taken to mitigate against the risks of earthquakes in the Canterbury Region" Letter from Royal Commission dated 11 August 2011.

Whilst the report qualifies the statement with "in Christchurch City" the report suggests that we overstated our activity in that role. Environment Canterbury has had a very active role in advocating earthquake risk reduction, but much of our advocacy, as noted previously, has been either completed informally based upon the planning framework in effect or done outside of Christchurch City, particularly with the smaller territorial authorities, with their limited resources and hazard management expertise.

3.3.3. Much of the inter-organisational (planning) work was, and is still, done through informal channels, i.e., meetings with planners and emergency management officers throughout Canterbury, and providing advice to planners on how to use hazard information that we commission.

3.4 Information limitations

3.4.1. The report states on p.8 that:

"That peer review ... led to an approach to the provision of data on LIMs that communicated the indicative nature of liquefaction zones."

3.4.2. Environment Canterbury obtained a copy of the peer review in 2007, and took it into consideration. Given the peer review, and the limitations of the Beca report (and the general difficulties in predicting liquefaction in any particular event), we also used the information as indicative.

3.4.3. Environment Canterbury provided the information on Land Information Requests, but also explained that the information was indicative of the general area only, and that actual liquefaction potential at a particular site could only be determined through a site-specific investigation. As noted in the following paragraph from p.8 of the report;

"That may explain why liquefaction zones were not included in the Christchurch City Plan and why the indicative zones of the Beca Report were applied by the City Council as a trigger for requiring detailed geotechnical site investigation at the time of significant new development."

This is an entirely appropriate use of the information in the report. It would have been entirely inappropriate to make land-use decisions based solely on the Beca maps, because they are indicative only and actual conditions may vary from those shown on the maps at a site-specific level. Therefore, to use the maps as a trigger for requiring site-specific investigations were appropriate.

Appendix 1: Earthquake hazard and risk studies undertaken or commissioned by Environment Canterbury since 1995

Van Dissen, R. And Brown, L., 1995, *Late Quaternary geology and faulting in Kaikoura region, south-western Marlborough, New Zealand*. Environment Canterbury report 95/19. Institute of Geological and Nuclear Sciences, Wellington.

Hull, A.G., 1997, *Earthquake hazard and risk assessment study: options and issues*. Environment Canterbury report U97/1. Institute of Geological and Nuclear Sciences, Wellington.

Pettinga, J.R., Chamberlain, C.G., Yetton, M.D., Van Dissen, R.J. and Downes, G., 1998, *Earthquake Hazard and Risk Assessment Study Stage 1 Part A: Earthquake Source Identification and Characterisation*. Environment Canterbury report U98/10. University of Canterbury, Institute of Geological and Nuclear Sciences, and Geotech Consulting Ltd.

Stirling, M., Yetton, M., Pettinga, J., Berryman, K., Downes, G., 1998, *Earthquake Hazard and Risk Assessment Study Stage 1 Part B: Probabilistic Seismic Hazard Assessment and Earthquake Scenarios for the Canterbury Region, and Historic Earthquakes in Christchurch*. Environment Canterbury report U99/18. Institute of Geological and Nuclear Sciences, Wellington.

Beca, Carter, Hollings and Ferner, 2000, *Liquefaction Study, Waimakariri District*. Environment Canterbury report U00/12. Beca, Carter, Hollings and Ferner, Christchurch.

Yetton, M., McCahon, I., Owens, I. and Todd, D., 2000, *Hurunui District Engineering Lifelines Project: Natural Hazard Assessment, Literature Review & Hazard Scenarios*. Environment Canterbury report U00/73. Geotech Consulting Ltd.

Yetton, M. and McCahon, I., 2001, *Timaru District Engineering Lifelines Project: Earthquake Hazard Assessment*. Environment Canterbury report U01/96. Geotech Consulting Ltd, Christchurch.

Christensen, S., 2002, *Christchurch Liquefaction study: Stage II*. Environment Canterbury report U02/22. Beca, Carter, Hollings and Ferner Ltd, Christchurch.

Gladding, A., 2002, *Liquefaction borehole database – user guide*. Environment Canterbury report U02/23. Beca, Carter, Hollings and Ferner Ltd, Christchurch.

Yetton, M. and McCahon, I., 2002, *Ashburton District Engineering Lifelines Project: Earthquake Hazard Assessment*. Environment Canterbury report U02/55. Geotech Consulting Ltd, Christchurch.

Christensen, S., 2003, *Christchurch Liquefaction Study: Stage III – review of data sources*. Environment Canterbury report U02/80. Beca, Carter, Hollings and Ferner Ltd, Christchurch.

Gladding, A., 2003, *Liquefaction liquefaction database – user guide*. Environment Canterbury report U03/60. Beca, Carter, Hollings and Ferner Ltd, Christchurch.

Jury, R., 2003, *Impact of earthquakes on hazardous substance containment structures*. Environment Canterbury report U03/78. Beca, Carter, Hollings and Ferner, Christchurch.

Hanmer Fault and Hope Fault mapping (2004-2005), Geotech Consulting Ltd, information contained in hard copy letters on file and GIS files.

- Grant, H., 2004, *Environment Canterbury Active Faults Database Manual*. Environment Canterbury report U04/27.
- Williams, A., 2004, *General Consent Conditions for Small Dams: Seismic and geotechnical, Part 1 review*. Environment Canterbury report U04/23. Beca Infrastructure Ltd, Auckland.
- Beca, Carter, Hollings and Ferner Ltd, 2004, *Christchurch liquefaction database – Stage IV user guide*. Environment Canterbury report U04/24. Beca, Carter, Hollings and Ferner Ltd, Christchurch.
- Christensen, S., 2004, *Christchurch Liquefaction Study: Stage IV*. Environment Canterbury report U04/25/1. Beca, Carter, Hollings and Ferner Ltd, Christchurch.
- Clough, B., 2005, *Christchurch Liquefaction Study: Stage IV (addendum report)*. Environment Canterbury report U04/25/2. Beca, Carter, Hollings and Ferner Ltd, Christchurch.
- Brabhakaran, P., Davey, R., O’Riley, F. and Wiles, L., 2006, *Earthquake Risk Assessment Study. Part 1 – Review of Risk Assessment Methodologies and Development of a Draft Risk Assessment Methodology for Christchurch*. Environment Canterbury report U04/108. Opus International Consultants Ltd, Wellington.
- Yetton, M., and McCahon, I., 2006, *Selwyn District Engineering Lifelines Project: Earthquake Hazard Assessment*. Environment Canterbury report U06/7. Geotech Consulting Ltd, Christchurch.
- Stirling, M., Litchfield, N., Smith, W., Barnes, P., Gerstenberger, M., McVerry, G. and Pettinga, J., 2007, *Updated Probabilistic Seismic Hazard Assessment for the Canterbury Region*. Environment Canterbury report U06/6. GNS Science, Wellington.
- Stirling, M., 2008, *Updated Probabilistic Seismic Hazard Assessment for the Canterbury Region: addendum report*. Environment Canterbury report U06/6/2. GNS Science, Wellington.
- Yetton, M. and McCahon, I., 2008, *Earthquake Hazard Assessment for Waimate, Mackenzie and part Waitaki districts*. Environment Canterbury report U08/18. Geotech Consulting Ltd, Christchurch.
- Yetton, M., 2008, *Hunters Hills Fault Zone Study – Earthquake Hazard Assessment*. Environment Canterbury report U08/27. Geotech Consulting Ltd, Christchurch.
- Kingsbury, P. and Pettinga, J., 2008, *Canterbury region earthquake source identification and characterisation*. Environment Canterbury report U08/41. University of Canterbury, Christchurch.
- Yetton, M. and McCahon, I., 2009, *Earthquake Hazard Assessment for Kaikoura District*. Environment Canterbury report R09/31. Geotech Consulting Ltd, Christchurch.
- Yetton, M. and McCahon, I., 2009, *Earthquake Hazard Assessment for Waimakariri District*. Environment Canterbury report R09/32. Geotech Consulting Ltd, Christchurch.
- Barrell, D.J.A. and Strong, D., 2009, *General distribution and characteristics of active faults and folds in the Ashburton District, mid-Canterbury*. Environment Canterbury report R09/72. GNS Science, Dunedin.

Barrell, D.J.A., 2010, *Assessment of active fault and fold hazards in the Twizel area, Mackenzie District, South Canterbury*. Environment Canterbury report R10/25. GNS Science, Dunedin.

Barrell, D.J.A. and Strong, D., 2010, *General distribution and characteristics of active faults and folds in the Mackenzie District, South Canterbury*. Environment Canterbury report R10/44. GNS Science, Dunedin.

Villamor, P., Litchfield, N., Hornblow, S., Barrell, D., Van Dissen, R. and Levick, S., 2011, *Greendale Fault: investigation of surface rupture characteristics for fault avoidance zonation*. Environment Canterbury report R11/25. GNS Science, Wellington.

Appendix 2: Plan Change 28

As noted in section 1.10 and 1.11 the Enfocus report singles out Plan Change 28 (Kennaway Park) as an example where the Canterbury Regional Council failed to formally advocate through Submissions on the issue of liquefaction at the site.

“...Environment Canterbury was a submitter on Change 28 (to the Christchurch City District Plan) but does not appear to have raised concerns about liquefaction risk even though this has proven to be an important issue”

Further comments in the report suggest, even though the Council staff acknowledge that they may not know all of the examples of formal advocacy undertaken by Environment Canterbury that:

“Council officers consulted for the purposes of preparing this letter have not identified any cases in which ECan have played a formal role on a Plan Change or resource consent application in relation to assessment of earthquake risk.”

We are concerned that the inclusion of these statements within the report can and will be taken out of context and will lead to an incorrect assessment of a very complex matter. In particular it does not acknowledge the history of the site (Plan Change 28) and Environment Canterbury's previous involvement in earlier processes which culminated in, and informed, Plan Change 28. Plan Change 28 needs to be viewed in the context of its development over a number of years.

The Plan Change 28 site was zoned in the Christchurch City Plan as part of the Special Purpose Ferrymead Zone. This was intended as an interim measure to indicate that further investigation was required before a final zoning pattern could be determined. In 1999 the City Council notified a variation to the City Plan (Variation 37) which provided for urban activities within the Ferrymead Zone including that part that was to become Plan Change 28 at a later date. Environment Canterbury submitted on Variation 37 and sought (amongst other matters), that either the Living 1B zones and Business 4 zone be deleted or should they remain, that the Variation include, *“Objectives, policies and methods (including rules) to avoid damage to structures, including network utilities, from liquefaction”* (Please refer to Appendix 3: Copy of Submission, dated 29th July 1999).

In 1999 the Christchurch City Council appointed Ian McCahon to undertake a study of liquefaction and to present evidence to the hearing into Variation 37. Variation 37 was, however, withdrawn before a decision on the rezoning proposal was notified. Plan Change 28, a private plan change, was subsequently notified in 2008.

Ian McCahon was reappointed by CCC in 2008 to undertake a similar review of Plan Change 28 and again he provided detailed expert evidence to the Hearing. This detailed assessment of the Plan Change was attached as an Appendix to the s42A report for the Plan Change. His findings were that the Plan Change should not be declined but that conditions be imposed, similar to those at Pegasus township, in relation to undertaking appropriate mitigation works at the subdivision stage and in the design of the buildings. In the meantime the site had also been included in Map 1 to Change 1 to the Regional Policy Statement as a Greenfield Business area.

The issue identified in this instance was one of mitigation rather than avoidance of urban activities at the site. In other words there was nothing to indicate that urban activities should be avoided but rather how to appropriately mitigate the effects of liquefaction at the subdivision and building design stages of the development process. These are matters for the CCC and they had before them expert evidence from Ian McCahon. Given the expert evidence available to CCC on liquefaction in 1999/2000 and again as part of the PC28

process, the Canterbury Regional Council did not consider that further input from it was required. As stated above the findings of Ian McCahon was that the issue was one of mitigation at the subdivision and building design stage.

It is clear when looking at the history of plan making for the site that Environment Canterbury did identify liquefaction as an issue for this site (in 1999, including twice in the attached document) with CCC responding by seeking appropriate expert evidence thereafter including for the 2008 Plan Change and by requiring the Plan Change applicants to provide information on the subject. The issues, therefore, revolved around subdivision and building design rather than the principle of urban activities at the site, and in the opinion of the Environment Canterbury, this is a matter which the CCC is best placed to deal with. They also had before them expert evidence on the liquefaction risk at the site and how best to manage that risk.

Appendix 3: Copy of submission dated 29th July 1999

FAXED 29/7/99

2

RESOURCE MANAGEMENT ACT 1991

SUBMISSION TO VARIATION NO 37 TO ~~THE~~ THE CHRISTCHURCH CITY PLAN

A. *The specific provision of the Proposed Plan Change that the Canterbury Regional Council submission relates to is:*

The hazard mitigation provisions for development in the Living and Business zones.

B. *The Canterbury Regional Council's submission:*

The Variation seeks to provide for additional developments in limited locations in the existing Ferrymead Special Purposed Zone. These developments will result in the following adverse effects:

Natural Hazards

The developments lie within the floodplain of the Heathcote River. The implementation of the Heathcote River Floodplain Management Strategy includes options for retaining existing ponding system by restricting development on the tidal floodplain and setting minimum floor levels.

The Variation identifies flood hazard and sea level rise as significant constraints to the development of the land subject to the variation, but does not propose any measures that ensures adverse effects hazard from flooding or as a result of sea level rise are avoided or mitigated. The City Plan currently has no minimum floor level requirements and relies on the provisions of the Building Act. It is considered that the requirements of the Building Act will not sufficiently mitigate adverse effects from flooding or sea level rise. *1:50 yr Flood mitigation considered acceptable*

The Variation also identifies liquefaction as being a major constraint but again contains no provisions to avoid or mitigate damage from such an event.

The Variation is inconsistent with:

- Eng.* a) The New Zealand Coastal Policy Statement
 - Policy 3.4.5
- Eng* b) The Regional Policy Statement
 - Chapter 12, Objective 4, Policy 6
 - Chapter 16, Objective 1, Policy 1, Policy 4
- Eng* c) The Proposed City Plan
 - Policy 2.5.5 – Flooding

E.P.P.U

d) The purpose and principles of the Resource Management Act

C. *The Canterbury Regional Council seeks the following decision from the Christchurch City Council:*

D1 That the Living 1B zones and Business 4 zone are deleted from the variation

D2 While still seeking the above decision, if the variation is approved the Canterbury Regional Council seeks the following:

- a) Objectives, policies and methods (including rules) are included to provide for controlled activities for the purpose of avoiding flood damage in a 1 in 500 year flood event, including minimum floor levels to a standard of 150mm above a 1 in 500-year flood event, tidal or river. (equivalent to a probability of 1 chance in 8 of inundation in any 70 year period).
- b) Objectives and policies are included to actively discourage further residential or business development from occurring within the Heathcote Floodplain.
- c) Objectives, policies and methods (including rules) to avoid damage to structures, including network utilities, from liquefaction.

D. *The Regional Council wishes to be heard in support of its submission and if others make a similar submission the Council would be prepared to consider presenting a joint case with them at a hearing.*

Laurie McCallum

Laurie McCallum
Natural Resources Planning Manager

29 July 1999

Canterbury Regional Council
58 Kilmore Street
P O Box 345
Christchurch

Telephone No: 03 365 3828
Fax No: 03 365 3194

Contact Person: Steve Higgs

Appendix 4: CRC v BPDC

See Appendix 4: CRC v BPDC.pdf

Appendix 5: Environment Court decision on Plan Change 43, August 2011

In the Environment Court Christchurch Registry	ENV-2011-CHC-018 ENV-2011-CHC-019 ENV-2011-CHC-025
In the Matter of	the Resource Management Act 1991
And	
In the Matter of	appeals under clause 14 of the First Schedule to the Act
Between	BELFAST PARK LIMITED (IN RECEIVERSHIP AND LIQUIDATION) AND TYRONE ESTATES LIMITED (IN RECEIVERSHIP AND LIQUIDATION)
	CANTERBURY REGIONAL COUNCIL
	LOWE CORPORATION LIMITED
	Appellants
And	CHRISTCHURCH CITY COUNCIL
	Respondent

Evidence of Anthony Fairclough on behalf
of Belfast Park Limited (in receivership
and liquidation) and Tyrone Estates
Limited (in receivership and liquidation)

Dated: 22 August 2011

Lane Neave
LAWYERS

Unit 2, 585 Wairakei Road
Burnside
PO Box 13149
Christchurch
Solicitor Acting: Amanda Dewar
Phone: 03 379 3720
Fax: 03 379 8370
Email: amanda.dewar@laneneave.co.nz

Qualifications and Experience

1. My full name is Anthony Fairclough.
2. I hold the following professional qualifications:
 - (a) New Zealand Certificate in Engineering (Civil Engineering, Carrington Technical Institute);
 - (b) Bachelor of Engineering (Civil Engineering, University of Auckland);
and
 - (c) Master of Engineering Studies (with Merit) (Soil & Rock Mechanics Major, University of Auckland).
3. I hold the following professional registrations:
 - (a) Chartered Professional Engineer (New Zealand);
 - (b) International Professional Engineer (New Zealand).
4. I am a member or affiliate of the following professional societies and organisations:
 - (a) Member, Institute of Professional Engineers New Zealand;
 - (b) Member, American Society of Civil Engineers;
 - (c) Member, New Zealand Geomechanics Society;
 - (d) Affiliate Member, International Society for Soil Mechanics and Geotechnical Engineering;
 - (e) Affiliate Member, International Society for Rock Mechanics;
 - (f) Affiliate Member, International Association of Engineering Geology.
5. I am a Project Director and Principal with Tonkin & Taylor Ltd (**T&T**) a specialist civil, geotechnical and environmental engineering consultancy practice.
6. I have over 20 years experience in the fields of civil and geotechnical engineering and to date have been directly involved in the geological and geotechnical investigation and/or assessment of over 800 sites throughout New Zealand and in Malaysia, Hong Kong, Vietnam, Australia, the United States of America, Fiji, Vanuatu, the Solomon Islands and the United Arab Emirates.

7. My areas of expertise include the investigation, assessment and confirmation of sub-surface ground conditions and the design and construction of earthworks and geotechnical structures for privately funded developments and publicly funded civil infrastructure projects.
8. I have read and agree to abide by the Code of Conduct for Expert Witnesses and have prepared this evidence in accordance with it. This evidence is within my area of expertise except where stated otherwise. I have not omitted to consider the material facts known to me that might alter or detract from the opinion that I express in this evidence.

Scope of Evidence

9. Tonkin & Taylor Ltd (**T&T**) were engaged by Belfast Park Limited (in receivership and liquidation) and Tyrone Estates Limited (in receivership and liquidation) (**BPL**) to conduct a geotechnical assessment at the site of the proposed Belfast Park subdivision located at East Belfast and the subject of Plan Change 43 (**PC43** or **Plan Change**) to the Christchurch City Plan. This assessment was undertaken in June 2008.
10. I have reviewed the geotechnical assessment¹ and am in agreement with the conclusions.
11. T&T staff have visited the site on many occasions during the course of investigations and have also undertaken a site inspection following the 22 February 2011 earthquake. I have visited the site on one occasion following the 22 February 2011 earthquake and am familiar with the surrounding area.
12. T&T staff under my direction have undertaken a review of the liquefaction hazard at the site following the 22 February 2011 earthquake, considering:
 - (a) data obtained in the 2008 geotechnical investigation;
 - (b) the observed land damage following the 22 February 2011 earthquake; and,
 - (c) updated seismic hazard factors as gazetted by the Department on Building and Housing (**DBH**) in May 2011. These seismic hazard

¹ Presented by Jared Pettersson

factors have been updated as a result of the recent earthquakes and result in an increase to the level of peak ground acceleration which is used when designing buildings in the Canterbury region.

13. Against that background, in this evidence I will:
- (a) Provide a brief description of the geotechnical investigations and engineering assessment undertaken at this site;
 - (b) Provide a summary of the observed land damage due to liquefaction during the 22 February 2011 earthquake;
 - (c) Comment on the effects of the earthquakes and soil liquefaction on the site in so far as they are relevant to the proposed development; and
 - (d) Reach a conclusion as to whether liquefaction issues can be adequately addressed so that the PC43 site can be considered appropriate for mixed-use (including residential) development.

Summary of Conclusions

14. The results of the geotechnical investigations and engineering assessment that have been completed to date by T&T indicate that:
- (a) The site's geotechnical conditions are typical of those which underlie large parts of the currently-developed areas of Belfast and Christchurch;
 - (b) The observed land damage during the 22 February 2011 earthquake was generally minor, with some ejected sand observed across the site. The level of land damage was consistent with the investigation results and the engineering assessment; and
 - (c) No geotechnical issue is expected to be present within the site that cannot be appropriately addressed during the detailed design and/or construction phases of the proposed development.

Background site geology

15. The geology of the site comprises alluvial silts, sands and gravels of the Springston Formation. Gravels are expected to predominate within the bed and surrounds of the Kaputone Stream channel.
16. In general, groundwater is expected to lie between 1 and 3 metres below the existing ground surface and flow in a south-easterly direction towards the coast².

Investigations Undertaken

17. Suitably qualified and experienced T&T staff have completed the following scope of work as part of the geotechnical assessment of the PC43 site:
 - (a) A desk-top review of geotechnical information held by T&T for the subject site and general surrounding area. This included a review of the following:
 - (i) Aerial photos of the site; and
 - (ii) Relevant geological maps published by the Department of Scientific and Industrial Research.
 - (b) The supervision and documentation of site-specific geotechnical site investigations comprising:
 - (i) 19 Cone Penetration Tests (**CPTs**) extended to a maximum depth of 16.5m below the existing ground surface; and
 - (ii) 13 machine drilled boreholes extending to a maximum depth of 18.45m below the existing ground surface.
 - (c) Analysis of the above geotechnical site investigation results to assess the geotechnical suitability of the subject site.

² Based on piezometric contours contained within ECan's online GIS system.

18. Full details of T&T's geotechnical engineering assessment of the subject site are presented in the 2009 report³. This evidence presents a re-evaluation of the investigation results using the DBH recommendations for seismic hazard factors following the 22 February 2011 earthquake.

Engineering analysis

19. The results of the above geotechnical investigations were analysed by T&T using the method of Ishihara (1985) to assess the likelihood of liquefaction induced ground damage during a future earthquake.
20. The results of the engineering analysis indicated that liquefaction induced ground damage is unlikely to occur at the site during a moderate (serviceability limit state - SLS)⁴ seismic event.
21. The results of the engineering analysis indicated liquefaction induced ground damage is likely to occur over most of the site during a severe (ultimate limit state - ULS)⁵ seismic event. This hazard has the potential to result in an undesirable level of damage to buildings within the subject area if mitigation measures are not provided.
22. **Figure 1 (attached)** identifies the areas where liquefaction induced ground damage is likely in a future ULS earthquake.
23. The geotechnical investigation² identified areas where earthworks and subsequent building development may cause settlement of the ground surface due to compression of some of the underlying soil layers. This settlement can be addressed using a range of techniques including:
 - (a) the provision of an engineered fill raft;

³ "Ground Contamination and Geotechnical Investigation, Former PPCS Canterbury Freezing Works" dated February 2009 (T&T report reference number 51297.004). A copy of this report is appended to Mr Pettersson's evidence as **Appendix C**

⁴ The serviceability limit state (**SLS**) design case is a load, or combination of loads, which a building or structure is likely to be subjected to regularly during its design life. If properly designed and constructed, a building is expected to avoid damage that would prevent the structure from being used as originally intended without repair following a SLS load.

⁵ The ultimate limit state (**ULS**) design case is an extreme load, or extreme combination of loads, which a building or structure is unlikely to be subjected to on more than one or two occasions during its design life. If properly designed and constructed, a building is expected to suffer moderate to significant structural damage, but not collapse, when it is subjected to an ULS load.

- (b) the removal of near-surface unsuitable or compressible soil materials;
- (c) the provision of ground improvement works such as compaction of the existing ground;
- (d) surcharging of the finished ground surface;
- (e) allowing a "consolidation period" immediately after the completion of earthworks; and/or
- (f) specific foundation design in localised areas.

Site inspection following the 22 February 2011 earthquake

- 24. The M6.3 Christchurch Earthquake occurred approximately 16 km south of the PC43 site. This earthquake caused liquefaction to occur on numerous sites around Christchurch and in the wider Canterbury region. GNS data recorded a peak horizontal ground acceleration (**PGA**) of 0.19g at a location near the site. This magnitude of ground acceleration corresponds to an earthquake stronger than the SLS design earthquake event but weaker than the ULS design earthquake event.
- 25. A site walkover inspection was undertaken on 28 February 2011 by an environmental engineer and an engineering geologist from T&T to observe any visible signs of land damage following the Christchurch earthquake.
- 26. All parts of the site were assessed visually either on foot or from a slow moving vehicle. During the site inspection, surface expressions of liquefaction⁶ were identified across parts of the site. These areas were generally located on both sides of, and adjacent to, Blakes Road, and in the southwest corner of the site adjacent to the railway line. **Figure 2 (attached)** shows the general area where surface expression of liquefaction was observed. It is important to note that the whole area indicated on the plan was not covered with sand/silt, but these areas show the general area where sand boils were observed on the ground surface.
- 27. It is important to note that a lack of surface expression of liquefaction in some areas of the site does not necessarily mean that liquefaction did not

⁶ Ejected sand and associated minor cracking

occur at that location. Nor does it preclude liquefaction and surface effects occurring over a greater area, or at different locations in a future earthquake, particularly if an earthquake with a longer duration of shaking occurred under different groundwater conditions.

Options to Mitigate Liquefaction Hazard

28. T&T's assessment indicates the liquefaction hazard due to a future ULS earthquake may be effectively mitigated using one or more of the following conventional engineering methods:
- (a) The detailed design and construction of earthworks to mitigate the risk of liquefaction to an acceptable level;
 - (b) The detailed design and construction of ground improvement works to mitigate the risk of liquefaction to an acceptable level; and/or
 - (c) Designation of "Specific Foundation Design" zones, where building foundations are designed to withstand a high level of ground movement due to liquefaction.
29. Earthworks options to mitigate liquefaction hazard at the site include construction of a continuous thick crust of compacted engineered fill.
30. Ground improvement options to mitigate liquefaction hazard at the site include compaction of the ground using dynamic compaction or impact rollers or densification of the ground by vibro-compaction, or reinforcement and densification of the ground using stone columns, timber piles or concrete piles.
31. "Specific Foundation Design" would require site specific foundation design to be completed which takes account of the potential for settlement, differential settlements and ground cracking due to liquefaction in a future severe earthquake. Foundation options to mitigate this risk include:
- (a) excavate and replace the upper layers of soil with compacted engineered fill
 - (b) the construction of a stiff reinforced concrete foundation slab; and/or

- (c) the construction of heavy duty piles that are founded within an appropriate non-liquefiable layer at depth.

Conclusions and Recommendations

- 32. I conclude, based on the evidence presented above, that no geotechnical issues are likely to exist on site which should prevent Plan Change 43 (PC43) from being granted.
- 33. I conclude, based on the evidence presented above, that liquefaction induced ground damage is unlikely to occur at the site during a moderate (serviceability limit state) seismic event.
- 34. I conclude, based on the evidence presented above, that liquefaction induced ground damage is likely to occur over most of the site during a severe (ultimate limit state) seismic event. This hazard has the potential to result in an undesirable level of ground movement and damage to buildings if mitigation measures are not provided.
- 35. Several engineering measures are available to effectively mitigate the liquefaction hazard which is currently assessed to be present on the site.
- 36. Options to mitigate the liquefaction hazard within the development site include:
 - (a) The detailed design and construction of an engineered fill 'crust'.
 - (b) The detailed design and construction of ground improvement works such as dynamic compaction, vibro-compaction or stone columns;
 - (c) Specific Foundation Design of buildings.
- 37. I conclude, based on the evidence presented above, that earthworks and building development may cause settlement of compressible soil layers at depth. Several options are available to address this issue including the removal of soft soils, ground compaction, surcharging and specific foundation design.
- 38. I recommended that the most appropriate combination of solutions to mitigate liquefaction and consolidation hazard at the subject site be investigated, assessed, confirmed and designed by an

appropriately qualified and experienced Chartered Professional Engineer during the detailed engineering design stage.

T Fairclough
August 2011



SCALE 1:7500
0 100 200 300 400 500 (m)

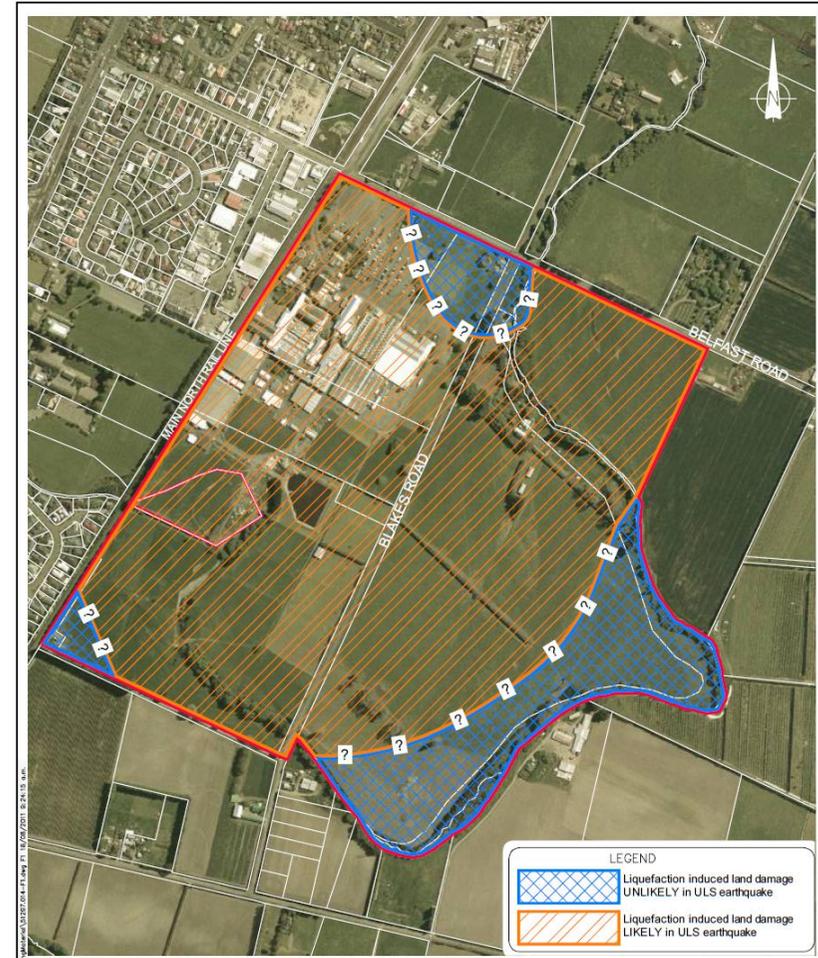
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Post February 22 2011–Surface Expression of Liquefaction

FIG. No. **Figure 2** REV. **0**



SCALE 1:7500
0 100 200 300 400 500 (m)

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Liquefaction Potential

FIG. No. **Figure 1** REV. **0**

IN THE COURT OF APPEAL OF NEW ZEALANDCA 99/95UNDER the Declaratory Judgments Act 1908BETWEEN THE CANTERBURY REGIONAL COUNCILPlaintiffAND BANKS PENINSULA DISTRICT COUNCIL, KAIKOURA DISTRICT COUNCIL, and CHRISTCHURCH CITY COUNCILFirst DefendantsAND ASHBURTON DISTRICT COUNCIL, HURUNUI DISTRICT COUNCIL, WAIMAKARIRI DISTRICT COUNCIL, and CHRISTCHURCH INTERNATIONAL AIRPORT LIMITEDSecond DefendantsA N D THE MINISTER FOR THE ENVIRONMENTThird Defendant

Coram: Cooke P
Hardie Boys J
Gault J
McKay J
Blanchard J

Hearing: 31 May 1995

Counsel: J G Fogarty QC and G J Venning for Plaintiff
J R Milligan for First and Second Defendants, except Kaikoura District Council
Camilla C M Owen and Bronwyn H Arthur for Third Defendant

Judgment: 4 July 1995

JUDGMENT OF THE COURT DELIVERED BY MCKAY J

This case raises issues as to the relationship between regional plans and district plans under the Resource Management Act 1991, and as to the extent of the powers of Regional Councils. The issues arose in the course of preparation by the Canterbury Regional Council of a proposed land and vegetation management plan. The Council applied to the Planning Tribunal under section 311 of the Act for declarations as to the jurisdiction and powers of the Council. An amended application was later filed, and this was served on the Minister for the Environment and on 12 territorial authorities in the region. One of these, the Banks Peninsula District Council, made a cross-application for a declaration in different terms. The applications were heard by two Planning Judges sitting as the Tribunal, and certain declarations were made. The Canterbury Regional Council lodged an appeal to the High Court against the Tribunal's refusal of one of the declarations it had sought, and against the declaration made by the Tribunal on the cross-application of the Banks Peninsula District Council.

The Canterbury Regional Council then issued proceedings in the High Court under the Declaratory Judgments Act 1908, raising the same issues and claiming declarations. This was done on the basis that the appeals raised questions of law which might affect the validity and effect of various notified and proposed regional plans, these questions being of sufficient importance, novelty and urgency to justify their removal into the Court of Appeal. There appeared to be no power under section 64 of the Judicature Act 1908 to remove the appeal from the Planning Tribunal into this Court. On 18 May 1995 Fraser J ordered that the proceeding under the Declaratory Judgments Act 1908 be removed into this Court for determination, and ordered that the appeal from the Planning Tribunal be stayed until the final determination of this proceeding.

Before considering the particular issues raised by the declarations sought in this proceeding, it will be convenient to set out the general structure of the

Resource Management Act 1991 and the respective functions of regional councils and territorial authorities under it.

The Resource Management Act 1991

The Act is a comprehensive one which replaces a mass of previous legislation, including the Town and Country Planning Act 1977, the Water and Soil Conservation Act 1967 and the Clean Air Act 1972. Its purpose and principles are set out in Part II. Section 5(1) states:

"The purpose of this Act is to promote the sustainable management of natural and physical resources."

The term "sustainable management" is defined in subsection (2). In effect, it means the management of the resources in such a way as to enable people and communities to provide for their wellbeing while sustaining the potential of the resources to meet future needs. This involves safeguarding their life-supporting capacity and avoiding or mitigating adverse effects on the environment. Sections 6 to 8 apply to all persons exercising functions and powers under the Act. They must recognise certain matters of national importance relating to the protection of the environment. They must have regard to certain particular matters specified, and must take into account the principles of the Treaty of Waitangi.

Part III of the Act sets out the duties and restrictions which it imposes. By section 9, no person is to use land in a manner which contravenes a rule in a district plan or regional plan, unless a resource consent has been obtained or unless the activity is an existing use allowed by section 10. Section 11 prohibits subdivision, except where allowed by a rule in a district plan or by a reserve consent, and in certain other specified situations. The following sections restrict the use of coastal marine areas, river and lake beds and water, and the discharge of contaminants into the environment, unless allowed by a rule in a regional plan or

by a resource consent. There are exceptions in the case of existing uses, and the discharge of contaminants may be permitted by regulations. Breaches of these provisions are made offences by section 338. Thus rules in regional or district plans are enforceable by criminal sanctions.

Part IV sets out the functions, powers and duties under the Act of central and local government. The Minister of the Environment is given various functions under section 24, including the making of recommendations for the issue of national policy statements and for the making of regulations. Certain other powers are conferred by following sections. Section 28 gives certain functions to the Minister of Conservation, principally in relation to coastal policy statements and coastal plans. Section 30 sets out the functions of regional councils, and section 31 those of territorial authorities.

In summary, regional councils have the task of establishing and implementing policies and methods to achieve the integrated management of the reserves of the region, and of preparing policies as to any effects of the use of land which are of regional significance. They also have responsibility for controlling the use of land for the purpose of soil conservation and the maintenance of quantity and quality of water, for the control of other activities relating to water and for the control of discharges of contaminants. Territorial authorities have the functions of establishing and implementing policies to achieve the integrated management of the effects of the use of land and resources in their district, and the control of the actual or potential effects of use, including the avoidance or mitigation of adverse effects. Their responsibilities also include the control of subdivision, and of matters relating to noise and to activities in relation to the surface of rivers and lakes.

Regional policy statements are then dealt with in sections 59 to 62. Their purpose is to provide "an overview of the resource management issues of the region and policies and methods to achieve integrated management of the natural and physical resources of the whole region" (section 59). Each region is required to have a regional policy statement (section 60), and in preparing such a statement the regional council is required to consider, inter alia, the extent to which the statement needs to be consistent with those of adjacent regional councils (section 61). The contents of regional policy statements is then prescribed (section 62).

Provision is then made for regional plans (section 63), but only coastal plans are made mandatory (section 64). Other plans may be prepared in respect of any aspect of any function for which the regional council is responsible, and may apply to the whole or any part of a region (section 65). In preparing a regional plan, the council must have regard to certain matters, including the extent to which the plan needs to be consistent with the actual or proposed policy statements and plans of adjacent regional councils (section 66). The matters which may be provided for are set out in Part I of the Second Schedule to the Act, but certain matters must be stated, including policies in regard to the plan's objectives and any rules to be used as a method of implementing those policies (section 67). The regional council is given express rule making power, within certain limits (sections 68 to 71).

The next group of sections deal with district plans. Their purpose is to assist territorial authorities to carry out their functions under the Act (section 72). Each territorial authority must have one district plan for the district (section 73). It must consider certain prescribed matters, including the extent to which the district plan needs to be consistent with the actual or proposed plans of adjacent territorial districts (section 74). The matters which may be provided for are set out in Part II of the Second Schedule to the Act, but certain matters must be stated, and the

district plan must not be inconsistent with any national policy statement, water conservation order or regional policy statement, nor with any regional plan of the region of which the district forms part in regard to matters of regional significance or for which the regional council has primary responsibility (section 75). A territorial authority may, for the purpose of carrying out its functions and achieving the objectives and policies of the plan, include in the plan rules which prohibit, regulate or allow activities (section 76).

The Present Proceeding

The declarations sought by the Canterbury Regional Council in its statement of claim under the Declaratory Judgments Act were the following:

- "i. That in preparing its land and vegetation management plan and in considering submissions on it the Canterbury Regional Council has jurisdiction to the exclusion of District Councils within the Canterbury Region to provide for the control of the use of land for the purposes specified in section 30(1)(c)(i-iii) of the Resource Management Act 1991.
- ii. That the Canterbury Regional Council does have power to include in part of its regional Waimakariri Flood Plain Management Plan rules to control any actual or potential effects of the use, development or protection of land for the purpose of the avoiding or mitigation of natural hazards."

The first declaration was sought in the earlier proceedings, but was refused by the Planning Tribunal. The second declaration is a counterpart to the declaration made by the Tribunal on the cross-application by the Banks Peninsula District Council, which was in the following form:

"That a regional council does not have power to include in any part of a regional plan having effect in other than the coastal marine area rules to control any actual or potential effects of the use, development, or protection of land for the purpose of the avoidance or mitigation of natural hazards."

The First Declaration

In this Court, the first declaration sought by the Canterbury Regional Council was reworded as follows:

- "A. Territorial Authorities do not have authority to provide in District Plans for the control of effects of the use of land for the purposes of soil conservation, water quality, and water quantity (those purposes identified in 30(1)(c)(i)-(iii)), except in so far as such controls are incidental to the District Council's primary purpose or function."

Mr Fogarty, for the Regional Council, submitted that the Act created a range of instruments designed to achieve the objective of integrated management of natural and physical resources. The structure was a hierarchical one, the instruments in descending order being the legislative purpose of the Act (section 5), followed by national environmental standards (section 43), national policy statements and the New Zealand coastal policy statement (sections 45, 46), water conservation orders (section 200), regional policy statements (section 62), regional plans (section 67) and finally district plans (section 75). This did not create a hierarchy as between Government agencies, regional councils and territorial authorities, as each was given its own area of authority, but it provided a hierarchy of instruments. This is reflected, he submitted, in the respective functions of regional councils and territorial authorities as set out in sections 30 and 31. The more significant portions of these sections are as follows:

"30 (1) Every regional council shall have the following functions for the purpose of giving effect to this Act in its region:

- (a) The establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the natural and physical resources of the region:
- (b) The preparation of objectives and policies in relation to any actual or potential effects of the use, development, or protection of land which are of regional significance:
- (c) The control of the use of land for the purpose of--
 - (i) Soil conservation:

- (ii) The maintenance and enhancement of the quality of water in water bodies and coastal water:
 - (iii) The maintenance of the quantity of water in water bodies and coastal water:
 - (iv) The avoidance or mitigation of natural hazards:
 - (v) The prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances:
- (d) ...

31. Every territorial authority shall have the following functions for the purpose of giving effect to this Act in its district:

- (a) The establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district:
- (b) The control of any actual or potential effects of the use, development, or protection of land, including for the purpose of the avoidance or mitigation of natural hazards and the prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances:"
- (c) ..."

The further functions in section 30(d) to (h) and section 31(c) to (f) are not material to the present case.

Mr Fogarty submitted that these sections gave to regional councils the control of the use of land for certain fundamental purposes, of a higher order, to achieve integrated management of the resources of the region. Territorial authorities, on the other hand, were given the function to control the effects of the use of land as they apply to amenities associated with the land. Soil conservation and water quantity and quality issues, he said, transcend territorial authority boundaries and need to be addressed across areas of natural catchments. Such issues, and also natural hazards, tend by their nature to be regional. He submitted that the Act provided a clear division of functions in relation to soil conservation

and water quantity and quality issues, and section 31 should in this context be read as being limited by the specific functions given to regional councils under section 30(1)(c)(i)-(iii). These overrode the more general powers given to territorial authorities in section 31 in relation to controlling the effects of the use of land.

We agree that the Act provides what may be described as a hierarchy of instruments, to the extent that regional policy statements must not be inconsistent with national policy statements and certain other instruments (section 62(2)), and district plans must not be inconsistent with national policy statements and the same other instruments, nor with a regional policy statement or regional plan (section 75(2)). It does not follow, however, that there can be no overlap between the functions of regional authorities and territorial authorities. The functions of the latter are set out in section 31, and there is no need to read that section in any restricted way. To the extent that matters have been dealt with by an instrument of higher authority, the territorial authority's plan must not be inconsistent with the instrument. Beyond that, the territorial authority has full authority in respect of the matters set out in section 31. Its decisions can, of course, be contested by appeal to the Planning Tribunal under the provisions of the First Schedule.

Reliance was placed on the wording of section 31(b), which refers to control only of "the effects" of use of land, but it is difficult to see how a territorial authority could control the effects of use without regulating the use itself. We think Mr Milligan is correct in his submission that what is limited is not so much what can be controlled, but the purpose for which it can be controlled. The control of the effects of land use must involve some degree of control of the use itself.

A similar view was taken by the Planning Tribunal, which refused the first declaration sought. In its now amended form, however, the declaration sought no longer claims an exclusive jurisdiction for the Canterbury Regional Council. It

states only that territorial authorities do not have authority to control the effects of the use of land for purposes falling within the functions of regional authorities under section 30(1)(c)(i)-(iii), except in so far as such controls are incidental to the primary purpose or function of the territorial authority. Mr Milligan accepted that a territorial authority could not control ~~the use of~~ land for the purpose of soil conservation, which is a function of the regional authority under section 30(1)(c)(i). But it could, he said, exercise such a power for any of the purposes set out in section 31(b), even if an incidental result turned out to be the promotion of soil conservation. At the request of the Court, Mr Milligan supplied us with a draft declaration in a form which he submitted would be appropriate if the Court were minded to make a declaration in respect of this issue.

Comment on this draft has since been received from counsel for the plaintiff, together with an alternative draft. Counsel for the Minister supports this alternative. There appears to be little if any real difference between the parties, or between the effect of the respective drafts. The difference is one of emphasis. Mr Milligan's draft emphasises the overlapping functions of regional councils and territorial authorities. He seeks a declaration that notwithstanding the functions and rule making powers of the former, the latter may also make rules to similar effect, but only if they are within their powers under section 76 and their functions under section 31. Mr Venning and Miss Owen, on the other hand, seek a declaration in negative form. They ask for a declaration that territorial authorities have no power to provide controls of the effects of land use for the purposes in section 30(1)(c)(i)-(iii), which are there identified as functions of regional councils, except in so far as such controls are incidental to the primary purposes or functions of territorial authorities. Although the difference may be largely semantic, it is desirable that the matters argued before us be put beyond further doubt. We make a declaration in the following terms:

A regional council may, to the extent allowed under section 68 of the Resource Management Act, include in a regional plan rules which prohibit, regulate or allow activities for the purpose of carrying out its functions under section 30(1)(c) to (h). A territorial authority may, to the extent allowed under section 76, include in a district plan rules which prohibit, regulate or allow activities for the purpose of carrying out its functions under section 31. Neither a regional council nor a territorial authority has power to make rules for purposes falling within the functions of the other, except to the extent that they fall within its own functions and for the purpose of carrying out its own functions. To that extent only, both have overlapping rule making powers, but the powers of a territorial authority are also subject to section 75(2).

The Second Declaration

The second declaration sought was reworded at the hearing into the following form:

"That the Canterbury Regional Council has the power to prohibit or restrict activities such as residential occupation and the erection of buildings in the Waimakariri Flood Plain, for the purpose of avoiding or mitigating natural hazards."

Natural hazards are referred to in both section 30 and section 31. The respective provisions are as follows:

"30 (1) Every regional council shall have the following functions for the purpose of giving effect to this Act in its region:

- (a) ...
- (c) The control of the use of land for the purpose of--
 - (i) ...
 - (iv) The avoidance or mitigation of natural hazards:
 - (v) The prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances:
- (d) ...

31. Every territorial authority shall have the following functions for the purpose of giving effect to this Act in its district:

- (a) ...
- (b) The control of any actual or potential effects of the use, development, or protection of land, including for the purpose of the avoidance or mitigation of natural hazards

and the prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances:

(c) ..."

The term "natural hazard" is defined in section 2 in terms consistent with its ordinary meaning. The Planning Tribunal held that the regional council's function described in section 30(1)(c)(iv) was to be read in the context of the powers given to territorial authorities by section 31(b). The Tribunal said it was inherently unlikely that Parliament would have intended both classes of local authority to have identical functions in respect of the avoidance or mitigation of natural hazards. That would scarcely be consistent with efficiency or integrated management, and the difference in the language used in the case of each kind of authority should be taken as deliberate, and as indicating a difference in function. Paragraph (b) of section 30(1) speaks of the "effects of the use of ... land", but paragraph (c) refers simply to "the control of the use of land". Section 31(b) speaks only of the "effects of the use ... of land". The Tribunal accordingly accepted the submission that the subject of the regional council's control function was the hazard itself, and that the effects of the land use were a matter for the territorial authority. It accordingly made a declaration in the form set out earlier in this judgment.

Mr Fogarty pointed out that the definition of "natural hazard" in section 2 limited the term to occurrences which could have adverse effects:

"'Natural hazard' means any atmosphere or earth related occurrence ... the action of which adversely affects or may affect human life, property, or other aspects of the environment."

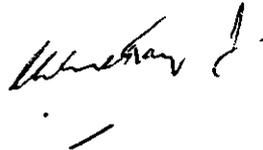
The Act, said Mr Fogarty, did not require regional councils to control the occurrence itself. Earthquakes, tsunami and volcanic eruptions, which are examples given in the definition itself, cannot be controlled. The regional council is rather given the power to control the use of land for the purpose of avoiding or

mitigating the natural hazard, which means avoiding or mitigating the effects of the occurrence. One way of doing this would be by the control of the erection of buildings or structures in a flood plain. A function of the regional council is to achieve integrated management of the resources of the region. It would be consistent with that function for the investigation of the flood plain and the decision as to the appropriate controls to be carried out where appropriate on a regional basis, rather than by individual territorial authorities. Mr Fogarty did not seek to exclude the role of territorial authorities in respect of natural hazards, other than to the extent of the requirement of section 75(2) that a district plan must not be inconsistent with a regional plan in regard to matters of regional significance.

This argument was rejected by the Tribunal, but in our view it is soundly based. It is true, as Mr Milligan pointed out, that natural hazard is not defined as being the consequence of the occurrence, but as the occurrence itself which has or potentially has the adverse consequence. What can be avoided or mitigated, however, is not the occurrence but its effect. Neither in section 30 nor in section 31 are the words "effects of" used in connection with "natural hazards". This is for the simple reason that they would be otiose, as the definition of "natural hazard" incorporates a reference to effects. The word "effects" would also be inappropriate in respect of section 30(1)(c)(i)-(iii). It is unnecessary and inappropriate to explain the language by reference to some subtle distinction between the respective functions of regional councils and territorial authorities.

It follows that the control of the use of land for the avoidance or mitigation of natural hazards is within the powers of both regional councils and territorial authorities. There will no doubt be occasions where such matters need to be dealt with on a regional basis, and occasions where this is not necessary, or where interim or additional steps need to be taken by the territorial authority. Any controls imposed can be tested by appeal to the Planning Tribunal, and inconsistencies are precluded by section 75(2).

We make a declaration in respect of this second issue in the form proposed in this Court by the Canterbury Regional Council. As it was in the interests of all parties to have these issues clarified, and as the Canterbury Regional Council has been only partially successful, there will be no order as to costs.

A handwritten signature in black ink, appearing to read 'Wynne Williams', with a horizontal line underneath.

Solicitors

Wynn Williams & Co, Christchurch for Plaintiff

**Anthony Harper, Christchurch, and Office Solicitor, Christchurch City Council for
First Defendants**

Lane Neave Ronaldson, Christchurch, for Second Defendants

Office Solicitor, Ministry for the Environment, for Third Defendant