

BEFORE THE INDEPENDENT HEARING COMMISSIONERS

IN THE MATTER of the Resource Management Act 1991 ('the Act')

AND

IN THE MATTER of proposed Canterbury Land and Water Regional Plan ('pLWRP')

BETWEEN **RAYONIER NEW ZEALAND LTD**

Submitter

A N D **CANTERBURY REGIONAL COUNCIL**

Local Authority

**SUPPLEMENTARY EVIDENCE OF DR CHRIS JOHN PHILLIPS ON BEHALF OF
RAYONIER NEW ZEALAND LIMITED**

Presented for filing by:

Chris Fowler
Adderley Head
PO Box 16, Christchurch 8140
P: +3 353 0231 F: + 3 353 1340
E: chris.fowler@adderleyhead.co.nz

INTRODUCTION

- 1 My full name is Dr Chris John Phillips. My role, qualifications and experience are as described in my statement of evidence filed with the independent Hearing Commissioners ('the Commissioners') on 4 February 2013.
- 2 I have prepared this supplementary evidence in response to questions at the hearing on 12 March 2013 to assist the Commissioners in making their decision on the pLWRP.

LH2 MAPPING

- 3 At the hearing the Commissioners I raised some concerns about the mapping of erosion susceptible soils in the pLWRP.
- 4 The Commissioners requested that I consider what additional text is required in the pLWRP to assist implementation of the High Soil Erosion Risk map at Appendix 3 (Appendix A) of the s42A report by the forest industry during planting and harvesting operations. I understand this map is related to Rules 5.150 - 5.154 (Vegetation Clearance and Earthworks in Erosion-Prone Areas).
- 5 Further to my evidence in chief, I re-iterate that there are issues with the definition of LH2 areas, their depiction on maps at operational scales used by the forestry industry (eg 1:5000), and the general lack of clarity around how these maps are to be used in an operational or planning context.

SUPPORT FOR GOOD PRACTICE GUIDELINES WITHIN LH2 AREAS

- 6 The extent to which the above matters create difficulty for the forest industry is largely dependent upon whether the Commissioners are minded to accept the relief requested by Rayonier. If so, then I understand that forestry operators that follow good practice will be able to undertake forestry activities as a permitted activity within the LH2 areas identified in Appendix 3, provided that plantation forestry activity is undertaken in accordance with an erosion and sediment control plan and harvest plan.
- 7 For the reasons discussed in my evidence-in-chief, I support the use of industry good practice guidelines as a method to minimise erosion risk and reduce sediment loss. I can confirm that my support for the use of such guidelines includes areas identified as LH2 in Appendix A of the pLWRP.

SUGGESTED AMENDMENTS

- 8 In the event the Commissioners are not minded to adopt the relief requested by Rayonier or otherwise would still find helpful to receive some comment from me

regarding the issues with the LH2 mapping described above, I make the following recommendations:

- 8.1 Provide clear definitions on each of the erosion classes (i.e., the criteria used to define the classes). If only the LH2 class is to be used, then delete all reference to the other classes.
- 8.2 I suggest the wording in map legends or narrative of LH2 as "High soil erosion risk" be changed to "Land susceptible to erosion" to better reflect the inherent susceptibility or intrinsic predisposition of the land rather than the "risk" of adverse effects, which may involve other factors that collectively define risk.
- 8.3 Provide a narrative on how the maps of LH2 should be used for planning and operations (if that is indeed their purpose). If they are meant to be a screening tool and were not designed to be used at large scales, then state this along with the criteria used to define "high soil erosion risk".
- 8.4 I understand that historical qualitative evidence coupled with GIS analysis and interpretation was used to produce the current suite of maps. To improve on this, obtaining quantitative data on slope distribution from a high resolution DEM (Digital Elevation Model) and possibly using LCDB3 coverage (Land Cover Database) would help refine the distribution of slopes greater than 20 and/or 25 degrees. I believe 25 degrees is a more appropriate slope threshold than 20 degrees and I recommend using this as the threshold level rather than the 20 degrees in the existing schema.
- 8.5 Once this analysis is done, I suggest it be intersected with areas of known weak lithologies e.g. deep loess on Bank's Peninsula and soft rock Tertiary geology from Q Map rather than the NZLRI. This should then give a map of steep land on erosion-prone rock types. This will define the sloping land with an erosion risk. This then needs to be combined with what was used to define "high risk" from wind on arable land together with the areas of coastal sand dunes also prone to wind erosion. It might even be preferable to create 2 classes of "high erosion risk or Land susceptible to erosion" – one for steplands and one for the remaining areas where wind erosion is of concern.
- 8.6 Finally, a validation check needs to be made to ensure "known" areas of "erosion susceptibility" are captured in this map. For example a known erosion prone gully at Mt Thomas currently falls out of the LH2 zone but should be mapped within in LH2 as it is inherently erosion-prone.
- 9 I hope the above comments are of some assistance.

Dr Chris John Phillips
28 March 2013