

BEFORE THE HEARINGS COMMITTEE

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Submissions and Further Submissions by Meridian Energy Limited to the Proposed One Plan

**STATEMENT OF EVIDENCE OF EWEN DOUGLAS ROBERTSON IN SUPPORT OF
SUBMISSIONS AND FURTHER SUBMISSIONS BY MERIDIAN ENERGY LIMITED
RELATING TO CHAPTERS 5 AND 12 OF THE PROPOSED ONE PLAN**

Introduction

- 1 I am a Project Environmental Manager with Meridian Energy Ltd. I am based in Wellington and my current role includes the following responsibilities:-
 - (a) Managing compliance with the resource consents granted for the development of a wind farm at Makara, Wellington through the preparation of Environmental Management Plans and Supplementary Environmental Management Plans for managing the environmental effects of the wind farm development.
 - (b) Monitoring the impact of earthworks and ensuring that environmental controls have been implemented and maintained during the activity. Regular liaison with Local Authorities and other agencies to ensure compliance with all regulations and reporting on project milestones.
- 2 I hold a NZCS(Geology) from the Central Institute of Technology and a NZ Diploma in Environmental Management, gained from the Open Polytechnic of New Zealand.
- 3 Prior to my current role with Meridian I was Team Leader Compliance with Horizons Regional Council for 8 years, this role included managing the compliance monitoring and environmental incident response functions of Council. Prior to this I was the Compliance Officer at Marlborough District Council for four and a half years. During this time I processed and monitored resource consents granted for land disturbance and forest harvesting activities. I moved to Marlborough from Environment Waikato, where I was a Hydrogeology Technician

for four and a half years involved in ground water monitoring and investigations. My career started at the Forest Research Institute (FRI) where I was a Research Technician, in the 9 years I worked for FRI my main focus was on soil nutrition and physical characteristics of forest soils particularly following forest harvesting.

- 4 While working for Horizons Regional Council I was involved in monitoring several earthworks activities that involved large scale earthworks. Of particular relevance I monitored Meridian's Wind Farm development at Te Apiti and also the stage three extension to TrustPower's Tararua Wind Farm. In both cases these major activities are permitted activities under Horizon's Operative Land and Water Plan ('Regional Plan').
- 5 I was also involved in several high profile subdivision activities close to Palmerston North that caused significant environmental effects. It was these activities that highlighted the permissive nature of the Regional Plan and the difficulty this created in being able to take effective enforcement action.
- 6 I have read the Environment Court's Code of Practice for Expert Witnesses and have complied with it in preparing my evidence.
- 7 In preparing my evidence I have read the following:
 - 7.1 Plan provisions – for Chapters 5 and 12 and Schedule A, Rules in Chapter 12 as proposed to be amended by the Reporting Officer and the proposed definition of HEL.
 - 7.2 I have read the Section 42A reports prepared by John Dymond, Lachie Grant, Jon Roygard and Phillip Percy.
 - 7.3 I have also read the 2006 report by Dymond and Shepherd from LandResearch, which were prepared following the February 2004 storm events.
 - 7.4 I have also read the relevant regional rules for earthworks and vegetation clearance from Greater Wellington Regional Council, Marlborough District Council and Environment Waikato
- 8 I have also reviewed the amendments to Rules 12-1 through to 12-6 that Meridian is seeking.

Overview of Evidence

- 9 I have a background in managing the effects of large scale land disturbance and/or vegetation clearance from the resource users perspective.
- 10 I have also had experience in the enforcement and compliance of rules and/or consent conditions relating to land disturbance and vegetation clearance whilst working for the regional and district councils mentioned above.
- 11 I was working at the Horizons Regional Council when the 2004 storm event occurred and I am aware of the issues that arose as a result of that event. Meridian Energy's Te Apiti Wind Farm had commenced construction in November 2003 and had endured a wet construction season prior to the February 2004 storms. One very notable consequence of the February 2004 events was that the earthworks being undertaken by Meridian were not impacted by the storms. However, many areas of undisturbed land on adjacent properties slipped badly.
- 12 I recall this because Horizons monitored the site (and in particular the effectiveness of the erosion and sediment control measures in place). I remember observing that several areas of undisturbed land slipped badly following the storm events, but the earthworks being undertaken by Meridian survived with minimal damage. I believe this was as a result of the adoption of good sediment control measures and was a testament to their management of earthworks on hill country in the Manawatu.
- 13 Given my background, my evidence will cover:-
- (a) The practicality of Schedule A;
 - (b) The practicality of the recommended replacement definition of "Highly Erodible Land";
 - (c) The practicality and enforceability of proposed Rules 12-1 through to 12-6; and
 - (d) The adequacy of Rules 12-1 through to 12-6 as proposed to be amended by Meridian with respect to enabling the Council to control the effects of concern.

Schedule A

- 14 As proposed, the Proposed One Plan defines Highly Erodible Land (HEL) as land mapped in Schedule A. This includes Hill country and Coastal HEL.

- 15 It appears to me that Schedule A classifies approximately 70% - 80% of land in the Region as being highly erodible. This is significantly greater than the proportion of land shown in Figure 5.1 (in Chapter 5 of the Plan).
- 16 I have read the Section 42A Report of Jon Roygard and also the 2006 Report of Dymond and Sheppard referred to by Mr Roygard.
- 17 I understand from those documents that approximately 30% of land in the Region could properly be classified as "Highly Erodible Land". I further understand that Figure 5.1 depicts this at approximately 1:1,500,000 scale.
- 18 Paragraph 33 of Mr Roygard's Report explains that Schedule A has been derived from Figure 5.1 in the following way "*[the information has been] scaled up by overlaying property boundaries and shading the area within the property boundaries on all properties where highly erodible land was mapped...*". This explains why Schedule A shows a significantly greater area of land as "Highly Erodible" than there actually is.
- 19 To my mind this is problematic from the perspective of a user of the Plan and also from an enforcement point of view.
- 20 Firstly, if Schedule A were to remain it would include land that is not in fact highly erodible. Such land would then be subject to rules that are intended to apply only to land that is properly an accelerated erosion risk.
- 21 Secondly, Schedule A is at a scale of at least 1: 1,500,000 scale. This makes it extremely difficult for lay-people to tell when they may or may not be captured by the rules (and therefore when they may or may not need consent). In my experience, such uncertainty can lead to non-compliances which could have been avoided if people did not find it "too hard" to figure out whether they need consent or not.
- 22 From a council's perspective, it also makes enforcement difficult. I had first hand experience of this while working for the Marlborough District Council at a time when its land disturbance rules relied heavily on the Land Resource Inventory (LRI) for determining the need (or otherwise) for consent. The rules referred to two (A4) maps in the plan that showed class VI, VII and VIII land - one of the triggers for the requirement for resource consent.
- 23 In 1996 I recommended taking legal action against Mr Derick Searle for undertaking earthworks on Class VIe land within 8 metres of the sea. This case was heard by Judge Treadwell. Judge Treadwell dismissed the charges against Mr Searle principally because the regional rule was based on the LRI. In his

decision he stated that *"the Land Resource Inventory Database was never intended to form a basis for criminal prosecutions"*

- 24 Judge Treadwell also commented that the scale of the LRI maps (that scale being 1:50,000) posed a problem and he referred to them as *"..'Rolf Harris' documents which assess conservation values on a fairly broad brush manner"*.
- 25 Finally Judge Treadwell commented that when councils develop regional rules these rules need to be precise to ensure that they can be understood and also be enforceable.
- 26 I understand that the Section 42A Report of Philip Percy recommends that Schedule A be deleted as it is considered "to be too large a scale to be useful to Plan Users". I agree with that analysis.

S42A Report Recommended Definition of HEL

- 27 Whilst I agree that Schedule A is inappropriate, I am concerned that from a usability perspective the recommended definition is no better.
- 28 I have reviewed Appendix A to the Section 42A Report of Mr Percy. I note that it comprises two keys components:
- (a) A definition of Costal Highly Erodible Land;
 - (b) A definition of Hillcountry Highly Erodible Land.
- 29 In my view, the definition of CHEL is practical and enables users of the Plan to readily understand whether or not they are proposing to undertake works on such land.
- 30 However, the definition of HHEL is complex and, even with my experience in dealing with projects in various parts of the country and on various types of soils, I could not go on to a site and confidently identify whether or not land is within the definition proposed. In my opinion, I would need to engage the expertise of a consultant experienced in Land Management to map the land at a suitable scale to identify if it was HEL. This approach fails to provide a suitable level of preciseness to the resource user.
- 31 From my experience as a council officer, I consider that this will cause problems at an enforcement level also because the same expertise would need to be taken on site where works have happened in order to determine whether or not land disturbance and/or vegetation clearance had occurred in breach of the Rules of the Plan.

- 32 Based on my observations while working for regional authorities in the areas of consenting and compliance, where rules are complicated or not readily understood there is an increased risk/incidence of people breaching them. The consequence of this is that environmental objectives are harder to achieve - in the sense that more resources have to be dedicated to policing the rules - and less likely to be achieved because, no matter how many resources are spent on enforcement, it is unlikely that every breach will be caught and/or rectified.
- 33 I consider the biggest problem with the HHEL definition is that it is so complex and technical that the average user cannot make a reasonable decision as to whether their land is HEL or not. Words like "deep landslides", "slumps" and "earthflows" are not easily understood by a lay-person, therefore the rules that rely on it lack certainty.
- 34 In my view, for the Rules relating to HEL to be effective the definition of HEL needs to be practical and readily understood. A definition such as that for CHEL needs to be drafted or, ideally, better mapping needs to be undertaken such that the land shown in Figure 5.1 is discernable at a smaller scale. It is then simple for people to pick up the Plan and determine whether they should avoid particular areas or obtain consent from the Council.

Rule 12-1

- 35 My understanding of Rule 12-1 is that any vegetation clearance or land disturbance carried out within the Region is a permitted activity provided it meets the conditions listed and is not specifically regulated by another Rule. Essentially, this covers any land disturbance or vegetation clearance not undertaken on HEL or within certain distances from waterbodies.
- 36 I understand that the Officer has recommended an addition to Condition (a) as a result of a concern that "*effective erosion and sediment control measures*" need to be defined. The Officer has recommended defining this by reference to Schedule D and the quality of any stormwater run-off.
- 37 I propose to firstly comment on whether the condition requiring "*effective erosion and sediment control measures*" needs further definition and then, if so, how this should be done.
- 38 Erosion and sediment control measures are well known to those of us who work in this field. However, the lay-person would be hard pressed to know what is required of them. It would be more desirable, in my view, to make reference to a recognised set of guidelines like the *Erosion and Sediment Control Guidelines for*

the Wellington Region that provides the relevant information. I would therefore suggest adding a reference to these guidelines to the end of Condition (a)

39 I also have difficulty with the reference to Schedule D standards for turbidity, because in a majority of circumstances the discharge from a sediment control structure is into the head of a catchment so there is no ability to measure an upstream turbidity to assess the percent change after reasonable mixing.

40 It is also common on large earthworks sites to have a large number of sediment discharges onto land which could reach water (non-point discharges) therefore also difficult to establish an upstream reference to determine the percent change in turbidity.

41 With regard to the appropriateness of the Officer's recommended addition to subclause (a) which is:

"The erosion and sediment control measures shall ensure that stormwater from the site entering surface water does not cause, after reasonable mixing, a percentage change standard for turbidity outlined in Schedule D for the receiving water body to be breached"

I do not consider that the reference to schedule D is workable for the reasons identified above.

42 In summary, I consider that the permitted activity rule 12.1 is clear and workable provide the reference to schedule D is removed and reference is instead made to a suitable erosion and sediment control guideline.

Rule 12-3

43 With respect to Rule 12-3, I have already discussed the concerns I have surrounding the definition of HEL. Putting that issue aside, and subject to the deletion of the clauses relating to "rare or threatened and at-risk habitats" (addressed in the evidence of Mary O'Callahan) I consider that the rule is both practical and enforceable.

44 If people are provided with an appropriate definition or map of HEL, I consider that the Rule will be both efficient and effective in ensuring that the Council can impose conditions on consents to satisfactorily control any effects on erosion and any sediment discharges that might arise.

Rule 12-4

45 Again, my primary concern with this Rule is that it refers to the definition of HEL.

- 46 My comments in this section relate to Rule 12-4 as proposed to be amended by the Officer. The amendments are generally accepted by Meridian save for the inclusion of clauses relating to habitats.
- 47 Rule 12-4 applies to vegetation clearance on HEL whereas Rule 12-3 applies to land disturbance. I understand that the effects of concern from vegetation clearance are similar to the effects of concern from land disturbance in that both activities can increase the potential for accelerated erosion which in turn can threaten soil conservation and create the potential for greater amounts of sediment to enter waterways. However, the surface area affected by land disturbance (earthworks for tracking) is generally far smaller than that impacted by vegetation removal.
- 48 The widespread removal of vegetation can have greater impacts on soil loss due to the loss of vegetative cover that helps to protect the land surface. This was evidenced during the February 2004 storms where adjoining catchments were impacted depending on their vegetative cover. The catchment covered in native or exotic forest cover was far less prone to slips than the adjacent pasture catchment.
- 49 I note that the Officer has recommended changes to this Rule in particular to the activity status. Associated with that change the Officer has proposed a list of matters over which discretion is reserved. My understanding is that this entitles the Council to decline consent for any of the reasons listed or to impose conditions in respect of any of those matters.
- 50 In my experience, the effects of vegetation clearance tend to be managed by any combination of the following methods:
- (a) Limiting the area of vegetation removal per year
 - (b) Requiring suitable re-vegetation within a short time period following vegetation removal.
 - (c) Ensuring a minimum ground cover is achieved within a short time period following vegetation removal.
 - (d) Providing a buffer from water courses.
- 51 Given the above, I consider the matters over which discretion is reserved enables the Council to assess all of the effects of concern. The list of matters mean that the Council can decline consent if the potential for sediment generation was so

significant as to be unsustainable and also if the potential for accelerated erosion was unable to be adequately avoided, remedied or mitigated.

- 52 In my experience, the measures to maintain slope stability can include:
- (a) Minimising the amount of earthworks being undertaken at any one time.
 - (b) Ensuring that batters are cut at a suitable angle to ensure slope stability.
 - (c) Ensure that fill batters are benched and compacted to ensure slope stability
 - (d) Ensure that batter and fill areas are re-vegetated promptly to achieve ground cover within a short time period following earthworks.
 - (e) Install sediment control measures that enable runoff to be treated onsite.
 - (f) Install water control measures (culverts, cutoffs, water tables) that are adequate for the road grade.
- 53 The methods of sediment and control of sediment run off can include:
- (a) Installing grit traps along road cuts to treat runoff from the road surface.
 - (b) Install sediment control ponds below fill sites to manage/treat runoff.
 - (c) Install silt fences to control runoff over land from fill areas and disturbed ground.
 - (d) Mulch fill areas to reduce the exposed surface area of the fill ares.
 - (e) Topsoil and re-vegetate fill areas promptly following earthworks.
- 54 From the above, it can seen that there are a variety of measures and methods that can be used to control the effects that may be created by the clearance of vegetation from HEL.
- 55 I have experience in both evaluating the effectiveness of methods and measures proposed to address effects and also of overseeing the implementation of them. In my view, the following sub clauses in the "Control/Discretion" column for rule 12-4 enable the Council to require any and all of the potential measures I have outlined above:
- (a) the nature, scale, location ,timing and duration of vegetation clearance

- (b) compliance with best management practice
- (c) the method of sediment retention and control of runoff
- (d) re-vegetation requirements
- (e) duration of consent
- (f) consent review
- (g) compliance monitoring

56 Accordingly, it is my opinion that the Council has all the tools it needs to ensure that the two matters of concern (erosion and sediment discharges) can be addressed in respect of any proposal for vegetation clearance on HEL.

Rule 12-5

57 My reading of 12-5 is that it controls both vegetation clearance and land disturbance within certain distances of water bodies and on coastal foredunes. I have not turned my mind to the issue of coastal foredunes and therefore do not comment any further on that aspect of the Rule.

58 Unlike the previous rules I have considered, Rule 12-5's application is not dependent on the definition of HEL. It is, however, dependent on an understanding of what the slope of land adjacent to waterbodies is. I have seen the definition proposed in the One Plan of "slope". I do not understand the Officer to be recommending any changes to this definition and note that it reads:

"Slope is the angle from horizontal and is measured in degrees to an accuracy no less than that achieved by a hand held inclinometer or abney level."

59 I consider that definition sufficient to enable a user of the Plan to undertake their own assessment of slope.

60 I have seen Meridian's requested changes to Rule 12-5 and note them as being:

- (a) A lessening of the activity status to "restricted discretionary"; and
- (b) Consequent to the above, the inclusion of a list of matters over which discretion is reserved.

- 61 I note that the list proposed by Meridian is the same as the list proposed by the Officer for Rule 12-4 (with the exception of reference to “rare and threatened habitats”).
- 62 In my view, the effects of concern for vegetation clearance and land disturbance near water bodies are the same as those for vegetation clearance and land disturbance on highly erodible land –being, the potential for accelerated erosion and the potential for increased sediment discharges to waterways.
- 63 Because the effects of concern are the same as those managed by Rules 12-3 and 12-4, I consider that the list of matters Meridian proposes to be included in the Control/Discretion column as entirely sufficient to enable the Council to manage the effects of concern. I understand that if the effects cannot be managed to a level satisfactory to the Council, consent can be declined - for example if the potential for erosion is worsened to an extent deemed unacceptable and/or the potential for unacceptable levels of sediment to enter waterways is deemed too high.
- 64 I consider that the Rules, with Meridian’s changes made, would remain workable and enforceable. In addition, streamlining Rule 12-5 so that the matters of concern are clearly stated would benefit an applicant for consent as well as the Council. It enables an applicant to focus on the two primary issues – erosion and sediment control – and enables the Council to focus its resources on ensuring those issues are dealt with appropriately.

Ewen Robertson

30 June 2008