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THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS MET AT
THE GLAMORGAN/SPRING BAY COUNCIL CHAMBER ON THURSDAY
21 DECEMBER 2000.

TASMAN HIGHWAY AT PARADISE GORGE BLACK BRIDGE TO ORFORD

PHILIP JOHN CANTILLON, PROJECT MANAGER NATIONAL HIGHWAYS;
RUSSELL GRIERSON, PROJECT DESIGN MANAGER; AND MICHAEL JOHN
POLLINGTON, ENVIRONMENTAL SCIENTISTS WERE CALLED, MADE THE
STATUTORY DECLARATION AND WERE EXAMINED.

CHAIRMAN (Mr Wing) - Thank you very much for coming, gentlemen. We have apologies from Mr Hidding and Mr Kons. Thank you very much for the site inspection and all the information you were able to give us there; some of what you have told us will need to be repeated for the purpose of the transcript. Mr Cantillon, would you like to start?

Mr CANTILLON - Thank you very much for the opportunity to come along to the committee and also for convening it just short of Christmas. I appreciate that very much.

Just to introduce the people who are presenting today: myself, I am Philip Cantillon, the project director, National Highways, with Transport; Russ Grierson, who is the design manager for Pitt and Sherry consulting engineers; and Michael Pollington, who is an environmental scientist with Pitt and Sherry consulting engineers as well. The presentation we were planning to give was that I would discuss a number of areas in relation to the broader project and its genesis to where we are today and how we would be proposing to implement the project. Russell will talk about the formal details of the nature of the scope and what it involves and the process we have gone through. Michael will talk about the environment and some of the key issues associated with it and the impacts of the project and how we are managing those environmental issues as a result.

This project was first mooted in 1993 as part of an RFA proposal that had been put together by North Forest Products; council had an involvement with it. That considered making improvements to the Paradise Gorge area as an off-road alignment to the south of the current Tasman Highway. At the time the proposal that had been worked up was thought to be costed in the order of about \$1.9 million for essentially a 6 kilometre construction from the current overtaking lanes to the west near the quarry, where we were, extending back and coming in south of the highway and coming out at Charles Street in Orford. If we then consider, parallel to that and shortly after that period, the Department of Transport and Works at the time had commissioned a report that was carried out by the same consultants - SEMF.

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At that time there was a full analysis of the gorge upgrading and at the time it considered not necessarily the full 5 kilometres of the existing highway but a substantive component of it. In the process of its evaluation it considered the options that were available and those included an off-road alignment and, at that time, they had considered they would follow the old convict road to the north of the Prosser River. It also considered upgrading the existing alignment and various permutations and combinations associated with that. One being maintaining a certain road width and design speed throughout the whole location and then there were other combinations of it where at particular locations you accepted, say, the 35 kilometre an hour bend, you had lower design speed through there, 50 kms. There were other subtle combinations that were considered.

At the time the evaluation extended to include an environmental assessment before a development proposal and an environmental management plan - a similar practice to what is done traditionally at the moment. The evaluation at the time suggested that there was no substantive, economic or other benefit to issue an off-road alignment. I believe the fundamental justification for that was that it was just a very significant cost to go outside of the current road reserve because you already have a road reserve that provides a footprint for a new road and all you would be doing would be upgrading that footprint. It was perceived that to go outside that footprint was going to be a significant cost; in addition to that, there would be a significant cost in upgrading along the existing section as well.

So this report was done and the two remained basically, if I could say, in the system for a number of years, essentially because the Department of Transport report at the time had indicated that it was a very significant cost to accomplish any major upgrading for the gorge area. So it remained in the system under consideration on what was the best way to tackle it for a number of years. Coupled within there was progressing access to the RFA funds. About 1998, if we move forward to that year, there was a meeting between the Department of Premier and Cabinet, Forestry Tasmania and ourselves, which recommended that the improvements to the Paradise Gorge take place and what that recommended was that it be a \$2 million project and that would be accessing the \$1 million of Regional Forest Agreement funds that had become available back in 1998 and we would be matched on a dollar-for-dollar basis by the State, hence that became the genesis for the \$2 million project that we have now got.

About April 1999, this project formally came out of our planning area to what is our road programs branch, which I am in, and at which point there was a consultancy awarded to Pitt and Sherry but in doing so it was necessary to work out exactly what were the objectives, the micro-objectives, if you like, the detailed objectives for the project: what it should achieve to obtain best value for the \$2 million. And at the time, through our evaluation within the department and based on previous documentation that was available, there were two high level objectives that were sought for the project: one was that the project achieve improved road safety and travelling conditions for the road travelling public, but also that there would be improved access to, among other things, the Triabunna Woodchip Mill for high productivity vehicles, such as B-doubles and the like.

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At that point, having established the objectives, we then had to consider what were the issues associated with the environment that we were building a project and to best decide how the money should be spent and there was a number of key issues that we have seen on-site this morning and they involve the alignment - the poor standard of alignment, being the vertical alignment - the dips and highs in the road - and also the horizontal geometry. There is also the environmental constraints with the site: the Prosser River comprising the water supply for the Glamorgan/Spring Bay Council in Orford and the heritage issues associated with the current rock wall that provides the road formation and also the number of Aboriginal archaeological and plant species, et cetera, that are captured within that road corridor.

Other issues are logs passing with the narrow environment and logs passing one-by-one, which we actually saw this morning, and how difficult that is in particular areas and some of the rationale for why that is so difficult. And also the other issues were ensuring that we provided the earliest benefits for, among other things, the Triabunna Woodchip Mill and recognising the fact that one of the aims of the Regional Forest Agreement moneys; part of the project aim is to ensure that we can improve access and therefore utilisation of the mill to ensure and provide for its future international market competitors. There are reports and studies that have been done previously that indicated that it is probably only operating at about 60 per cent to 70 per cent of its potential capacity at this stage and a lot of that is hamstrung by the fact that they are not getting access to the high productivity vehicles.

With those issues in mind, if we call that the context for the project and the background, the next issue was: how do we achieve best value for the money that we have and ensuring that along the way that we ensure that we have robust consultation with as much of the community, not just the local community but also other interested key stakeholders that would be interested in the project, such as the North Forest Products, the trucking industry and various Forestry Industry Councils et cetera.

The way we approached it was that the primary aim was to ensure, with the \$2 million, that whatever we implemented was going to be a raft of treatments that would try to provide as much as possible a homogeneous section of road pavement through that entire 5 kilometre section. So the way we approached was to try to establish a homogeneous section and to do that, what we had to do was specifically examine the characteristics of the road environment through there, so part of Russ' task was to, for example, break down that entire 5 kilometre section down into, say, ten or eleven or a dozen components that it represents - i.e. there might be a section there where you've got very tight road corridor by the rock wall fence, in other areas it opens up, in other areas you've got a particularly tight bend et cetera. So what Russ did was he broke down those individual component areas and then he evaluated those areas against key characteristics which would be, whatever we were going to do there, what would be the environmental issues in that area, what would be the constructability issues and other key measures considering what could be reasonably implemented and what their costs would be, and Russ might say a few more words on that a little bit later. But essentially we used that objective and structured basis as a methodology to come up with a ranked selection of proposed treatments for the entire 5 kilometres, irrespective of area, but what that did was identify what would represent best value and highest priority in order of priority against the

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\$2 million. That was done and that was tested internally within the department and later on with the community through such things as project displays and that.

Along the way there was also discussion with council on how to deal with an issue at Alice Street - quite a dangerous issue there - where we were planning to improve the vertical alignment but there is a number of frontage accesses there that currently come onto the highway through there and what we're building as part of the project is a junction access there with provision for some widening for turning movements that will provide an entry into a local road system that will run behind the highway and provide access to each of these properties that will be built by the council. That is one element of the project.

Other elements of the projects are to make substantive improvements to the 35-kilometre-an-hour bend that is adjacent to the water treatment plant, to make a substantive improvement to the design alignment there. Other areas involve taking out various dips and hollows in the road to improve the vertical alignment. There is also a range of areas where we are site benching to improve the horizontal sight distance as you are going around curves. Coupled with that is safety barrier improvements - improving the safety barrier, extending the current safety barrier, putting a second cable on it, bringing it up to a standard that is necessary for the area. Where the heritage rock wall is that we can't necessarily alter, what we are doing is we're topping that up, constructing it in like materials and to a like construction and that will in itself provide an improved safety barrier for the area.

The project also involves a number of day-time and night-time visibility to lineation improvements, such as improved signage, reflectors and ultimately the audible centre-line that will go in for the project and guideposts et cetera. So it is a raft of selective measures that are targeted within the 5 kilometres at locations which are deemed to be the highest priority. It's been tested with the community. The community generally accept it. The only comments that we've had in the past - there's probably been two key ones - the community understands, and the council, that it is a \$2 million project; they would like to see the project of a greater budget but recognise that what we're doing at the moment does provide best value. And the other thing, too, was that some of the issues that we had to address during the public contact was: could we reasonably improve, for example, the 35-kilometre-an-hour bend to a higher standard and the issues that we discussed at the time were the fact that to increase that bend to, for example, another 10 kilometres per hour would necessarily take up, I think it was, about \$600 000 or \$700 000 because you are currently going from a 1 to 2 metre cut as off-road alignment down to something that is a 6 to 7 metre cut.

Also there was sympathy and understanding with the fact that during the tighter road corridor areas that we would have difficulty widening through those areas because we typically evaluated that to, say, provide wider shoulders through there would incur as much as \$800 000 or \$900 000 for as little as 200 to 300 metres. So what the project also involves then is a number of measures to improve those tighter motor corridors and they comprise one specific signage that will be put at the end of the project that will indicate the sort of environment you're travelling through. Two: we're targeting improvements to rock protrusions because we recognise that a number of rock protrusions through there they might extend out 3 or 4 or maybe 600 ml. Those rock protrusions in themselves make the corridor particularly tight and

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we recognise that if we can address those rock protrusions without necessarily having to take back the rock wall face itself, that we're actually improving the clear zone, available clear zone, for traffic to extend through it. In addition with that, there is also selected heavy patching, particularly through these tighter corridors, to ensure that the available road pavement is able to be traversed - there's no major defects in there - because we want the traffic through those tighter road corridors to be able to use that clear zone to the maximum.

The other philosophy with the project, too, when we structured the scope and nature of it, was that we didn't want to necessarily carry out activities that were essentially fundamentally maintenance beyond these selected heavy patching. To give you an example, we didn't necessarily want to reseal the entire length through the gorge area or to carry out any maintenance that may necessarily be undertaken as part of our normal maintenance practice and provisions within the department because we saw that we already have mechanisms under our maintenance practices to get those works done when those works are needed to be done and we saw that necessarily carrying out those works, those core and traditional maintenance works as part of the project, was going to diminish the available project budget for the works that were necessary to achieve the original objectives. We are basically trying to drive the dollar as far as we can. I personally believe that we have a good raft of measures that, I think, will provide substantive selection improvements where general motoring traffic will see substantive improvements.

We mentioned on the tour on site that the works themselves aren't particularly complex in terms of the scope but necessarily the environment that those works are being conducted in introduces significant risk which need to be addressed. The key risks, I suppose, for the project - we have had a risk-management workshop, we have involved the community and key stakeholders, and my experience with the major projects that I have been with in the department is that I look very quickly to what the key risks are. So we are not looking at necessarily the fluffy and woolly ones but looking to what are the key risks to be managed and how are they effectively managed. If I could say I personally believe that the number of risks for the project that are representative are the fact that doing the rock work involves some blasting - the rock removal - and one of the consequent risks of that is the dam stability for the Prosser River. The way we would address that is we have already done extensive analysis in terms of what blasting can be reasonably undertaken and how it can be undertaken and we have written that into the contract. We have also consulted with the owner of the dam and the operator of the dam. The owner is the Rivers and Water Supply Commission and the operator effectively is the Glamorgan/Spring Bay Council. We have written their requirements as much as possible, into the contract.

The other issue is contamination of the water supply when we carry out the works. We have written key measures in the contract to make sure that the methodology is as it should be, to control the works, and we have also written in there how that should be controlled and what the measures are. In addition to that, there is also the fact that when you carry out rock work - and they are very sheer rock faces up there - is there any loose rock material that may be dislodged in addition to that. So part of the provisions that we have in the topography contractor, actually carrying out his activities with due diligence, is that there will be substantive monitoring through the works by qualified people, essentially Michael Pollington or equivalent,

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to ensure that the substantive environmental controls are met and achieved and complied with. We will also have specialists who will be auditing the blasting and just making sure that the blasts are done in accordance with what the requirements are; and also geotechnical people looking at rock stability on an ongoing basis through the works to ensure that the product that is being built totally complies and manages the risks associated with the project itself.

I believe that those risks have been addressed; they have been looked at thoroughly. They also, I might add, extend to include the 'what ifs'. So let us say one of those risks got out of control and what could potentially happen - a road closure of the Tasman Highway. So what we have looked at is, if there was a road closure of the Tasman Highway and if it were to occur, what would we do? Ultimately what we don't want to do is sit around and twiddle our thumbs and decide at the time, so what we have done is we have already indicated to the community and we also have a series of templates and maps that indicate where road detours and closures would need to be. There is particular signage that will be made up in advance of the works that will be ready to be installed at short notice or probably will be installed, but covered up, at key locations should anything occur. But, coupled with that, our provision in the contract is that the contractor physically mans particular sites so that we have that public interface contact, so that someone is actually speaking to the public should something occur. Coupled with that, we also have the protocols associated with radio, print and TV in terms of what would need to occur should something happen. This is all part of the management of key risk, not necessarily suggesting that they will occur because we have substantive provisions in place, but it is important that in any project that you address the 'what ifs' and I think we've certainly done that.

One other issue that I would like to mention as well is that there is a substantive amount of rock that is coming out of the roadworks, potentially 25 000 cubic metres, and the contract allows that to be - the spoil in an adjacent quarry to the roadworks. It is the intention that that material will be placed in there and the site rehabilitated. We have gone through an approvals process, that Michael will talk about, associated with that. We have made provision that should rock necessarily need to be available for some other works that we have been approached for in terms of foreshore beach repairs at Raspins Beach - that was approached through the council and the minister for Environment - we have outlined the circumstances upon which they would be available to ensure that that rock is available for them through the contract. Also we have had approaches from local industries in the area to get access to rock and we are certainly making every effort to make that rock available but necessarily there would need to be arrangements that would be made with the contractor to facilitate that.

Where we are at the moment in terms of time lines: subject to the outcomes of today and further discussion, we would hope to tender early January. Our aim would be to award by late February. The contract is funded over two financial years: this financial year is funded through the Regional Forest Agreement funds; next financial year is the State funds. Our aim is to have the works packaged as such that we limit the cost to that available budget within the respective financial years, with the overall project completed by October. October is there recognising the moneys that are available next financial year and also the seasonal issues associated with constructing through winter periods. That covers most of the issues I was going to talk about.

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CHAIRMAN - Thank you very much, Mr Cantillon. What would be the normal hours of work, and days?

Mr CANTILLON - What we are pursuing in the contract is that the contractor will nominate the hours of work but traditionally what you would see is a five-day week and he might want to work on the sixth day, depending on the time of year. We don't necessarily want to constrain him, provided that the contractor takes all due regard in respect of things like traffic access and seasonal issues et cetera. To necessarily constrain his activities, you would appreciate, would introduce a costing factor. If it is more efficient for him to work six days a week than five days a week, six days will provide a price benefit to the project which would naturally enable us to carry out additional works as part of the project scheme. But, as I said, provided he does carry out those works, taking into regard all the traffic arrangements that are necessary.

CHAIRMAN - I was asking it in the context of the traffic disruption - Mr Green raised this at the inspection this morning and I had made a note of it last night too, so we are thinking along the same lines - with such a narrow roadway there, little if any room to have a bypass for traffic, virtually no opportunity of that - how is it envisaged that the work will be done to ensure a reasonable flow of traffic?

Mr CANTILLON - There is quite a significant number of provisions that we have written in the contract associated with the way the traffic arrangements should work and what disruptions are allowed and the number of lanes. Fundamentally there is only allowed to be a total road closure available for two 20 minutes periods per day - that is between 9 a.m. and 4 p.m. There are a number of protocols associated with those total road closures occurring in terms of communication with those key stakeholders that would be affected: the local bus companies, North Forest Products et cetera. Those road closures are there to enable him to carry out, for example, his blasting activities et cetera. Outside of that, he has to facilitate traffic arrangements that basically do not necessarily impede or unduly delay traffic travelling to the site. In addition to that, the third element is that we have made arrangements with North Forest Products for the Wielangta Road to be made available as an alternative route throughout the entire contract and project. That was communicated during the project display and was well received and we have certainly been advertising that through forthcoming project brochures and the like. So it is all about providing alternatives and ensuring that traffic management arrangements are effective and carried out in compliance with appropriate standards.

CHAIRMAN - Where was that alternative road route?

Mr CANTILLON - Just to cite a brochure, what I am looking at the moment is a good working draft of a brochure associated with the project that is proposed to go out to the community. The reverse side of it indicates a map of the Orford area and it shows the Wielangta Road extending from Orford down to Copping and across to Sorell and also Buckland. Basically the travel distance associated with them is much the same as travelling from Orford to Sorell through Buckland as opposed to Orford through Copping to Sorell. What we have made is provisions for that alternative access road to be available, as an alternative access, not necessarily to be -

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Mr GREEN - So this road normally has a locked gate?

Mr CANTILLON - It is a North Forest-controlled road that currently enjoys public access. We have made arrangements with North Forest that that road would be available and we have agreed terms upon which it would be. In other words, what we have gone and said is should there be any additional maintenance incurred, for example if there was a significant road closure on the Tasman Highway where all the traffic had to be detoured, that we would necessarily agree some maintenance associated with that. Other than that, the terms we have agreed is that a grader and a water cart would be available at the discretion of North Forest Products for one day per fortnight. Overall it is a minimal cost to the project but that would be available, if required by North Forest Products, purely for repairing road corrugations and the like, if required. It is not heavy patching, it is not road improvements, it only has a discrete purpose and it is associated with any additional maintenance that may occur as a result of the road travelling public deciding to use the Wielangta Road.

CHAIRMAN - Thank you very much. Any further questions of Mr Cantillon at this stage?

Mr GREEN - I guess the point about this, what's it called, the 'W' Road -

CHAIRMAN - Alternative.

Mr GREEN - Yes, the alternative road, is that people are likely to use that through the roadworks period anyway, do you think, other than just for road closures? Do you think that given there are likely to be some delays associated with the roadworks that people are likely to use that alternate route?

Mr CANTILLON - I think the provisions that we've got embodied in the contract for strictly managing the traffic management provisions are such that delays through the roadworks won't unduly delay the travelling public. I suppose what we were trying to do is to provide an alternative should someone necessarily consider that there are delays. Just in addition to that, can I just say that we've got provisions in there and protocols that the contractors liaise, for example, with key stakeholders, being the local bus community and North Forest Products. So we're saying that a lot of his activities have to be done at certain times so it doesn't disrupt these people. And what we're also planning to do is that I'll, personally, be up here once a month - well, probably beyond that - but once a month to sit in a community convened and key stakeholder forum that will basically be a traffic management watchdog committee so, in other words, that will be the opportunity for key groups and interested community members to come along and necessarily put the issues that they have associated with the traffic management. So what we want to do is we want to make sure that not only are we complying with the contractors and necessarily the best traffic management practice but we'll also be having a hard look at what we're doing to make sure that we're improving it where we can. I think it is in the interests of both the public and the contractor that that occur.

Mr GREEN - Say you are working on the protrusions, you're always going to have one lane closed under that circumstance so there's going to be a stop-go arrangement.

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Mr CANTILLON - Yes, but restricted to only a short distance so it might only be 500 metres throughout the entire 5 kilometres and that's at times when he's required to do that. We believe that those measures that are in place will obviously incur some disruption but not inordinately more than what you would expect to see under construction and other parts of the network, for example, on the Bass Highway or the Midlands Highway.

Mr GREEN - Yes. Can you just explain to the committee in a little more detail the gap in terms of what the public would like to see and the \$2 million that's made available? You were telling us that there's no middle ground.

Mr CANTILLON - In terms of conceiving the project scope or refining the project scope, what the project involves is a number of key benefits to provide selected improvements over the entire 5 kilometres and in those areas where we're not carrying out major improvements to carry out cosmetic ones, like day and night-time visibility et cetera. It gets to a point in the project scope that beyond which you carry out these selected improvements it then becomes that you would do the entire 5 kilometres and shoulder widening and to necessarily do that in the environment that we're in with the risks that we have and the sheer rock faces and the water supply issues, you're looking at a \$7 million, \$8 million or maybe even a \$9 million project associated with that entire 5 kilometres and also the issues of disposal of rock, key issues where for that to go.

So there is really not a lot of middle ground. You might decide, for example, the project involves at the far western end carrying out some shoulder widening should moneys be available - subject to the prices that come in on the contract we believe we'll be able to carry out a couple of hundred metres of shoulder widening, but where we are ending that shoulder widening is at an appropriate sort of merge point. To carry out the shoulder widening beyond that is increasing the project budget quite significantly, particularly because as you go further east you're getting into some high rock cut faces and particularly on some of the very high ones that are more challenging you could be spending as much as \$800 000 to \$900 000 for typically a 200 or 300 metre extended roadway. So it's really allocating the money to those locations which provide the highest benefit without necessarily improving the entire 5 kilometres because you're ultimately spending \$8 million or \$9 million to do the lot.

Mr GREEN - Through the Chair, with regard to the issue of the timing - you have placed a lot of emphasis on North Forest Products and I guess that's reasonable given that they initiated it but tourism is obviously a big employer on the east coast as well - in terms of the timing of the project starting in February through that March period - April, I guess, is still in the shoulder period of the tourism season - has the consultation shown that people are quite happy with that window? You talked about the financial years, et cetera, but are people generally happy from a tourist point of view?

Mr CANTILLON - Yes, very much. In fact more than anything which has come out of the public consultation was: 'Well, you should've been out here seven years ago doing this. We just want you to get out there and do it'. In fact if I could just digress slightly before I answer the rest of your question, at the public project display we actually had 100 people come along. I deal with other major projects in the department and that's the largest crowd that I've ever had come

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along to a project display and I was quite impressed. It was generally well supported. They wanted us to get out there and do the job, they think it is a long-standing issue.

We did talk about the fact when the works were being done. Probably the window is driven by a number of things: one, the construction we know is driven by cost but it is also driven, I suppose, by recognising the tourism aspects. I think we are better to build the works during the shoulder season as much as we can, rather than disrupt the core summer. But also we have to take into account the seasonal limitations - that is the third element - because we don't necessarily want to be building in July and August. We want to try to give the contractors as much opportunity to build at maybe not some summer times but at least get there in the autumn and the spring, but not necessarily having to build in winter unless he is doing things that he can reasonably do. So we are not necessarily controlling the way he conducts his activities but we are certainly saying, contractually, that he has to show due diligence in the way he packages it and he has to make sure that it can be constructed at that time of the year and that he is dealing with traffic management and seasonal issues.

CHAIRMAN - Thank you very much, Mr Cantillon. Mr Grierson, would you like to add anything?

Mr GRIERSON - I will just say a bit about the process that we use to come up with the selected areas for improvement and the development of the design. As Phil said, there was a lot of previous work done in the early 1990s - quite a wad of information which we waded through, some detailed environmental studies and quite extensive sub-consultants reports. We produced a map - and that information is reflected in the maps in your report - detailing the location of Aboriginal sites, historic heritage values, rare plant species. There is quite a lot of regionally significant plants as well. That was put into the mix as to where we were going to focus the works to avoid major impacts on Aboriginal sites and rare plants and that sort of thing.

We had a very detailed inspection of the site and broke it down into homogenous sections on the basis of alignment and the general earthworks in the area - for instance, section 1 is an area where the alignment relatively is pretty reasonable and has quite good sight distances, two to three metre high rock cut on the right-hand side and a dry-stone wall on the left with the river close by. At the end of that section we came to an area with a similar topography but very poor sight distance on a right-hand curve, so that fell out as a separate section which had a special problem. The tighter curves at Valiant Bend and the 35 km curve near the dam straightaway special pieces of alignment which form sections in themselves. At Alice Street as well, we have this dip - at that time I wasn't aware of the junction, but straightaway you can see that that's a problem and we put that into the job particularly for sight distances.

We scored the sections to try to get a structured priority. We assessed the constructability of each section - for instance, there are some sections where the cut on the right-hand side is not 2 to 3 metres, it is more like 10, 15, 20 metres and there is obviously a very special constructability problem if you're going to tackle those sections - the impact on traffic management is much higher. We assessed it against impact on environment and those sort of areas because of the sheer volume of material you have to take out. We are going back from the road, not 5 metres but 20 or 25 metres, so obviously the rare plants in the area, Aboriginal

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sites that are close to the road - it will have much more impact on those. Value for money in terms of safety - we assessed that on the tighter curves over a fairly short length you can make improvements which aren't too cost exhaustive that have a really high benefit for safety reasons. You might have a piece of road which is in a straight alignment with a high cliff face on the right-hand side which you could spend a lot of money and you'd get some widening but, in terms of safety benefit, it wouldn't be as beneficial as less money spent on a corner.

Accident records, we talked about on the inspection. The main grievance of those was at the 35 km an hour curve and Valiant Bend. We had advice from a blasting contractor - we went out on site with him and got some very good advice on the constructability issues and also traffic management. We asked questions like, 'How long are you going to have to close the road to do this?' 'Can it be done in 20 minutes intervals?' Basically that determined how we constructed the traffic management aspects in the contract, something that we think can realistically be achieved.

We talked to the council on their issues for the road and they have particular issues with Alice Street, the junction there that has been an ongoing problem. They have a water treatment plant which has a couple of accesses at that 35 km hour bend which are very poor. That was something they wanted to see improved. Safety to the water supply was a concern for them. Those sort of issues were put into the wash. We talked to North Forest Products and other heavy transport groups and bus companies on things like traffic management issues and communications through the contract and setting the times for when we were going to do the road closures - between 9 a.m. and 4.30 p.m. - and running that by them to see the impact on their operations. Basically most people said the same thing, if they can get some consistency through the timing of the road closures rather than the contractor trying to work around every individual in the community; if the contractor used a relatively consistent time frame for the road closures then people will know in advance when they are going to be held up and work around it themselves.

In terms of the heritage and environment values, the river side of the road contains most of the values, both vegetation and with the walls. Although they are not registered with the Tasmanian Heritage Register they are registered for their heritage value with the council planning scheme. One of the council's main issues was that those walls are preserved so consequently we're going to cut for most of the roadworks.

Other sub-consultants. Once we have gone through the process of filtering out what the main areas we wanted to work in we got sub-consultants in again to do more detailed studies on the areas we are proposing to actually do physical work so we had botanical sub-consultants, archaeological sub-consultants again looking at it and the blasting - again we went back out there with the blasting contractor and a driller to talk in detail about the methodology and how the blasting would be done, was it realistic what we were trying to achieve and that sort of thing?

Phil talked a bit about the risks for the project. As far as the water supply goes we've got council's background records on their testing, which they have been doing regularly on the water for the past year, so we have got some idea on how the water is now before the works

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commence. They monitor the colour and the turbidity on a daily basis and check for heavy metals and other pollutants on a three-monthly basis. They will be upping that level of testing through the contract to a monthly basis so that we have a better idea of what's happening with the water. There are very detailed requirements on the contractor for drainage management through the works as far as silt stop fences and sediment traps, that sort of thing, to minimise the risk to the water supply. We are asking them to establish their site offices downstream of the dam and also storing all equipment on the site; we are not leaving it by the side of the road when they finish work. They are going to have to store it downstream of the dam or alternatively in a bunded area in the quarry so that there is no risk of fuel spills.

We've got some details in the contract documents about the emergency traffic management plan to make sure that the contractor has the right measures in place with these signs to be made in advance of the contract and that they've got a communication protocol set up to immediately notify the people who need to be - North Forest Products, the council, fire service, police, ambulance service, those sort of people - and we are requiring them to keep those people updated regularly with facsimiles so that they know what's going on.

I could go through some of the details of the report. Roughly 1600 vehicles a day use the highway - a very high percentage of trucks, almost 20 per cent of trucks. Obviously that's mostly the mill traffic. The safety barrier is going to be improved right throughout the gorge and probably 60 per cent of that 5 kilometres has got the posts and cable barrier which at the moment is substandard with only a single cable on top of the posts, so we're putting a second cable beneath that. There's a section near the river, just east of the 35 kilometre an hour curve where there's no barrier at all, the rock wall is no higher than the road at that point and the rock wall is not wide enough to built up so we're putting some new posts and cable barrier in there and that will provide delineation as well on the outside of that curve. We'll put delineators on the top of the new posts. At the moment there's nothing there and it's quite a dangerous area.

The rock wall itself we'll be improving where it is low. Some sections where the wall is thin in width we'll be using mortar as a mortar core in the wall to try to give a bit of extra strength so we can built it up to the height we need and we've had discussions with the Tasmanian Heritage Commission about that work and they've accepted that there's a warrant for that to be done. Improvements to night and day delineation so there will be extra guideposts put in right throughout the gorge. Some of the rock protrusions which we can't remove because they're right under a very high cliff face and you could pay the risk of destabilising the whole place trying to take them out, we'll repaint with reflective paint and RRPMS extra delineators, so that will really assist at night. We're going to put in a couple of lay-bays, one again just east of the 35 kilometre an hour bend. There's potential for that to be developed as a bit of a tourist area; although you can't see the more scenic part of the gorge from that site it is not far away and a walking track down to the river or something could be put in by the council and that's a very nice area of the river down there - the high face of the gorge and the winding along of the river are probably the best part of that heritage wall.

I think that is probably all I wanted to say as Phil has covered the rest of it.

CHAIRMAN - Thank you very much, Mr Grierson. Any questions? Dr Pollington.

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Dr POLLINGTON - The area in which the proposed works are to occur have significant botanical, historic heritage and Aboriginal heritage values and, as has also been pointed out, it is the water supply collection and storage area of the Orford township. In terms of botanical significance, there are six major communities of vegetation throughout the gorge and there are eight species that are on the threatened species list, under Tasmanian threatened species legislation. There are none that are covered by the new Commonwealth Environment Protection and Biodiversity Conservation Act.

In terms of fauna, there are a number of threatened species recorded in the area - in the general area - but nothing has been located specifically to the areas that the proposed works are in. From an historic heritage point of view, as you have pointed out, there are significant issues in terms of the dry stone walls which the council is very keen on preserving, as also is the Heritage Commission. There is at least one culvert of value and there's also a concrete mile post that's been listed by the consultant concerned. There are other heritage values further afield, as has been mentioned, like a convict grave and convict station and so forth. The other major, I suppose, environmental issue is the water quality of the Prosser River dam.

In terms of impacts from the proposed works there is obviously going to be impacts on topography because we are going to take the sides off in some cases, level up or drop down in other places. There is always the potential for impact on the Prosser River dam itself - and this has been dealt with by both Phil and Russ in terms of how that is being dealt with - and the water supply itself.

Impacts on botanical values: four species on the threatened species list, eight that we have in the area, we have to destroy and so we have had to seek permits to destroy under the specific legislation. I probably should have said this earlier. In relation to botanical and historic heritage surveys, there was a lot of work done in the early 1990s, as indicated. When we had undertaken surveys this current year, the surveys were directed towards specific questions, if you like. So in terms of threatened species plants, they set out to determine what the population was, estimate how many plants there were, in what area and so forth, so that we could then estimate what percentage the impact was going to be on those particular species in applying for a permit to destroy. So there was a different focus, if you like, a more specific focus for the surveys carried out just recently.

There are a very significant number of Aboriginal heritage sites scattered throughout the gorge, ranging from single artefacts to clusters of artefacts and to middens and so forth. Some of the sites are almost certainly not in situ; single artefacts and two or three together may well be relocated but, nevertheless, they are still of importance to the Aboriginal community.

So from the environmental point of view, the key issues that we would see would be the need to destroy sites that contain rare plant species. As I have indicated, there are four such species that we will need to destroy.

Mr GREEN - Can you just expand on what they are?

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Dr POLLINGTON - Give you the actual names?

Mr GREEN - Well, are they like orchids or trees or -

Dr POLLINGTON - No, the most important one is *Osathamnis*, which is little daisy-like plant. I am not a plant person so I can't be too -

Mr GREEN - On another occasion it was bluegums or -

Dr POLLINGTON - Sorry, no. They are low-growing shrubs or flower types.

Weed management is a prime issue because there are a number of sites of weed occurrence throughout the area and with disturbance that becomes an issue. There is the need to destroy some Aboriginal heritage sites - three areas we have applied for there.

CHAIRMAN - What is the nature of those?

Dr POLLINGTON - One is a single artefact and the other two, from memory, are just two to three artefacts.

CHAIRMAN - Can they be removed intact?

Dr POLLINGTON - I think the normal practice is to collect the material and it goes back to appropriate - I was going to say 'storage' but that is not the right word. I think the Aboriginal community -

Mr GREEN - Archival sort of -

Dr POLLINGTON - Yes, I couldn't think of the right word. I will come to that a little later on. One of the requirements will be that an Aboriginal heritage officer does locate those sites and is there for removal of material and so forth.

CHAIRMAN - So they won't be totally destroyed? They'll just be kept somewhere else.

Dr POLLINGTON - Yes, the material will be removed in those cases, rather than covered up. We can sometimes, in appropriate circumstances, apply for a permit to conceal. But in this case we had applied a permit to destroy, which is effectively removal.

CHAIRMAN - 'Destroy' has the connotation of just ruining them, but I understand what it means now.

Dr POLLINGTON - Yes, unfortunately that is the terminology. It is the same with the plants.

There is the potential for impact on the historic heritage sites, as has been indicated - the walls. Another thing which has been of issue is the narrow 1930s aspect of the road, so major roadworks could change that visual -

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CHAIRMAN - Charm.

Dr POLLINGTON - charm - yes. There is the potential for impact on the lower Prosser Dam and the water supply - I think I might have mentioned that. The other key issue from an environmental point of view is the disposal of the rock and what we do with it.

In terms of ameliorative measures or how we dealt with those, I think the major measure has been - and that has come through in what has been said - the modification of the proposed works to avoid sensitive areas, in the first case, or to significantly reduce the impact on sensitive areas. So by modifying the roadworks, as has been indicated by Russ and Phil, we have minimised the impact on Aboriginal sites and on rare plants and so forth. So that is seen as a clear ameliorative measure.

In terms of actual construction of the works, all the sorts of things that have been mentioned to date, in particular exclusion zones will be set up to protect sensitive species or sensitive sites or whatever. So, for instance, at the Alice Street junction there are Aboriginal sites within close proximity and they will be fenced off and established as exclusion zones. So the use of exclusion zones, the use of appropriate fencing in those exclusion zones, siltation controllers, which Russ has mentioned, to control silt movement. The requirement has been put in for the contractor to be in a position to respond to what we might call 'rainfall events', so if there are significant rainfall events to shut down, close off works to reduce the potential for sediment flow into the river and so forth. Structural assessment survey and so forth for the dam has already been mentioned. The cleaning of all equipment has been prescribed as being an action that has to be taken away from the site and the storage, as Russ has mentioned, of all equipment and hazardous materials and so forth downstream from the site or appropriately protected right upstream in the quarry area. Increased monitoring of the water supply, which has also been mentioned, will be the responsibility of the council.

There are a couple of other important issues. I think I mentioned the presence of an Aboriginal heritage officer to locate sites. Similarly, if necessary, the same thing will apply for location of any significant plant species, if that is appropriate. Importantly, as Phil has indicated, he has made provision for environmental oversight during the construction. So not only have I been involved in looking at this in a before situation but in the ongoing process, me, or somebody in the same area, will have an oversight brief to see that these things are being attended to.

Finally, I would point out that we have extensive discussions with DPIWE, with the Threatened Species Unit at DPIWE, with the Aboriginal Heritage Unit and also with the Heritage Commission and all those discussions have come to satisfactory conclusions such that at this point in time DPIWE are ready to sign off on the project. The Threatened Species Unit has approved of our applications for permits to destroy. TALC - the Tasmanian Aboriginal Land Council - have addressed our permits to destroy Aboriginal sites and they have been passed on to the Minister for appropriate signing off. At this point in time DPIWE is ready to actually sign off on the project from an environmental point of view.

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CHAIRMAN - Thank you very much, Dr Pollington. That concludes the evidence and we thank you very much for all the detailed information you have given us. We will continue to meet and deliberate.

Mr GRIERSON - Can I just add something. We did mention that there is a planning application with the Glamorgan/Spring Bay Council so there is a planning process at the moment going through council, the project has been advertised, as you would for a standard development, so that is also part of the approval process.

CHAIRMAN - Thank you.

THE WITNESSES WITHDREW.