Turitea Wind Farm Erosion and Sediment Control
Caucusing between N. Mark-Brown and G. Levy

Issue	Statement of position		Matters of agreement
	Nigel Mark-Brown	**Graham Levy**	
With reference to Schedule 1 Draft Consent Conditions 1 Feb 2010			
Definition of areas to be covered by each SEMP. Condition 6.8 sets out specific area. Condition 8 allows them to be varied.	This variation seems too open- ended and wording needs refinement, i.e. reasons and scope. Need to have consistency with respect to this issue for conditions 6.8 and 8	I disagree that further detail is needed. Every part of the works needs to be covered by an SEMP, so there is no risk that work will be undertaken outside SEMP provisions. Providing flexibility as to the subdivision of the works allows the Contractor to define the coverage of each SEMP to suit his timing, his design approach, issues to be addressed in the approval process, or any other unforseen factors, which might make it more appropriate to have a different subdivision. Having an arbitrary list of reasons in the consent, with no identified benefit, would be inappropriate.	Condition 6.8 should be modified to omit listing of the subcatchments, which is already more appropriately covered in Condition 8. Condition 6.8 should instead read: "Methodology for preparing SEMPs for each of the sub-catchment areas." Condition 8 can remain as currently worded.
Peer or independent input and /or review of SEMPs	Condition 9 should include at least one independent expert with chemical treatment experience.	To provide a consistent approach there are two options here – either list all the experts required, or leave the condition as it is. Further, I recommend that separating out the chemical treatment from all other aspects of the erosion and sediment control is unsound. There should be an ESC expert, and I would expect they would inherently cover the chemical treatment aspects as part of their expertise.	We propose the first sentence of Condition 9 be reworded to read: "… suitably qualified experts (including input from the consent holder, contractor, designer, environmental specialist, erosion and sediment control specialist and (for the walkover only) the consent authority). The preparation …"
	Need to include in Condition 10 under submittal of SEMP to environmental compliance manager "for review acting in a technical certification capacity" OR other requirement for peer review or independent review of each SEMP	In principle, the requirement should be for the SEMP to be submitted "… for review as to compliance with the consents." However, for consistency with Condition 6, the wording "for review acting in a technical certification capacity" is an option. I would not consider additional independent peer review to be necessary, as the Environmental Compliance Manager must retain the expertise required to review the Plans.	We propose amending Condition 10 by adding "… for review acting in a technical certification capacity" at the end of the existing first sentence.

With reference to Schedule 2 Draft Consent Conditions 1 Feb 2010			
Grit traps: definition of purpose and sizing criteria. Consent conditions do not specify where and how grit traps are to be used. Understood that they are to serve road carriageway and immediately contributing catchment areas during and after construction. This should be stated in the conditions.	As there is no commonly used definition of or sizing criterion for grit traps and they are not defined in the GWRC ESC guidelines, thus have a concern that condition 10 is meaningless or unenforceable. Need a design criterion for grit traps e.g. to provide 25 m^3 storage per 1000m^2 of contributing catchment.	Grit traps are only mentioned in the context of Roads and Turbines. They are intended as a "grit" trap, not a full sediment pond, recognising that the dominant source of runoff will be coarser weathered rock or basecourse from the road or turbine platform surfaces, They all require a silt fence on the outlet, which is intended to address any finer fractions in the discharge. An appropriate size would be similar to that for a decanting earth bund, which has a live storage of 0.5%. This could be stated in the condition.	We consider there needs to be more explicit definition of where and how grit traps are to be used. We therefore propose replacing Condition 10 with the following: "10 Grit traps shall be installed as follows: 10.1 To intercept runoff from all earthworked areas that comprise the formed roadways and turbine platforms and immediately adjacent catchment areas that drain to the formed roadways and turbine platforms; 10.2 Sufficient grit traps shall be installed such that there is a maximum catchment of 1000 m^2 per grit trap; 10.3 Grit traps shall be sized and maintained to provide a treatment volume that is at least 0.5% of the contributing catchment area."
	Condition 11: terms such as "more appropriate" and "generally" are too vague. This condition does not seem to implement the first bullet point of section 2.1 of the Minutes of the Design Optimisation Meeting of 3 August 2009 to avoid overly concentrated discharges. Suggest Condition 11 is modified to replace the current second sentence with: " the length of super silt fence installed shall be at least 10 m per 1000m^2 of contributing catchment area"	It is not appropriate to apply such a blanket condition in topography such as this. There are sites where the existing discharge point is relatively concentrated, but spreads out within the bush lower down the slope. It will not be practicable to install 10m of fence in every discharge location, or if 10m is installed, only a small proportion of it may function. The principle of avoiding concentrated flow is achieved principally by limiting the catchment draining to the discharge point, so that there are many small discharge points rather than a few large ones.	The first sentence of Condition 11 should remain as currently stated. The second sentence should, be replaced with the following wording: "The super silt fence shall have a minimum horizontal length of 10m, plus end returns of a minimum length of 2m. For locations in the base of a gully, where the effective horizontal length of fence that will be able to intercept runoff is limited by the gully side slopes, the 10m horizontal length shall be achieved by two or more shorter fences in series down the gully slope, without returns. A total horizontal length of less than 10m may be used in gully situations where the construction of the additional fence or fences in series would impinge on vegetation other than grazed pasture.

Standards for Sediment removal by sediment ponds.	Do not agree that a 75% removal standard is appropriate for erosion and sediment control at this site. Such a standard is not included in the GWRC ESC Guidelines and is not commonly used for erosion and sediment control in New Zealand. This is because, as shown by research for the Auckland area and elsewhere, the larger, more infrequent storm events yield disproportionately more sediment from earthwork sites than smaller events. There will be a significant number of rainfall events per year where sediment removal from ponds without flocculation will be significantly less than 75% and adverse effects on downstream environments can be expected from such events.	The conditions specifying 75% removal are 24.4 and 24.6. The approach is method-based rather than performance-based, and in that context it would be more appropriate for condition 26.4 to omit the reference to 75%, and to end at the words "… and treat runoff from each site." The wording for condition 26.6 is appropriate, although there could be debate about the threshold set. In that regard, I agree that a laboratory test threshold greater than 75% and/or a duration of less than 24 hours would be appropriate. I suggest either 90% removal in 24 hours, or 80% in 30 minutes.	We recommend that Condition 26.4 be abbreviated so that it ends as follows: "… treat runoff from each site." We recommend that Condition 26.6 (a) state: "The soils to be placed at the site do not settle to at least 80% removal in 30 minutes and at least 95% removal in 24 hours; and" We recommend that Condition 26.6 (b) state: "Laboratory testing shows that flocculation can result in at least 80% removal in 30 minutes and at least 95% removal in 24 hours. We recommend adding Condition 26.6 (c) as follows: "Compliance with conditions 26.6 (a) and (b) is to be established by sampling and testing of representative samples of the soils to be placed, both prior to preparation of the SEMP, and during placement in the spoil area."
	Rainfall within the southern parts of the wind farm can be expected to be higher than the rainfall used in the analysis of the Feb 16 report, as acknowledged in Salinger's evidence and from review of rainfall isohyets in Water and Soil TP 19 for 5 year 24 hour rainfall.	Two sites were analysis in the Feb 16 report. One of these, Makomako, is considered by Dr Salinger to be "fairly representative of the wind farm area". Therefore, the conclusions drawn in the report on performance of the ponds is appropriate.	Agreed that Makomako rainfall, as presented in the Beca report, is generally representative of the wind farm site.
Installation of erosion and sediment control prior to earthworks	There does not appear to any explicit requirement in the Conditions for the erosion and sediment control devices to be in place prior to earthworks commencing.	This appears to be correct.	We recommend a condition be added to Schedule 2, possibly as the first sentence of Condition 5. "Prior to bulk earthworks being undertaken in any part of the site, the erosion and sediment control works for the affected area shall be in place in accordance with the provisions of the SEMP."

Consent conditions relating to sediment pond chemical treatment	Do not agree with the second part of Condition 26.4: "to achieve a long term average removal of at least 75% of total suspended solids, constrained by size of storm". I do not agree with the 75% standard as previously explained and it is also impractical to measure to ensure compliance. Also adding "constrained by size of storm" is vague and imprecise and appears to negate the previous part of the condition regarding long term average removal. Do not agree with condition 26.6 (a). In my opinion the likelihood of a significant number of storms occurring that will exceed 30 mm rainfall in 24 hours together with significant clay content in many of the control samples, incomplete settling within 24 hours without chemical dosing and the positive test results from using chemical dosing, leads to the conclusion that chemical dosing of sediment ponds should occur based on clay content threshold of soils that will contribute runoff. Chemical management plans need to be prepared and implemented for each pond with the aim of minimising sediment concentrations in pond outflows.	Refer to earlier comments. Provision is to be made for installing chemical dosing on all ponds (26.5) and testing of the soil going in to the spoil area is to be used to determine if chemical dosing is to be used (26.6). This is a robust and appropriate approach.	This is addressed by the previous recommended changes to conditions 26.4 and 26.6.

Signed: **Graham Levy** **Date:** 4/3/2010

Nigel Mark-Brown **Date:** 4/3/10