

Proposed Hurunui Water Conservation Order

Rebuttal & Supplementary Evidence of DI LUCAS

April 2009

INTRODUCTION

1. My name is Diane Jean Lucas a Registered NZILA landscape architect. I provided primary evidence for Fish and Game where I outlined my qualifications and experience. That evidence included a set of A3 double-sided attachments, numbered 1 to 68, plus appendices A to E. I refer to my earlier attachments, and provide additional attachments numbered 69 to 88, plus appendices E and F (attachment indexes, to assist your navigation).
2. As well as providing the supplementary evidence requested by the Tribunal, my rebuttal addresses the evidence of Vaughan Keesing, Peter Rough and Nicholas Ward for Hurunui Water Project Ltd and Mainpower Ltd who do not support the Water Conservation Order sought for the Upper Hurunui rivers and lakes.

Rebuttal of Peter Rough

3. At para. 2 Mr Rough describes the ambit of his evidence. As he notes there and as is evident throughout the statement, in addition to a description, his 'evaluation of the Hurunui River' considers only the status of the river with reference to the Hurunui District Plan, the Canterbury Regional Policy Statement (RPS) and published reports. As he notes in para. 4.1, the description is merely to enable the assessment of issues. However that is not the task of this Tribunal. The role of an expert witness is to understand the legal framework to assist with decision-making. However nowhere does Mr Rough consider the statutory task of the Special Tribunal, that is, an assessment under RMA s. 199.
4. In his Appendix 1: terminology, Peter Rough defines the different river reaches, which appear consistent with the terminology I have applied in my assessment. As identified by Mr Rough in his evidence (para. 3.1), the Hurunui mainstem passes through a wide variety of landscapes. He addresses 10 landscape character areas in the Upper Hurunui, that is, down to the Mandamus confluence, and four below to the mouth. I provide neither evidence nor rebuttal regarding the river below the Mandamus confluence. However I am unclear as to what Mr Rough considers to be

“downstream areas” of the length of the Hurunui. In para. 3.3 he states “*landscape in some downstream areas are somewhat lacking in terms of high natural character they have high visual amenity value. The Sisters Stream catchment would be such an example.*” This example includes Lakes Taylor and Sheppard.

5. Whilst the regional and district landscape studies, and the District Plan, recognise the land systems framework, and the systems approach was endorsed by the Rangitata Special tribunal, Mr Rough’s analysis ignores this available methodology that has considerable support as a science-based approach.¹ The basis for Mr Rough’s landscape characterisation is unclear.

6. Mr Rough contends (para. 3.3) that much of the landscape of the lakes “*has been highly modified by the rural activities such as farming and forestry*”. It is unclear what scale of reference Mr Rough is using in such a statement. In landscape assessments of effects, “highly modified” is typically a measure at the low end of a 7, 5 or 3-point scale, that is, the most modified. The scale is typically recognised as a spectrum between the unmodified of the pristine through to the built cityscape. Recognising accepted definition of ‘naturalness’² as opposed to ‘modified’, I have considered the various areas of the upper Hurunui as assessed by Mr Rough and find no justification for his statement that this landscape is “highly modified”. Hence I rebut each of his assessments of the upper Hurunui ‘landscape character areas’ below.

7. At para. 3.5 Mr Rough identifies that “*Lake Sumner which is surrounded by impressive landforms having a mostly intact cover of indigenous forest*” contributes to the landscapes being outstanding. He identifies that a combination of factors accords outstanding status. This is in reference to assessment under s.6b.

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¹ Lynn, I.H., Basher, L.R. 1994: *Principles underlying land systems in resource assessment of hill and mountain lands in New Zealand*. In: Webb, T.H. (Ed.) *Soil-landscape modelling in New Zealand. Landcare Research Science Series 5*
Swaffield, Simon & Lucas, Di. *A Land Systems Approach: Bay of Plenty*. Landscape Review 1999 5(1) pp. 38-41

² see para. 39 in my primary evidence

8. In para. 3.7 Mr Rough refers to 'landscape related factors' and their assessment for outstandingness at the national level. It is unclear what factors he is referring to, with regard to assessment as per s. 199. This confusion in assessment tasks, between s. 6b and s. 199, is repeated throughout Mr Rough's evidence. As he notes at para. 5.7.4, assessments with differing frames of reference will produce differing results.
9. A purpose of the WCO is to recognise and sustain "*outstanding amenity or intrinsic values which are afforded by waters in their natural state.*" The WCO sought includes the protection of characteristics of the various water bodies which are considered outstanding for their "*wild, scenic, or other natural characteristics.*" S. 199 does not refer to natural landscapes nor natural character.
10. In conflating his assessment to natural landscape, Mr Rough has not recognised that under s.199 a reach need not be both wild and scenic. For example, the Mohaka River WCO identifies both the Mokonui Gorge and the Te Hoe Gorge on the Mohaka River for their "outstanding scenic characteristics", and not for outstanding wild characteristics. Also, the upper Nevis River in Otago is recognised for outstanding scenic characteristics whereas the lower river for outstanding wild characteristics.
11. For the waters in their natural state, the outstanding amenity values afforded by these waters need not be entirely natural. Amenity values are defined in s.2 to include natural or physical qualities or characteristics. That is, amenity values can include "*all forms of plants and animals, ...and all structures*". Thus, the "working landscapes", "fences and stock", sown pasture, huts, tracks, bridges and occasional homestead, such as identified by Mr Rough, whether or not natural in terms of being highly indigenous and intact, may well contribute outstanding amenity values and outstanding scenic characteristics.
12. Also, evident and known histories of peoples in a landscape may be experienced as 'cultural attributes' that contribute to outstanding amenity values. As identified by Ngai Tahu runanga in their resource management strategies, in the Nohoanga site, and to the hearing, and has also been

separately articulated by Waitaha, Te Hurunui has long been of outstanding significance to tangata whenua.

13. The Special Tribunal for the Rangitata WCO stated (para 161) "*We note that wildness is not wilderness, nor necessarily indigenosity, nor pristine. However, we expect that outstanding wild characteristics will occur in largely indigenous situations.*" Whilst "wild" refers primarily to indigenosity, "scenic" does not. But Mr Rough has assumed that scenic values must be largely indigenous and highly natural to be outstanding. However scenic values as a resource are not necessarily indigenous or highly natural. Scenic values typically involve cultivated rural dimensions, including occasional buildings and plantings. The concept can therefore complement that of naturalness in contrast to that of indigenosity.
14. Instead of undertaking a s. 199 assessment, Mr Rough has assessed each reach more in accordance with s. 6 matters. Whilst s.6b involves identification of outstanding natural landscapes (ONL) at regional and district scales, this makes these features and landscapes matters of national importance. For his WCO assessment, Mr Rough has sought to assess outstanding natural landscapes at a national scale. This is not a s. 199 task. On the contrary, s.199 considerations can ignore such matters.
15. Amenity values involve all senses. As noted at para. 3.7, Mr Rough has confined his consideration to visual amenity. However the soundscape is also an important contributor to the amenity values of the Upper Hurunui waters. The trickle of streams, the roar of gorge waters, the wash of lakeshore waves, and the contrast in the change from placid silent lake waters to rushing outlet waters close by, these all contribute importantly to the landscape and amenity, to the wild and the scenic, and to the natural characteristics enjoyed. In confining to the visual amenity, Mr Rough has ignored the acoustic landscape.
16. The tectonic activity of these basins has for centuries been recognised by peoples experiencing and studying the upper Hurunui. The tectonic activity is a significant recognised attribute of the upper Hurunui, both in science and in ancient waiata. Waitaha waiata refer to the rumbling of the faultlines

here as "Te Haruru o Ruauumoko".³ Large earthquakes that reshaped these lands are plotted in the memory maps of Waitaha.

17. Similarly other dimensions of the sensory landscape ignored include the four areas of hot springs, spread in the North Branch and South Branch, which contribute significantly to the valued amenity and intrinsic values of the upper Hurunui. The hot springs of Maruiatakura, Nga Ngawha o Maruiatakura⁴, have for many centuries been highly valued for their natural characteristics and for their cultural attributes. The lake outlet, Te Wahapo o Taio, has similarly been very highly valued through many centuries. Except for geopreservation recognition, Mr Rough has ignored the dynamic and heritage landscape dimensions in his seemingly superficial assessment.
18. Whilst focussing on assessing naturalness and natural character, Mr Rough has scarcely addressed accepted dimensions of such analysis, the consideration of natural patterns and natural processes, as well as natural elements.
19. Apparently using an outstanding natural landscapes approach to his assessment, Mr Rough has not however explained the factors or criteria he is assessing. Under accepted natural landscape assessments, the factors or criteria involve: Aspects or criteria for assessing a landscape include:
 - a) **natural science** factors - the geological, topographical, ecological and dynamic components of the landscape;
 - b) its **aesthetic** values including memorability and naturalness;
 - c) its **expressiveness (legibility)**: how obviously the landscape demonstrates the formative processes leading to it;
 - d) **transient** values: occasional presence of wildlife; or its values at certain times of the day or of the year;
 - e) whether the values are **shared** and **recognised**;

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³ Te Porohau Ruka Te Korako, *pers. com.* April 2009

⁴ Te Porohau Ruka Te Korako, *pers. com.* April 2009

- f) its value to **tangata whenua**;
- g) its **historic** associations.

These aspects conform with Court findings (para. 80 in C 180/99 Wakatipu Environment Society Inc. vs. Queenstown Lakes District Council) that further suggested that all amenity values might be included in criterion (b) above, not only the one quality of aesthetic coherence. Therefore I accept that Mr Rough's approach might be to assess according to these "modified Pigeon Bay factors" to assess the outstanding amenity values of the Hurunui as required by s. 199. These factors are sometimes addressed as biophysical, sensory and associative attributes, and can provide a reasonable assessment approach. Whilst referring to s. 6b (para. 5.3, 5.4 and 5.7), Mr Rough provides no explanation of the breadth or basis for his assessment and no reference to s.199. He provides no explanation of why he has addressed only very limited dimensions of the aspects under consideration.

20. In section 5, whilst he has undertaken a literature review of studies Mr Rough has not addressed the adequacy of the factors they assess with respect to s. 199. Whilst providing no analysis of the adequacy of the factors they address, he notes the conclusions of studies since 1991 that address some of these now accepted factors under the RMA in para. 5.8 that identify at least the whole of the North Branch, Lake Sumner and Loch Katrine together as within outstanding natural landscape. For example, the 1993 and 1995 studies both recognised that important tangata whenua values in the Hurunui contributed to its outstanding natural landscape value⁵. However, he dissects this landscape (para. 5.8.3) with no analysis of the contributing factors nor recognition of the statutory basis being utilised. No map of the nationally outstanding landscapes he identifies is provided. There is not even a map to show the extent of waters that he includes, such as eastern Lake Sumner and upper North Branch. There is no clarification regarding his assessed status of Loch Katrine and associated waterways. Loch Katrine contributes very important cultural and natural heritage and scenic value (attachment 79, right).

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⁵ Rough appendix 1, para. 2.2.2. The whole lakes area including the south Branch was assessed as "clearly outstanding" as per aesthetic, shared/recognised and tangata whenua value.

21. Mr Rough provides a review of previous studies. Surprisingly he has not referred to the more recent Boffa Miskell landscape studies undertaken for HWG. The HCWDP report (July 2007) stated that they had Boffa Miskell assess the Hurunui and found the South Branch of particularly high natural character value and vulnerable, and that Lake Sumner also has high and reasonably vulnerable values. Whilst I understand the Boffa Miskell landscape architects are not appearing, Mr Rough has neither referred to their studies nor undertaken any comprehensive studies himself.
22. With no analysis of natural or cultural dimensions, Mr Rough concludes that farming detracts and the landscape of the upper Hurunui between the No. 3 Hut and Charleys Point is of a length of river and lake that is not nationally outstanding like that of the river above and lake below.
23. The head of the lake is however an intense area of both natural and cultural attributes. The forest remains down the valley alongside the active river flats. The division between public conservation lands and private freehold lands is not easily evident as the forest remains astride its natural landforms (attachments 73, and 26, 27, 28 lower left).
24. As noted in my primary evidence (para. 83), the delta has been recognised for its significance as wading bird habitat. As demonstrated by the Land Environments NZ (LENZ)⁶ mapping (attachment 7), for these natural non-forest systems, any indigenous biodiversity remaining on such floodplain lands is highly valued.
25. Within the last two years there has been a fire on the north-facing slopes to the Crawford Range between and above the Lake Sumner Hut and former No.2 Hut site (including part of Reserve 115; see photo attachment 76). In this high rainfall ecological district recovery to forest will occur and the colonising bracken is already evident. Whilst purportedly assessing natural values, he has ignored natural processes.
26. Cultural attributes contribute important amenity values in the North Branch,

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⁶ a NZ classification of abiotic (soil, climate, topography) drivers

Lake Sumner and Loch Katrine, however Mr Rough has limited his assessment to visual dimensions of amenity. The early colonial layers with mining traffic to the west coast, early settlement and a rich recreational history, all contribute to the cultural attributes of the valley. Interwoven through and below these layers are the layers of tangata whenua. Ngai Tahu layering has been articulated, and those of Waitaha less so.

27. As recounted by Waitaha elders in the first journey down by Rakai Hau Tu, from Hanmer they came up the Waiau Uwha and across Pari Porōa (the Hope Kiwi Saddle) to the land of many lakes. Lake Sumner, the largest, was named Te Tai O, the food basket. The most northern bay is Parengarenga (Marion Bay) with Te Awatea to the west (refer sand map, attachment 88).
28. The primary inflow to Te Tai O, the North Branch delta, is known as Te Mokoroa.⁷ The delta has long been used exclusively for fishing parties, and once on the delta, the fishing parties fish from the dark moon through to the big moon and then finish. It is important to Waitaha that the delta be protected as it has a key role in their connection between the two lakes, Te Tai O and Rotokewa (Lock Katrine).
29. With its tradition for birthing ceremonies, Rotokewa is a very special and distinct lake for Waitaha. The lakes are each quite distinct. Waitaha histories recount the different character of their waters and their very different relationship to the waters of each. In the memory of Waitaha, more than a millennium ago there was a massive incident when “the water or rain water literally poured out of the heavens making huge lakes in the upper areas all along the inner corridors of the southern alps, to include this area. Only at this one time were the lakes combined, during a prehistoric flood event.
30. The distinctive and separate character of Lake Sumner and Loch Katrine either side of the linking canal, is highly valued for amenity and intrinsic values, for natural characteristics, for cultural attributes, for recreational attributes, and for wild and scenic value. The canal area as the natural link

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⁷ Te Porohau Ruka Te Korako, *pers. com.* April 2009

between two lakes is a highly valued, naturally non-forested area rather ignored by Mr Rough.

OTHER METHODS

31. Mr Rough assesses (para. 3.9) that the objectives, policies and implementation methods for the outstanding landscape identified in the District Plan (HDP), which includes all the area he considers to be nationally outstanding, are 'protected' by the HDP and Conservation Park status. However, certain activities are permitted or controlled and buildings, earthworks and indigenous vegetation disturbance have only restricted discretionary activity status and might potentially occur in close association with the lakes or rivers. Structure on the lakes and rivers would not be addressed by the District Council.
32. The landscape cannot therefore be considered to be strongly 'protected' by the HDP, and the WCO sought would add a complimentary layer to the protection it does provide by protecting the water, noting that the HDP has limited jurisdiction over activities affecting the waters. Ms Marx has addressed the ability of the HDP to deliver the landscape protection sought by the applicant in her primary evidence and rebuttal at para. 23. Whilst Mr Rough assumes the HDP implementation methods will provide protection, one method (18.4) is "*to investigate methods to provide long term protection for the Hurunui River (including its lakes and tributaries) above its confluence with the Mandamus River*". The proposed WCO is such a method.
33. As part of the HDP landscape protection regime, I note that farming is a permitted activity (B3.1(d)) and that this specifically excludes intensive farming. Confusingly, whilst Mr Rough considers farming reduces the outstanding qualities he conversely assesses that the District Plan protects the outstanding qualities.
34. For the public conservation lands of the upper catchments, the Conservation Park status does not provide any protection for the waters. The regional council statutory regime provides no certainty of protection of the values identified. I therefore consider Mr Rough's analysis (para. 3.9)

that even the natural landscape values he agrees are outstanding at a district, regional and/or national level are already protected by other mechanisms to not be justified.

NORTH BRANCH & LAKE SUMNER

35. In para. 3.10 Mr Rough refers to HWP proposing “facilities” to control the flow of the upper Hurunui. Whilst no design is cited, Mr Rough confidently assesses (para. 3.11) that *“a weir at the outlet to Lake Sumner will not diminish the outstanding natural landscape status, at a District level”*. He also assesses that such impounding would not diminish the outstanding landscape east of Charleys Point that he assesses is of national status. Such casual assessment of change to this highly natural lake of recognised national importance⁸ I consider to be seriously questionable professionally.
36. Mr Rough provides no recognition of the natural feature of the North Branch delta (my attachment 25, lower left) which he indicates (sheet 17) would be considerably inundated as a result of that weir. This would disrupt the natural patterns, processes and elements of this major delta within the area he identifies as nationally outstanding (para. 5.8.3) (although within which he assesses problems from modifications such as Park huts, tracks, an exotic tree clump and grazing in the lower valley (para. 4.12.3 - 5)). There is no recognition that any existing effects on naturalness would be exacerbated by the inundation of the valued natural feature of the delta.
37. Whilst providing a methodology involving assessment of landscape character areas, Mr Rough has assessed a part unit as nationally outstanding, but has provided no mapping of this proposed division through Lake Sumner. There is no map of what he considers nationally outstanding. Nor is there any assessment of wild or scenic values.
38. At para. 4.13.5 Mr Rough assesses the Lake Sumner landscape to have a high degree of naturalness, and the water bodies an *“open and wild*

landscape". Whilst presumably the task is assessment as per s.199, surprisingly he does not assess the scenic value of Lake Sumner or Loch Katrine.

39. Whilst mapped within the lake's 'landscape character area" (sheet 1) the outlet is not assessed in this lakes area. With the mainstem area, Mr Rough assesses that the Lake Sumner outlet has very high natural character (para. 4.14.4). He also refers to the lake east of Charleys Point to the outlet as being of nationally outstanding landscape value.

NORTH BRANCH

40. In assessing no effects of significance on what he recognises is the nationally outstanding Lake Sumner outlet, Mr Rough has ignored the natural and heritage attributes that are a result of the highly natural characteristics of the outlet, the natural patterns and processes that make up the outlet system. The outlet, Te Wahapo o Taio, is a focus for tangata whenua. It is a focus for recreation. As with ecotones, the place of change from lake to river is a rich and dynamic place. The cultural and natural attributes, the amenity values enjoyed, the scenic values and the wildness, all of these are dependent on the natural processes resulting from a naturally impounded lake gently overspilling entirely naturally into its outflow channel. The flows pulsing with natural rhythms and weather conditions. The natural characteristics are ancient and outstanding.
41. The lake side of the outlet is inextricably linked via natural processes to the river side of the outlet. Their interconnectedness is a crucial dimension underpinning all of the values identified. Mr rough's casual dismissal of all values to conclude the effects would be insignificant is not substantiated.
42. To artificially impound Lake Sumner would also alter the relationship with the delta and Loch Katrine.

MAINSTEM

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⁸ e.g. Geopreservation Inventory. refer para. 65 - 66 and footnote 13 of my primary evidence.

43. Mr Rough identifies that from the outlet for 750 m the river is flanked by indigenous vegetation (para 4.14.2), but then "*often dominated by willows*". He provides Figure 11. The river is however impressively lined with kowhai, as shown in his photograph. Floating down the mainstem recently I did not notice a single willow until down past The Sisters. The river margins are impressively natural, and the river itself, which is the prime focus of an assessment for a WCO, is completely unmodified.
44. Mr Rough assesses the mainstem landscape above the South Branch confluence as a "*working rural landscape*" due to farm fences and stock. I previously assessed, and that Order identifies, outstanding wild and scenic and other natural characteristics along the full corridor of the Rangitata, from the headwaters to the gorge, which at that time had stock and fences along its length.
45. Mr Rough assesses (para.4.14.4) that from Gabriel Stream to the South Branch, the mainstem has a high country setting. So too does the upper Rangitata. Whether the Hurunui mainstem is experienced as wild or scenic, or as having natural characteristics, is not assessed by Mr Rough.
46. Mr Rough overlooks the Boffa Miskell assessment, based on ECan records (Figure 4, 2001), that the mainstem from the Glenrae to the Mandamus is rated as highest visual amenity .
47. The analysis undertaken by Boffa Miskell combines wild and scenic and access into a visual amenity valuation. As s.199 provides for recognition separately from scenic, it is necessary to refer to their base data. As, for example, greater access can count against wildness. The Boffa Miskell study ranks the gorge length as 5 out of 5 for scenic value (attachment 7).
48. Mr Rough assesses (para. 4.19.4) that the road and its traffic, and in the vicinity of the South Branch confluence the "*obviously farmed nature of the land*", somewhat detract from the otherwise relatively high natural character. Whilst these dimensions reduce any sense of wilderness, they do not necessarily detract from a sense of wildness, nor of scenic values.

On the contrary, the road enables land-based scenic enjoyment of the river corridor.

49. Mr Rough largely ignores the contribution of cultural attributes that contribute importantly to the amenity values of the mainstem. The road follows a very historic and significant route named Te Ara Whanui a Maui (attachment 88). The layers of history trodden into this route up the river contribute importantly to the amenity values.

LAKES TAYLOR & SHEPPARD

50. Mr Rough notes the homestead node at Lake Taylor, and the '*High Country pastoral landscape*' (para. 4.15.3 - 4). He assesses high amenity value but does not assess the scenic value of the lakes, nor their natural characteristics. Their national geomorphological importance recognises their natural and scenic value.
51. The lakes are valued by Ngai Tahu. To Waitaha, Rauiti (Sheppard) and Rotokopae (Taylor) have long been highly valued.
52. The physical juxtaposition and the combination of the natural and cultural attributes of these lakes landscapes provide outstanding scenic and amenity value. The Lakes Station homestead node is shown at my attachments 33 (lower), 37 and 38.
53. Mr Rough has not assessed the catchment as per s. 199. He concludes (para. 5.8.7) the landscape has very high visual amenity. That is, it has very high scenic value. He also recognises the catchment is outstanding for geomorphology. That is, for natural characteristics.

SOUTH BRANCH

54. At para. 4.16.4 Mr Rough assesses the upper South Branch, which includes Lake Mason (sheet 1) as very high in natural character. There is

no assessment provided of wild values, nor of scenic value. None of the heritage attributes have been addressed. Being the burial place of Ruawai, this lake, Pohuruawai, is a special and sacred place for Waitaha.

55. Mr Rough's interpretation of our 1993 assessment that in listing the lakes there is a suggestion that Lake Mason was not addressed as part of the South Branch system, is erroneous (Appendix 1, para. 2.2.2). Whilst I accept that the word "down" may be ambiguous, suggesting altitude and/or latitude, extending south to include the South Branch was the intent, and is clarified in the mapping. The study map, and the ECan mapping based on the study (attachment 3), clearly include the South Branch catchment below Stony Stream as outstanding, continuing down for the extent of the high country range and basin lands (attachment 10). The Lowlands hard rock hill country below was not identified as outstanding in that regional study. That is, Lake Mason and the entire South Branch below Stony Stream was assessed as an outstanding natural landscape at the regional scale.
56. Mr Rough notes the less forested character below (para. 4.17.3) but does not identify that this is at an area of change, as demonstrated by the Ecological Regions and Districts (my attachment 8). Mr Rough implies it has been cleared of indigenous forest, but there is no evidence of this having been a forested valley.
57. Mr Rough assesses that roads, fences and stock on the flats and terraces either side of the river (para. 4.17.4 - 5), the South Branch from Mason Stream down to the gorge as "*a high country working landscape character of moderate to high natural character*". There is no recognition of the natural vegetative cover of the braided river, the fluvial and glacial landforms. The open grasslands, turflands and alluvial communities of the terraces and riverflats have not been valued. The natural characteristics of the South Branch basin, and the distinctive contrast in underlying character between the North and South Branch basins have been little recognised (refer attachment 69, Paul Mosley, 2002).
58. Mr Rough assesses the South Branch corridor below to have the

“character of a working high country station” (para. 4.18.4). Such character is also that of the upper Rangitata valley, which exhibits a road and tracks, a series of station nodes, developed paddocks, fences and stock, shelterbelts and some plantation forestry. Such character does not preclude the river landscape having very important wild, scenic and/or other natural characteristics, just as it was for the Upper Rangitata, where it is protected for the fact it is in its "natural state" and outstanding "amenity and intrinsic values" and "wild and scenic" values.

59. In reviewing some further studies of relevance, Mr Rough notes (Appendix 1, para. 2.1.5) that in the inventory for water bodies of potential national importance (2004), the entire Lake Sumner catchment was identified as “nationally important for biodiversity”, with geodiversity and geothermal features recognised for their national importance. The geopreservation inventory national importance recognition of the importance and vulnerability of the lake features of Lakes Sumner, Loch Katrine, Lakes Mason, Sheppard and Taylor, and I refer to these at para. 69-70 in my primary evidence and Mr Rough at para. 5.6.7.
60. Mr Rough reviewed the Boffa Miskell 2002 study of Canterbury Rivers (para. 5.5.5 and Appendix 1, para. 2.2.4). He notes (para. 5.5.5 and Appendix 1 page 22) that in considering all of Canterbury’s rivers, the North Branch to the outlet of Lake Sumner, and all the South Branch to the mainstem confluence, were assessed by Boffa Miskell as outstanding landscape and having the highest visual amenity and natural character. This study rated the South Branch higher than the mainstem below Lake Sumner. As recognised by Mr Rough (appendix 1, page 24), the subsequent ECan report⁹ the “*North Branch, Lake Sumner and Loch Katrine were consistently assessed as having high natural character and outstanding natural landscapes.*” As Mr Rough shows (Appendix 1 para. 2.2.4), the Boffa Miskell assessment for the South Branch was downgraded in the staff report of 2004 (Rough para. 5.5.7 -8).
61. Mr Rough notes our 1995 landscape study of the Hurunui District (para. 5.4 and Appendix 1, para. 2.3.1) which identified the upper Hurunui rivers

and lakes as ONL at the District level, that is, as per s.6b. At 2.3.2 he notes their recognition in the District Plan, including the waters of the North Branch, Lake Sumner and Lock Katrine and the mainstem down to Maori Gully as ONL; Lake Mason and the South Branch; and, Lakes Taylor and Sheppard (attachment 3, on right).

62. Thus, as recorded by Mr Rough, the post-RMA studies reviewed identify values of national importance and variously outstanding for each of the upper Hurunui lakes and rivers above Surveyors Stream. Mr Rough concludes (para. 5.7.1 – 2) that the ONL identification at the district level is appropriate as per s.6b. That is, as has been recognised in case law¹⁰, if appropriately identified as outstanding at the district level, the upper Hurunui rivers and lakes down to Surveyors Stream are outstanding natural landscapes and therefore a matter of national importance.
63. In para 5.7.3 Mr Rough contends that the South Branch assessment as an ONL at a regional level was in only one regional study and not supported by others. However as noted above, in the only two professional regional landscapes studies reviewed, both included the south Branch as a regional ONL. That is, the 1993 study by Boffa Miskell and Lucas Associates and the 2002 study by Boffa Miskell. Mr Rough has inappropriately ignored this latter study in para. 5.7.4.
64. At para. 5.7.6 Mr Rough considers national assessments (Appendix 1 para. 2.1). However a number of these are methodologically outdated, did not assess all of the upper Hurunui under consideration, have a narrow frame of reference, and/or, are not assessments under either s. 6b or s. 199. As studies were limited by accessibility, it is entirely inappropriate of Mr Rough to conclude from these studies that the South Branch is not of national importance. There has been scant analysis of the South Branch, largely due to inaccessibility.
65. Mr Rough interprets from the geopreservation inventory that the North Branch and Lake Sumner are distinguished from the other lakes, but the

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⁹ A. Daly, 2004. *Canterbury Regional Council Inventory of Instream Values*.

inventory makes no such distinction. As quoted in my primary evidence para. 69 -70, the inventory groups Lakes Sumner, Katrine, Mason, Sheppard and Taylor as all excellent examples of national significance.¹¹

66. Mr Rough does not recognise the information gaps in the studies reviewed. He does not recognise the lack of any analyses of natural characteristics, especially of biodiversity, the lack of any contemporary nationwide wild and scenic analyses. There has been no analysis of natural values, of natural patterns, processes and elements across the upper Hurunui, currently or formerly. There is nothing provided to substantiate the proposition of a former large lake in the South Branch (para. 5.7.7).
67. In his conclusions, Mr Rough assesses at para. 5.8.11 that the braided river section of the South Branch is within an ONL at district level, but due to his understanding that the land cover has been considerably modified by farming activities, he would not rate it as outstanding at a national level. However the vegetation of the South Branch basin has been little modified.
68. Attachment 69 shows the South Branch basin. Whilst Homestead Stream was settled with a “comfortable home and garden” 150 years ago, it has been farmed only extensively ever since. The natural patterns, natural processes and natural elements remain remarkably intact after 150 years of farming occupation. Homestead Stream is recognised as a very important salmon spawning area (attachment 69). The LCDB2 vegetation map at attachment 73 also indicates how natural the plant communities are. The only pasture is not along the South Branch corridor. The river corridor involves important alluvial communities. The LENZ maps (attachments 76 and 77) indicate the rarity of such communities as lie along the floodplain lands.
69. The natural turflands remain surprisingly intact across many of these lands, as shown at my attachments 57 to 59, showing native turf species such as *Raoulia subsericea*, *R. haastii*, *R. hookeri*, *R. tenuicaulis*, *Uniflorus*

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¹⁰ WESI v QLDC

scleranthus, *Muehlenbeckia axillaris*, *Epilobium brunnescens*, *E. melanocaulon*, and *Hydrocotyle novae-zeelandiae*, plus *Geranium sessiliflorum*, *Pimelia prostrata*, *Leptinella pusilla*, *Viola* sp., *Leucopogon fraserii* and *Luzula rufa* var. *albicomans* were observed in just a brief visit. They provide fairly continuous coverage with few herbaceous exotics amongst them and no woody exotic species evident. These alluvial turflands are very impressive and are an outstanding natural characteristic of the South Branch braided riverlands.

70. Not recognising the naturalness of the lands of the valley, assuming a non-natural regime exists, Mr Rough has incorrectly downgraded his assessment of the mid South Branch.

SOUTH BRANCH DAM

71. At para. 6.6 Mr Rough outlines dam proposals for the South Branch. It is not the role of the special tribunal to address such proposals, except to the extent that allowing for such hypothetical proposals could fail to protect outstanding characteristics. Mr Rough notes that this is broadly conceptual as location and design have yet to be identified. I have not assessed the dam proposals but challenge Mr Rough's analysis that the 5 km length of braided river would be "*replaced with a water body*" and "*have the appearance of a natural alpine lake.*" He attaches Sheets 18 and 19 to depict this, and refers to visual amenity values he anticipates.
72. Not recognising any existing natural values, Mr Rough has not recognised the values that would be lost through inundation (attachment 85).
73. In addition, the proposed reservoir would I understand be drawn down for irrigation supply. With the prevailing winds down the valley, substantial wave action and erosion would be anticipated. Extensive mudflats and eroded slopes can more likely be anticipated than a "flat body of water" with a "lake edge tracing" the subtleties of the natural topography. I

3.
¹¹ Jill A. Kenny; Bruce W. Hayward, ed. 1998. *Inventory and Maps of Important Geological Sites and Landforms in the Canterbury Region, including the Chatham Islands*. Geol Soc. NZ Misc Pub 98. page 33

therefore consider the images and assessment somewhat misleading.

74. Hence I have included some indicative images of likely drawdown (attachment 84 - 6) as well as typical lakeshore erosion and mudflat development from storage reservoirs with seasonal drawdown, such as the Opuha Dam and reservoir (attachments 82 and 83) and Lake Hawea, which was dammed and significantly raised some 50 years ago (attachment 81).
75. The storage dam scenario with inevitable substantial drawdown cannot be assumed to *"imbue the valley of the river... with high visual amenity values"*.
76. Mr Rough's conclusions regarding the South Branch are therefore not well-founded. Firstly he does not value the natural characteristics of the South Branch valley lands. Secondly he inappropriately assumes a placid lake would be formed of natural appearance. He is surprisingly "certain" it would have high aesthetic value even though such storage dams elsewhere are regularly and for lengthy periods surrounded by vast expanses of unappealing mudflats (para. 6.6.9). Thirdly, he utilises s.6b assessment analysis, which is not the task at hand, both in assessing the existing landscape and the change he contemplates.

MANDAMUS RIVER

77. Mr Rough did not assess the contribution of the Mandamus River to the Upper Hurunui. He does not cite the regional council's Hurunui River Management regime (draft, 2007). For this study, landscape architect Sue McManaway assessed the landscape and amenity values of various Hurunui tributaries including the Mandamus. She identified that it involves a *"Very dramatic, sublime landscape. High scenic, recreational values, cultural values."* On a 3-point rating (High, moderate- Low) she rated the general amenity of the Mandamus as High. (page 127).
78. Dr Mosley assessed the Hurunui upper tributaries including the Mandamus

to have high to very high natural character. He continues: “*Despite the pastoral landuse of much of these catchments, the appearance of the landscape owes most to the vigorous action of natural geological, geomorphic and ecological processes (including regeneration of indigenous shrubland and forest).*” (2002, page 41)

79. Our Mandamus landscape study (2008) provided with my primary evidence shows the water bodies of the whole of the upper Hurunui including the Mandamus catchment as of national significance for biodiversity (page 23).

OVERALL EVALUATION

80. As a basis for his conclusions overall, Mr Rough is selective in his referencing of base analyses addressing the North Branch and Lake Sumner (para. 5.8.2). For example, the geopreservation recognition of the hot springs is quoted but not that for Lake Sumner in total. There is no recognition of the ‘Mainland Island’ and Lake Sumner Conservation Park status which involve outstanding wild and natural characteristics, amenity and intrinsic values and address almost the entire catchment.
81. Mr Rough concludes (para. 5.8.3) that the headwaters to the Lake Sumner outlet has a predominance of “*high natural character and constitutes an outstanding natural landscape*”. In his opinion, farming detracted from overall landscape quality and wild and scenic characteristics. Thus Mr Rough assessed that not all of the landscape associated with the upper North Branch and Lake Sumner was outstanding at a national level and rated Lake Sumner nationally outstanding only between Charleys Point and the outlet. That is, not Charleys Point and the western end of the lake, not the braided river inflow and natural delta that has very important natural and cultural characteristics, this end is cut off in Mr Rough’s delineation. The lake is not addressed as a natural entity, nor as a scenic entity. There is no analyses undertaken or referenced that addresses such a division through the waters of Lake Sumner.
82. The western end of Lake Sumner, is however highly natural. The native

forest continues the full length of the stable northern shore (attachments 20 – 21; 27 – 30 show the northern shore from west to east; and attachment 79 left provides an overview across the outlet). I question the appropriateness of Mr Rough recommending a WCO dissect a major natural water feature of recognised value in total for its natural, cultural, scenic and scientific value.

83. Whilst the actual extent of Mr Rough's part-lake outstanding characteristics, I question such dissection.

Rebuttal of the evidence of VAUGHAN KEESING

84. Dr Keesing (para. 14) mentions undertaking an "*extensive vegetation survey of both the South Branch valley and downstream of Lake Sumner*", but shows little of that in his evidence. No vegetation mapping is provided for either area.

85. At para. 33 Dr Keesing addresses the terrestrial environment, and the river turf land vegetation. Having stated he has undertaken an extensive vegetation survey, he then states that he does not discuss river turf due to an absence of data. In para. 37 he lists some species but provides no further information or analysis.

86. As noted in my para. 62 above, in a random sample on the South Branch I observed a very intact turfland community with dense indigenous cover over a considerable area. More diversity and intactness than Dr Keesing mentions was observed. The relatively intact alluvial communities I observed, the species diversity present and relative weed-free state, are indicative of a braided river valley environment that has high integrity.

87. The LENZ mapping indicates the rarity of such alluvial communities, and that the threatened communities are concentrated along the valley floors (attachments 75 - 77).

88. At para. 34 Dr Keesing mixes species from very different habitats, including pasture grasses and forest trees. This assortment from the

diversity of riverbanks and lakeshores in the upper Hurunui is not helpful. Dumping an unsorted list is of no assistance to the analysis.

89. At para. 35 Dr Keesing notes there are seven threatened species recorded in the area, but does not assist by providing information on what or where they are. His reference to botanic surveys of large areas of the south Branch by him and his team are of little assistance when little data is provided.
90. Given the intactness and national significance of the turflands observed, his reported survey work, and their national recognition as rare ecosystems, their importance for invertebrates and braided river bird communities, I consider it inappropriate that Dr Keesing has not provided adequate vegetation data for the Tribunal.
91. From my observation Dr Keesing's conclusion (para. 38) that these alluvial communities are '*not "Outstanding" in terms of size, composition, condition or any other measurable parameter*' has most certainly not been substantiated. From my field assessment, I consider the alluvial communities contribute to the natural characteristics and intrinsic values that make the South Branch outstanding.
92. The dramatic contrast between the open character and low stature natural cover of the South Branch valley with the much more forested and enclosed North Branch basin, is a key dimension of the scenic and natural value of the upper Hurunui.
93. At para.105 Dr Keesing notes that the dam his clients propose would inundate the river turflands and riverine bird nesting and feeding habitat of around 100 hectares, plus 80 hectares of riparian wetland vegetation. He states that as there are no outstanding plant communities, the inundation would have no effect on any outstanding value. My understanding of the alluvial communities of the South Branch does not support his conclusion.
94. The natural vegetation of the South Branch basin is of importance in contributing to the natural and intrinsic values, the wild and scenic character, of the basin. At para. 22 Dr Keesing perhaps recognises the

contribution of riverine turf lands and gravels as per s.199. It is not only water edge plants that contribute as implied by Dr Keesing at para. 21. Neither is it only rare or threatened species that contribute to outstanding natural characteristics.

95. Given his cursory consideration of the alluvial communities of known scientific concern, Dr Keesing expresses concern at visual quality aspects of Didymo (para. 76). The terrestrial ecology analysis provided is disappointing.
96. Dr Keesing analyses (para. 50) that the upper Hurunui instream, the flow, form and substrate are “near natural”. I have assessed the various water bodies and consider they can be rated as “natural”. As I have noted previously, considered under the RMA, the term natural does not equate with pristine. No ecosystems in New Zealand, not even alpine ecosystems, are completely pristine. However many are natural. The waters of the upper Hurunui are therefore appropriately rated as natural.

WILDERNESS POLICY

97. Regarding my reference to the Wilderness Policy (my primary evidence para. 33) it was drafted by the Wilderness Advisory Group in 1985. This was a group appointed by the Minister of Lands & Forests, consisting of representatives of Federated Mountain Clubs, the National Parks and Reserves Authority, NZ Forest Service and the Lands and Survey Department. The Wilderness Policy was adopted as government policy in 1985. The policy was subsequently endorsed by DOC and the Minister of Conservation when they assumed the functions of the previous agencies in 1987. It has remained unchanged in the decades since.

ADEQUACY OF DRAFT ORDER

98. In response to the question from the Tribunal, I have considered the draft Order. I have assessed the upper Hurunui to involve outstanding amenity values including aesthetic and cultural dimensions, outstanding intrinsic

values, with outstanding wild, scenic and other natural characteristics. I have considered their need for protection and assess that the “natural state” situation should be sustained. I consider that provision for dams or diversions of the waters identified would not be appropriate. I therefore identify that in order to sustain the natural state protection of the upper Hurunui suggested in the draft Order is what is required. I assess that a weir at the Lake Sumner outlet and/or a dam in the South Branch would not protect the outstanding values I have identified.

PHOTOPOINT REFERENCES

99. I understand there has been some confusion regarding my attachment references, and a photo locator error has been suggested on attachment 24. Attachments 23 and 24 provide photo locators for 52 places. Attachments 25 to 68 involve various land and water-based photos as well as aerial oblique views that are keyed to attachments 23 and 24.
100. As shown on the map index sheet for photo locators (attachment 23), Surveyors Stream is evident on attachment 49, in photo location 40.
101. Aerial photos are difficult to pinpoint on a map as a photopoint. The locators thus involve two types of references shown on attachments 25 to 68. “Photo locations” are photos supplied by F&G or other parties that we do NOT have GPS co-ordinates for. “Photo points” are the photos we took during the first site visit which we have GPS co-ordinates for.
102. For example, for the photos of Maori gully, photo 'point' 39 is taken from the banks of the river and was GPS referenced and the point correctly located on attachment 24. Photo 'location' 40 was taken from a helicopter. See attachments 48 and 49). Photo 'point' 39 is located in the centre of photo 'location' 40 (you can see the large rock in the river in the centre of the aerial photo). If the differing photo point and photo location references are recognised, then I understand the referencing of each to be correct.
103. To assist navigation in the attachments, Appendix F is provided that indexes the attachment numbers for the 52 photo locations in the photo

album provided.

APPENDICES

APPENDIX E

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attachment

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5. Land Tenure
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8. Ecological Regions & Districts
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24. Photo Locaters
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APPENDIX F

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