
TRANSCRIPT OF PROCEEDINGS

Board of inquiry

Transmission Gully Proposal

HEARING at ENVIRONMENT COURT, WELLINGTON

8 March 2012

BOARD OF INQUIRY:

Environment Court Judge Brian P Dwyer

Environment Court Commissioner Russell Howie

Deputy Chairperson David McMahon

Glenice Susan Paine

David Mitchell

COURT RESUMES ON THURSDAY 8 MARCH 2012 AT 09.28 AM**LEGAL DISCUSSION – COURT AS CHAMBERS****CHAIRPERSON JUDGE DWYER:**

5 Yes, good morning, everyone. Now we're going to hear from Doctor de Luca. Now before we do, when we come to deal with the sediment witnesses, we're not sure if there's going to be cross-examination of them about conditions. We don't have an up to date set of the conditions.

10 MR HASSAN:

Yes, Your Honour.

CHAIRPERSON JUDGE DWYER:

15 Particularly as they relate to sediment. I understand it's still a work in progress, and I know the reasons why, but if the witness is going to be cross-examined on conditions, it would be helpful to know what we're talking about.

MR HASSAN:

20 Yes, Sir. In fact counsel were just discussing that just before you came in, Sir. I have got a full set of – I didn't want to confuse everyone with multiple sets, but I have got a few –

CHAIRPERSON JUDGE DWYER:

25 Well I'm just a bit worried about –

MR HASSAN:

30 Yes Sir, but subject to that, Sir, I've got a set of what is called the "Combined comments, planners and sediment experts" and I was proposing to use that as a reference this morning, and it may well be the easiest thing is actually to distribute that earlier –

CHAIRPERSON JUDGE DWYER:

All right.

MR HASSAN:

5 – so I can do that, Sir. So it's six copies, Mr Registrar. Now they do require
reading glasses, I'm afraid. They're A4. So that's obviously not a full
collation, and just while I'm on my feet about that, Sir, I spoke to Ms Jenkin
this morning about the logistics of getting the full collated set in front of the
board as soon as we can. Mr McGinnessy is working on that because
10 Ms Rickard is tied up with discussing with regulatory authorities this morning
until she's come into the room –

UNKNOWN FEMALE SPEAKER:

She was.

15

MR HASSAN:

She was. Now she's here, Sir, but my understanding is that that should be
ready, but unfortunately probably not ready until after lunch, but it will be after
lunch, straight after lunch. Now, of course Mr Kyle has to be on a plane at
20 7.00 pm, and he would be the first witness to be tested. I understand Mr Kyle
may be comfortable with dealing with this set, but it is for him to say whether
or not that is the case, but in any event, if Mr Kyle's called after lunch, Sir,
depending on how much time the board –

CHAIRPERSON JUDGE DWYER:

Is that phone in here or is it...

0940

MR HASSAN

30 Depending on how much time the board want to spend with Mr Kyle, I've
spoken to counsel and my sense is probably counsel don't want to spend too
much time with him. I've probably got about half an hour –

CHAIRPERSON JUDGE DWYER:

I don't want to spend any time with Mr Kyle. I'm not sure. I imagine the board members may have some questions. Okay. Well, I suppose it depends on the range of issues that are going to be taken up with him. I don't know
5 whether we need the full set of conditions, so we've got Dr de Luca, then Dr Hicks and Mr McLean –

MR HASSAN:

Yes Sir.

10 **CHAIRPERSON JUDGE DWYER:**

– and then it's the planners, is it?

MR HASSAN:

And then it's the planners, the first of which –

15 **CHAIRPERSON JUDGE DWYER:**

Mmm.

MR HASSAN:

– I think probably should be Mr Kyle –

20 **CHAIRPERSON JUDGE DWYER:**

Yes.

MR HASSAN:

– given his constraints. Now one of the difficulties with this set is it's on a
25 regional consents, so my thoughts were that perhaps if the set comes in at 2.15 pm, it may be that everyone would find it convenient to have a half an hour recess before Mr Kyle is questioned, and I think that would be safe enough to get him clear of here by, obviously, the end of the day, Sir.

CHAIRPERSON JUDGE DWYER:

All right. Okay. So that means, assuming we get through the three other witnesses we've got to deal with, we have a break until the conditions were available?

5

MR HASSAN:

Yes Sir, and that just gives counsel an opportunity just to quickly read those through in case they've got questions on matters, for instance, as to designations, which aren't in this set.

10 **CHAIRPERSON JUDGE DWYER:**

Yes. Does that sound –

UNKNOWN MALE SPEAKER:

15 I don't think he will deal with the designations without John Cole here. Is he coming back next week?

CHAIRPERSON JUDGE DWYER:

No, no, but they'll be in the set of – the conditions on the designations will be in the set of conditions which are available this afternoon –

20 **MR HASSAN:**

Yes Sir, and –

CHAIRPERSON JUDGE DWYER:

– and there will be a full set of conditions available this afternoon.

25 **UNKNOWN MALE SPEAKER:**

Certainly.

CHAIRPERSON JUDGE DWYER:

Yes.

30

MR HASSAN:

And just to appreciate, Sir, that what we've got here is a document that collates comments, so that's the value of it –

5 **CHAIRPERSON JUDGE DWYER:**

Yes.

MR HASSAN:

– it just shows where differences are.

10

CHAIRPERSON JUDGE DWYER:

All right.

MR HASSAN:

15 Obviously things in that area of designation haven't changed a lot, but in terms of one other matter, Sir, just as I'm on my feet on the matter of conditions, and the Board asked for the NZTA to be clear about its position on the agreed conditions, in other words those conditions which Ms Rickard has agreed to, during conferencing and whether the NZTA would or would not
20 support those. My instructions are these: that the NZTA will not ask us to oppose any conditions in closing submissions, in other words, if Ms Rickard has agreed to them the NZTA will not be opposing them in closing, but would obviously ask that the Board also keep in mind the need to consider whether they're justified, and the fact that they are onerous or not, or unnecessarily
25 onerous or not, bearing in mind this is a public project involving public funds, Sir.

CHAIRPERSON JUDGE DWYER:

30 Yes. Well I think we've indicated through our approach to noise, for example, that we're looking at every aspect of this, and we're doing so independently –

MR HASSAN:

Yes, Sir.

CHAIRPERSON JUDGE DWYER:

– and if there are aspects of the conditions which we think are too burdensome, and I can tell you that we've had discussions about some aspect of the conditions that might be seen in that light, that's how we'll approach it.

5 We're not bound by the conditions that are put in front of us; we will approach them in that light. We're simply wanting everyone to get as close to an agreed position as possible, and to know NZTA's final position.

MR HASSAN:

10 Certainly, Sir. They're just simply an aid to the board's inquiry.

CHAIRPERSON JUDGE DWYER:

Yes.

15 **MR HASSAN:**

Yes Sir, thank you. Now, Ms Rickard has indicated, is it?

MS McINDOE:

It might be easier if I –

20

CHAIRPERSON JUDGE DWYER:

Yes, if you did that.

MS McINDOE:

25 That's all right. Sorry Sir. There's a couple more housekeeping matters.

CHAIRPERSON JUDGE DWYER:

Yes.

30 **MS McINDOE:**

Ms Rickard's actually indicated that the designation conditions are available now, it's just we don't have hard copies for the board. The collation that's happening is to include comments from Dr Baber, Ms Kettles, and Dr Ogilvie

that came in last night and they relate primarily to the regional consent conditions, so we could have the designation conditions distributed.

CHAIRPERSON JUDGE DWYER:

5 I don't want whole heaps. I mean, let's to the final sort of settled version and we start on them this afternoon that'll be fine.

MS McINDOE:

10 Okay, no, that's fine. Now the other matter that I wanted to just come back to was yesterday when Dr Chiles was describing his tables, his exhibit 22, he indicated that there should be an amendment to one of the columns to add three decibels –

MR HASSAN:

15 Three.

CHAIRPERSON JUDGE DWYER:

Three dB. Yes.

20 **MS McINDOE:**

– and I just wondered if it would assist the Board, we could ask Dr Chiles to prepare a replacement to that table. It might be you already have notes of that.

CHAIRPERSON JUDGE DWYER :

25 I've marked mine by putting "plus 3" down the bottom, but I wasn't quite sure where he started, because it started from part way down that table, didn't it?

MR HASSAN:

10 Japonica Crescent.

30 **CHAIRPERSON JUDGE DWYER:**

10 Japonica Crescent, where do I find that?

MS McINDOE:

My notes were also 10 Japonica Crescent. My understanding was that it applied to the rest of the document after that. So perhaps there's no need for a replacement table. It sounds like the Board...

5 CHAIRPERSON JUDGE DWYER:

Well I had a plus 3 on page 1, mainly because I couldn't find 10 Japonica Crescent I think. Right, thank you. Now I think, Ms Anderson, you – did you have a query of some sort?

MS ANDERSON:

10 Sorry Sir, I did just have a couple of housekeeping matters in that the Regional Council was down for cross-examination of Mr McLean and Dr Hicks and they no longer wish to cross-examine either of them. The other is a personal unavailability issue this afternoon and I'm meant to be in Auckland but I take it we're unlikely to get to the re-called planners this afternoon and I
15 just wonder whether –

CHAIRPERSON JUDGE DWYER:

Well, I'd say we probably will, depending on how long people are with Mr Kyle.

MS ANDERSON:

I mean, I can move it, I'm just checking whether it's likely that we're going to
20 get to that point, so we may well do.

CHAIRPERSON JUDGE DWYER:

Well we may or – I mean if – I suppose you need to know whether you can pack your bags and leave do you?

MS ANDERSON:

25 Well I will be back first thing in the morning but it's just simply, I'm not sure that we'll get to Greater Wellington's witness in that order because I think you'll have Ms Rickard potentially first.

CHAIRPERSON JUDGE DWYER:

Oh, look if you only wanted to be here to, because your own witness was being called –

MS ANDERSON:

5 That's right, Sir.

CHAIRPERSON JUDGE DWYER:

– that can happen tomorrow.

MS ANDERSON:

Thank you.

10 **MS BRADLEY:**

Sorry –

CHAIRPERSON JUDGE DWYER:

Hang on, Ms Bradley?

MS BRADLEY:

15 Sir, Mr Hassan's just circulated a few copies of the combined planners and sediment experts' conditions and comments. Your Honour mentioned that you thought it was a work in progress. I think, it would be fair to say, that that work in progress is not actually a work in progress, that process has stopped since the discussions have stopped but as I mentioned on Tuesday,
20 Mr Handyside did circulate some comments and I think you'll see that those are represented in the collated comments that Mr Hassan has circulated and I just wonder if it would be useful for the Board's section 42A sediment authors to have a copy of those to consider and they may wish to comment on those when they have their appearance before the Board Sir. I don't think they've
25 been provided a copy.

MR HASSAN:

No problem, I was intending to ask them anyway.

CHAIRPERSON JUDGE DWYER:

Yes, no, that's – if you arrange that.

MS BRADLEY:

I think Mr Hassan might have some copies.

5 **CHAIRPERSON JUDGE DWYER:**

I'm just getting a bit concerned that we're going to have a welter of, sort of, papers and versions of conditions and whatever. The Board is very easily confused and – well, I am anyway and I just want to avoid that situation really. Look, I think that would be appropriate.

10 **MS BRADLEY:**

Thank you Sir.

CHAIRPERSON JUDGE DWYER:

Right now, Dr de Luca, we'll get to you at last. Now, sorry, has Dr de Luca been sworn in or affirmed?

15 **MS McINDOE:**

She will need to be re-sworn.

SHARON BETTY DE LUCA (RE-AFFIRMED)

EXAMINATION: MS McINDOE

Q. Can you please confirm for the Board that your full name is Sharon Betty de Luca?

5 A. That's right.

Q. And that your qualifications and experience is set out in your evidence, dated the 17th of November 2011?

A. True, yes.

Q. Have you had a chance to read the transcript from the hearing on Friday the 24th of February 2011?

10

A. Yes I have.

Q. And in particular, have you read those sections of the transcript –

CHAIRPERSON JUDGE DWYER:

Just hang on. 24th of the – 24th February 2012?

15 **MS McINDOE:**

February, sorry, I might have said November.

EXAMINATION CONTINUES: MS McINDOE

Q. 24th of February 2012 in fact, and in particular it's the sections where Ms Kettles provides evidence prior to her cross-examination beginning.

20 Have you read those sections?

A. Yes I've read those.

Q. There are a number of –

CHAIRPERSON JUDGE DWYER:

You wouldn't have the page numbers or something like that –

25 **MS McINDOE:**

Yes.

CHAIRPERSON JUDGE DWYER:

– Just for my notes.

MS McINDOE:

The examination begins, of Ms Kettles, on page 1004 of the hearing transcript
5 and continues until 1014, sorry, yes, 1014.

CHAIRPERSON JUDGE DWYER:

Thank you.

EXAMINATION CONTINUES: MS McINDOE

0950

10 Q. There are a number of matters arising out of Ms Kettles' evidence that I
would like you to comment on and I'll quickly run through my list and
then we'll come back and do them one at a time so we know where we
are. So the matters which I would like you comment on are firstly,
Ms Kettles' evidence relating to the Q2, the Q10 and the Q50 maps and
15 whether that provides a pattern which enables us to determine anything
about other events, for example, something between a Q10 and a Q50.
So that's the first matter. The second matter that I'll ask you about is a
comparison that Ms Kettles mad between maps 10 and 24 and
comments about modelling a Q10 event in three catchments or two
20 catchments, and I understand it's the Ration/Pauatahanui catchments.
The third point was a comment by Ms Kettles in relation to some
modelling carried out by Ms Malcolm which Ms Malcolm said was –
I understand Ms Kettles described Ms Malcolm as describing it as a
30% decrease in sediment and whether it was – and Ms Kettles point
25 was whether in fact she considered it to be a 30% decrease or not. The
fourth point was comments by Ms Kettles about your assessment of
significance based on the area being affected and whether you agree
with her comments in relation to that. The fifth one was her comments
in relation to cumulative effects and how your assessment has
30 considered cumulative effects and then, lastly, she made comments in
relation to studies which you have referred to, to support the fact that

recover is possible in less than five years and I was going to ask you to comment on those as well. So those are the six points. If we could go back to the start. The Q2, Q10 and Q50 maps and whether there's any pattern there. Are you able to advise, comment to the Board about your views on that?

5

A. Certainly. Before I answer that I wonder if I could have an opportunity to make one further correction to my evidence-in-chief on page 4?

Q. You didn't notice the first time.

A. The first statement. This is an error that was brought to my attention whilst considering the comments made by Ms Kettles.

10

Q. What is the date of the statement?

A. It is the 27th of January and it's page 4.

Q. Rebuttal evidence.

CHAIRPERSON JUDGE DWYER:

15 27 January.

DR de LUCA:

That's correct, page 4, table 1.

CHAIRPERSON JUDGE DWYER:

Yes.

20 **DR de LUCA:**

The first line of that table talks about the "two year southerly baseline" and there's a figure of 32 hectares in the five to 10 millimetres inter-tidal.

CHAIRPERSON JUDGE DWYER:

Yes.

25 **DR de LUCA:**

That figure is incorrect and should be four hectares.

EXAMINATION CONTINUES: MS McINDOE

Q. So my question related to the Q10, Q2 and the Q50 and what do you think, looking at those modelling events together shows?

5 A. Okay. In order to help answer that question and in order to assist the Board –

CHAIRPERSON JUDGE DWYER:

Why such a substantial change on that figure?

DR de LUCA:

10 The figure was erroneously supplied by SKM. I don't know where the error occurred at their end but it was just merely an error.

CHAIRPERSON JUDGE DWYER:

All right, I'm sorry, Q10 is an issue of the Q2, Q10, Q50 maps and if there's a pattern evidence I think.

MS McINDOE:

15 Yes. This was the – Ms Kettles put a number of maps on the overhead and commented on what she saw as a pattern. Now, unfortunately we don't have the overhead today. Mr McCombes, he's preparing the new version of the conditions but Dr de Luca has put the maps she wants to refer to in a booklet.

DR de LUCA:

20 I've prepared a collation of all of the maps that I've presented which, I apologise, I probably should have done in the first instance so you weren't flicking between my appendices to my evidence-in-chief and my rebuttal and also to supplementary evidence presented by Ms Malcolm. So this book contains all of the maps that I have referred to and prepared to date and it
25 also includes three additional maps which will help me explain some of the points raised by Ms Kettles. So I wonder if those three additional maps might need to be entered in as an exhibit. Yes, there were also two of my maps in supplementary evidence of Ms Malcolm and they are also in the booklet, and yes, three additional.

EXHIBIT 23 PRODUCED – DR de LUCA’S MAP PREVIOUSLY ENTERED INTO EVIDENCE AND THREE ADDITIONAL MAPS

EXAMINATION CONTINUES: MS McINDOE

Q. Okay, so what did you want to show the Board?

5 A. Thank you. I’d first like to refer to map 21 and map 37, and these are the Duck northerly Q10 and Q50 baseline maps.

Q. And how do we find those maps, what are the numbers?

A. Maps 21 and 37. Twenty one is the Duck 10 year baseline with northerly winds and 37 is the 50 year event Duck northerly winds
10 baseline, both are baseline. Now if you look at these two maps what you can see between them if you compare the areas of deposition, especially around Duck Creek is that the patterns –

CHAIRPERSON JUDGE DWYER:

Just go slowly is you wouldn’t mind Dr de Luca?

15 **DR de LUCA:**

Sure.

CHAIRPERSON JUDGE DWYER:

1000

Q. If you compare the areas of deposition around Duck Creek?

20 A. Yes around Duck Creek and also into the central sub-tidal areas. You can see that the patterns are actually quite similar. The Q50 deposition is larger but it is just pushed out from the Q10 area of deposition. Now if we look at –

Q. Just hang on a minute. The Q15 seems to sort of join them up, if I can
25 put it as crudely as that?

A. Yes a Q15 would be somewhere between the Q10 and the Q50.

Q. Yes.

A. If we consider that the Q10 with the project –

Q. Sorry, the Q50 joins –

30 A. Yes.

Q. Yes.

A. If we consider that the Q10 with the project is the next largest event beyond the Q10 without the project, so the Q10 with the project is the largest event to the Q50 baseline, so there's nothing in between those.

5 The Q10 with the project and then there's a gap to the Q50 baseline.

Q. Now do we find that?

A. I'd like to direct you to map 38 which is a new figure which compares the area around Duck Creek in those two situations. So the top figure, map 10, shows the additional deposition due to the project only. Now

10 it's quite important that you note that the area to the north of these thin –

Q. Just hang on. Map 38 shows additional deposition from the project, did you say, or with the project only?

A. Figure 38 shows a zoomed-in area from map 10 and from map 37, so the top one, the Q – the map 10 –

15 Q. Yes.

A. – is the Q10 with project and it's the sediment only due to the project.

Q. Yes, hang on. And that's in a 10 year event?

A. That's correct.

Q. Yes.

20 A. And then the map below that, the zoomed-in area in 37, is the Q50 baseline so without the project.

Q. Yes.

A. Now when looking at that, the first, the topmost map, map 10 there, that's only with project so you can imagine that the area northward of that dark green ribbon is also covered in the baseline deposition. So what you see is open harbour but that is actually covered in the baseline as well because this is just the with project sediment. So with that in mind if we could then just compare the amount of deposition around the yellow line which is mean high water spring, sorry mean low water spring –

25

30

Q. Sorry, I missed that last bit?

A. If we compare the deposition inter-tidally, so between the mean low water spring yellow line and the mean high water spring orange that's the high value sensitive intertidal habitat. If we compare between the

top map, the Q10 with the project and the Q50 baseline, around the Duck Creek mouth you can see that there is, there is a small area of additional deposition, it comes, the deposition in the five to 10, the lighter green, is closer towards the stream mouth and perhaps a little more to the east and then if you have a look towards the west of Duck Creek mouth, the deposition –

5

Q. Where do I find the Duck Creek mouth on this?

A. It's directly above the "E" in threshold in the title block.

Q. Okay, yes, okay, I can see it. Now what were you pointing out?

10

A. That around the stream mouth there, comparing between those two events, there is a little bit more deposition in the five to 10 millimetres threshold, a little bit more towards the stream mouth itself and a little bit more to the east but it's not huge –

Q. It's in the 50 year event?

15

A. Yes it's not vastly different to the Q10 with project.

Q. Just hang on. Yes.

A. So when we continue that comparison to the west of Duck Creek mouth around the small headland there doesn't seem to be much difference through into the next little embayment, I suppose, there is very little difference in the deposition between the two maps and then up around the next headland there is a little bit more deposition in the five to 10 mils and probably in the greater than 10 mils as well but it's not, it's not a great difference and then further to the west beyond that a deposition in the Q50 doesn't extend into the next bay in either in the Q50 or the Q10. So the point that I'm trying to make with these comparisons is that an event somewhere between a Q10 and a Q50 sits somewhere in the difference in deposition between these two. So a Q15 or a Q20 the extra deposition must be somewhere in that area of difference between these two and that a Q15 or a Q20 baseline must be in that area and then the Q15, Q20 with project must be an even smaller area as a subset. So I think that we can glean information on what a Q15 or a Q20 looks like around this area that we are focusing on around Duck Creek and my opinion is that these modelling runs show that we

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do not need to do a Q15 or a Q20, that the effects are likely to be less than the Q10 with project.

EXAMINATION CONTINUES: MS McINDOE

5 Q. My next question related to a comparison between maps 10 and 24, in particular whether the modelling of a Q10 event in three catchments instead of two made those maps comparable or not. I wondered if you had any comments on those maps and their comparison?

10 A. Certainly. So we're talking about map 10 which is the Q10 and the Duck with project and map 24 which is the Q10 with project and the Rations, peak Rations earthwork and the concern raised by Ms Kettles is –

CHAIRPERSON JUDGE DWYER:

Q. Just hang on. Now what was Q10?

A. Q10 –

15 Q. Map 10, sorry?

A. Map 10 is Q10.

Q. Yes.

A. Duck, northerly with project.

Q. Yes.

20 A. And map 24 is the Q10 peak Rations earthworks with northerly winds.
1010

Q. Yes.

25 A. So our intentions throughout the modelling was to be conservative. It was to try and model what is a realistic worst case and for the peak earthworks period we've modelled, or the most conservative modelling approach was a Q10 in the Duck and at Pauatahanui at the same time. So that's two catchments with a Q10, everything else had a Q2. If we were to have put a –

Q. Just hang on. Now it was Q10 in?

30 A. Duck and Pauatahanui.

Q. At the same time?

A. That's correct, yes.

- Q. Now SKM decided to not put a Q2 in the Rations at the same time, sorry, not to put a Q10 in the Rations at the same time because there was no earthworks open in the Rations during peak earthworks and all that would have been achieved by putting a Q10 in the Rations would be to increase the baseline sediment and potentially mask effects of the project.
- 5
- A. Just to confirm I've got that right. There won't be earthworks in Ration at the same time as Duck and Pauatahanui is that?
- Q. During the peak earthworks period Rations not open, yes.
- 10 A. During the peak earthworks period.
- Q. Okay, thank you.
- A. Now the Rations modelling which was undertaken at Ms Kettles' request during the peak earthworks during – during peak earthworks open in the Rations catchment, so this is a different time in the construction staging, it was decided that the most conservative approach to modelling in the Rations would be to have the Rations and the Duck open at the same time, put a Q10 in both of those since they both have open earthworks during the peak Rations construction.
- 15
- Q. Yes.
- 20 A. And it doesn't make sense to put a Q2 in the Pauatahanui because it's between them and if it's going to be Q10 in the other two catchments it's likely to be a Q10 in the Pauatahanui as well, even though there is no earthworks open. So the intention was to model the most conservative, realistic, worst case in the Rations scenario as well. We could have modelled a Q10 in the Rations and a Q2 elsewhere but putting a Q10 in the Duck where there is earthworks open is a worst case for the harbour. We believe that that is a more conservative approach to modelling in the Rations. Ms Kettles referred to, in her discussion of these –
- 25
- 30 Q. Sorry, just – do you want to take us through the result?
- A. Yes. Map 10.
- Q. Yes.
- A. Which is the event of most concern for the intertidal high value habitat shows about 3.9 hectares of deposition of sediment in the intertidal

habitat largely around Duck Creek and then when we turn to map 24 to the 10 year event in the Rations, Duck, Pauatahanui there is a lot less sediment deposited around Duck Creek and all intertidal areas and my conclusion on the Rations scenario was that the effects would be negligible. I remain confident that it is the Q10 and the Duck and Pauatahanui with northerly winds that poses the greatest risk to the ecological values of the harbour. Ms Kettles had some concerns about the freshwater inflow.

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Q. On that your map 24.

10

A. Yes.

Q. Are there – will there be open earthworks in those three catchments at that same time?

A. When there is peak earthworks open in the Rations there is no earthworks open in Pauatahanui but there is earthworks open in Duck.

15

Q. Okay, all right, thank you.

A. Ms Kettles had concerns about there being three Q10s in the Ration and two Q10s in the Duck/Pauatahanui scenarios and that the additional freshwater flow from the third Q10 would alter where the sediment is depositing and I can confirm that Mr Roberts, or he has explained in his evidence and on the stand that it is the eddies that dominate where the sediment deposits. That the freshwater inflows, the force of that water coming in is rapidly overtaken by the movement of that water due to eddies and the freshwater inflows really only have an effect around the stream mouth and not beyond.

20

25 Q. You haven't got the reference to Mr Roberts' evidence on that have you?

A. I'm sorry I don't to hand. So I – in conclusion I don't think that three Q10s versus two Q10s is a problem and we were aiming to model the worst realistic scenarios.

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EXAMINATION CONTINUES: MS McINDOE

Q. So the third question I had was whether map 26 actually showed a 30% decrease in sediment as Ms Kettles understood Ms Malcolm to state and whether the scenario chosen was one which I understand

Ms Kettles was suggesting that the scenario chosen to be modelled was one which would have had a lower effect anyway, and I wonder whether you had any comments on that?

CHAIRPERSON JUDGE DWYER:

5 One would have a lower?

MS McINDOE:

A low effect anyway.

CHAIRPERSON JUDGE DWYER:

Yes.

10 **EXAMINATION CONTINUES: MS McINDOE**

A. So this is map 26 so it's the 10 year event in the Rations, Duck, Pauatahanui with northerly winds, so just as we have discussed with 24 but it has a reduced baseline sediment in the Pauatahanui catchment and my understanding from Ms Malcolm is that the reduced baseline
15 sediment was modelled in response to outcomes from revisions to the sediment yield calculations and she wanted to test the effects of that.

CHAIRPERSON JUDGE DWYER:

Q. Just give me that again. This was modelled based on?

A. Based on some revised sediment yield calculations through the
20 caucusing process I believe. So she was wanting to test whether a reduced baseline sediment in the Pauatahanui would have an effect. Now, I understand from Ms Kettles' transcript that her calculations had this reduction as about 8% and I also understand that there's been some correspondence in the last few days between Ms Kettles and
25 Ms Malcolm clarifying the calculations.

1020

Q. And when you say "The reduction, Ms Kettles said the reduction was 8%," reduction in what?

A. Sorry, reduction in baseline sediment yield and Ms Malcolm has confirmed that it is, in fact, a 40% reduction. Now if that reduced baseline sediment yield in the Pauatahanui was going to make a difference to the sediment patterns, then it would most likely affect the peak rations scenario because they deposit in the same area rather than if we'd done a reduced Pauatahanui baseline sediment yield in the Duck/Pauatahanui scenario as the Duck deposits in a different area.

Q. So the next one was, I understood Ms Kettles to say that she had to take in your assessment to conclude that effects were of a low significance based on the area being affected being small and I wondered if you had any comments on that?

A. Certainly. No I did not just consider the area of deposition in my assessment of whether an effect was significant or not or whether a deposition was likely to cause significant effects or not. In all of the scenarios I considered the area affected, the depth of sediment, the shape of the area, the habitat values – the shape because obviously thinner diffuse areas have a larger edge effect and, therefore, can be colonised more readily from the adjacent habitat whereas a large blob of sediment has less opportunity for re-colonisation, so does shape habitat values effected and I also considered the baseline deposition patterns and scale. I also considered TSS. Whilst we haven't talked about it terribly much in the Court, this is because the TSS is virtually nil after a couple of days. It's really not an issue, even for the most sensitive invertebrate species it's not a problem. It's certainly not a problem for fish so I considered TSS as well and I'm quite confident that my assessment is appropriate and conservative. I would just like to note that Ms Kettles stated that in the baseline scenario runs there is no deposition in the inter-tidal. That's incorrect. In all of the baseline modelling runs there is deposition in the inter-tidal.

Q. And the next one was whether you had considered cumulative effects in your assessment and, if so, how?

A. I addressed cumulative effects in paragraph 113 of my evidence-in-chief, paragraph 53 of my rebuttal evidence. My conclusions about cumulative effects relating to acute events were that

there was likely to be sufficient recovery time between events for the assemblages to naturally restore, and I also considered the cumulative effects of long term sedimentation and I considered that the projects additional sediment were likely to be accumulated in the central subtitle basins to be minor. For example, during the construction period the programme is likely to contribute 0.66 millimetres per year across the harbour compared to the 9.1 millimetres per year estimated by Gibbs and Cox.

5 Q. And what was that estimate, the 9.1?

10 A. Yes, 0.66 compared to 9.1 millimetres per year.

Q. And is that for the baseline?

A. Yes, 9.1 is what Gibbs and Cox have estimate as currently occurring, and then the 0.66 is the amount of sediment from the project over the 20 years but confined to the six year construction period.

15 Q. Okay, so that was cumulative effects. The last one I –

CHAIRPERSON JUDGE DWYER:

Just explain why you've referred to 20 years as opposed to when the project's only six?

DR de LUCA:

20 The long term SIM, the 20 year SIM calculated – Ms Malcolm calculated that over that period there would be between 0.1 and 0.2 millimetres per year added to the harbour, but it's more realistic to consider it only during the construction period because that's when most of the sediment's going to be discharged, so if we take that 1.2, the higher figure, and then constrain that to
25 six years, we get 0.66 per year instead of the 0.2.

EXAMINATION CONTINUES: MS McINDOE

Q. My last question related to some comments which Ms Kettles made on studies relating to recovery of benthic invertebrates and the period of time that that would recover. I wonder if you had any comments on
30 those studies?

A. Certainly. Much of the literature relating to benthic invertebrate recovery from disturbance states that temperate macro invertebrate recover within three or so years. A lot of – not a lot of actually, only a small number of studies have been undertaken manipulating disturbance in inter-tidal habitats and these concur with the sort of three year, certainly less than five year estimates. Simon Thrush from NIWA undertook some experiments in the Mahurangi and he disturbed areas, smaller areas, small areas: they're only six and a half square metres, and he found that there was 80% recovery within just over a year. Other studies done down here in Wellington Harbour disturbing 25 square metres, showed that there was recovery within two to three years. And whilst these areas are smaller than perhaps some of the deposition predicted by the project, I think they give guidance and we can take confidence that these communities are relatively resilient. And given the high baseline sediment deposition that is occurring currently, these communities must be resilient. They are still diverse and abundant.

1030

Q. So those were all my questions.

CHAIRPERSON JUDGE DWYER :

20 Now, Ms Bradley or Mr Hardy, are you in a position to ask questions about those?

MS BRADLEY:

Yes, just a couple, Sir.

25 **CHAIRPERSON JUDGE DWYER:**

Right, yes, thank you.

CROSS-EXAMINATION: MS BRADLEY

Q. Good morning, Dr de Luca.

A. Good morning.

Q. I have to say I'm a little bit confused by your map, 38, and I'd just like to ask you a couple of questions about that. So map 38, you're comparing the 10 year with project with a 50 year without project?

A. That's correct.

5 Q. Right, so with the 50 year without project there would be quite a lot of water coming in to the inlet, wouldn't there?

A. Quite a lot of water?

Q. Quite a lot of fresh water coming in, sediment loaded –

A. Yes, I expect so, yes.

10 Q. – rainwater, whereas with the 10 year event, would that be significantly less amount of fresh water coming in?

A. That would be less, yes, I –

Q. Yes, so I think Ms Helen's – correct me if I'm wrong, but I think what Ms Kettles was pointing out in her evidence was that she saw a
15 connection between the Q2, Q10, or Q50 events, a continuum based on the amount of water that's coming through with more water coming through from a Q50 than a Q10, which would have an effect on the sediment deposition, and ending up ultimately, obviously, in the sub-tidal basin. Now when you're comparing the Q50 without the project with the Q10 with the project, aren't you really comparing apples and
20 oranges here, in that they're quite different in terms of the water inflows that go with that amount of sediment?

A. No, I don't think that that is the case. I think that in comparing these two
25 events, what I'm trying to show is that we have all these Q2s and then we have the Q10s, and then we have the Q10 with project, and it's the biggest in that set of modelling runs, so the Q2s, Q10s and then with project, and then we've got the Q50s base line, and we've got the Q50s with project. And there's this gap between the Q10 with project and the Q50 base line. And somewhere in there would be the Q15 that
30 Ms Kettles has referred to, so I think it is appropriate to compare these two modelling runs, in that they are the boundaries of the gap that Ms Kettles has referred to in the modelling. Now with respect to the fresh water inflows, Ms Kettles speculated that the fresh water inflows would move the sediment around to the west and into the next bay in a

Q13 or a Q15. We've heard from Mr Roberts that that isn't the case, that the fresh water inflows are quite rapidly taken over by the eddies, and it's the movement of the harbour water that determines where the sediment is deposited, not the fresh water inflows, and the similarity in the deposition between these two scenarios that I've zoomed in on and described supports that. There's not a vastly different deposition pattern between the Q50 when, as you say, there is a lot more fresh water coming in, compared to the Q10, with project.

5

Q. So in terms of those two scenarios, you are drawing a conclusion that because those two scenarios have comparable results, that there's no need to do any modelling between the Q10 and the Q50. I still –

10

A. That's correct.

Q. – don't understand that. How, how can that be the case?

A. Because there's actually very little difference around Duck Creek in the deposition between the Q10 with project and the Q50 baseline and somewhere between those two areas of deposition would lie the Q15 baseline and then would lie the Q15 with project so we're talking about quite, quite small areas. The addition due to the project in a Q15 is likely to be quite small because there isn't much difference between the Q10 and the – Q10 with project and the Q50 baseline.

15

20

Q. Yes I'm just not sure how you can say it's likely to not be very different if it hasn't been modelled.

A. The patterns are quite similar between the Q10 and the Q50 and the patterns are unlikely to be wildly different in a Q15, they will lie somewhere between these, the hydrodynamics and the driving factors won't be so different that the deposition occurs way over by Kakaho or Horokiri or somewhere, it will be, largely, in-between these two scenarios.

25

Q. And those are particular scenarios of particular storm events of particular characteristics?

30

A. Yes they are and I have used the Duck Q10 as the focus because that is the storm that I consider may have significant adverse effects on the marine intertidal habitat. Again, the worse case I considered.

Q. And this is the only comparison that you've done of these two type – this type of comparison?

A. That's correct, I've compared what I consider to be the worse case.

5 Q. Thank you. Now when His Honour was asking you a clarification about the Ration modelling that was done, on Ms Kettles request, he asked – well I think you confirmed that during the peak Ration – the peak period Ration, there'd be no works going on in Ration Creek at the same time as the Pauatahanui but there would be in the Duck Creek? Have I got that right?

10 A. In the Ration's modelling run, when there is peak earthworks open in the Rations there is no earthworks open in the Pauatahanui but there is earthworks in the Duck.

Q. That's right, so with the peak, peak construction that was modelled under the modelling that was done and presented in these figures, so that doesn't include the Ration – any works going on in the Ration?

15 A. No the peak construction period and the staging, and the construction staging, does not include any earthworks in the Rations, which is why I understand Ms Kettles wanted the Rations modelling undertaken.

Q. And what about outside of the peak construction period? Because this is all you've modelled, isn't it, the peak construction period plus the Ration separately. Outside of the peak construction, will there be works going on within both the Ration and the Pauatahanui?

20 A. I'm not 100% sure but we have modelled the, the peak earthworks in the Ration which is what Ms Kettles was concerned about.

25 Q. No I'm just asking outside the peak because that's all that's been modelled here, is the peak, which is a specific scenario.

A. I'm not sure. I'm not sure, we could dig out the MacDonald staging diagram and have a look at that if you like.

30 Q. Yes that's one staging diagram, isn't it, and then there's Mr Edwards', his own staging proposal as well, which is quite different isn't it?

A. I'm not 100% sure on that, sorry.

Q. And just lastly, on cumulative effects, Ms Kettles, as I understand it, Ms Kettles concern is her perception that you hadn't considered the – she refers to this at paragraph 13 of her evidence-in-chief, "The

cumulative effect of multiple rainfall effects that hasn't been assessed."

Now is this what you were referring to just now in your comments?

1040

A. Yes, I was talking about cumulative effects of acute events, so repeated acute events. So repeated acute events.

5

Q. So in terms of you mentioned that you'd covered these off at paragraph 53 of your rebuttal and 113 of your evidence-in-chief, paragraph 53 –

A. I'll just get that.

10

Q. Yes, that would be helpful, thank you. So at paragraph 53 of your rebuttal – it's not labelled rebuttal, it's the 27 January statement, it's the second statement. Now you say, you consider, "The cumulative effects of smaller, more frequent events such as Q10 depositing sediment on the same area of benthic habitat to be negligible given the likelihood of repeated identical events within a short timeframe and the likelihood of repeated events having identical characteristics, thereby affecting the same exact area of benthic habitat." So are you saying there that you think that multiple events will all occur in exactly the same way in exactly the same area?

15

20

WITNESS REFERRED TO REBUTTAL EVIDENCE OF 27 JANUARY

A. No I'm not. I'm saying that it's unlikely, very unlikely for a Q2, for example, a Q2 to hit one week and then the same conditions, exact same conditions result in a Q2 occurring the following week and affecting the same area.

25

Q. And is that it in terms of what might result in a cumulative effect?

A. No.

Q. Are you saying that it has to be exactly the same for there to be a cumulative effect?

30

A. No, I'm saying that repeated acute events are unlikely and that they are unlikely to affect the same area and that there is time between events for recovery to occur. For example, the three Q15s that were referred to between 2003 and 2005 in the Pauatahanui catchment. There is no evidence now that there has been any adverse effects from those. There's no suggestion that there's deposition or that the inter-tidal

assemblage has suffered. That's diverse and healthy and has sensitive species present.

Q. And do you know where the sediment accumulated for those three events?

5 A. I don't exactly know but I have sampled around the Pauatahanui Stream mouth and it's a very healthy and diverse community.

Q. Okay, and in terms of paragraph 113 which you referred to, of your evidence-in-chief, you're actually referring there I think to the long term sediment accumulation. You say, "The project related sediment contributes to the cumulative effect of sedimentation in the harbour," but I don't actually think that you are talking about cumulative effects of various effects in themselves.

10 A. That paragraph relates to my assessment of the cumulative effect of the project on sediment accumulation in the central sub-tidal basins, so I have assessed cumulative effects on the acute events occurring repeatedly and I have also assessed the cumulative effect of the project on sediment accumulation in the sub-tidal basins, which is what paragraph 113 discusses, and this is where I compare the 0.66 to the 9.1 baseline.

20 Q. So this isn't comparing or making a conclusion on the cumulative effects of multiple events?

A. No, paragraph 113 is about the long term accumulation of sediment in the sub-tidal basins.

CROSS-EXAMINATION: MR BENNION

25 Q. Sir I did have one small matter of clarification. There was a reference to Mr Roberts' report and eddies.

A. Yes, Mr Roberts' modeller.

Q. We put up Mr Bruce talking about wind patterns and things. The eddies are – wind drives the eddies?

30 A. That's my understanding, yes.

RE-EXAMINATION: MS McINDOE – NIL

QUESTIONS FROM ALL BOARD MEMBERS – NIL

QUESTIONS FROM CHAIRPERSON JUDGE DWYER – NIL

WITNESS EXCUSED

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DARRYL MURRAY HICKS (SWORN) (1047)

CHAIRPERSON JUDGE DWYER:

Q. Thank you, Dr Hicks. Can I please have you, for the record perhaps, recite your full name, confirm that you're the author of the section 42A
5 report, which we received, and any subsequent information you provided, confirm the accuracy of that?

A. Yes, my full name is Darryl Murray Hicks and I wrote the section 42A report and a subsequent follow up to that.

Q. Thank you. Now they've been circulated and read. You've got copies
10 of your reports available there I take it?

A. I do.

CHAIRPERSON JUDGE DWYER:

All right, the parties of the proceedings will be given the opportunity to question you on those, and I see there's been notices from NZTA and Porirua,
15 from the Director-General. I think Ms Anderson said Wellington Regional Council no longer wished to question you.

MS McINDOE:

That was my recollection, no longer wished to question.

CHAIRPERSON JUDGE DWYER:

20 And then Rational Transport. All right, so I think we'll start with you Ms McIndoe.

MS McINDOE:

I'm happy to start if that's your preference.

CROSS-EXAMINATION: MS McINDOE

25 Q. Good morning Dr Hicks. I'm going to focus my questions on your updated statement. I've just got a few in relation to the other ones. The updated statement is dated the 20th of February. Now am I right in

thinking that this updated statement is the most up-to-date distillation of your views, if you like?

A. Not completely because since I wrote that I have had communications with some people from SKM which regarded progress and their assessment of uncertainty in sediment yields.

5

Q. Would you like to update the Board on those discussions? Is there anything that would be relevant for the Board to know?

1050

A. Yes, well the issue as I left it in that updated statement from the 20th of February was that I'd seen some progress by SKM in assessing the significance of uncertainty and estimates of sediment yields but I guess my conclusion was that really I didn't think they'd progressed far enough for me to really sign off and say that that was an adequate assessment and since then I've had communications with Mr Philip Jordan who I believe, well he's basically in Australia and he's been helping with their study and I've seen very useful progress in that direction, I haven't seen final results. I, there have been some emails appearing this week which I haven't really had the opportunity since I've been in Wellington of absorbing their full content so I guess my position would be that I've seen some progress and we've had some communication and they've been doing assessments along the lines of, avenues I've suggested but I'm not completely in the position to say that I'm completely happy with it.

10

15

20

Q. There's no particular parts of your updated statement from the 20th of February that you'd like to change, I just want to make sure we, have got a complete record of your views, is there anything in there that you'd like to change based on this most recent correspondence?

25

A. There's just a very small technical error that I've picked up myself and this will be on page 2, the third paragraph from the bottom and I referred to Ms Malcolm's supplementary evidence which I hadn't actually seen, I was referring to her rebuttal evidence, so it's only a minor matter and probably not important but technically that's, I thought I should tidy that up.

30

Q. I understand that is the second bullet point under the words, “in regard to 3,” is that right?

A. Yes.

Q. Okay. Now in your first bullet point on page 1 you say that –

5

CHAIRPERSON JUDGE DWYER:

By “bullet point” you’re meaning paragraphs are you in regard to 1?

MS McINDOE:

10 I meant to say first, that might not be right.

CHAIRPERSON JUDGE DWYER:

Just that I can’t see any bullet points in my copy of the document and I wonder if –

15

MS McINDOE:

Yes I have, I have bullet points.

CHAIRPERSON JUDGE DWYER:

20 Okay, well it’s interesting, the hard copy that Mrs Paine’s just handed me has got bullet points but the copy that’s on my iPad hasn’t so I’m –

WITNESS:

Yes I’ve got the same issue.

25

CHAIRPERSON JUDGE DWYER:

– not, so sorry. But I think we’re looking at the same document because the paragraph says the same thing. I’m sure it’s the same document.

30 **MS McINDOE:**

I’m sure it is the same document but I have to say my notes are all related to the bullet points so we’ll see how we go, if you get lost then let me know, I’ll try and orientate you.

CHAIRPERSON JUDGE DWYER:

Just hang on.

MS McINDOE:

5 It might have simply been a transfer, electronic error.

CHAIRPERSON JUDGE DWYER:

The iPad ones haven't got the bullet points and the hard copies have.

10 **MS McINDOE:**

Yes Mr Hassan's just pointed that out, I'll try and give as much direction as I can to the paragraphs that I want to refer to.

CROSS-EXAMINATION CONTINUES: MS McINDOE

15 Q. The paragraph I want to refer to is the first paragraph under the words "in regard to 1," at the bottom of the first page and it says in the middle of that paragraph, "Essentially the situation is that the baseline yields are calibrated off the NIWA suspended sediment yield estimator." And my understanding of the, is the SSYE if I can refer to it that way, that accounts for all erosion processes, is that right?

20 A. Yes it does implicitly and that it's an improved model.

Q. And for this project, the SSYE was used to scale the USLE estimates so would you agree then that the baseline for this project is essentially an SSYE estimate?

25 A. Approximately, it wasn't – they didn't scale every catchment to bring it into line with the SSYE estimate. They used a sort of, an average scaling factor.

Q. But it's approximately you said, is that right?

A. It's approximately, yes.

30 Q. And now I understand you didn't take part in the expert conferencing on the 7th, 8th of December but have you read that report?

A. I read that report.

Q. Okay, paragraph 10 of that conferencing statement and if you do want to look at the conferencing statement Ms Rickards –

A. On the 7th is it?

CHAIRPERSON JUDGE DWYER:

Sorry which conferencing is –

5

MS McINDOE:

This is a, of the Earthworks and Sediment Control Conferencing 7th December and 8th December.

CROSS-EXAMINATION CONTINUES: MS McINDOE

10 Q. It's a short sentence, it might be that I can read it out. It's at paragraph 10. That paragraph says, "That the suspended sediment yield estimate is the best model for providing the baseline sediment estimates," now I appreciate you didn't take part in this conferencing but do you agree with that statement?

15 A. Yes I'd say that it would be.

Q. Okay. If we go back to your updated report, your third bullet point, the first paragraph, the first new paragraph on the top of page 2. You say, "While there is an improvement in the approach for estimating project generated yields, there remains an approximately factor of 2 uncertainty on the baseline mean annual sediment yields and a large uncertainty factor still for event sediment yields." Now is it the case that there's variation in sediment loads for any given flow and that's inherent in sediment sites?

20

A. I'm having trouble connecting the question with what preceded it.

25 Q. Yes well I think I'm focusing on baselines but if I've misunderstood your report then – I'm asking questions about baseline, that was really the only connection between the ones that went before and these ones. We've talked about SSYE, now I have another question about baselines.

30 A. Yes.

Q. So in terms of, in terms of estimating baselines do you accept that there's variation in sediment loads for any given flow and that's inherent in sediment science?

A. Yes and I'd just like to distinguish between you can have baselines for anything and you can have baselines for estimates of the mean annual sediment yield and we can have baselines for the instantaneous sediment load and its relationship with flow so within that context it's correct to say you can have a range of sediment loads for a given flow.

5

Q. And you mentioned before some work that's going on to clarify or put parameters on, I guess, the uncertainty associated with that. Do any other methods that you'd suggest to reduce the uncertainty which is inherent in those flows, in sediment in those flows?

10

A. Well the best way to reduce the uncertainty is to get some good data from the area.

Q. That's where I was going to go next. So at the bottom of page 2 you have a paragraph under the words, "in regard to 4" and I understand 4 relates to your first page where you say, "4, the often poor quality of existing sediment data". Now am I right in thinking that you reviewed the modelling work undertaken for the Waterview Project?

15

1100

A. I was engaged with some preliminary assessments of that project and it's all hazy in my brain because that was probably a year or two ago.

20

Q. The Waterview project –

A. But my recollection was that there was quite a stage assessment, it began with a conceptual sort of first order collective wisdom approach and from that a report was written and that made use of some prime modelling work and I was involved in a peer review of a report at that stage, but my understanding is that things have advanced quite a long way since then and I haven't been involved since.

25

Q. Okay. So you're limited, perhaps –

A. So, within that context I was involved in a limited way.

Q. Okay, and in terms of what you were aware of within your limited range of knowledge and if it's outside that, you just say, do you know whether there was any data collected in that project to verify the settlement yield estimates?

30

A. I can't remember, one way or the other.

- Q. Okay, that's fine. Now, I've got the second bullet point, but perhaps we'll go with the second paragraph on the second page, beginning with the words, "The improved USLE analysis," so now moving onto the construction estimate and you say there that the improved analysis involves layers of factors, erosion control, sediment delivery, et cetera, that collectively reduce the potential sediment generation from the project areas to small, apparently acceptable, amounts. Now, do you accept that given erosion and sediment control are integral parts of the design for this project that what's analysed is actually what's proposed?
- 5
- A. Yes.
- 10 Q. And so do you agree that that best enables the Board to consider the effects of what's proposed?
- A. Well that would probably be about the only way to do it, is to – what that process is doing it's making an assessment of how much sediment is produced off the hill slope and how much of that actually leaks out into the streams from the project area and that, of course, incorporates all the treatment and all the mitigation measures and so, yes, so it kind of follows through that sequencing in an appropriate way.
- 15
- Q. And you'll be aware that there's been a sediment removal efficiency of 70% proposed for this project and that's – this is in the sediment treatment ponds, it said a 70% for a Q10, would you consider that sediment removal efficiency conservative?
- 20
- A. I'm not the best person to answer that question.
- Q. Do you have any knowledge about what the sediment removal efficiency for the Waterview project was assumed to be?
- 25
- A. No.
- Q. Now, are you aware that detailed design hasn't been done for this Transmission Gully project?
- A. No, I wasn't.
- 30 Q. Okay. Now the conferencing you did take part in which was on the 13th of February, at paragraph 6, you have that? So, there everyone has agreed in conferencing that the revised the sediment estimate is an improvement on the assessment estimate in technical report 15 with

more appropriate implementation of the USLE model and no further improvement can be expected. Do you still agree with that statement?

A. Yes, yeah, that's by pursuing that method. That's about as far as you can take that approach.

5 Q. Have you read Ms Malcolm's rebuttal evidence of the 27th of January?

A. I have read her rebuttal evidence, so I'm sure it was on that date.

Q. I wonder if I could ask you to have a look at a copy, I think Ms Rickard will be able to help you find it, and there's a table, her table 1 that I would like you to look at, it's on page 5. This table, as far as I understand it, shows a difference between the assessed estimate, which was the one in technical report 15 and the revised sediment yield estimate which was the one in the 20th of January attached to the conferencing statement, and if we look for example at the Duck and the Horokiri estimates, the revised estimate is much lower than the original estimate, isn't it?

10

15

A. Yes, that's what the figures say.

Q. Well, I know, I find it a bit confusing with the minus sign, but I understand that's the case and so would you agree that even considering all of these catchments overall, that there was a sort of general over-estimate of sediment yield in the original estimate?

20

A. Well, some were over-estimated and others were under-estimated, so I'm not sure of the significance of an overall or an average value.

Q. Okay, and where there was an under-estimate, originally under-estimated later the revised analysis determined that the estimate should've been higher, those have been remodelled, haven't they? Are you aware of that?

25

A. Well, I would need – I couldn't say for sure, I know there's been some further modelling done, I don't know whether everything was redone.

Q. And the ecological assessments, so you'll understand, the ecological assessments, I guess, rely on the modelling to help determine their assessment and are you aware that the ecological assessments have been generally carried out in reliance on these original assessed sediment yields, would you agree with that?

30

A. It was my appreciation, from reading the technical reports, so that was the case originally and my further reading since then is that to a large degree, the ecological implications of changed values have been keyed to runs that were already done, just by taking maybe different return periods and just working within bounds.

5

Q. So, where the revised analysis showed that the original estimate was an under-estimate, there's been an reassessment, if you like, of the change and the significance of that?

A. I can't say whether that's been done systematically for all catchments.

10

Q. Have you read Mr Handyside's supplementary evidence dated the 20th of February?

A. I believe I have.

Q. This was filed before your, actually it probably would be useful if you are able to show him. The reason I asked is that this evidence came in before your updated report, but you haven't referred to it, that's why I thought I would ask.

15

A. I'd need to check and just read it.

CHAIRPERSON JUDGE DWYER:

20

Are you talking about Mr Handyside's evidence-in-chief?

MS McINDOE:

No his supplementary evidence dated the 3rd of February.

CROSS-EXAMINATION CONTINUES: MS McINDOE

25

Q. Mr Handyside's evidence-in-chief was received prior to Dr Hicks' main report?

A. Yeah.

Q. Being prepared and Mr Handyside's supplementary evidence was received prior to Dr Hick's updated report being prepared. So, I was wondering why Dr Hicks hadn't commented on this supplementary evidence in his updated report.

30

1110

A. Just looking at this I don't know that I have seen this.

Q. Okay. Well if I could ask you to look at appendix A or attachment A to Mr Handyside's evidence.

CHAIRPERSON JUDGE DWYER:

Is this the evidence of 3 February?

5 **MS McINDOE:**

Yes Sir.

CROSS-EXAMINATION CONTINUES: MS McINDOE

Q. It sets out a – Mr Handyside's USLE calculation for the Duck Creek area and in paragraph 19 of that evidence he says that he undertook – "I undertook my own USLE assessment to determine realistic staging values for condition E1." Now condition E1, you might recall, is the condition that was hotly debated between sediment experts as to the open areas, open earthworks areas. Now it seems to me Mr Handyside has used site average values in his USLE assessment. Would you support that?

A. Could you just clarify "site averaged," what you mean by site averaged?

Q. Perhaps it's better if I don't ask you about it. I'm just thinking if you don't – if you haven't had a chance to have a look at it then it might be a bit unfair so I'll leave my questions on it. I could ask you to look, though, at paragraph 24 of Mr Handyside's evidence where he says, in the middle of that paragraph, talks about his USLE and then he says, "I adopt an uncertainty factor of 100% which, in my opinion, incorporates the various uncertainties," and would you consider that a best practise approach for managing uncertainty and estimates?

A. Well I wouldn't be qualified to call it best practise but I would call it good practise to consider uncertainties.

Q. Good practise to consider uncertainty but would you do it in this manner, by just doubling?

A. By basically doubling? Well, again, I can't say whether doubling is appropriate or not because I don't know the significance of – the reality of doubling in terms of, for example, all the evidence from other sites

might show that a particular parameter might only range by maybe 10 or 20% over all extremes and so it wouldn't be appropriate to double but if that range was consistent with what's been observed in practise well then doubling might be quite appropriate. But again I'm not, I don't have the experience in that to give you a good answer.

5

Q. Have you considered the evidence of Mr Roberts for this Board, which related to harbour modelling?

A. No.

10

Q. No, okay. His evidence was that the processes occurring in the harbour are non-linear so that if you doubled the sediment coming in it doesn't, necessarily, equal a doubling of sediment deposition. Do you accept that that could be the case?

A. Yes although I – complex might be another way to describe it because it, it depends upon a whole raft of environmental conditions.

15

Q. I think he also described it as complex.

A. Yes.

Q. Yes. And we discussed earlier about how that modelling evidence has been taken into account by Dr de Luca and Ms Kettles, or the ecology evidence, if you like, relies on the modelling evidence. Have you read Dr de Luca's evidence?

20

A. I haven't read her evidence. I –

Q. You probably listened this morning.

A. I, I listened this morning and I read, as background, the technical report that was done on the modelling.

25

Q. Okay. So if Dr de Luca had relied on the original assessment, for example, in the – relating to sediment coming out of the Horokiri, which was an overestimate, that would be, do you agree that would be conservative?

A. If applied in the appropriate scenario, yes.

30

1115

Q. Yes. Page 3 of your 20th of February statement. The top of that fourth line you say, "uncertainty, and by how much this alters the rest of the harbour's sedimentation events that exceeds some ecological threshold," when you say, "ecological threshold" are you referring to the

ecological thresholds which are being used by Ms Kettles and Dr de Luca?

A. Essentially yes.

5 Q. Do you accept that the five to 10 millimetre, and the 10 millimetre plus thresholds, which have been used by them both, they may have different significance in different parts of the harbour, depending on values in the harbour?

10 A. Well I wouldn't really sort of qualify for comment on that. I think the limit of my comment is in regard to these values of sediment input which go into the model before it starts being dispersed by the different scenarios of wind and so on.

Q. And the next thing I wanted to ask you about was the conditions.

CHAIRPERSON JUDGE DWYER:

Well we might take a break there for 15 minutes.

15 **COURT ADJOURNS: 11.16 AM**

COURT RESUMES: 11.34 AM

CROSS-EXAMINATION CONTINUES: MS McINDOE

- Q. Dr Hicks, I understand you've got the conditions which were provided this morning, so these are the conditions which Mr Hassan provided.
- 5 They include the, it's headed, "Combined comments, planners and sediment experts (Fisher/Handyside)" and if I could ask you to turn to page 2-31? Well, 2-30 is the start of the earthworks conditions and I was hoping that Dr Hicks would be able to comment on those.

WITNESS REFERRED TO CONDITIONS 2-30

- 10 Q. Condition – and I think the old reference, new reference might be around the wrong way.

CHAIRPERSON JUDGE DWYER:

Just hang on. 231 did you say?

MS McINDOE:

- 15 Perhaps if we start with 230, which is the start of the earthworks conditions. And it says, "Old reference NE1," but actually I understand it's the new reference because all of the new references have N at the start of them.

CROSS-EXAMINATION CONTINUES: MS McINDOE

- Q. In any event, it's E1 and it relates to the areas of open earthworks and it places a limit on those earthworks within the particular catchments. Do you agree with the approach of this condition to limit earthworks within particular catchments?
- 20
- A. In principle I agree with the approach but I'm not really the expert to ask about this, it's probably more Mr McLean.
- Q. Could I ask you to look at, over the page, on 231 there's some grey text in the right-hand column which is from Mr Handyside and he recommends an amendment. He says, "The following is therefore recommended... for earthworks within the Porirua watershed which expose more than 300 square metres of surface area shall be limited to
- 25
- 30 not more than 12 hectares of rockfill and then he sets out some

parameters and rockfill is defined as 10% silt, 20% sand, 70% rock and with a K value of point 10. Have you seen a condition like this before?

A. No but then again I haven't looked at the conditions. That's why I think you should ask Mr McLean this.

5 Q. Okay. In terms of the conditions, more generally, are you able to make any comment on whether you consider them conservative or precautionary compared to other projects? I'm trying to gauge how much knowledge you have of conditions of other projects and how you see these ones comparing?

10 A. Well in terms of my experience in projects like this one, I can't give a relative view on that but my impression is, reading through these, is that they, the conditions combined with the monitoring and if they're all integrated it should be a reasonably conservative way of dealing with issues.

15 Q. Do you support the peer review panel condition which has been proposed?

A. I think that's an excellent idea, hmm.

Q. Condition NE23 requires progressive stabilisation trials. Would you agree with the condition? Yes?

20 A. Yes.

1140

Q. The 13th of February conferencing statement which you signed paragraph 12 of that statement said, "We agree that a consent condition should require that erosion and sediment Monitoring Plans and methods be certified by a trained experienced hydrologist sediment measurement specialist." Do you consider the peer review panel to give effect to that agreement?

25

A. Yes.

DEPUTY CHAIRPERSON McMAHON:

30 Sorry, I missed that paragraph Ms McIndoe.

MS McINDOE:

It was paragraph 12 of the 13th of February conferencing statement.

CROSS-EXAMINATION CONTINUES: MS McINDOE

Q. Now at the bottom of your, page 2 of your 20th of February report. Do you remain of the view that the baseline sediment yield monitoring and its analysis to date has not been best practice and you recommended that pre-project monitoring begin two years out. Now if I can ask you to look at condition MG40 which is on page 2-22.

WITNESS REFERRED TO 20 FEBRUARY REPORT, CONDITION MG40

Q. That condition requires at least one year prior to commencement of construction the carrying out of baseline monitoring, are you satisfied by that condition?

A. I'd ideally like the baseline monitoring period extended a little longer, the reason for that is in effect if you start monitoring 12 months out you then have to sometime between before construction starts, you have to process the information that's collected, analyse it, report goes through a review process and change the, and possibly change the erosion control plan and so on so there's – the reality would be then that you'd only have the benefit of a nine month starter to make decisions on and it may be that that nine months period was a dry summer and you may not actually have much to base it on so it will be safer to extend that monitoring period out a bit further.

Q. Like, for example, a month or two to allow the analysis to be undertaken?

A. Well ideally that was by – assessed to two years but I think a minimum would be 15 months to give at least a year for data collection.

Q. Now I understand that one of the outcomes from the sediment monitoring conferencing on the 29th of February, I know you didn't take part in this but one of the outcomes of it was a request, that the sediment experts agreed they would request you to review a revised erosion and sediment control Monitoring Plan and I just wonder whether you had any comment on that request or whether you had been approached or you are able to provide any update in relation to that?

CHAIRPERSON JUDGE DWYER:

Dr Hicks has not been instructed to do that by the Board.

MS McINDOE:

Okay, thank you. I have no further questions.

CHAIRPERSON JUDGE DWYER:

All right, thank you. Ms Bradley.

5 **CROSS-EXAMINATION: MS BRADLEY**

Q. Just on that last point, have you reviewed an updated version of the Monitoring Plan at all, other than on instruction by the Board?

A. I haven't written a review of that, no. I've seen it, it was sent to me as an email detachment and I sought advice about whether I should
10 engage as suggested and the advice was that I shouldn't.

MS BRADLEY:

Sorry Sir, does that mean, Sir, that I shouldn't be asking Dr Hicks whether he's got any comments to make on what he has actually seen. He hasn't been instructed?

15 **CHAIRPERSON JUDGE DWYER:**

He hasn't been instructed by –

MS BRADLEY:

No.

JUDGE DWYER:

20 – us to review that.

MS BRADLEY:

Is it still appropriate for me to ask him questions though Sir?

CHAIRPERSON JUDGE DWYER:

Well we'll see. Start and we'll see where we end up.

25 **MS BRADLEY:**

Thank you Sir.

CROSS-EXAMINATION CONTINUES: MS BRADLEY

Q. Now I've got copies of what I understand has been circulated by Dr Fisher and it's already, sorry, it's also referred to as Dr Fisher's comments?

5 CHAIRPERSON JUDGE DWYER:

What are we talking about?

MS BRADLEY:

We're talking about an updated Monitoring Plan.

MR HASSAN:

10 Your Honour, I haven't seen this and nor has Ms McIndoe.

CHAIRPERSON JUDGE DWYER:

I don't think the Board's seen it.

MS BRADLEY:

May I take leave to have it tabled then Sir?

15 CHAIRPERSON JUDGE DWYER:

Well it's certainly not appropriate to put it to Dr Hicks in these circumstances. If you're going to – I don't know what's in the document, how complex it is, what's it's going to take for Dr Hicks to look at it and understand it and –

MS BRADLEY:

20 It may be that –

CHAIRPERSON JUDGE DWYER:

– comment intelligently on it.

MS BRADLEY:

It may be that Dr Hicks has viewed the document that I wanted to table.

CHAIRPERSON JUDGE DWYER:

Well we haven't, counsel hasn't –

MR HASSAN:

If counsel had provided it to us maybe we could have looked at it but we
5 haven't seen it, I haven't seen it, I don't know what the **(inaudible 11:46:11)**.

CHAIRPERSON JUDGE DWYER:

No I agree.

MS BRADLEY:

Okay, I won't ask him questions, thank you.

10 **CHAIRPERSON JUDGE DWYER:**

Mr Bennion.

MR BENNION:

Q. Yes Sir, I just had one. Dr Hicks you've supported –

MS BRADLEY:

15 Sorry I haven't finished asking questions.

CHAIRPERSON JUDGE DWYER:

I'm sorry when you sat down I thought –

MS BRADLEY:

Sorry, no, because I was talking to you Sir.

20 **CHAIRPERSON JUDGE DWYER:**

Carry on Ms Bradley.

CROSS-EXAMINATION CONTINUES: MS BRADLEY

Q. In terms of your January report Dr Hicks you refer several times
throughout the report as the modified USLE model having been
25 calibrated and this is at paragraph, sorry, page 13. You mention the

word “calibrated” a couple of times there and on page 15 you mention it a couple of times. Is it not in fact that the model has not actually been calibrated in the proper technical sense of that term?

- 5 A. Well yes it has in a general sense. With the original SKM investigation they –

CHAIRPERSON JUDGE DWYER ADDRESSES WITNESS - AUDIBILITY

CROSS-EXAMINATION CONTINUES: MS BRADLEY

- 10 A. With the original SKM investigation the Universal Soil Loss Equation approach was followed and it produced a result on baseline sediment yields and they were then compared with estimates derived from the suspended sediment yield estimated which is the NIWA model of predicting sediment yields and there was a discrepancy, a difference, a systematic one and so that was applied, that discrepancy factor was applied to the USLE figures to bring them into line with the, more or less
- 15 what was estimated by this other predictor so in that sense it was calibrated and at that stage that calibration factor was essentially called, what we call a sediment delivery ratio because really what the USLE equation is doing is predicting how much soil is mobilised or detached from hill slopes, but the real interest in this case is how much of that soil
- 20 gets into the streams, downstream and quite a bit of that soil will, depending on the erosion process stops part way to the stream and never gets there so you have to assess how much of the sediment that’s mobilised is delivered and so that factor is called the sediment delivery ratio. And so what was that, the calibration factor which was derived
- 25 from the SKM was termed the settlement delivery ratio but my view was that there were just – there’s a whole bunch of reasons why the USLE shouldn't give a reliable result anyway for this application because, particularly since it didn't consider all the erosion processes occurring and in fact it was much better to term this a calibration rather than
- 30 explain it in terms of a settlement delivery factor, and the importance of that was that that same sediment delivery factor was soon to apply for the slopes affected by the project construction and it was quite a small

value, a value of 0.17 as I recall, which effectively reduced a lot of the predicted settlement yield from the project area and that wasn't appropriate in my view.

1150

5 Q. So in terms of whether it was technically calibrated as Dr Basher has referred to it in his statement of evidence, Dr Basher disagrees that it was calibrated as one model cannot be calibrated through another model. That's at paragraph 71(a) of his evidence and I took your report to be mimicking Dr Basher's thoughts on that at page 14, the
10 third paragraph down where you say, "Also for the record I agree with Dr Basher that it's inappropriate for SKM to claim that the SKM modified USLE based yields are validated by the agreement with the SSYE derived yields since this is a forced agreement." So are you basically agreeing with Dr Basher that you can't calibrate as such a model by
15 forcing its agreement with another one?

A. You can calibrate one model with results from another and I think it's correct to do that, particularly in this case where our model, the sediment yield estimator is an empirical one and it's based on field data but the thing is you can't calibrate and validate off the same data set.
20 You need to validate off something independent and the calibration and the validation was being done off the same data set and that was the problem.

Q. Now on page 20 of your first report, the third line from the bottom of the first paragraph you make a statement in relation to the modelling which
25 shows the flow of the stream, the waters in the stream through the mouths of the stream. You say, "In other words, much the sediment delivered to those channels is not predicted to reach their mouths. Such entrapment would be readily apparent in the stream channels if this was indeed the case." Now are you saying there that the modelling that was
30 undertaken doesn't reflect reality? Is that what you're saying there?

A. Yes.

Q. And at paragraph 22, sorry, page 22 at the top of it, the second line down you say, "The sediment routing to the stream mouths using the HEC-RAS model was not well done and gave suspect results in

- sediment delivery to the stream mouths which weren't used by harbour sedimentation model and again these points degrade the reliability of the results." Are you saying that it was appropriate not to use the modelling that was undertaken? Is this in respect of the assumption that all the sediment going into the streams was going to come through into the harbour?
- 5
- A. Yes.
- Q. And that was appropriate. So it wasn't appropriate to include modelling results that showed that it was going to be held back?
- 10 A. Well I think it was very fortunate that they weren't because from what I saw of that modelling study the, what the model suggested was it would have been delivered to the harbour, it would have been, sediment inputs would have been quite low and so it would've been inappropriate to use those and so the best approach is to take the conservative view that there will be no sediment trapped in the streams and use those for your harbour modelling, and that was what was done, and so I've really got not issue with that.
- 15
- Q. And if the sediment is trapped in the streams and flushed out by say larger flows later, does that actually occur in practice?
- 20 A. That always occurs to some degree. You have sediment dropped out in low energy low velocity zones on beaches and banks and so on and so it stops there on the high flow recession, as the flows are waning away and the next flood will come along and mobilise some of it if it's not stabilised by vegetation.
- 25
- Q. So does that mean that the way the sediment deposits, under that situation, could be quite different from the - it's been modelling, using the harbour modelling here?
- A. Are we talking about the harbour modelling or the stream modelling?
- Q. The modelling that's been used for the harbour.
- 30 A. Well the assumption used to get the sediment inputs, the boundary conditions if you like, how much sediment goes into the harbour, it was really assumed that nothing would be, well, there'd be no net sediment deposition in the channels between the project slopes and the harbour, and I think that was reasonable.

Q. Sorry, what was that?

A. That was reasonable.

Q. Thank you. Now I understand that in terms of the Gleans model which you talk about under section 3.4, you're saying that there would be no more advanced – the first paragraph under 3.4, "There would be no more advanced than USLE using gleans but would you agree with Dr Basher that Gleans is more reliable than the USLE model?

A. The advantage in the Gleans model is that it's much more integrated than the approach that was followed by SKM and what it does is directly predicts sediment loads and flows at the catchment outlet so, essentially, you can rain over a catchment and sediment is generated and routed through the streams and out to the catchment outlet and it's all done in integrated fashion. But the approach followed by SKM was different from that. They had a series of models and used a fairly complicated approach to arrive at essentially the same result as what you would have gotten from Gleans.

Q. Now, at the bottom of page 22 you refer to the appendix L of TR15 which is the sediment Monitoring Plan and you make a comment there that your recommendation would be continuous monitoring at control sites, and you also mention there with the data being used to calculate event sediment yields as well as simply monitoring turbidity as suspended sediment concentration, so is it more important to refer to sediment load as opposed to concentration in terms of what's picked up in the modelling? I was just wondering if you could clarify that.

A. Here we cut back to the revision of the key table from appendix L which has just been – we discussed that some minutes ago and that was what was recently circulated by Tim Fisher, so what was in that table has been updated and – but I guess, coming back to the question is should you monitor turbidity concentration or sediment load, and it's probably best to monitor both concentration and sediment load. Sediment load is – concentration is how much sediment is in a given volume of water. So it's how many milligrams of sediment per litre of water. Load is how much sediment goes by over a period of time. So you can consider that as the instantaneous load, how many grams per second moving down,

or you can consider it in terms of how much, what the load is going through in a month or a quarter or a year or during an event. So those are the differences, and if you monitor concentration instantaneously, you get a very quick measure of how things might be changing but in terms of things like sediment inputs to the harbour, probably of greater interest would be if you monitored the load going by in a rain storm event if you accumulated that because that would be then comparable with what has been used as input information for the sediment modelling. So, I guess to answer the question, there's value in monitoring both –

1200

Q. Right, okay, thank you.

A. – and in fact to get the sediment load you need to measure the concentration anyway so...

15 Q. Now in terms of your second, or your updated report, dated the 20th of February. At the top of the last page of that report, the second line you say, “There is remaining uncertainty on how event yields during the project peak construction period might exceed baseline yields and by how much this alters the risk of how the sediment events could exceed some ecological threshold.” Now, as far as I understand, what’s been modelled is a peak construction scenario and also some further modelling’s been done on construction scenario for Ration Creek. Are you saying that your – the uncertainty that you see there is limited to peak construction only or is it wider than that because that’s what could be inferred?

25 A. I think the – one should be most concerned about uncertainty in the estimates of sediment yield during the peak construction period because that, that potentially has the largest impact.

30 Q. Would you have concerns about uncertainty about other scenarios than the peak construction scenario?

A. I’d focus on the peak construction area.

Q. Focus on it?

A. Hmm.

Q. Now were you here when Mr Edwards was giving evidence to the Board?

A. No.

5 Q. Now Mr Edwards was talking about the staging, or his proposed staging of the project and he explained, in giving answers to questions, that his staging differs in certain respects from the staging undertaken by MacDonalds International, of which the modelling was undertaken. So if there's differences in the areas with open earthworks as proposed by Mr Edwards compared to the open earthworks areas that were modelled, would that add to the level of uncertainty which you have reflected in your report?

10 A. I didn't have that in mind when I was discussing uncertainty but that would be another factor which would increase it, yes.

15 Q. Thank you. I just need a minute to check something. I was wondering if I could take you to technical report 13, the appendix 15(L). I think the technical reports are all behind you.

WITNESS REFERRED TO TECHNICAL REPORT 13

A. Could I – is it report 15 or 13?

Q. It's the appendices for technical report 15.

20 A. 15, okay. If I have that.

CHAIRPERSON JUDGE DWYER:

I thought you said TR13, appendix 15(L)?

MS BRADLEY:

Technical, it's an appendix to technical report 15.

25 **CHAIRPERSON JUDGE DWYER:**

Sorry, you said 13.

MS BRADLEY:

Sorry.

CROSS-EXAMINATION CONTINUES: MS BRADLEY

A. Sorry, TR15, appendix 15(L).

Q. Yes, TR15, yes. It's on page 256 is the particular table I was wanting to ask you questions about. Have you got that in front of you?

5 A. Yes.

Q. Now in terms of table L5, which is headed, "Monitoring activities for sediment control measures." It's my understanding that it's table L5 and table L6 which is what Dr Fisher was working on which you referred to earlier.

10 **MR HASSAN:**

Your Honour, I just need to clarify. That last question seemed to relate to the work that was discussed right at the beginning of this cross-examination. Dr Fisher's work in regard to this table, perhaps Ms Bradley could clarify –

CHAIRPERSON JUDGE DWYER:

15 Well, let's see if she's asking a question about the table.

MS BRADLEY:

Yes.

CROSS-EXAMINATION CONTINUES: MS BRADLEY

20 Q. I want to ask you a question about the performance measures column in that table, which is the second one from the right, and the performance measures that are in there are, for a Q2 event, 90% removal, 60% and 70% removal. Do you think that those performance measures are appropriate?

25 A. I would suggest you ask Mr McLean that question because he's a lot more informed than I am on the performance of sediment retention ponds.

Q. Okay, thank you. Now in terms of triggers for monitoring, and action under the adaptive management regime that's proposed, do you think these should be based on upstream and downstream comparisons?

A. That would be one way of doing it. In some cases it won't be practical to do that. For example, in the Horokiri where the route passes over the headwaters of the catchment. The only option really is to go downstream, so you have no upstream reference to monitor. So it's certainly not a general thing that could be done.

Q. Are there other better ways in some circumstances that you can suggest?

A. Well, there's a number of references that can be taken and one reference is the baseline monitoring, what's collected in the year or two before the project starts up. So that would be one way of setting a baseline to compare what goes – well, characteristics of the sediment delivery before the project and how they compare when the project starts up. So that would be the alternative way to do it.

Q. And would either method be more reliable than the other?

A. I think the comparing with the baseline before the project would be reasonable. The other approach which has been, which is part of the project plan at the moment is that the monitoring, or the baseline, essentially is with reference to the predicted yields during the project, so it will be to monitor and see whether they're above or below what has been estimated to be yielded under peak construction conditions.

CROSS-EXAMINATION: MR BENNION

Q. You've supported the sediment review panel approach and in your analysis have you seen any discussion about, or considered ongoing meteorological data, a way of assessing whether meteorological conditions are changing during the course of the project, beyond the use of historical data?

A. I haven't seen anything specific to this project about keeping track of that. I could say though that there is enough data being collected within the region and nationally to keep track of what's going on –

Q. I think one of the concerns that we've expressed, through our meteorologist, is about perhaps a different pattern of weather setting in for a decade or perhaps more uncertainty around climate change, but what's your view on that if you have one?

A. Well that could happen. We could have a wet spell that persists for a few years and you could get more sediment coming out or it could go the other way. In that context the important question is because – well, let's say we have a wet spell, you have a lot more sediment going into the harbour and the question would be whether the project was increasing that dramatically or not by much and the same question would be asked during the dry period but the stakes wouldn't be as high, and so that would have to be subsequently considered when looking at what went into the harbour during the construction phase. You have to put it in context.

QUESTIONS FROM BOARD MEMBER MITCHELL - NIL

QUESTIONS FROM COMMISSIONER HOWIE – NIL

QUESTIONS FROM BOARD MEMBER PAINE – NIL

QUESTIONS FROM DEPUTY CHAIRPERSON McMAHON:

15 Q. Good afternoon Dr Hicks. I certainly don't want to get into detail and I've just got a couple of very broad questions that I just want to seek your clarification on, and it really relates to your summary on the last page of your supplementary statement, and it's sort of following on from a question from Ms Bradley about uncertainty and I guess what would be of interest to me, Dr Hicks, is in the scheme of things, how significant is that uncertainty? Is it such that it creates a huge doubt on the volume of sediment that's going to be generated in your mind or is it something that is typical in these sort of projects and as you sort of suggest, leads us to placing a greater focus on the sediment control measures that Mr McLean will talk to us about? I'm just trying to get a feel in the broad, overall scheme of how much this is weighing on your mind.

20

25

A. I guess the first comment to make is that there's always uncertainty in sediment data and in this case we're talking about sediment yields from catchments and that relates to the way of measuring, estimating, however you derive the figures.

30

Q. So it's inherent?

A. It's inherent, yes. It's a hard thing to measure but as well as that there is variability in the sediment yield that you get for a given reference event and so the – what's been done in this project is to take, say the
5 Q2 or the Q10 or the Q50 which cuts back to a rainfall event. So the Q10 is the rainfall event that will come around every 10 years on average, with certain characteristics. So what's happened in the analysis for this project is that's been converted into a peak discharge and then a rating function is used to turn the peak discharge into a
10 sediment yield. So if we just think about the rating function which relates peak discharge to sediment yield, in reality what you'll get by monitoring a catchment for a period of time is that for that same peak discharge, which you might encounter in a number of events, you get a whole range of sediment yields. So the sediment yield depends on
15 more than just a peak discharge, it depends upon the duration of the event and antecedent conditions and maybe there might have been a large slip happened to fall off some part of the catchment and so you get a lot of variability and in my initial assessment of the SKM analysis there'd been no consideration about that variability and so I was keen to
20 see that explored in a statistical way to see what that might mean in terms of sediment yields to the harbour. In other words, what would be the risk of something, a big sediment yield occurring during a common event and how would the construction affect the amount of sediment coming out because of that.

25 Q. Yes.

A. And so I've been communicating with the SKM people. I mention Philip Jordan this morning and he's been developing an approach and coming up with some figures which look at the risk of a given threshold sediment yield coming out of the catchments and how that risk might
30 change as a consequence of the project and something that considers this natural variability. So I haven't seen any final report or comprehensive set of figures but I can see good progress being made in that direction and so I'm becoming happier that that's being considered and the figures I've seen, without doing a kind of rigorous check on

them, is that there's – the risk is going up a little bit but not dramatically so that concern is fading somewhat.

5 Q. Okay, thank you, that's useful. So you say that, that you've shifted your original position. You remain of the view that the project does require some conservative erosion and sediment control measures and we'll have some questions of Mr McLean of those, and also some careful monitoring and in terms of the monitoring, do I take it that the monitoring should be in two forms, in your view; both initial baseline monitoring and monitoring as you go along, in terms of the construction. Is that a fair synopsis?

10 A. Yes, yes.

Q. And you were asked a question, I'm not sure who it was, it might have been of counsel for the applicant, about any condition, any forte about the one year that's proposal and I didn't, can't recall your answer. Yes, 15 you said that you thought it wasn't sufficient but I wasn't sure what you offered as an alternative.

A. Oh, I thought one year would effectively be nine months –

Q. Okay.

A. – by the time that data was crunched and something was made of it, 20 which isn't that longer period so my suggestion was ideally two years but I could live with 15 months.

Q. Thank you and finally the – you support the establishment of a sediment management and monitoring peer review panel and I think you've confirmed that in your answers. Have you had any experience with 25 those panels in the past?

A. I can't think of anything exactly like this one.

Q. Okay, well, thank you Dr Hicks, that's all from me.

QUESTIONS FROM CHAIRPERSON JUDGE DWYER – NIL

Q. Thank you Dr Hicks, I'll just see if I've got anything, looking at my notes.

30 No I don't think I do. Thank you for your assistance Dr Hicks.

WITNESS EXCUSED

CHAIRPERSON JUDGE DWYER:

Well Mr McLean, I think that brings us to you at long last.

MR HASSAN:

Your Honour, sorry to correct you, I think you might have said Mr Hicks and I
5 think it's Dr Hicks.

CHAIRPERSON JUDGE DWYER:

Dr Hicks, I – Dr Hicks and Mr McLean.

GREGOR JOHN MCLEAN (AFFIRMED) (1218)**CHAIRPERSON JUDGE DWYER:**

Q. Good morning Mr McLean.

A. Good morning, how are you?

5 Q. Could you commence, as we've done with everyone else, identifying yourself, confirm such documents as you might be the author of or participant in and confirm the accuracy of the views that you've expressed in those documents?

10 A. Yes. My name, full name is Gregor John McLean. I am the author of the section 42A report titled, "Peer review of sedimentation and mitigation controls." I have participated in a number of caucusing, or conferencing as known in this case, sessions, namely on the, bear with me, 15th of February, oh, sorry, the 20th of January, the 15th of February, and I believe there is another one that I don't have a copy of at the
15 moment. The accuracy of my report is, it's a true and accurate record of my position at that time.

Q. Thank you Mr McLean. Now, could you answer any questions please. Mr Hassan?

MR HASSAN:

20 Thank you Your Honour. Now, Your Honour, and I have provided a copy of this to counsel just to help our discussion because it's going to focus on conditions, to a large extent.

CHAIRPERSON JUDGE DWYER:

Yes.

MR HASSAN:

25 I've done the same thing as I did last time, I've done a ready-reference table which will just help Mr McLean and I think other parties just to orientate more quickly to conditions. Counsel has a copy and I'm about to distribute that set to the Board, this time hole-punched.

30 1220

CROSS-EXAMINATION: MR HASSAN

- Q. Now Mr McLean, I provided a copy of that to you over the morning tea break so you have a copy of that with you and other things that I'll ask you to, other things that will be useful to you, I think, I've got the 7 March
5 conditions, the same one as Ms McIndoe put to Dr Hicks this morning, that's the set involving the combined comments of the planners and sediment experts.

MR HASSAN:

- 10 Is that picking this up Sir?

CHAIRPERSON JUDGE DWYER:

Yes.

CROSS-EXAMINATION CONTINUES: MR HASSAN

- 15 Q. And it might be useful if you've got Dr Fisher's 16 February statement, do you have Dr fisher's 16 February statement?
A. It would be handy if I could –
Q. And while I'm there, the same date statement from Mr Gough.
A. 16 of February?
20 Q. The 16th of February Sir.

CHAIRPERSON JUDGE DWYER:

Sorry now which Fisher, Dr Fisher?

MR HASSAN:

Yes Dr Tim Fisher Sir, as opposed to Mr Gavin Fisher.

CHAIRPERSON JUDGE DWYER:

It's number 13 in the rebuttal, volume 1 of the rebuttal.

30 CROSS-EXAMINATION CONTINUES: MR HASSAN

- Q. Just tell me when you're there?
A. Yes I have that information thank you.

- Q. Now Mr McLean I just want to start our conversation on a broader topic, not immediately going to various documents, other than your own report. And my reference for you there is to section 3.2. So if you put section 3.2 in front of you on page 5 of your report. And the conversation I want to have with you is about the concept of Management Plans and responsibility for compliance with them. Now the Board has shown an interest in this question and has received legal advice on it from Mr Milne, obviously I don't intend to test you on the legal advice but more on your experience. Now you know in a brutal sense, I guess, the concept is whether Management Plans that involved descriptions of devolved responsibility to contractors pose a risk that the principal might be off the hook or the consent holder might get away with it, putting it that way. Now on page 18 of your report you briefly refer to the Alpur Project, I'm sorry I'm just giving you that reference. You might not need to turn, you can if you wish. Just generally in terms of your familiarity with Alpur I wondered whether you had any familiarity with the Environmental Plan, Management Plan regime that applied there, particularly in regard to what it said about engineers and contractors?
- 20 A. I have an overview of the Alpur Management Plan proposal, I wasn't directly involved in either the consenting or the monitoring of the project. I did undertake a number of site visits as a result of my business partner being away.
- 25 Q. Okay. So with that answer, just tell me – if you don't feel equipped to comment because I was going to just ask you whether you were familiar with the fact that they had a contract as Environment Management Plan and an engineer's one?
- A. I was aware of the general overview in terms of the Management Plan structure but how it played out on that project, no.
- 30 Q. Thank you. So coming back to your other experience which is obviously quite extensive and in your section 3.2 you discuss the fact that the use of a Construction and Environmental Management Plan for large projects is common practice in New Zealand and in the fourth paragraph down you refer to the fact that the Construction and Environmental

Management Plan details, roles and responsibilities in terms of environment management and the other matters you refer to there. So just with that in mind do you, can you speak to your other experience on large projects and whether or not what you see in the design of the Management Plan system in this project is more or less consistent with what you've seen elsewhere?

5 A. Yes, speaking from experience, utilising maybe the Te Rapa bypass as an example which is a Management Plan project. (Inaudible 12:25:32) Wind Farm was also, had a series of Management Plans associated with that. As I see this Construction Environmental Management Plan in terms of its management framework, it's very similar to those other projects that we've been involved in from a construction perspective. I don't see anything within this Construction Environmental Management Plan or structure, well no sorry, in terms of the Construction Environmental Management Plan that is significantly different, I guess, would be the concise way of putting it.

10 Q. And if we look at, say, the issue of managing a complex project at the site, is it helpful or otherwise for say the supervising engineer on the contract to have in conditions explicit obligations for say the contractors?

20 A. Well I think by default the contractors need to comply with any of the conditions that are specified within the consent, regardless of who they're representing.

25 Q. Thank you. I think I'll leave it at that. I just want to now talk about some of the other matters in your report, if you could to page 22 and just want to have discussion with you about environmental management generally before we go onto the specifics of conditions. Now, I'm sorry to do this to you but having told you to go to page 22, I'm now going to ask you please to go to page 4.

30 **WITNESS REFERRED TO PAGE 4 OF REPORT**

A. This is an adaptive response?

Q. Yes the adaptive management discussion begins about there. And so there you refer to the concept of adaptive management and I think you refer there to the concept, in the second paragraph, of it – “enabling a

plan, do, check and act approach". Now further on you say in the last paragraph that, "The success that the – the success of an adaptive management approach is entirely dependent on the acceptance of the parties involved to assess the monitoring results," and then you say,

5 "And react in a positive manner where an adverse effect may have occurred," and so forth. I don't think the rest of the sentence makes a difference to my question but obviously that's there. Now since you wrote your report Mr Gough presented his second rebuttal statement or prepared his second rebuttal statement and at this point perhaps if you

10 can just take a look at that, and he discusses your report starting at page 3 at paragraph 15. Now just bearing in mind his comments there you'll see his reference in the first paragraph to the fact that the adaptive management mechanisms that –

15 **CHAIRPERSON JUDGE DWYER:**

Sorry can you just give me that reference?

MR HASSAN:

I beg your pardon Sir.

20

CHAIRPERSON JUDGE DWYER:

It's the second rebuttal?

MR HASSAN:

25 It's the second rebuttal on the 16th of February Sir, page 3, paragraph 15, I've taken Mr McLean to that paragraph.

CROSS-EXAMINATION CONTINUES: MR HASSAN

30 Q. And you'll see there Mr McLean that Mr Gough discusses the concept of the adaptive management regime and he says that it's more proactive, in other words your reference was to react and he says, it's more proactive. Now just thinking about that I want to just ask you to comment on whether you think the trigger regime and conditions, in other words that trigger set at a conservative number below the

compliance number, whether you consider that's an appropriate further measure within adaptive management to provide a better precautionary approach?

WITNESS REFERRED TO PAGE 3, PARAGRAPH 15 SECOND REBUTTAL

5 STATEMENT OF MR GOUGH

1230

A. Yes in principle I do. I do accept that setting a trigger level which is not a compliance level does provide an adaptive approach.

10 Q. So you support that aspect of the design of adaptive management as reflected in the conditions?

A. Sorry, in this current set of conditions you've?

Q. Well I tell you what, perhaps it might be easier for us to hold back on that –

A. Sure.

15 Q. – till a bit later on because otherwise we could be all over the place so I will come back to that.

A. I guess if I could just make one other comment on that, just in terms of the appendix L that was mentioned before. I have had the opportunity to look at it and I appreciate you haven't so I'd like to make some comment on that when you get to that stage, thank you.

20 Q. Appendix L?

A. Yes.

25 Q. Okay, well you just remind me and we can do that. So coming back to your report and this time to page 22 where you summarise your position at that stage. So in the third paragraph you refer to the Management Plans and Monitoring Plans and the adaptive approach and you say that in your experience they are an effective and efficient way of addressing potential effects of soil erosion and sediment discharges during the construction phase of large projects but I take it your support in principle for that remains the same?

30

A. Correct.

Q. And you go on to express the concern that you had which we'll come back to, on the sufficiency of detail of the site's specific Environmental Management Plans, that's that fifth paragraph so we will come back and

talk about that. Now in the fifth paragraph down you say, "I'm also mindful that although chemical treatment is proposed to date there has been no bench testing undertaken to determine if it will be effective for the TGP and Mr Gough addressed that in his rebuttal statement at paragraph 17 on page 3, let's take yourself back to that and could you advise the Board whether or not you are now satisfied?"

WITNESS REFERRED TO REBUTTAL STATEMENT OF ANDREW GOUGH

A. I have seen, in reference to Mr Gough's paragraph 17, I have seen the bench testing. It's not, the bench testing shows for the soils that were chosen that flocculation would work or chemical treatment would work, however it was a very small sample of the overall project area so in my opinion there would still be further testing required as proposed through conditions of consent to ensure that chemical treatment can be effective for the project.

15 Q. And your reference to conditions there indicated that to the extent that there was more work required you're satisfied that the conditions provide for it?

A. Yes I do have some comments on some of those conditions.

20 Q. We'll come back to the conditions. Now I want to now just discuss some aspects of erosion and sediment control with you and if I could take you back in your report to page 8. Now on page 8 at paragraph 3 you say, I quote, "It's noted however that other than referencing the NZTA roads and sediment control standard in both the AEE and conditions there is no evidence that this standard has been considered in the design of the erosion sediment control for the TGP. Now Mr Gough addressed that in his rebuttal but just in terms of perhaps making it simple, having seen the conditions that effectively, if you look at condition NE16 on page 25 240, do you, are you happy now that that is covered off by the condition that I've just referenced which is –

30 **CHAIRPERSON JUDGE DWYER:**

Sorry, condition NE70?

MR HASSAN:

Sir, I will just get that clearer.

CROSS-EXAMINATION CONTINUES: MR HASSAN

5 Q. Yes, on page 240 condition NE16 in the left-hand column refers to this issue Mr McLean, and refers to both references and requires the more stringent with an exception, doesn't it?

WITNESS REFERRED TO CONDITION NE16

A. Yes it does.

10 Q. And that's at a higher standard as detailed in the erosion and sediment control plan. So in light of that condition are you satisfied on that issue?

A. Yes I am.

15 Q. If I could go please to page 18 of your report and to the fourth paragraph, now fourth complete paragraph I mean and it starts with the words, "The high efficiencies are generally associated with ponds where the design is similar or exceeds the design standards of those guidelines." Now further down you, I'm just trying to find the reference, if you could just pause with me a minute. It's the next sentence, you say, "It should be noted that these high efficiencies are achieved through well-maintained treatment systems that have been rigorously
20 monitored. So in terms of the question of monitoring are you, subject to our discussion later on the conditions, do you have a general comfort level in principle that the conditions provide for appropriate monitoring prior to and during project?

25 A. I have more confidence then, my position when I wrote this report. I do have some further comments on those conditions.

Q. And, again, insofar as conservatism is concerned, are you generally satisfied that monitoring includes appropriate triggers to be proactive?

30 A. The current reference to the appendix which has the triggers, in my opinion, sorry. The appendix L that is currently being referred to doesn't have appropriate triggers for settlement control devices. The revised appendix L has much more robust triggers.

Q. Thank you. Now at this point I would just like to talk to you about –

CHAIRPERSON JUDGE DWYER:

Is this proposed appendix L the, part of the document that Ms Bradley wanted to put to Dr Hicks?

MR HASSAN:

5 Well Sir, I wasn't sure what appendix L was, I was going to find that as I went but I understand –

CHAIRPERSON JUDGE DWYER:

Yes, well I haven't got the faintest idea but it's obviously a document of some significance insofar as Mr McLean's concerned.

10 **MR McLEAN:**

Your Honour, I could maybe kind of point you in the right direction.

CHAIRPERSON JUDGE DWYER:

Yes.

MR McLEAN:

15 It was the appendix of the Contractors' Environmental Management Plan –

CHAIRPERSON JUDGE DWYER:

Yes.

MR McLEAN:

– which was also an appendices to TR15 which, through conferencing, has
20 been re-worked as a result of some of the concerns of the settlement experts.

CHAIRPERSON JUDGE DWYER:

All right, so you're familiar with that document and if Ms Bradley has got any questions on it she can take them up with you?

MR McLEAN:

25 I'd need a copy of it, I've only read it over my find.

CHAIRPERSON JUDGE DWYER:

Well it sounds like we all need a copy, can you sort that out over the lunch break Mr Hassan?

MR HASSAN:

5 Yes Sir.

MS BRADLEY:

I've got copies here Sir.

CHAIRPERSON JUDGE DWYER:

Well it's good that you've got one Ms Bradley.

10 **MS BRADLEY:**

It's what I tried to table earlier Sir, I wasn't allowed to.

CHAIRPERSON JUDGE DWYER:

Well, look, we'll sort that out. I imagine, will you still be going with Mr McLean on lunch.

15 **MR HASSAN:**

I'm happy to work with the Board on this Sir. If I've finished then I could possibly come on it.

CHAIRPERSON JUDGE DWYER:

20 Well it might be very helpful if you have a look at it over the lunch break as well Mr Hassan.

MR HASSAN:

I think it would be Sir.

CHAIRPERSON JUDGE DWYER:

So we'll come back to it then.

CROSS-EXAMINATION CONTINUES: MR HASSAN

Q. Just on the general – I wonder if you had any general comment to start with for me on this and just before I do that I just want to get Dr Fisher's evidence in front of me. Do you have an overall observation, Mr McLean, on the topic of conservatism and generally in terms of the conditions, accepting you have some issues with some of them, how this project's conditions sit, in terms of conservatism, compared to the various other major projects you've worked with, do you have any observation at all on that?

10 1240

A. I think there's a lot of consistency with other projects I've worked on, in terms of the management structures, the detail, I guess, in terms of monitoring and trigger levels if you like, are obviously particular to this project.

15 Q. Yes.

A. But there is consistency in terms of the overall approach.

Q. And that would extend to the design of the monitoring, in terms of it being consistent with the practise you've observed in other projects, more or less?

20 A. Yes.

Q. Now Dr Fisher, in his rebuttal statement of the 16th of February, can I take you to paragraph 23 of his statement please and it's under the heading, "Rigorous and precautionary conditions," starting on page 5, but his list of, in fact, 11 conditions, starting on page 6 and runs through to – and when I say "conditions," I'll come back to that, and page 7. So, what he essentially says there is that those 11, if you like, dimensions of what's proposed in the conditions give him comfort that this adds to the precautionary approach and I'm wondering whether you agree. Well, first of all, before I ask you this question, I'll ask you another one. Hold onto that one. Do you agree with me, I think Mr Handyside did, that when it comes to the management of sediment through conditions, what we're doing is managing for a purpose and that purpose is ecological values in the freshwater and harbour receiving environments. Do you agree with that?

25

30

A. Yes, it needs to be effects based.

Q. And have you read the ecology evidence?

A. I've read some of it.

Q. Have you read the harbour ecology evidence?

5 A. I've had an overview of it but I haven't read it in any detail.

Q. But you generally accept that's the principle we're trying to manage –

A. Yes.

Q. – by way of conditions?

A. Yes.

10 Q. It's the risk to those matters?

A. (no audible answer 12:42:46)

Q. Thank you. So coming back then to Dr Fisher's opinion and these 11 matters or dimensions to the design of conditions that give him comfort about the precautionary approach and the risks to the harbour.

15 Do you agree with him that those factors do indicate an appropriate degree of conservatism for the management of the ecology risks?

A. I'm not going to comment on the individual conditions that Dr Fisher talks about. I guess – well, not I guess. In principle, yes, however, what would be interesting to look at is those projects Dr Fisher refers to, in terms of how much design had been done on them.

20

Q. Right.

A. And I think that's, that's the difference, potentially, here. I was involved in Mill Creek and there was a reasonable amount of design done on that project. I wasn't involved in the Waterview connection, although my business partner is and I've seen the design work that was done at that stage and that's come up time and time again through this hearing. So I think it's a, it's a balancing act between if you had more design done then maybe there's potentially less conditions. I don't think – I think the conservative approach that's been taken as is a result as some uncertainty, potentially. And that's been kind of reiterated through the sediment yield experts.

25

30

Q. Right, so now we'll, I think we'll start the discussion on conditions. Before we do that, because it relates to that topic, I want to take you back to the Site Specific Environmental Management Plan topic. Now,

on page 7 of your report, you discuss this issue and you reference it, also, in your conclusion and in essence your opinion there was that you felt what you had seen at that time did not contain sufficient detail and you referred to expectations of design details, I think that's in last
5 paragraph on page 6 actually. Works and construction methodology and sequencing, so you refer to that in the first complete paragraph on page 7. Then you say, more or less, I think, without confirmation through the Site Specific Environmental Management Plans that feasibility can't be confirmed, detail is required to confirm proposed
10 measures can be installed and the level and anticipated efficiency of control is as stated in the application. I think you refer to that in your last paragraph under this discussion. Now, in the second rebuttal statement of Mr Gough, that I just referred you, there were two addenda. Do you have copies of those, which were revised – Site Specific Environmental
15 Management Plan documents for the Duck Creek focus area, bridge 19, and the Te Puka focus area as well. Do you have those?

A. I do.

Q. Does the Board have those Sir?

CHAIRPERSON JUDGE DWYER:

20 No. Well, I haven't, I'm not sure if other – have you got them?

MR HASSAN:

They should be attached to the back of the –

CHAIRPERSON JUDGE DWYER:

I think there was comment at some stage that I didn't have them and I'm not
25 sure...

MR HASSAN:

So it's the 16 February statement.

CHAIRPERSON JUDGE DWYER:

I've got the 16 February statement but I haven't got the addenda with my one.

MR HASSAN:

Perhaps what might be best Sir would be that if I leave this question aside and come back to it after lunch and just get on to other topics.

CHAIRPERSON JUDGE DWYER:

5 Yes.

MR HASSAN:

And in the lunch break Sir we'll provide additional copies through the registrar.

CHAIRPERSON JUDGE DWYER:

10 Well it sounds as if some members of the Board have but I wonder if I – I suspect what's happened, I've probably put a photocopy – probably printed that off and then the original's come in with it attached and it's buried somewhere behind me.

MR HASSAN:

15 It's probably in the hard copies behind you Sir but I don't want to create a flurry at this point.

CHAIRPERSON JUDGE DWYER:

Yes, I've got my hard copies in front of me.

MR HASSAN:

Yes Sir.

20 **CHAIRPERSON JUDGE DWYER:**

That's all right. If we can come back to that after lunch and I'll see if we can track it down.

MR HASSAN:

We'll do that Sir. So I'll leave this issue aside for the minute Mr McLean.

25 **CROSS-EXAMINATION CONTINUES: MR HASSAN**

Q. And there are some conditions, issues in there, which I would like to –

CHAIRPERSON JUDGE DWYER:

In fact, it's probably on our iPads, I would imagine, it'll have the addenda on it. I'll go to that and –

MR HASSAN:

5 Yes, it should be there Sir.

CHAIRPERSON JUDGE DWYER:

– rather than put you off I think. You carry on in the meantime Mr Hassan.

MR HASSAN:

Thank you Sir. I'll just carry on then Sir.

10 CROSS-EXAMINATION CONTINUES: MR HASSAN

Q. I suppose one question I should just ask to see if I need to ask a lot more questions on this topic. Do you think that that level of further work helps alleviate the concerns you originally had?

15 A. It goes somewhat towards alleviating those concerns. It doesn't completely alleviate them at that stage.

Q. And we're going to talk about conditions on these plans and presumably that's part of what we should talk about?

20 A. Yes we can talk about that. I guess just further on that SSEMP detail for Te Puka, for example, I know, having spoken to Mr Gough through conferencing there was six days of work put into what you're seeing in terms of that SSEMP, which really just demonstrates to me that it is going to be difficult. There is going to be a lot of work behind it and there's a lot of constraints to the project. Not saying that it can't be engineered.

25 Q. An engineer would never say that?

A. No.

Q. At least my father wouldn't say that. Now, even so, it comes back to conditions doesn't it and we need to have a conversation around the adequacy of the conditions on this and other topics?

30 A. Yes.

Q. Right so I've got that on my list. Now, if we can go through these two - start orientating again to this focus. Page 23 of your report. Just so that I don't forget Sir for later on, later reference, it's the second statement of Mr Gough of that day that will happen, Sir.

5 1250

CROSS-EXAMINATION CONTINUES: MR HASSAN

Q. So your last paragraph captures the focus. "I consider that a number of modifications to consent conditions would need to be undertaken to provide further certainty and have suggested alternative wording in this regard." Now just before we talk about the detail, talking from your experience again, there's obviously a – would you agree with me, there's obviously a balance that needs to be struck between conditions that can be understood, administered and enforced and the need for detail? Would you agree that sometimes those two things can compete with each other when it comes to crafting conditions?

10

15

A. Yes they can do.

Q. And speaking from experience, have you had experience of trying to deal with overly complex conditions, making your job and ensuring compliance and the council's job and enforcing compliance, problematic?

20

A. Yes I have had experience speaking from both, acting on behalf of council and contractors. The conditions need to be very clear in their intent. I still think there's some work around that to be done. They need to be very clear in terms of what the objectives of those conditions are.

Q. Thank you, so intent and objectives are two things you've highlighted and we'll think about those as we go. Now, I'm going to start the conversation with you on the topic, I've called it open areas on this ready reference table, but probably in terms of the wording of "conditions exposed areas" is probably the more appropriate term, and I think that's what you refer to in your report. So again, you discuss this topic in your report at page 12. And so looking at page 12 and your last sentence, you support the proposed restriction on exposed areas as a

25

30

means of reducing potential sediment related effects. In other words, you support the concept of a condition like this being in there?

WITNESS REFERRED TO REPORT – PAGE 12

A. Correct.

- 5 Q. So if we could go now to the conditions and on the ready reference table you'll see the first condition is on page 2/30 in the set and it's condition NE1. So first of all, bearing in mind that the extent of exposed area may still be a matter of disagreement between certain experts, I'm wondering whether, if you look at that condition again, page 2/30, whether, looking at the black text in the middle of the page, you considered, in terms of
10 its structure and how it was expressed, whether or not you considered it appropriate?

WITNESS REFERRED TO READY REFERENCE TABLE

- A. I think there needs to be some modifications from what I heard from
15 Ms de Luca this morning actually, which was talking about the peak construction period and the Ration and Duck catchments but not in the Pauatahanui, and that's not reflected in that condition to date as I understand.

Q. Can you explain what you mean?

- 20 A. I might need Ms de Luca to explain but she was talking about the peak construction period and she said that that would occur in the Ration and Duck Creek catchments whilst not occurring in the Pauatahanui catchment.

Q. Yes.

- 25 A. Now that is not reflected in this condition because this condition is suggesting that you could 17 hectares open and here's your different combinations of how you could manage them. I believe there would need to be an addendum to that condition to reflect what was discussed this morning.

- 30 Q. Referring to?

A. The peak construction period.

Q. For?

A. The Ration, Duck and not the Pauatahanui.

Q. There's another condition dealing with Ration.

A. Yes I know but also having your ready reference table, there's some issues around that that you'd like to discuss further at that point.

Q. Okay. So that's an issue you've noted.

A. Just picked up this morning.

5 Q. Yes. Now if we look at Onepoto, you see the next condition. This one's dealing with within the Pauatahanui Inlet watershed isn't it? That's its purpose. It's not dealing with Duck Creek as such. The next one's dealing with Onepoto over on page 2/32. That's the old condition E2 or new condition NE2. So, if we accept that the structure of conditions splits Onepoto from Pauatahanui, do you have any comments on either
10 of the conditions in that sense?

A. I think, in principle, my preference would be to see something regarding the harbour rather than – so all catchments discharge to the har – to the Porirua referencing staging restrictions around that rather than trying to
15 split them out.

Q. But it's a drafting approach isn't it?

A. Yes it is.

Q. As long as it's clear and enforceable?

A. Yes.

20 Q. Do you see them as clear and enforceable or is that not really for you to answer?

A. I can provide comment on them.

Q. Well will you?

A. They're relatively clear. I think there needs to be some, and it may
25 come up in some of the other conditions, but a reporting back. In terms of managing those exposed area, I believe that may be in one of the Monitoring Plans, reference to the ongoing monthly staging or periodic exposed areas.

Q. But you think there should be an addition dealing with – sorry I missed
30 that point a little bit.

A. Sorry. It's just – the intent of the condition is clear in terms of the total exposed area. In terms of a reporting function to ensure that that is being achieved I believe there would need to be reference to that in a monitoring condition.

Q. Can we go to NE13 just for a minute? I haven't got this on my lists. It's just come out of your question.

A. What page would that be?

5 Q. It's NG sorry, NG, I think if we look at NG13 I think that might perhaps be touching on what you just raised and I'm just going to find it. I didn't have it on my list –

A. It's page 2/5.

CHAIRPERSON JUDGE DWYER:

Sorry, what page.

10 **MR HASSAN:**

I'm just going to find it Sir, 2/5.

CROSS-EXAMINATION CONTINUES: MR HASSAN

Q. So on 2/5 and condition NG13 and you referred to monthly intervals I think, do you think that that's what that condition is covering?

15 A. No I don't.

Q. I see.

A. I think it would need to be expanded to include exposed area. It's talking schedule of construction activities but normally schedules of construction activities wouldn't be related back to exposed areas.

20 Q. Okay, now – so you're looking for clarity in that condition that provides for a schedule of reporting on exposed areas. Is that what you're saying?

A. Yes and it could easily be incorporated into that condition you just referred me to.

25 Q. And could it easily be incorporated into the requirements of the Site Specific Environmental Management Plan?

A. I have some issues with the conditions around Site Specific Environmental Management Plans which may be more appropriate to discuss when you get to that.

30 Q. But leaving those issues aside, on this issue, could it be addressed through that mechanism?

A. Yes it could be.

Q. Thank you.

A. Provided there was some reporting within that site specific environmental Management Plan.

5 **MR HASSAN:**

Sir I wonder if that – I'm sorry, I'm taking a little bit longer than I would have liked to sorry, Sir.

CHAIRPERSON JUDGE DWYER:

Yes, well I'm just wondering if we're going to get to Mr Kyle this afternoon.

10 **MR HASSAN:**

That's right, Sir. Well Mr Kyle will be up next.

CHAIRPERSON JUDGE DWYER:

Yes how long – well we haven't got to – we're on condition N2. We've got a fair way to go.

15 **MR HASSAN:**

I'll give some thought to that, Sir. I'm trying to –

CHAIRPERSON JUDGE DWYER:

Well I don't want to truncate this discussion at all but –

MR HASSAN:

20 Yes Sir. I might just check in with the witness after the lunch adjournment as to what he thinks are the priority areas he wants to discuss on the table and we might just do something like that. Adaptive management concept again, Sir.

CHAIRPERSON JUDGE DWYER:

25 All right, how long were you likely to need Mr Kyle for questioning?

MR HASSAN:

I had about half an hour I think for him, Sir.

CHAIRPERSON JUDGE DWYER:

Ms Bradley?

5 **MS BRADLEY:**

Not much.

CHAIRPERSON JUDGE DWYER:

Mr Bennion?

MR BENNION:

10 I had about 10 minutes for Mr Kyle.

CHAIRPERSON JUDGE DWYER:

Okay, so if we were to get to Mr Kyle by about 3.30 pm that should be fine.

COURT ADJOURNS: 1.00 PM

COURT RESUMES: 2.12 PM

CHAIRPERSON JUDGE DWYER:

I think counsel were probably advised, I don't know if Mr McLean was, but Dr Hicks wanted to make some brief comments on submissions, sorry, on
5 conditions so we thought we would have him re-called, we understand he will be particularly brief and I haven't got the faintest idea what he's going to say so I'm not sure if it's necessary for anyone to cross-examine him, I assume not, but let's hear. So would you mind just giving the seat over to Dr Hicks for a minute Mr McLean.

10

WITNESS STOOD DOWN

WITNESS INTERPOSED

DARRYL MURRAY HICKS (ON FORMER OATH)**CHAIRPERSON JUDGE DWYER:**

Q. Dr Hicks, I understand you've indicated to EPA staff that you wanted to make some brief comment on conditions?

5 A. Yes that's correct and that really relates to, there was an issue in my questioning this morning where –

Q. Well we will assume that you're on your former oath.

A. Yes.

10 Q. I'm not sure if you're giving evidence or – but let's hear what you have to say first.

A. So there is something I noticed in the conditions which appears to be at variance with the, what I observed in the latest draft of the Monitoring Plan –

Q. Yes.

15 A. – which we decided we weren't going to talk about this morning, but it is relevant because if I could draw your attention to condition NG40 on page 2-22 of the latest conditions.

Q. Yes.

A. And it discusses baseline sediment monitoring prior to construction.

20 Q. Yes.

A. And it has objectives of establishing the current variables and trigger values and providing baseline information and so I'm looking at items G, H and I and –

Q. Yes.

25 A. – and it's of importance that this is to establish trigger values for adaptive management and to provide a baseline against which to measure post-construction changes but from what I've seen in the latest Monitoring Plan, so this is the details, is that the reference would be not based on the baseline, the preconstruction baseline but on the
30 calculated or predicted sediment yields and so that, there is a divergence there and I think there is a danger if it is based simply on the calculated or predicted sediment yields that have gone into the planning process, and the danger is that the monitoring may show that the

sediment yields, or sediment concentrations, are much lower than what was planned for or predicted, in which case no matter, you might end up with a very large proportional increase in sediment yield from that catchment and still it wouldn't pass the predicted threshold and so you would get a lot more dirt out of that catchment but it wouldn't pass the threshold and it would, things would carry on but the other possibility is that the measured loads might be much, or might be larger than what was predicted in which case the mechanism if, well the alarm bells would be going off all the time and so obviously something would have to be done about that. So there is a way forward and the way forward is to before finalising the settlement Management Plan and the erosion control Management Plan and setting the thresholds, is that the results from the baseline monitoring are compared against what was predicted to see if the predicted yields are realistic within the context of what I've just spoken about. So there's a simple fix but we were heading for a divergence unless that was brought into line.

Q. All right, was that the matter you wanted to draw to our –

A. Yes.

Q. Yes, I actually understand that quite well. Do you have any questions on that Ms McIndoe?

CROSS-EXAMINATION: MS McINDOE

Q. Just one question for my – I guess I didn't understand it quite as well as the Board. I was wondering what you thought this condition should be amended to say then, in your view?

A. It would be – well I don't know if I can get the words perfect first off.

Q. You can have a few tries if you like.

A. It would be along the lines that the threshold parameters and their levels should be set in regard to the agreement between results from the baseline monitoring and the predictions of sediment yield that went into the assessment of effects.

Q. So what would the – during the construction of the project when you are measuring sediment yield what would you be comparing it against?

A. So we would have to review whether the target yields and relationships in so, in the context of what's been proposed, the relationship, so the relationship between sediment concentration and water discharge which, what's been proposed is that they are monitored on an hourly average basis, so that's one relationship, and then another relationship is something averaged out in time, something very similar. So one would need to top the baseline data on that relationship, see how that new data compared with what had been predicted and then decide whether the predicted yield was a relevant figure to seek as a target or whether you should move across to the baseline data.

CHAIRPERSON JUDGE DWYER:

Can I suggest a short circuit of this process. Can I ask you Dr Hicks to provide us with a brief statement, written statement on that with your suggestions for consideration?

15 **MS McINDOE:**

I was going to suggest that perhaps the wording as it is now could be understood in the way Dr Hicks is describing – and perhaps he could comment on that.

1420

20

CHAIRPERSON JUDGE DWYER:

Well I must say when I, I just looked at it myself and I wasn't sure that it didn't achieve that.

25 **MS McINDOE:**

Perhaps he could comment on that in his written statement as well.

CHAIRPERSON JUDGE DWYER:

If he can comment on that as well, if you think there's a matter that needs clarification, if you do that Dr Hicks.

30

QUESTIONS FROM BOARD MEMBER HOWIE:

Q. Could I ask you Dr Hicks, the condition you referred – NG40?

A. Yes.

Q. Sub paragraph little g, can you see it, it's quite small?

5 A. Yes.

Q. Says, "Establish the current environmental variables"?

A. Yes.

Q. Isn't that what you're talking about?

A. Yes it is. But it may turn out that the current environmental variables
10 aren't the same as what has been used in the assessment of effects
and what's been drafted into the trigger values or the trigger parameters
in the new version of table L6 which is the Assembling Monitoring Plan,
setting the thresholds not with respect to what the current variables are
or may turn out to be during the baseline monitoring but what they were
15 estimated to be during the analysis.

Q. So your issue is with the Monitoring Plan at appendix L?

A. Yes. So what's in the Monitoring Plan is, I think, at variance with what is
in the conditions.

20 **CHAIRPERSON JUDGE DWYER:**

Q. Well if you can just let us have a brief memorandum setting those
matters out.

A. Yes.

Q. I appreciate that.

25 **QUESTIONS FROM DEPUTY CHAIRPERSON McMAHON:**

Q. Thank you Your Honour. Not so much a question Dr Hicks but just an
observation, I guess, for you and for counsel and that it maybe that the
panacea to that problem isn't found solely in condition E13A, it may
actually involve some alterations to the condition dealing with the
30 EESCMP itself and some cross-reference –

A. Yes.

Q. – and also with the condition dealing with the Monitoring Plan itself. But
that's a drafting issue.

A. That's correct, yes.

CHAIRPERSON JUDGE DWYER:

Q. Thank you Dr Hicks, if you can just get that to EPA as quickly as you
5 can it will be appreciated.

A. Yes.

WITNESS EXCUSED

CHAIRPERSON JUDGE DWYER:

Mr McLean.

GREGOR JOHN McLEAN (ON FORMER OATH)

5

MR HASSAN:

Just as Mr McLean comes forward, those like me who can't read the small print, there's a better version coming through. Now the only complication is my ready-reference table page numbers are all different. I've got, I can orientate the witness to that though because I've got it, Mr McGinnessy having helped me sort that out and it may be – and yes the obvious reason for difference you'll see on the right-hand side Sir, just called the points of difference, making the difference. Some people say things more precisely than others. So Mr McLean – I'll wait for Mr Registrar to give you a set of the figure plans, the figure conditions, the A3 set.

10
15**MR McLEAN:**

I am comfortable with those ones.

20 **MR HASSAN:**

You're comfortable to work with that current set, yes. So if Your Honour is comfortable –

CHAIRPERSON JUDGE DWYER:

25 Yes.

MR HASSAN:

– we can stick with the smaller one. Now Sir the first thing I was proposing to do and I've provided Mr Registrar with this and counsel is Mr McLean mentioned before lunch that he was keen to discuss this thing that had been discussed in conferencing, modifications to table L5 –

30

CHAIRPERSON JUDGE DWYER:

Yes.

MR HASSAN:

– and I've provided the Board with what I've only just received just before lunch through Ms Bradley and I understand from, I need to put it to the witness to make sure I can produce it through the witness and then we can go from there if you like Sir.

CHAIRPERSON JUDGE DWYER:

Well now in terms of time, there's a lot of work in these conditions, we've got to get them right and this is – I'm – we were anticipating in getting to Mr Kyle at 3.30, it seems unlikely to me.

MR HASSAN:

Well one thought I had Sir was rather than my directing point by point, I might get Mr McLean to identify from the ready-reference table what he thinks he should talk about first and just let him say what he wants to say.

CHAIRPERSON JUDGE DWYER:

Right, the alternative was I was going to suggest, I was going to ask Mr Kyle who's there, if he could come back on Monday morning if need be and which I see he indicates that he can. We're going to be here on Monday even though we hadn't anticipated sitting and I wonder if that might not be the better way to go because what the, the stuff that we're talking with now with Mr McLean is really important in the context of these proceedings.

25

MR HASSAN:

Yes. Well Sir certainly I have no issues with that and I suppose in terms of the design of approach I think it's appropriate that the 42A report is to come in after the other witnesses.

30

CHAIRPERSON JUDGE DWYER:

Yes, yes.

MR HASSAN:

And that would suit Mr Kyle's position in that regard.

CHAIRPERSON JUDGE DWYER:

5 All right, well I haven't discussed this with the other Board members but... All right, Mr Kyle are you able – you are available to come back on Monday?

MR KYLE:

Yes Sir (inaudible 14:26:15).

10

CHAIRPERSON JUDGE DWYER:

And can I suggest if we were to say 10.30 perhaps to start on, you've got to come from Dunedin, other people have to come from away. Now is that suitable for other counsel here?

15

UNKNOWN MALE AND FEMALE SPEAKERS:

Yes Sir.

CHAIRPERSON JUDGE DWYER:

20 And I suppose that will, might give us a wrap up on conditions at that stage before people do their closings and things like that so it might be quite – hopefully it shouldn't take too long. I mean from the time indications it would be reasonable to expect we would be able to have Mr Kyle done by lunchtime –

25

MR HASSAN:

Yes Sir.

CHAIRPERSON JUDGE DWYER:

30 – which would give people the afternoon to factor in his comments into their closings on Tuesday.

MR HASSAN:

I'm happy with that Sir.

CHAIRPERSON JUDGE DWYER:

All right, well look we'll proceed on that basis. Yes Mr Conway?

5 **MR CONWAY:**

Sorry Sir, my only query then would be and you may have already discussed this and I apologise if you have but when would the other planners be on in that event? Would they be tomorrow?

10 **CHAIRPERSON JUDGE DWYER:**

Tomorrow.

MR CONWAY:

Thank you Sir.

15

CHAIRPERSON JUDGE DWYER:

All right, thank you for that.

CROSS-EXAMINATION CONTINUES: MR HASSAN

20 Q. Mr McLean I think just to probably return to the topic that you introduced in our morning discussion and that concerns what you have seen in regard to table L, so through Mr Registrar – Mr Registrar if you could distribute to the Board, yes if you could do that now please.

CHAIRPERSON JUDGE DWYER:

25 Sorry this new table, are we talking about the new table L?

MR HASSAN:

Yes Sir.

30 **CHAIRPERSON JUDGE DWYER:**

All right well that should, we should probably give that an exhibit number so people –

MR HASSAN:

Yes Sir I'll just quickly lay a foundation and make sure Mr McLean's familiar with that.

5

CHAIRPERSON JUDGE DWYER:

Yes all right.

CROSS-EXAMINATION CONTINUES: MR HASSAN

10 Q. Mr McLean you mentioned this morning some familiarity with that, could you explain why you're familiar with it?

A. I've seen it via email from Dr Fisher.

Q. Thank you. And does this email that has been provided through Mr Registrar, have you got a copy of it?

A. I did have a copy, I've – could I have another copy please?

15 Q. So you've got another copy anyway but I think we need to put the official one to him and distribute it. If you've run out of copies I've got another one here Mr Registrar. So I'm going to give you an email of the chain with a document attached and could you just have a look through that and –

20 A. The document or the email?

Q. Just look through it to see whether you're familiar with it. Does that look like the one you've seen?

A. Yes.

25 Q. Okay could you confirm that to be produced – I'll produce that now through the witness.

CHAIRPERSON JUDGE DWYER:

Yes it will be exhibit 24 and how should I describe it? Amended tables L5 and L6?

30

MR HASSAN:

Yes Sir.

CHAIRPERSON JUDGE DWYER:

But which – it's part of TR –

MR HASSAN:

5 Well now Sir, if I could just address you on this. I wasn't aware of this document, it's obviously something produced in conferencing, probably explains why I wasn't aware of it, but I did – because it was raised by the witness this morning, contact Mr Fisher, Dr Fisher and he's explained something of the context of it. I think in terms of its relevance I think it
10 probably is for this witness to explain why he thinks it's relevant to his opinion and then we can go from there because I don't think we should take it as, for instance, agreed statement, because it isn't.

CHAIRPERSON JUDGE DWYER:

15 No.

MR HASSAN:

Because it's an informal exchange which hasn't yet been concluded and –

20 CHAIRPERSON JUDGE DWYER:

Well in terms of the document though I, it's headed, it's just headed "Erosion and Sediment Control Monitoring Plan tables L5 and L6" with changes highlighted in various colours.

25 MR HASSAN:

Yes Sir.

CHAIRPERSON JUDGE DWYER:

If I describe it as – it's headed, it's just headed, "Erosion of settlement control
30 Monitoring Plan, tables L5 and L6," with changes highlighted in various colours?

1430

MR HASSAN:

Yes Sir.

CHAIRPERSON JUDGE DWYER:

If I describe it as amended but not agreed.

5 **MR HASSAN:**

Amended but not agreed.

CHAIRPERSON JUDGE DWYER:

But not agreed, tables L5 and L6?

MR HASSAN:

10 Yes Sir. It may well be –

CHAIRPERSON JUDGE DWYER:

Tables L5 and L6 to what?

MR HASSAN:

15 There may be no disagreement but I just can't say there is without a statement, a joint statement to that effect. Mr McLean may have a view in which case I thought I would just invite Mr McLean to express his views on the relevance of this.

CHAIRPERSON JUDGE DWYER:

What document are these tables attached to though? Appendix –

20 **MR HASSAN:**

To technical report 15. I beg your pardon, I should have been listening more carefully.

CHAIRPERSON JUDGE DWYER:

TR15?

MR HASSAN:

Yes, Sir. Appendix L, Sir. So if I could just run that again. It's part of appendix L to Technical Report 15.

CHAIRPERSON JUDGE DWYER:

5 All right. I've got it amended and not agreed tables 5 and 6, TR15, appendix L.

MR HASSAN:

And it sits as part of the draft CEMP.

CROSS-EXAMINATION CONTINUES: MR HASSAN

10 Q. Mr McLean, before lunch you said you wanted the opportunity to speak to this because it related to the issues we were discussing and I wonder if you could just comment?

A. Sorry, just taking a step back. This is a further version of what was appended to a conferencing statement, dated the 29th February so this is a further worked-up version, in terms of that table. I wasn't at that conferencing, however, in terms of the monitoring activities for sediment control, so table L5, the triggers associated with them are taking that – have a compliance trigger and then triggers above it, which I'm supportive of. And this table is actually referred to in the conditions as the appendix to the CEMP. Now, yes, I agree that this table has not been agreed to and this is the first time I've seen it in A4 copy because I've read it off the phone, but in principle the – what the sediment experts were looking for was some more direct action and directive, in terms of those management actions and the triggers and I think this goes a long way towards achieving that, from the sediment control perspective. And what Dr Hicks was just talking about was table L6, in reference to the monitoring associated with the catchment level.

25 Q. Yes. And table L6 appears over the page. If we scroll through, so there's two tables here.

CHAIRPERSON JUDGE DWYER:

The one thing I've got a little bit of concern about and it relates – this exhibits probably not a bad example. There may be others, including the conditions, at the conclusion of these proceedings it's really important that we've got
5 these documents in their final form and we haven't got two versions floating around so the Court ends up writing a decision on the basis of exhibit 24 and then finds that the parties have agreed on, no doubt after we've issued our draft decision or something, that there's a final version floating round.

MR HASSAN:

10 Yes Sir.

CHAIRPERSON JUDGE DWYER:

So those things will really need some attention to detail at the time of closure.

MR HASSAN:

Yes Sir, I take that point, and certainly as part of closing we want to make
15 sure that everything is clear, including this. Notwithstanding whether or not I need to – I don't think I need any further evidence on that because this witnesses evidence is probably good enough for the point.

CHAIRPERSON JUDGE DWYER:

Yes.

20 CROSS-EXAMINATION CONTINUES: MR HASSAN:

Q. But obviously I just didn't want to represent it as agreed because of the form, informal way it looks and so forth so do you think it provides – so I think you provided the answer that it assists and it assists, presumably, in indicating that the Management Plan approach can deliver on – in
25 terms of effective management, do you think it assists?

A. It assists in determining those triggers which are where actions will occur and is much clearer than has previously been presented. I think it needs to be explicitly referenced within some of the conditions. There's some loose references to the appendix –

Q. Yes.

A. – through the site specific environmental, for example and the Erosion Sediment Control Monitoring Plans and I would like to see this, in terms of an agreed statement.

5 Q. Well that's for the Board but the other matters, I think, are noted.

CHAIRPERSON JUDGE DWYER:

Q. Just interrupting again. If that could be achieved with a final version of this in an agreed statement format would be excellent. Is that feasible over the next couple of days Mr McLean?

10 A. I'd have to check with the other parties involved Your Honour. I think it's important to have Dr Hicks' memorandum that you directed him to –

Q. Yes.

A. – because that feeds into –

Q. Yes.

15 A. – table L6 but not having been involved in that conferencing of the 29th I don't know how far away we sit in terms of the opinions.

Q. All right, well I think we'll need some sort of either agreed statement or status report from you and we've got until Monday, sometime on Monday to do that if that's feasible by, say, 2 o'clock Monday afternoon or something like that?

20

A. Provided the other parties were available Your Honour.

Q. Yes.

A. I don't see that as an issue.

Q. All right, that would be helpful, thank you.

25 **CROSS-EXAMINATION CONTINUES: MR HASSAN**

Q. Now at this point, Mr McLean, we are going to apply a bit of adaptive management as I indicated because I don't want to waste time unnecessarily and I know that you have some issues with some of the conditions and I think it's important that we discuss those but I have got
30 Ms Rickard alongside me so that neither you or me get off track when it comes to, for instance, thinking the condition says something and it doesn't or thinking a condition is missing and it is, in fact, there. So

occasionally I might be getting a yellow sticky this way from Ms Rickard in which case we will get back on track. I'd like to take you to the ready reference table please and I want you to look through that and I want you to select what you think you should discuss first under erosion control and adaptive management?

MR HASSAN:

Sorry Sir, this is the table I provided to the Board this morning.

CROSS-EXAMINATION CONTINUES: MR HASSAN

Q. I think that's probably the most efficient way if you could nominate the topic please?

WITNESS REFERRED TO REFERENCE TABLE

A. Yes sure. If I can just go back to my previous set of conditions which may give me some guidance.

CHAIRPERSON JUDGE DWYER:

While Mr McLean's doing that I just see on your ready reckoner, Mr Hassan, there's the odd one that says "not supported"?

MR HASSAN:

Yes Sir.

CHAIRPERSON JUDGE DWYER:

Not supported by NZTA or –

MR HASSAN:

Yes that's correct Sir.

CHAIRPERSON JUDGE DWYER:

– the witnesses or?

MR HASSAN:

Because what I've put to the witness this morning is the, which was the hard to read version and Ms Rickard's task was to collate and where there are points of disagreement these are reflected on the right-hand column –

5 **CHAIRPERSON JUDGE DWYER:**

Yes.

MR HASSAN:

– and where I've put “not supported” or so forth you will see that that corresponds to comments in the right-hand column including from Ms Rickard.

10 **CHAIRPERSON JUDGE DWYER:**

Yes, okay.

CROSS-EXAMINATION CONTINUES: MR HASSAN

A. We can start with the Site Specific Environmental Management Plans if you like.

15 Q. Yes okay. So it probably – would that be best started with NG26 on page 2-10 of the old version or G15? I will just make sure you're orientated with the correct version and I will go to my page first if you just don't mind which is the one I provided to you this morning, not the big print version of this afternoon –

20 A. Yes.

Q. – and confuse us even further. So I've got – I'm looking at page 2-10.

CHAIRPERSON JUDGE DWYER:

Well on my version from this morning NG26 is on –

MR HASSAN:

25 Yes 2 –

CHAIRPERSON JUDGE DWYER:

Well on page 2-10.

CROSS-EXAMINATION CONTINUES: MR HASSAN

Q. No quite right I was – if we go to 2-12 and NG26, I think that’s where I started, I ended up getting confused again. 2-12, it’s my page numbering that’s wrong here. So that’s headed “Site Specific Environmental Management Plans” and then we’ve got NG27 about certification which is marked as being new and then we’ve got MG28 which precludes from works commencing prior to certification, and then we’ve got NG29 which is marked as being not agreed by NZTA on my list which refers to a site specific erosion sediment control plan component of an SSEMP. I understand that came out of your, out of sediment caucusing or conferencing. Then we’ve got NG30 which describes the ability to amend, seek to amend the plan. So is that a good set to – which bit in those do you want to discuss? Is that –

1440

15 A. I think if we can just kind of flow through –

Q. Yes. Well let’s come back then.

A. If we can go back to G15A. I guess if I could just make an overarching comment regarding Site Specific Environmental Management Plans, and then it does play then it does play in to the condition G29 which is the new condition regarding the erosion sediment control plans for –

20

Q. Yes.

A. – a particular activity.

CHAIRPERSON JUDGE DWYER:

Sorry, I can’t find G15A, where’s that?

25 **CROSS-EXAMINATION CONTINUES: MR HASSAN**

A. NG26, sorry. The SSEMPs as I understand are really still quite a large document. I mean what we’ve seen from Mr Gough is only really concentrating on a portion of it and that was my initial comments within my peer review saying that it was very generic, was the case for those ones submitted.

30

Q. Yes.

A. The issue I have – well, it's not an issue. The comment I have in relation to this proposal is because there's an integrated approach for the SSEMPs –

Q. Yes.

5 A. – which is going to require a lot of input from other specialists within the design team, that the ability, which is why I support the erosion sediment control condition by itself, there's a lot of information in here in terms of getting work started on the ground.

10 Q. Can I interrupt you again so we don't get confused? So when you say you support the erosion sediment control condition by itself, your reference there was to the new condition NG29 –

A. Correct.

Q. – which I've marked as not agreed by the NZTA?

A. That's correct.

15 Q. Yes.

A. From my experience on these kind of scale projects that you'll have a construction team ready and willing to go but with the detail that is required through those SSEMPs, it may be more appropriate to have stand alone erosion sediment control plans because there are some construction activities that won't require the input from other specialists.

20 Q. So that I understand that correctly, so what you're saying there is about the risk that a project is held up by having to wait unnecessarily for inputs, is that what you've just said?

A. Yes, in principle, yes.

25 Q. Right, so what you're talking about there is the risk that is posed to the project proponents' timetable, correct?

A. Yes it is, yes.

Q. Rather than to the environment, correct?

A. Correct.

30 Q. All right, well that's noted.

A. So I guess just in terms of that though, there could be some simplifying within this condition or within this set of conditions that may assist.

Q. And do you want to expand?

A. I fully support the management plan approach having the overarching plans and having other documents fallout from them as such.

Q. Yes.

5 A. But they do need to be practical in terms of implementation. They do need to – there needs to be consideration given to timeliness.

Q. Timeliness.

A. And I think that is a really critical aspect of these kind of large projects. I believe the way this is set up at the moment, and this is why I support the new condition which -

10 Q. Is NG29.

A. – NG29 –

Q. On page 2 –

A. – is that would, it targets commencement of works whilst only looking at erosion sediment control measures.

15 Q. So in that condition, for instance, you support the word “may” don’t you because you’ve said there should be the ability to infect –

A. Correct.

Q. Rather than “must”?

A. Yes.

20 Q. Okay, so it's helpful to get your opinion out on these matters to understand the context so is there anything else regarding that before you might select the next topic that should be discussed?

A. Sorry, I'm just cross-referencing my comments. One of my comments, and you can come to it because you've got a not supported there, is winter works –

25

Q. Yes.

A. – which I'm happy to discuss further.

Q. Yes, okay, so if we go to –

A. The reference you've got within – I can maybe make a comment on NG26 –

30

Q. Yes.

A. – B, sorry, was it 12?

Q. Are you talking about the Roman –

A. Yes, Roman 12 is it or Roman –

CHAIRPERSON JUDGE DWYER:

The one down the bottom is Roman 22.

MR MCLEAN:

5 It's the one down the bottom that says, "Details of additional special measures that have been designed to..."

CHAIRPERSON JUDGE DWYER:

I think that's Roman 22.

CROSS-EXAMINATION CONTINUES: MR HASSAN

Q. Yes, Roman 22, the bottom of page 2-13, the last matter?

10 A. That's correct.

CHAIRPERSON JUDGE DWYER:

I did Latin for five years, it's finally turned out useful.

CROSS-EXAMINATION CONTINUES: MR HASSAN

15 A. I just make the comment that if you are preparing an SSEMP for any part of the project and let's say that was done during May or any time during the year, it would be very difficult, given the scale of some of these SSEMPs, to actually address what you were going to do during that period. You could have some generic concepts as to how you may maintain and monitor devices or what additional controls you may use

20 but you wouldn't know the specifics at that time because you've only got to have, for argument sake, a relatively wet summer like we've had this year, for example, and what I may have estimated say in May would no longer be the case now. So, and that kind of would then relate back to my comment within my peer review and my position still which is I

25 believe the winter works condition should be imposed on the project, which would be a more appropriate way of dealing with those matters that you need to deal with through the winter period prior to that time.

Q. Excepting that winter seasonally, you've heard the evidence from Mr Brabhakaran or you've read the evidence?

A. I've read the evidence, yes. Look I do accept that there are some works and there are some soil types within this project that you could work during the winter. Mr Brabhaharan, as I understood, suggested that the greywacke was better worked during the winter for optimum moisture content –

5

Q. Yes.

A. – I'm not going to disagree with that. I'm not a specialist in Geotech or geology so I do believe there are some works that could occur but trying to guesstimate, and it would be a guesstimate, what you're doing that far out in my opinion is not appropriate.

10

Q. Now just reflecting on this discussion, I wonder if you could go to page 2-38 and I'm taking you there to commission NE12 in the new numbering and it's under Erosion and Sediment Control Plan and paragraph J, so just have a look at that for a minute.

15

A. And this is, I guess, and I'm jumping into this because I've already got some comments around it –

Q. Yes.

A. – as I understand the Erosion/sediment Control Plan is an overarching document –

20

Q. Yes.

A. – so there would be a CEMP an Erosion and Sediment Control Plan, Monitoring Plans and then your site specific.

Q. Correct.

25

A. So this is a generic statement in here too in my opinion, that J, because I prepared this theoretically at the beginning of the project, I'm just having a statement in terms of what I expect increased maintenance to be or what I expect increased monitoring at that time, its not specific in terms of, let's say this coming winter how are we going to deal with or what work are we doing this coming winter. I don't see that within that meeting, other than, sorry, in terms of that – other than including a meeting with the manager prior to commencement of any new works within that period.

30

1450

Q. So just bringing this back into context, these comments relate to which condition that you see the change being needed to be made? Is it to the site specific one?

A. No, I think it's E3E.

5 Q. E3E which I think we should probably get a bit of a look at.

A. Which is fundamentally, well, it's been put in as a new condition based on Mr Handyside's comments.

Q. Now just pause a minute so that we can find it, that's 2/37?

A. Correct.

10 Q. So that condition as I read it, tell me if I'm wrong, is a proposal for a condition that requires that all sites to be stabilised or everything to be stabilised during the winter months.

CHAIRPERSON JUDGE DWYER:

Where do we find that?

15 **MR HASSAN:**

Sorry Sir, this is on page 2/37 of the A4 conditions.

CHAIRPERSON JUDGE DWYER:

Well on my version there's nothing in that particular box but I could be –

MR HASSAN:

20 The middle box is blank but if you go to the comments box Sir.

CHAIRPERSON JUDGE DWYER:

Yes.

MR HASSAN:

25 And this is why it's numbered – it hasn't been numbered as a new condition at all but had been put in as a comment. It says "BH" which I presume means –

CHAIRPERSON JUDGE DWYER:

So I'm supposed to be looking in the right-hand column.

MR HASSAN:

Right-hand column, yes.

CROSS-EXAMINATION CONTINUES: MR HASSAN

- 5 Q. So your understanding is that Mr Handyside, ie. BH in the – that’s BH
isn’t it?
- A. As I understand.
- 10 Q. New condition, winter earthworks and then he goes on to say, “As
agreed at 16 February sediment conferencing, item 3,” and then he
says, “Check wording of GW condition. The site shall be stabilised
during the winter months,” that’s 30 May to 30 September, “unless
otherwise approved by the manager.”
- A. I guess that we would take, I mean I personally would take the timing
from Ms Grant in terms of her evidence that –
- 15 Q. Well actually, thanks for raising that because I understand the planners
have agreed that there shouldn’t be a condition on shut down –
- A. Which conferencing statement is that?
- 20 Q. 1st March conferencing statement. I guess the question is why do you
need to be so prescriptively restrictive? You mentioned before about
the importance of – you didn’t use these words but it relates to a
concept of ensuring productivity of the site. In other words, allowing the
progress to be made, not waiting for things unnecessarily. Isn’t this just
another example of the same thing, over-prescription, bearing in mind
the fact that the evidence is that a good deal of work can be done during
winter?
- 25 A. Oh, look I’m not suggesting that we should stymie production on site
because there’s additional or other effects that would come out of that,
but I don’t think the current wording is robust enough and I mean, going
to that conferencing statement –
- Q. Yes.
- 30 A. – of the 1st of March, paragraph 27 –
- Q. Yes.
- A. There’s a statement that says, “All agree with the erosion and sediment
control condition, including provision for highlighted awareness, and the

group agree that there is no presumption of a total site shut down for winter.” I’m not presuming there would be a total site shut down either, hence acknowledging Mr Brabhakaran’s evidence but I think the wording needs to be significantly stronger and potentially – I’m just not, it’s stronger plus also I don’t believe we’ve got it in the right location at the moment.

5

Q. Okay, so do you have any issue, disagreement or otherwise with the planning conferencing on the same topic?

A. I’m not a planner but I’m a practitioner in terms of earthworks.

10

Q. Yes.

A. I mean, at the moment, reading the condition, it’s the assumption that you’re working right throughout the winter. Now, by default, the monitoring may tell you otherwise because if you have construction monitoring that shows you’re continuing to reach triggers, by default you’re going to shut down anyway, I would presume, but you also target those types of works you can do during winter and I still think that the process for doing that is not when you submit your SSEMP. It’s probably a month prior to winter occurring. Having a look at where you’ve got to in terms of your production or your construction programme, redefining where you think you’re going to get to based on the past year’s experience or the past summer’s experience, and then modifying things. The way the conditions are currently worded, I don’t see that occurring.

15

20

Q. Okay. So in essence, you’re not seeking to prescribe works out of being done in winter but you do see a need for more clarity than simply relying on what the condition currently says?

25

A. Yes and it’s also been agreed in the sediment conferencing that a winter works condition was appropriate.

Q. Yes, no I understand. All right, so I think that’s probably well covered. Is there anything else you wanted to say on that topic before we should move to another, mindful of just making sure we keep progressing.

30

A. Yes, sure.

Q. But I don’t want to hurry you.

A. Sorry, I’m thinking on the fly here as well. I mean –

Q. No that's fine. Let's go to the ready reference table –

A. – I think there are references. I mean, originally I was concerned that within that subsection (b) there was no reference to, “No greater than 5% of other devices.”

5 Q. So subsection (b) of which condition?

A. The SSEMP condition sorry.

Q. Okay that's fine, we'll just go back to that.

A. But that's been noted by Dr Fisher –

Q. Yes.

10 A. – somewhere else. I would have to –

Q. So condition 26, I see there's a reference TF which I presume is Dr Fisher, on the right-hand column on page 213.

A. Yes, so, I guess some of my concerns, reading the 5th of March conditions, are no longer the case. I'm supportive of that having the 5% in there. I thought that was very important.

15

Q. Okay, so if we look at the 5% that's referring to (b) viii, isn't it? Is that where you're referencing that, while I just use the yellow text? Have I got the right place?

A. Yes, correct.

20 Q. So you support that, yes, okay?

A. Yes I do.

Q. Thank you. You can certainly take your time through this, there is time.

A. Maybe we could go to the erosion sediment control monitoring?

Q. Okay, I'll just find that on the ready reference.

25 A. Sorry, I'm jumping around a bit –

Q. No that's okay.

A. – but it just flows in –

Q. I asked you to do that. I think if we go to 2-20 and condition NG39 which is headed up “Erosion Sediment Control Monitoring General”. Is that where you want to be?

30

A. It would be a good place to start. There's two parts to my comments on this condition. I think there's – one comment is just about simplification and if I could just use A as example. It starts with, “Inspections of erosion, control measures, surface water management measures,

sediment control measures,” onwards. We could simplify those and I appreciate this might just be wording but it could just be, “Inspections of erosion sediment control measures,” as simple as that.

Q. Yes.

5 1500

A. The other part of this is that A, B and D of that condition are related back to construction monitoring, whereas C is related to the catchment monitoring. I think there is almost, because then if we went onto the baseline and I'm not going to comment on the parameters of the baseline but the way the conditions currently read is you need to prepare all of this prior to undertaking your baseline monitoring and I don't believe that was probably the intent of this Monitoring Plan.

10

Q. Right.

A. So I think there's probably a –

15

Q. A structural issue?

A. – a structural issue in terms of the condition.

Q. With regard to item C and its placement, is that right?

20

A. Yes, because fundamentally you're doing, simplistically, you're going to identify the physical monitoring of the catchment, get that reviewed and approved through the other mechanisms, you're then going to implement your baseline monitoring, preconstruction that is, based on the baseline monitoring results as Mr Hicks, Dr Hicks was saying. You may then revise triggers which needs to feed back into your erosion and sediment control monitoring, it's kind of that plan check, do, act.

25

Q. Yes.

A. And I think the way this putting a Council hat on or a compliance officer's hat on for five seconds, the way this reads is you could quite easily have to do all that work prior to undertaking your baseline, re-do most of the work again because of the baseline monitoring.

30

Q. So that issue should be tidied up so administratively it works?

A. I believe so.

Q. Within timeframes?

A. I believe so.

Q. Just noting that, is there anything else about that condition?

- A. I guess it comes back to the appendix E or appendix L of TR15 which ever –
- Q. Yes.
- A. – reference you, it's –
- 5 Q. The exhibit produced this morning – this afternoon?
- A. Correct, or part, yes, so that's part of it but that obviously needs to be tidied up because it is referenced as at in the first part of that condition the SSEMP appendix E to the CMP as lodged –
- Q. Yes.
- 10 A. – well we're quite a way on from “as lodged” at the moment.
- Q. That's right, and so coming back to His Honour's comment, it's very important that the Board has the up to date version for the Board to determine however it is going to decide the matter, if this is to be in the mix, this needs to be clear?
- 15 A. Yes, correct. If I could take you to MG41 which is on page 2-23.
- Q. You're getting good at it, you beat me to the punch.
- A. I'm getting the swing of it now.
- Q. Okay, 2-23 MG42 was it?
- A. Yes, ah, 41 sorry.
- 20 Q. 41, monitoring during construction, okay.
- A. It's not really necessary to comment on that but I do think the reference to stabilisation trigger event and heavy rainfall event could almost become standalone conditions and could sit either in or outside of that condition but they are key, I guess, measures to ensure effects are
- 25 minimised from sediment and they have specific meanings as to, or specific definitions and specific actions associated with them.
- Q. That point is understood but why does taking them into a separate condition make any difference. They have to be complied with here don't they?
- 30 A. Well fundamentally at the moment you'd be scratching around through all of these to find what action there is.
- Q. So we come back to the point then because I haven't understood it, I thought you were just referring to the placement of these paragraphs here being best in a separate condition?

- A. No, no I was bringing us to that because that's where they are kind of mentioned –
- Q. Yes.
- 5 A. – but I do believe potentially there could be standalone conditions based on those two trigger events to make it very clear as – because at the moment really they are lost in these conditions.
- Q. So what is it in essence you think should be stated?
- A. I'd be suggesting two new conditions or a –
- Q. Saying what? Sorry, just not wanting to put you directly on the spot –
- 10 A. Sorry, and I'd have to –
- Q. – but give the essence of what you're saying.
- A. I'll have to go to conferencing notes, sorry.
- Q. That's fine. Let's do that.
- A. And it probably something I wasn't involved in, so...
- 15 Q. That's fine.
- A. I was fairly sure on the original set I was looking at they were stand alone conditions.
- Q. Well I can just confer, while you're doing that, with Ms Rickard.
- A. I just thought because they are so critical to the management actions,
- 20 they shouldn't be lost within –
- Q. Yes, I understand that point – sorry to cut in but, well the first thing is I don't think they're in there already but I just want to get the essence of what you think should be the obligation that should be expressed.
- A. Let me try to find it in the conferencing statement.
- 25 Q. Is it an obligation to report?
- A. No, it was actions.
- Q. Right. Just while you're there – sorry, no I don't want to distract you. You find what you were looking for.
- A. No, you're fine. I can multi-task.
- 30 Q. I'll wait for you I think because we might end up getting confused. There's a condition that follows that relates to some –
- A. Yes I think you're right.
- Q. The next condition refers – oh, I might as well just mention it, NG42.
- A. NG42.

Q. Requires something to occur when there's a trigger event. It should –

CHAIRPERSON JUDGE DWYER:

Just for the sake of clarity, and I think a couple of us are a bit confused, Mr McLean was talking about two trigger events. I think an exceedance trigger
5 event and a management trigger event I think.

CROSS-EXAMINATION CONTINUES: MR HASSAN

Q. Mr McLean, could you just clarify that again please, when you were referring to trigger events?

10 A. Sorry. There were two definitions and they're on the front page of the latest conditions. One was a stabilisation trigger event and one was a heavy rainfall event, and then gives the definition of each of those.

Q. So those terms I understand may have slipped out of the latest version. They might have been described in the earlier version, which is probably not helping you.

15 A. No, so I found where they are vaguely referenced. In the new reference NE7 2/36, which is erosion sediment control objectives, standards and design criteria.

20 Q. No, reading that, that just – sorry, just pause a minute so we understand on the transcript, erosion, sediment control, objectives, standards and design criteria, and you refer to, “If a heavy rainfall is forecast, undertaken pre-event inspections and any maintenance that is required,” and it goes on from there, and G, “If a stabilisation trigger event is forecast, deploy erosion control measures and stabilise all non-stabilised areas.”

25 A. Yes.

Q. So just bearing in mind the condition's structure, because it is quite hard – I'm getting notes from Ms Rickard all the time. Monitoring is what we were talking about before –

A. Yes.

30 Q. And this is actions, and I think the discussion we had before though was about the need for actions.

A. Yes. It's just where this sits as much as anything maybe. I think it is a key component of that monitoring –

Q. Yes.

5 A. – and the actions or triggers out of that monitoring and I appreciate those are triggers derived from rainfall events –

Q. Yes.

A. – but I think they're very important.

10 Q. Right, so I think the point, as far as I've understood it is, it's important to have actions and there's a question, obviously, for both of us about trying to find where the two conditions relate to each other.

A. Yes.

Q. And to the extent that it isn't clear in the conditions, you're saying they are very important events to be clear about in terms of actions to be followed up?

15 A. Yes they are, correct.

Q. So is there anything else on that point before we go to the next?

A. No.

Q. Okay, well just looking at any of the others there, again we've discussed the SSEMPs.

20 A. Yes.

Q. We've discussed the Monitoring Plan, discussed the winter works. Are there any other issues that you would want to raise on any of the others, or anything that's missing?

25 A. I had some additions to – now I'm going to have to find the new condition, NE17.

Q. Yes.

A. On page 2/40.

Q. Thank you. Certification?

30 A. Correct. There's two parts to, I guess, my comment there and some of them have already been picked up by, in the comments or points of difference column.

Q. Okay, so shall we look at that then. BH, chartered engineer not necessary?

A. No.

Q. Okay, why is that?

A. Because a chartered engineer doesn't necessarily understand erosion sediment control measures.

Q. Right.

5 A. They can sign it off from a stability perspective or a geotechnical perspective and it might be appropriate for argument's sake, for a geotechnical engineer on some of these large ponds to have signed it off.

Q. Yes, a la Mr Handyside.

10 A. Mr Brabhaharan.

Q. Mr Brabhaharan?

A. Yes.

Q. Go.

A. But it doesn't necessarily – I mean, for example, I've got erosion sediment control plans that have been signed off by chartered professional engineers and they don't meet the guideline.

15 Q. Yes, that's fine. I think that's the sort of, yes, okay. In other words undue prescription?

A. Correct.

20 Q. Relevant qualifications are the important thing?

A. Suitably qualified.

Q. Yes, thank you.

A. I guess part of it should be prior to bulk earthworks commencing rather than any earthworks, just in terms of the start.

25 Q. Yes, thank you.

A. I think Mr Handyside has picked up the other areas which I would want to see in an as built condition.

Q. Okay so –

A. In terms of contributing catchment, volume, shape and dimensions, position of inlets and outlets, stabilisation, chemical system details.

30 Q. So if that was in the SSEMP requirements, would it need to be here or is that a matter of just drafting?

A. It could be a matter of drafting, although just taking that a little bit further, this refers to a certified erosion sediment control plan, the

ESCP, the last part of it, but what has been demonstrated to me is that there is no ESCPs. That's an overarching document which is not going to have any detail in it anyway, so that should make reference, I guess, to the SSEMPs.

5 Q. Right, so there's a third point there?

A. Yes, or the site specific – there was another reference to the erosion sediment control plans that you didn't necessarily support.

Q. Yes, referring to –

A. NG29.

10 Q. Yes, which we had the discussion on before.

A. Yes, correct.

Q. And the Board's got your answers on that.

A. Yes.

Q. So, okay, so in terms of any other issues of substance?

15 A. No, I mean I think there's the odd little – well matters –

CHAIRPERSON JUDGE DWYER:

Just hang on, just half a minute I think. Mr McMahon wanted clarification.

1515

20 **DEPUTY CHAIRPERSON McMAHON:**

Q. Could I just clarify the last point Mr McLean in your question, in answer to Mr Hassan's question. Did I hear you say that you wanted that condition applied to SSEMPs as well as the S?

A. And this is where confusion lies in my opinion –

25 Q. Yes because –

A. – you've got, in terms of erosion sediment control and the plans associated with a particular area, the intention of this project is to have SSEMPs –

Q. Yes.

30 A. – incorporating erosion sediment control plans –

Q. Right.

A. – so there are no stand alone Erosion Sediment Control Plans other than a condition that hasn't been agreed to.

Q. Yes but there's an overarching Erosion and Sediment Control Plan document is there?

A. Yes which I don't know –

Q. But doesn't necessarily have any detail?

5 A. No.

Q. Or no special application?

A. No that's correct.

CROSS-EXAMINATION CONTINUES: MR HASSAN

10 Q. So to round this out you would add the words, "And any SSEMP," or the relevant SSEMP or something to that effect?

A. Or site specific erosion (inaudible 15:16:03).

DEPUTY CHAIRPERSON McMAHON:

Q. Yes thank you for that, that's clear.

15 A.

CHAIRPERSON JUDGE DWYER:

Thank you.

CROSS-EXAMINATION CONTINUES: MR HASSAN

20 Q. Mr McLean, any other – think you then said that there matters of fine detail –

A. Yes.

Q. Just one thing to bear in mind though is the Board's on a programme and we must, we must assist them to finish when they want to, when they need to.

25 A. Look yes, no, no it's just referencing and, which I believe Ms Rickard has been working on –

Q. Yes.

A. – till quite late at nights, so I do appreciate that matter so I'm not going to provide my comments –

30 Q. Yes.

A. – in terms of cross-referencing conditions.

Q. No.

A. No.

Q. So are there any other issues you wanted raised?

5 A. No I think I've fairly much covered all the comments I had on the 5th of March that I've tried to relay and to the conditions you've given me this morning, I hope.

Q. Yes I've tried to be comprehensive but I wanted to make sure that I wasn't a gatekeeper or anything thing because I wasn't intending to be but if I've missed something tell me.

10 A. No and I mean, my only other comment, I think there's – and it's a drafting issue as much as anything but the definitions need to be further expanded on in terms of the front end of things. I don't like seeing the word "failure" of erosion sediment control devices.

Q. What should it be?

15 A. We've had this discussion on numerous other hearings recently. Failure needs, we need to define what failure is because on numerous, well a number of other hearings I've been involved in, failure has been the correct operation of the device so just overtopping, so I'd suggest we need to work out or the definition needs to be put around as what is expected in terms of failure – other than that....

20

CHAIRPERSON JUDGE DWYER:

We're getting into quite a lot of quite fine detail. While you've been talking with Mr McLean I've been having a look at the provisions of the Act relating to the people we have to send our draft decision out to for comment and section 25 42A riders are not included in that.

MR HASSAN:

Yes Sir.

30 **CHAIRPERSON JUDGE DWYER:**

Because obviously you know there's every possibility that for the amount of detail here there's something going to slip through the system. Obviously the applicant and other parties get the opportunity but I'm just, I've just been

mulling over how we could get Mr McLean to have a look at the final sort of proposed conditions before they come out –

MR HASSAN:

5 Yes I was –

CHAIRPERSON JUDGE DWYER:

– which might mean shuffling the closing back or something of that nature.

10 **MR HASSAN:**

Yes Sir and so far as the NZTA is concerned it just wants to make sure that the process of inquiry can be complete and thorough prior to closing and certainly not wanting to constrain our need, effectively the Board's needs, and the Inquiry runs through to Friday potentially for subject to anything else. But, so I wondered Sir whether in fact there might be some value given Mr Hicks is going to supplement his views for there to be some sort of sequential process which involves – Your Honour's already mentioned that the NZTA has intended conditions for closing should be provided to counsel before the sequential closed and perhaps we need to think about that –

20

CHAIRPERSON JUDGE DWYER:

We're starting to edge towards Ms Bradley's –

MR HASSAN:

25 Well Sir, there is important, it is important to get closure and to some extent there may be matters of judgement here.

CHAIRPERSON JUDGE DWYER:

And there's been extensive conferencing –

30

MR HASSAN:

And there has been extensive –

CHAIRPERSON JUDGE DWYER:

– with other sediment witnesses.

MR HASSAN:

5 – a surprisingly amount of conferencing particularly in the sediment area Sir.
Perhaps we got stuck in the mud a wee bit.

CHAIRPERSON JUDGE DWYER:

All right, let's just park that for the minute, we might have a discussion about it
10 when we finish tonight.

MR HASSAN:

I've got no further questions Sir, thank you.

15 CHAIRPERSON JUDGE DWYER:

All right, thank you for that. Ms Bradley.

CROSS-EXAMINATION: MS BRADLEY

Q. Yes a few thank you Sir. Good afternoon Mr McLean, just while we've
got the conditions in front of us, now you were referring last to condition
20 NS17 and you commented that you thought Mr Handyside had covered
off everything that you thought needed to be covered off in that, in his
comments, that condition. Now we obviously haven't been through all
the comments on conditions to see whether you agree or not, but I was
wondering if there, you having had a look at Mr Handyside's comments
25 whether there are any particular comments that you don't agree with?

A. I mean if anything I'd probably provide a bit more in terms of
Mr Handyside's comments so taking you down through, I guess, his
condition where it says "certified controls," the last paragraph, the last
sentence prior to the roman numerals. Sorry this is 2-40, NE17. When
30 he says, "Certified controls shall include," it's not just earth bunds and
silt fences, it would be every device proposed for this project.

Q. And are there any other comments made by Mr Handyside as well as other conditions, I mean not just NE17, that you would take issue and not support?

A. No sorry I haven't –

5 Q. Or add to?

A. – reviewed all of Brian's comments. Can you direct me to particular condition –

Q. No I don't, it was just a general enquiry.

10 A. Sorry I'm just flicking through now, again. No in principle I think there'd be, if the Board was going to progress the exposed area condition that Mr Handyside suggested, I think there'd need to be some work on that –

Q. Mhm.

15 A. – because I understand the intent of the condition but from a wording perspective or from an enforceability perspective I don't think it's there at the moment. I'd have to give that further thought as to whether I could fully support the condition, I understand the intent of it though.

Q. So you under – you agree with the principle of having a condition dealing with a rock fall equivalent?

20 A. I understand the background behind why the condition has been proposed, I also I guess acknowledge the comment, I'd assume this is you Ms Rickard – AJR, about that – that's come out of the modelling so it is a bit of a balance between effects but as I say I do understand the intent of Mr Handyside's condition.

25 Q. And you understand it but do you, sorry just to be clear, do you support it or you don't support it?

A. I'd have to give it a bit more thought to see how it worked in reality and what effect that would have on the project. I do appreciate that you want to, well, different soil types have different effects and I guess that's where that condition is targeted at.

30 1525

Q. Now I'd just like to ask you a few questions about your report. Now, on page 7 there's a paragraph just before the heading, "3.4, erosion and sediment control measures," and you say, in your opinion, "Details required to confirm that the proposed measures can be installed to

provide the required level and anticipated efficiency of the erosion and sediment control as stated in the application.” Now, you're saying that detail is required to confirm that that can happen. Are you saying that that needs to be provided before the Board makes its decision or that that is to be done through the management plan certification process?

5

A. The position I was in when I reviewed the original SSEMPs, and they have moved on subtly, not significantly, is that the original SSEMPs did not provide anywhere near that detail required to confirm what was being stated. There has been further work done by Mr Gough through his supplementary or his second rebuttal evidence which goes some way towards that but that detail has yet to be provided, I guess, in terms of, from evidence, however, there are conditions which have certification processes which would still allow a reasonable robust assessment of those erosion, sediment controls and SSEMPs or whatever they're going to be called, to ensure that you can achieve these outcomes. It may mean that some of the methods stated to date cannot be achieved and alternative methods may need to be used.

10

15

Q. So is that done through the certification process itself?

A. Through the individual SSEMP, yes.

20

Q. Just turning over the page to page 8, you mention near the very bottom of that page, in your list of erosion and sediment control measures, you mention tanks and shipping containers. Now I notice in your introduction to your report you don't mention that you had undertaken a site visit. Had you undertaken a site visit before you prepared this report?

25

A. No. I have subsequently undertaken a site visit.

Q. And would any of your comments have been different had you undertaken a site visit before preparing your report?

30

A. Potentially I might have taken a more precautionary approach in some of my comments. The site visit confirmed to me that this was a difficult project in difficult terrain. It was useful, Mr Gough doing the further iteration of the SSEMP in the Te Puka area because we spent quite a bit of time going up through there and just simple things like clean water diversions, for example. That trying to install clean water diversions on

some of that terrain is going to be difficult so innovative techniques to achieve the outcome are going to have to be used. And that's where, theoretically, the ability, in terms of the SSEMP process or, what I understand the process to be, may assist. I'm not convinced that in some areas you'll be able to install stock standard erosion sediment control measures.

5

Q. And you mention the use of tanks and shipping containers, have you been involved in any projects using shipping containers for sediment control?

10

A. I've been – well, no, I've used tanks for dewatering but not as a sediment control measure. While they are a sediment control measure but we're pumping into them. I know the northern motorway, or Alpur, sorry, used both tanks and shipping containers but that was more to deal with, as I understand, discharges coming out of the tunnel portals and dewatering of piles in the Nukumea catchment. So no, I haven't had any particular experience with either of those.

15

1530

Q. Have you got any idea of the difference in efficiencies between using tanks or shipping containers and properly constructed sediment control ponds, sediment retention ponds?

20

A. I would just be guessing in terms of throwing efficiencies at it. I would think, in terms of the components of a sediment retention pond, you try and incorporate them into a tank system. So you'd need a four-bay, some sort of smooth inlet to ensure you didn't get too much re-suspension. You would need to incorporate some sort of decant kind of system. It may not be an atypical one out of any of these guidelines but you could modify something to achieve, I guess the same discharge rate. I guess part of that monitoring it would be critical, if there was a lot of use of these as sediment control devices, you would pick that up through the monitoring.

25

30

Q. Right, and turning over the page again to page 9, in the second to last paragraph at the end of that paragraph, you say, "It's proposed to undertake monitoring on a monthly basis during construction." Now

there's been a change to this hasn't there. It's now been agreed that there'll be continuous monitoring rather than monthly, is that right?

5 A. If I take you back to the table that was given as evidence this afternoon, there's continuous monitoring on the compliance sediment retention devices and I probably think that's probably where I should stop in terms of monitoring, and table L6 does say "continuous sampling" which I support.

10 Q. Yes, okay, thank you for that. No I just want to touch back on the definitions which you're referring to in the conditions and turn to your page 16. No I'm not – I don't know if this has been the subject of discussion but I haven't found any reference to it in the sediment experts conferencing notes but in the middle of the table you've got on page 16, you've quoted that, "Hydro seeding has a performance rate of 50 to 60%," and I was just wondering how you think that if hydro seeding is used to stabilise areas, how that works in with the definition of stabilised in the conditions, which is on page 2-1?

15 A. I guess that's, and I'll just go to that definition, two-fold. One, I was very supportive of the stabilisation trials in terms of ensuring what we say we can do, we can physically do on site, so I'm supportive of that. 20 Stabilisation, in my opinion, hydro seeding by itself would not be considered stabilised, not until you achieved the 80% grass cover or vegetation cover.

Q. So when stabilised as defined talks about grassing –

A. Yes.

25 Q. Is that not referring to hydro seeding? Is that referring to some...

A. No, grassing, in my opinion would be a generic terminology used for any means of putting grass seed in the soil but it wouldn't be considered stabilised until you had 80% vegetative ground cover, which it continues on in that stabilisation definition.

30 Q. Yes, but if you had 80% - say if hydro seeding was undertaken and there was an 80% hit rate on it but your table is saying that hydro seeding is only 50 to 60% successful, I suppose, in terms of performance.

A. Sorry, that table is referring to as soon as you put it down.

Q. Okay.

A. So in terms of that it's a kind of a bonded fibre matrix or a papier mache at that stage and because it provides a temporary ground cover, it wouldn't be considered stabilised but it does reduce some sediment loads.

5

Q. Okay, so hydro seeding in itself wouldn't be a stabilisation event, a stabilisation mechanism straight away?

A. No it would take six to eight weeks to achieve grass growth I would assume.

10

Q. Okay. So if there – just carrying on with that, if there was a storm event predicted, what sort of stabilisation methods could be undertaken to rapidly get to stabilised as it's defined in –

A. I guess the most common practice would be hail storm altering. The next most common practice potentially additional aggregate or rock thrown around areas. There are hydro seeding techniques like hydro hay and that's kind of a terminology for a papier mache with hay product in it that some councils do consider as stabilisation. So there's a whole range of different techniques that you could literally do hectares within a single day.

15

20

Q. Okay, thank you for that. Now there's just one last question, page 20 in the third paragraph in the middle of that paragraph you say, "In my opinion the report does not support the sufficiency for up to a Q10 storm event and it's unlikely that the 70% efficiency can be achieved for larger storms within that range." Now have you – you weren't here when Mr Gough gave his evidence were you?

25

A. Yes I was here earlier when Mr Gough gave his evidence.

Q. You were here. Now did you hear Mr Gough answering in cross-examination that a sediment pond can hold a 10 year storm event before it would start overtopping?

30

A. If that's what was said, yes I did hear it.

Q. And were you also here when Mr Handyside gave his evidence?

A. No I wasn't.

Q. Have you read the transcript of his?

A. Yes, yes, I read it this morning.

Q. Well, you'll recall then that Mr Handyside didn't agree with that and that he said it wouldn't hold a particularly big storm event. I don't think the transcript records a size event but would you agree with Mr Gough that it would hold a 10 year event, or with Mr Handyside that it wouldn't?

5 A. I wouldn't agree that it will hold a 10 year event. Now obviously that's dependent on storm events but from monitoring that I've been doing on sediment retention ponds, they can over top in a variety of events. As a rule of thumb, and I know that's a loose term, but storm events up to a two year event, that's when they really generally start over topping, but
10 sometimes it can be related to site conditions in terms of storm intensity and duration. It could be saturation of the existing soils. If you have a couple of storm events come through in a row, you still might be draining the pond while the other storm event comes through, so no, I wouldn't say a sediment retention pond will hold a 10 year storm event.

15 **CROSS-EXAMINATION: MR BENNION – NIL**

COURT ADJOURNS: 3.39 PM

COURT RESUMES: 3.59 PM

CHAIRPERSON JUDGE DWYER:

Now I'm sorry Ms Anderson, Mr Conway, I hadn't asked you if you had any
5 questions of Mr McLean but I understand you haven't. And I won't bother you
Mr Slyfield.

MR SLYFIELD:

No pointless Sir.

10 **CROSS-EXAMINATION: ALL REMAINING COUNSEL – NIL**

CHAIRPERSON JUDGE DWYER:

All right Mr Mitchell.

QUESTIONS FROM BOARD MEMBER MITCHELL:

15 Q. Thank you, good afternoon Mr McLean. I just want to question you
about the proposed condition NE8, if you just have a look at that. It's
talking about compliant sediment retention devices and the minimum
level of TSS removal. Now as I read that, so all sediment retention
20 devices sized for at least 3% of their catchment and must remove at
least 70% if they have a TSS removal efficiency of at least 70%. Would
that just limit, just limit it to ponds. I mean what other devices would
actually achieve that requirement?

WITNESS REFERRED TO CONDITION NE8

A. There was at some point a definition of compliance sediment retention
25 devices.

Q. Okay.

A. Which generally were restricted to sediment retention ponds and
decanting earth bunds, I believe, with T-bars and chemical treatment.

Q. Okay so the decanting earth bunds would, they would still achieve a
30 70% minimum?

A. Well fundamentally if they're sized as per a pond, so based on the 3%, if they can incorporate some length to width, you know similar to the same designer requirements as a sediment retention pond –

Q. Mhm.

5 A. – you may achieve 70%. I would be concerned with 70% up to the 10 year, given that in my opinion anything over a two year event, potentially you're overtopping your device anyway in terms of either the primary or emergency spillway.

10 Q. Okay and that probably leads into my second question regarding the new table L5 monitoring activities and the performance measures there, particularly the trigger events. Now I can see in that condition NE8 we've got, the basis of a 70% removal there. I just wonder if there's perhaps enough emphasis in terms of how the controls are managed to have those trigger levels, which I think have been described as being
15 either vital or very important sort of throughout the hearing, and what your opinion would be, say, if those trigger levels or whether you consider it would be of value to have those trigger levels in as a condition rather than just in the Monitoring Plan?

20 A. I guess that almost leads on from the point I was suggesting that what's in this table is extremely valuable and can't get lost in the great wash of all the information that's lying around this project –

Q. Mhm.

25 A. I think based on the comment that we need to either get agreement or a statement of position on those trigger levels, it may be appropriate to have them as conditions so it's very explicit as to the intent.

QUESTIONS FROM BOARD MEMBER HOWIE:

Q. I'd just like to ask you about the winter condition?

A. Yes.

30 Q. My recollection of rainfall information was that it was pretty well spread throughout the year; winter didn't show any particular sign of having more rainfall in the spring or the autumn for instance. So with that in mind and the other conditions requiring percentage removal of

sediment, would the combination of those two things not achieve protection for an adverse event whether it's in winter or any other time?

A. They may achieve it on the basis that yes if you have set these trigger levels plus there's 70% efficiency –

5 Q. Mmm.

A. – by default in wetter months, let's say winter, you may not achieve them just because of the nature of rainfall, the intensity of it during that period and generally that in winter you've got soil saturation. So generally in winter what you find with rainfall is you get more runoff because you've got higher water tables and saturation within those soils and so you may hit those triggers more often which by default is going to shut down the site anyway. So generally winter works conditions are about risk. Risk of being able to achieve the outcome in terms of the objectives in this case, or the triggers, and the ability to physically do works. Now I do acknowledge that within this project there are areas that probably could be successfully worked in winter and should be targeted particularly for winter based on other evidence that you've heard. There would be some parts of this alignment which, I would think, you would struggle to work during winter because there would be a look of these triggers exceeded and by default your only position would be to shut down the side.

15 Q. And also added to that would be if you were cutting and filling, that some materials in winter time would be over optimum moisture content for compaction?

25 A. Yes correct.

Q. So you wouldn't want and you couldn't drive then because it was winter time.

A. No that's right and I mean some of those practicalities will come out in a project like this anyway –

30 Q. Yes.

A. – you just need to target the types of work and the types of material you can work to those winter months –

Q. Mmm.

A. – so you may not work the clays during summer and the rock during winter for example.

5 Q. So a winter condition is a bit of a sledgehammer to crack a nut in some ways whereas the other provisions, the other controls and the practicality of it tend to rather more refined in terms of controlling when you can do works –

A. Yes.

Q. – not only in winter but in spring, summer, whenever?

A. That's a nice analogy, might use that next time.

10 Q. Something like that?

A. Yes.

Q. The other topic that I was a bit interested in was the concept of, we suggested early on the hearing, and I'm not sure whether you're familiar with it but we suggested the condition that required the capture of runoff or stormwater from disturbed areas?

15

A. Yes.

Q. Now I don't, I can't say I've read all the conditions yet, I will in due course no doubt, but there were one or two that caught my eye just in that regard and perhaps I could refer you to them.

20 A. That would be helpful.

Q. NG10, NG10a –

A. Yes.

Q. – where it requires the consent holder to notify the manager if there's any contaminants entering a watercourse from discharges from non-stabilised areas that are not treated by erosion and sediment control measures required under this consent.

25

A. Mmm.

Q. Is that a sort of roundabout way of saying you've got to capture everything, is that what it's meant to do do you think?

30 A. I'm not sure the intent of that condition (a) but the intent of other, well in principle erosion sediment control is you're putting everything through a device –

Q. Yes.

A. – to treat it until such time that it is stabilised. In this case if you're discharging from non-stabilised areas that were not treated by erosion sediment control devices, it's a complete breach of the consent.

Q. Yes.

5 A. Yes.

Q. So the implication of this seems to be that capture is a prime requirement?

A. Yes I mean capture as you've probably heard from some of the other experts in terms of the definition of capture, I wouldn't suggest we're capturing it, we're directing it to a device for treatment. The device will hold some water but it will be discharging water so it's just a terminology but I think the intent of what the Board's direction was that is the intent within these conditions.

10

Q. Yes. so where I was using "capture" you're using "direct", but it means having control of?

15

A. That's correct.

Q. It's not putting in jail.

A. No, that's correct.

Q. And then in a similar vein condition NG26b(viii).

20 A. Sorry could you – I'm struggling with these Roman numerals with the strike through actually on this small version.

Q. Yes NG26.

A. Yes I've got that.

Q. (b) over the page and

25 A. Yes.

1610

Q. – over the page. And you come down to, oh no, hang on, it's roman 12 sorry. It's an x – or is it 13? Yes, 13, sorry, it's an x and three little ones. It starts off, "Justification for the use of..."

30 A. Oh, yes. So the intent is, I understand, of that condition, was that the modelling's been done on erosion sedi – compliant erosion sediment control devices so sediment retention ponds decanting earth bund size to the 3% with chemical treatment for 95% of the work areas. So the other 5% will be treated but not by devices of that standard.

Q. And they would require individual approval?

A. Correct.

Q. Yes. And that again seems to imply this, the concept that you had of capture in the first instance?

5 A. Yes. The intent of these conditions is to, I guess, capture all runoff until such time as it is stabilised and approval's given by the manager to remove the devices.

Q. Yes. Now, I don't fully understand yet the hierarchy of these conditions. So I don't know whether those two conditions I've just referred to are superior conditions or are they particulate or inferior conditions?

10

A. And I guess potentially that was in some of the comments I gave about potential condition structuring –

Q. Yes.

A. – which is not necessarily what I should be looking at but generally you would have, potentially, catch all conditions saying, “All earthworks shall be treated by...” or “contained” in your words, “By erosion sediment control measures prepared in accordance with or constructed in accordance with an approved SSEMP or erosion sediment control plan.”

15

Q. Yes, okay. Well you have the same difficulty that I have at the moment but I'm sure it will be sorted. Now the third topic that I'd like to explore with you is this question of overtopping or failure of a certified device.

20

A. Yes.

Q. Now as I remember the evidence that we've heard, the ponds are sized to 3% of the catchment, in other words, the area of the catchment and 3% of that is the cubic metres of the pond?

25

A. Yes, fundamentally it's 300 cubic metres per hectare.

Q. Yes, that's right, the 3% rule and then certain dimensions about length and width.

A. That's correct.

30

Q. But the, as I recall the design evidence, they were designed to – or the decanting mechanism was designed to discharge up to the 10 year event, in which case the resident time in the pond would reduce as you got above it –

A. Correct.

Q. – what, two year flow?

A. Well I think there's a bit of conflicting evidence that you've heard in terms of what a pond's designed to achieve in terms of storm events. I think if you did some simplistic storm modelling or flood modelling using a HEC-RAS system or a HEC-HMS, which is modelling system and you used it as simplistically as a basin and had some runoff coming into it, that you would generally see that yes, while water's coming in it's discharging at a designer rate and I can't, off the top of my head, remember what the greater Wellington's rate is but using Auckland as an example, three litres a second a hectare. The guideline is not that much different down here so that's the maximum rate it's discharging to until such time as that it overtops, either a primary or emergency spillway, and at that point one, the rate of discharge is significantly greater, two, your efficiencies drop quite significantly. I don't believe that up to a 10 year event you'll achieve 70% efficiency.

Q. No, I don't think that was the evidence that I recall either. I think the efficiency is, as I remember it, dropped –

A. Yes.

Q. – from about the Q2 to the Q10 but it didn't either overtop the bund or use the spillway. It still used the decanting mechanism up to the Q10.

1615

A. I wouldn't agree with that.

Q. Wouldn't you?

A. No.

Q. So what would the decanting mechanism capacity normally be?

A. Up to about the two year event.

Q. Two year event, okay. So beyond the two year event it would use the spillway?

A. Correct.

Q. And my recollection of the evidence on the spillway was that that was to be designed to a Q100.

A. There's two spillways and quite often you'll hear, and I've used the terminology "primary spillway", and then emergency spillway. So depending on contributing catchment, you may have a different design

for a primary spillway which is – most ponds will have a manhole in them as the primary spillway with the decant coming out of the manhole. So that is set lower than the emergency spillway at the top of the manhole. So first it's using the decant. When the design exceeds the

5 decant rate in terms of water volume coming in, it will go over the manhole and then after that's exceeded it will go over the emergency spillway which is designed for the 100 year event.

Q. So when you use the term “failure” it's not referring to the structure itself. In other words the bund's not breached.

10 A. Well that's what I would consider failure of a device.

Q. Yes.

A. In terms of a breach of a device.

Q. Yes.

A. Otherwise I consider it a normal operation of that device.

15 Q. Yes, but it's just a reduced efficiency?

A. Correct.

QUESTIONS FROM BOARD MEMBER PAINE – NIL

QUESTIONS FROM DEPUTY CHAIRPERSON McMAHON:

20 Q. Good afternoon, Mr McLean. I've got four categories of broad question and clarification. I don't really want to get bogged down in conditions because I know you're going to come back to us probably.

CHAIRPERSON JUDGE DWYER:

He doesn't know.

QUESTIONS FROM DEPUTY CHAIRPERSON McMAHON CONTINUE:

25 Q. First broad category relates to Ms Rickard's wiring diagram, have you got that or can you recall that?

A. No, I think I looked it up after I saw it referred to but –

Q. It will be useful to have it in front of you.

CHAIRPERSON JUDGE DWYER:

Where the hell do we find that? Where do we find it? Was it attached to those –

DEPUTY CHAIRPERSON McMAHON:

5 Conditions on the 20th of February and there was an A3 version also.

QUESTIONS FROM DEPUTY CHAIRPERSON McMAHON CONTINUE:

A. Oh, here it is. No I do have it, yes, sorry.

Q. Great, that's good. And you referred earlier about the – I'm interested in the hierarchy of the management plan process as it relates to erosion and sediment control, and you refer to some overarching plans and some specific plans. I think the overarching plans being the CEMP and the Erosion and Sediment Control Management Plan and then some more detailed plans such as the Site Specific Environmental Management Plans and somewhere in between the Monitoring Plan and I just wondered, by reference to the wiring diagram whether you think that firstly the hierarchy is right and secondly, if you don't, what changes you think should be pursued. I particularly asked that question because you said that you didn't believe that there actually was an Erosion and Sediment Control Management Plan per se.

20 A. No, I mean the construction – in terms of that wiring diagram, the Construction Environment Management Plan sits where it should do. I've got no issue with that.

Q. Okay, thank you.

A. And generally out of that you would see you see your Monitoring Plans, management and Monitoring Plans but then if you follow that down to the Site Specific Environmental Management Plan for a minute, just purely in an erosion sediment control perspective. So if I follow down where erosion sediment control is mentioned in two or three occasions. So you've got an overarching erosion sediment control plan which is going to be, in my opinion, relatively generic.

30

Q. Yes.

5 A. So it's just going to build upon I guess almost some of the detail through
the Contractors Environmental Management Plan, maybe a bit more
investigation. You've got an erosion sediment control Monitoring Plan
there which, as I was saying before, has to be done prior to, currently,
10 the baseline monitoring being done and then the
Chemical Treatment Plan, in my opinion, is, probably should not sit in
that line because it needs to be related to the Site Specific
Environmental Management Plans as currently proposed because the
Chemical Treatment Plan, for example, is going to be catchment
15 specific and source specific.

Q. And the SSEMPs will be catchment and source specific?

15 A. As I understand, yes. I guess my comment regarding the SSEMPs was
that if you look at that wiring diagram, there's a whole lot of stuff that
needs to go into those SSEMPs and from an erosion sediment control
perspective, yes, some of those other management plans would
influence the way you may do your erosion sediment control plans or
implementation, but just using the Te Puka as an example because
that's one SSEMP we've got, even the one that Mr Gough worked up
through his rebuttal evidence I think it was, still would not have any of
20 this other information in it yet in terms of what's required, and requires a
whole lot more work. I would kind of see that potentially that there is the
ability to have an erosion and sediment control plan for a particular area
of works that is not related, or that doesn't need input from a whole
range of other plans.

25 Q. And maybe an environment sediment control plan per se, as opposed to
being part of an SSEMP?

A. Yes, I mean I acknowledge the integrated approach that is proposed but
I can also see that being quite difficult from an implementation
perspective.

30 Q. Yes, presumably your site specific environment management plans will
include things like transportation as well?

A. Yes they do and I think that's why, in the original SSEMPs that were
proposed, and I think it was in Mr Gough's evidence, he said they were
indicative only to give a broad range of the types of effects, or the types

of matters that these were going to deal with. So there was one for one of the interchanges which dealt with, I guess, community matters rather than other matters.

5 Q. Yes. In fairness to Ms Rickard, and this is only an indicative diagram and it's hard to, I guess, capture the detail and I was just really wanting to get a feel for whether the hierarchy was correct.

A. I guess that's why I support the proposed condition, I think it was Mr Handyside proposed it in this latest set of conditions, that there could be stand alone erosion sediment control plans.

10 Q. Yes, okay, thanks, and just following on from that. With the Erosion and Sediment Control Plan itself, the generic plan, I presume that would have some overarching objectives in it?

A. Yes, it should pick up some of the objectives that are stated within the current – if we say in the current set of conditions, some of those objectives will be put in there.

15 Q. Where do the performance criteria and trigger levels live then in relation to that? Are they in the SSEMPs or the erosion control plans per se, or are they in the generic Erosion and Sediment Control Plan or both?

A. I think the current scenario would be both because you have to have them at the higher level to feed down into the more detail.

20 Q. And do you agree with that?

A. Look I – using this wiring diagram, if we were preparing site specific environmental management plans, I think that's where the detail needs to be.

25 Q. Okay.

A. It needs to be clear because you don't want to be – I know from an implementation perspective you don't want to be wading back through a whole range of documents within an office somewhere trying to find out what you should do, for argument's sake, in a heavy rain warning. It needs to be clear. It needs to be right in front of your face.

30 Q. Thank you. Just moving on to the second issue and this relates to the balance between conditions and management plans –

A. Yes.

Q. – or conditions requiring management plans, and can I just give you a little bit of context before I ask the question? In relation to answers that you've given, we've heard where in some cases you have a preference for a matter to be contained in a condition –

5 A. Yes.

Q. – and I think the winter works one probably falls into that category. I think at the moment in the example, it's xxii in one of the management plans but there's also a proposal by Mr Handyside –

A. Yes.

10 Q. – or a discussion to have it as a stand-alone condition and you've got some concerns, not so much with that but about the robustness or wording of the condition.

A. Yes.

1625

15 Q. We've also heard, in cross-examination, where you've agreed with Mr Hassan that whilst you have a preference for (inaudible 16:25:09) conditions, I think that was in relation to any two, in relation to stabilised earthwork areas within the –

A. Yes.

20 Q. – arm. I think you, in answer you said that you could live with it in the management plan and in this case the SSEMP?

A. I think there's a balancing act –

Q. Yes, there is, and I haven't got to the question yet, I'm just giving you some examples and then, in relation to trigger levels in relation to
25 Mr Mitchell's concern, you gave an answer on that too so there's a variety of answers. I guess my question to you is, what is the foundational basis for making the call between what is a bottom line condition and what is something we can rely on the management plan to deal with effectively? Have you given any thought to that in your
30 response to the conditions? Are there any absolute bottom lines that are not negotiable, that need to be established by way of condition as opposed to being placed in a management plan either as an objective or as a trigger level or as a performance criteria? It's a very broad and big question, I know, and...

A. Yeah, I've got a couple of thoughts on this and whether or not I've actually collected them properly –

Q. If you don't feel you can answer it –

A. No –

5 Q. – and I don't want to –

CHAIRPERSON JUDGE DWYER:

I would like him to.

MR McLEAN:

Well I better then.

10 **QUESTIONS FROM DEPUTY CHAIRPERSON McMAHON CONTINUE:**

A. I think the thing with management plans sometimes, and I talk very generically here, that quite often if I talk about implementation of management plans, so past the point of a management plan having been prepared, and I'll use Waterview as an example because that's
15 come up time and time again through this hearing. Waterview, for example, my business partner is doing the monitoring on behalf of Auckland Council and so yes, Waterview has a reasonably detailed design, I wasn't involved in the process as I've previously said, and there was a management plan that ended up being a condition of
20 consent, it was a complete management plan. I think it's referred to as G22. So that was the erosion and sediment trial management plan and so the conditions go on to say that all the – erosion sediment control plan so the site specific ones need to be prepared in accordance with that. What we found through the reviewing of those erosion sediment
25 control plans is that none of them have been, to date, were prepared in accordance with that management plan. So I think some – so they were looking – the design team, in that regard, were looking at the conditions and solely looking at the conditions. So I think it, there's a bit of a balance between containing stuff within a management plan which,
30 when you really want to come to it, is sometimes not referred to.

Q. Yes.

A. Rather than something having something very explicit within a condition, it is stand alone and I guess that's why I've given a variety of comments in regard to that because there are some parts, and I think using the tables from L5, from Mr Mitchell, that some of that probably should be in a condition because it is critical in terms of the ongoing management –

5

Q. Yes.

A. – in those trigger levels.

Q. Yes. Well that was precisely my question.

A. Yes.

10 Q. And I know that Your Honour may want to follow that up further in some questioning and direction so perhaps I'll leave that at –

A. Sure.

Q. – at that but that answer is very useful. Thirdly, there's a – Mr Hassan asked you about a balance between conditions needing to be easily understood and enforceable versus conditions being so prescriptive in detail that they become complex and I think you generally agreed with him but, presumably, in some instances, there is a need for some detail to make it clear what is actually the intention of the condition and what is being enforced?

15

20 A. Oh I 100% agree.

Q. Yes, so there's, again there's a fine balance between –

A. Yes and sometimes, in my experience, advice notes or having a condition which may have the purpose and the objective of the condition prior to launching into the condition so it gives a bit of context as to what the outcome is.

25

1630

Q. Thirdly and penultimately, can I just take you back to your 42A report and the very last page, page 23.

A. Yes.

30 Q. And it's a little bit of an academic question because we don't have the applications in front of us but you expressed a concern about the fact that the earthworks for the Transpower projects weren't being considered in an integrated manner and I just wondered whether you

still maintain that concern and if so how, to what degree of seriousness do you maintain that?

5 A. I guess the comment was that I acknowledged that the earthworks associated with the Transpower pylon relocation is minor in comparison to the overall Transmission Gully Project. I just see benefits and I guess there is because joint applicants but I see benefits in ensuring that potential enabling works, as they've been referred to, are considered as part of the overall Transmission Gully main project.

Q. Yes.

10 A. In terms of there may be haul roads for example or access routes which could be used by both projects rather than doing unnecessary earthworks.

Q. Yes. Given that they're not before us we probably can't take that any further but that sort of cumulative and contingency effect, is that something that (inaudible 16:31:33) into a management plan in terms of an objective for a management plan or performance criteria or something so that when the plans are actually formulated either as SSEMPs or specific stand alone Erosion and Control Management Plans that there is some fat or contingency, for want of a better term?

20 A. Yes, only because I'm not sure of the legality of potentially referring to – potentially another applicant or another project. I mean I hear what you're saying –

Q. Yes.

A. – and I, if there was an easy way of achieving it I think that would be great but –

25 Q. Okay well again I'm probably going to have to park that and maybe Mr Slyfield and Mr Hassan –

A. I just think that, you know if there was some way of integrating, not necessarily both projects, but minimising earthworks –

30 Q. Yes.

A. – then that would be beneficial.

Q. Okay. My final question Mr McLean, I guess it's the big question, and that is Mr Hassan asked you about the purposeful intent of conditions and what they were about and I think you agreed that at the end of the

day it goes to the protection of the freshwater habitat and the harbour habitat and as a Board the starting point for assessing the effects on that receiving environment will be the extent to which sediment is controlled and treated adequately and it's a matter that was echoed and reinforced by Dr Hicks this morning, sort of a hospital pass perhaps to you in terms of all roads point to the robustness of the sediment control package.

5

A. Yes.

10

Q. In the big picture in the round and notwithstanding the fine-grain detail, do you have any comment on the overall acceptiveness, acceptability of the sediment control package, if you like, in terms of risk to the receiving environment?

15

A. I think from where we started out in terms of when I initially reviewed the project through conferencing, we've come a long way in targeting certain aspects of it in terms of reducing that risk. If I just used the opening areas compared to, I think they were originally sitting about 40 hectares, they're now down to 17, just using that as a single example, I think that's been a huge movement. The trial area, for example, is another precautionary approach in my opinion. I think what may be found with the NZTA standard you may see larger controls that even what's proposed. I know having been involved as a co-author of that standard that it's not just sizing of sediment controls, it's also sizing of diversions and earth bunds and things like that so coupled with the proposed monitoring of the control devices and I'll defer back to Dr Hicks for the catchment monitoring –

20

25

Q. The baseline monitoring?

A. – baseline.

Q. Yes.

30

A. But I think coupled with the proposed monitoring and those triggers that I would be, I'm much more comfortable today than I was back in January of this year.

CHAIRPERSON JUDGE DWYER:

Thank you Mr McMahon. I don't think I'm going to go anywhere near as far as Mr McMahon thought and I must say I noted, I think Mr Hassan's answer to question I had about table L5 and L6 and where they sat and I can't
5 remember what he told me but no doubt I'll see the transcript.

MR HASSAN:

I indicated Sir that it's part of our responsibility to be very clear to the Board in closing submissions on that so that you actually know Sir.

10 QUESTIONS FROM CHAIRPERSON JUDGE DWYER:

Q. All right, so subject to that the only other thing I was going to raise with you Mr McLean and I think you've got to do something by 2 o'clock on Monday, I want you to do something else and I'd be grateful if you could look at the conditions in the form they're currently in as we've got them
15 and comment on any drafting issues of a mechanical nature. I don't want you to address the merits at all, you've had your say on that but if there are any issues of technical drafting, clarification or suggestions you've got in that line, I'd be grateful if you could include those in a minute to the Board by 2 o'clock Monday as well.

20 A. Did you want that Your Honour to be from those sediment experts or just from myself because there's two aspects to it?

Q. I think the more sort of monkeys we put in the cart, the more trouble we're likely to have and I'm not referring to the sediment experts as monkeys by any stretch of the imagination. I might be referring to the
25 Members of the Board. No I don't think we want too many fingers in the pie. Ultimately you've been commissioned to advise the Board on those issues?

A. Yes.

Q. Well to advise the Board on these issues and I'd like your comments on
30 the technicalities of the drafting, the mechanical aspects, anything you see in that regard without going into the merits.

A. Just, can I clarify something Your Honour. In terms of that evidence, the table L5 and L6 –

Q. Yes.

A. – and maybe I misinterpreted what you had directed me previously.

Q. Yes.

5 A. But I've written down here, need to get an agreement or a statement of position from those sediment experts on that matter.

Q. Yes.

MR HASSAN:

10 At which point Sir I said that I was satisfied with the evidence, that the Board received, but it's for the Board obviously to determine, but there's only so much.

CHAIRPERSON JUDGE DWYER:

15 Yes well that's what I think I'd direct Mr McLean to do in that regard. I'm, you know, going in another function in terms of the conditions and that's directed to you.

MR HASSAN:

20 Thank you.

CHAIRPERSON JUDGE DWYER:

All right, well thank you Mr McLean and again thank you for your assistance in these proceedings, much appreciated.

25 **MR MCLEAN:**

Fantastic.

CHAIRPERSON JUDGE DWYER:

30 I had, I'd made the comment earlier, I had wondered if the draft report could have gone to Mr McLean, for example or Dr Hicks to look at the correction of conditions but there's no provision in the Act for that to happen. Parties who can comment on are pretty circumscribed. Well it says we must send our draft to, and it lists the parties, it doesn't extend to people such as Mr McLean and then it says, we must, we must consider comments from those people –

MR HASSAN:

Yes Sir.

5 **CHAIRPERSON JUDGE DWYER:**

– and although we've got a certain amount of – I think we'd be going a bit beyond our – if we sent the draft report to the 42As to comment on – omissions and things of that nature.

10 **MR HASSAN:**

Yes because Mr McLean is undertaking a statutory responsibility under 42A not as separate party so that's –

CHAIRPERSON JUDGE DWYER:

15 Yes I don't think we can – and my concern really relates to the complexity of these conditions and the possibility that something is missed in this process and Mr McLean's already referred to that and I think we're all probably alert to the possibility of something like that happening.

20 **MR HASSAN:**

Yes I think the process of having the 42A officers complete their views to the Board is a good – I thank the Board for that idea, I think it's a good idea Sir.

WITNESS EXCUSED

CHAIRPERSON JUDGE DWYER:

All right, now then I think that's it for witnesses today, now anything else people want to raise?

5 **MR HASSAN:**

Yes Sir.

CHAIRPERSON JUDGE DWYER:

All right then, well you can – Mr Hassan if you –

10

MR HASSAN:

Well Sir where we were in the programme I think was at the planners being called and I think because of the arrangements with Mr Kyle that means that Ms Rickard would be the “next cab leaving the station”.

15

CHAIRPERSON JUDGE DWYER:

Well we've had Mr Solly waiting but I don't think we'd get through him today.

MR HASSAN:

20 Yes Sir.

CHAIRPERSON JUDGE DWYER:

And there's he'd be bound over so I don't think there's any point in starting on that.

25 1640

MR HASSAN:

So, yes Sir, Ms McIndoe wants to address the Board on the noise issue. There are some points to just deal with there so perhaps I'll just ask Ms McIndoe.

30 **MS McINDOE:**

Thank you Sir. I understand that a noise conferencing statement has been provided to the EPA.

CHAIRPERSON JUDGE DWYER:

Well, yes, we've –

MS McINDOE:

I know you might not have had a chance to read it –

5 **CHAIRPERSON JUDGE DWYER:**

– glanced at it briefly and we haven't had a chance to properly consider it.

MS McINDOE:

Okay. There's a few things in relation to it, not the content as such. My understanding is that the Board asked the witnesses two matters and one was
10 how a condition could be drafted, if that's the case, and the other was the practical effect and the witnesses don't appear to have addressed the practical effect and the other matter, I guess, I'm slightly concerned about is that Dr Chiles has advised me that he undertook the conferencing on the basis that if the Board wanted a condition then this is the condition that would
15 be a good one rather than that he's changed his position.

CHAIRPERSON JUDGE DWYER:

He doesn't necessarily think it's a good one, is that what you're telling us?

MS McINDOE:

That's not clear from his statement, as I pointed out to him. Now, he's
20 available tomorrow afternoon and I wondered if the Board had any matters which it wished to clarify from either Dr Chiles or –

CHAIRPERSON JUDGE DWYER:

Well we'll talk about that and advise you in the morning.

MS McINDOE:

25 – or Mr Lloyd, tomorrow afternoon might be a good time.

CHAIRPERSON JUDGE DWYER:

All right.

MR HASSAN:

Sir, if I could just raise a related matter which is, I think it might be of some benefit to at least invite the comment from Dr Chiles, in the sense that the practical implications are an important component of the question.

5 **CHAIRPERSON JUDGE DWYER:**

Well I think when I was asking him to look at that I think I actually stressed that I wanted to know about that. We'll talk about that –

MR HASSAN:

Yes, thank you Sir.

10 **CHAIRPERSON JUDGE DWYER:**

– and advise parties tomorrow what we think, if we want to hear further. Right, now Ms Bradley and Mr Hassan?

MR HASSAN:

No, no, Sir, I've got nothing further, I just...

15 **CHAIRPERSON JUDGE DWYER:**

Nothing?

MS BRADLEY:

No.

CHAIRPERSON JUDGE DWYER:

20 Thank you. Mr Conway, you looked as if you had a query?

MR CONWAY:

Thank you Sir, just one minor housekeeping matter, to avoid surprise. I'm unavailable tomorrow but counsel will be represented by Mr Winchester so when you see him tomorrow, that's the reason he's here.

CHAIRPERSON JUDGE DWYER:

All right, thank you for that, all right. We'll adjourn now until – well, before that, I think otherwise we'll be proceeding as we indicated. We'll hear from Mr Kyle on Monday at, I think, 10.30 I think we said and then on
5 Tuesday, 9.30 we'll deal with representations or submissions from the parties on conditions and I think, to be confined, really, to the conditions that are now in dispute and I think probably covers a fair area, I don't – and then I indicated to you, Ms McIndoe, that we'd give you a period of time.

MS McINDOE:

10 Yes Sir, I understood that I had also promised that we wouldn't be more than two hours, however, in the last few days there have been a variety of different issues cropping up and so –

CHAIRPERSON JUDGE DWYER:

Well I think you probably need to be ready to go by about two in that case but
15 if we got to a situation where there was a lot to take on board from the other parties comments, we could go to 9.30 on Wednesday morning.

MS McINDOE:

If the other parties are merely commenting on conditions then perhaps their statements won't take more than two or three hours all up and it still would
20 give us enough time if we start at two.

CHAIRPERSON JUDGE DWYER:

I'm, yes I mean, the other parties, the submissions of the other parties are not closing submissions, they are comments on the issues of conditions that we've been debating and that's what they're to be confined to and they're to
25 be direct so –

MS McINDOE:

There should still be plenty of time if we start at two, we should still have sufficient time after hearing those statements before we present.

CHAIRPERSON JUDGE DWYER:

All right, okay, well we'll adjourn until tomorrow morning at 9.30.

COURT ADJOURNS: 4.44 PM

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