# THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS MET AT CRADLE MOUNTAIN VISITOR CENTRE, CRADLE MOUNTAIN ON TUESDAY 17 JULY 2007.

### CRADLE VALLEY CENTRALISED SEWERAGE SCHEME

**Mr PETER MOONEY**, GENERAL MANAGER, PARKS AND WILDLIFE SERVICE; **Mr RAY DODSON**, PRINCIPAL CIVIL ENGINEER, GHD CONSULTANTS; **Mr RALF ZENKE**, SENIOR PROJECT MANAGER, CRADLE MOUNTAIN TOURISM AND DEVELOPMENT; AND <u>Ms ANAHITA JUNGALWALLA</u>, MANAGER, ENVIRONMENTAL DIVISION, GHD CONSULTANTS WERE CALLED, MADE THE STATUTORY DECLARATION AND WERE EXAMINED.

**CHAIR** (Mr Harriss) - Welcome, everyone. We will play this hearing a bit by ear. From my discussions with Ralf earlier, I think it may be unnecessary for a site visit. If members feel, as the hearing unfolds, that a site visit would be desirable, we can facilitate that at some stage before we conclude today's proceedings.

Members, we have received the formal submission from the department, as well as another submission by e-mail from Mr Peter Simms, dated 12 July.

- **Mr BEST** I spoke with Mr Simms last night and he was hoping that at some stage he could provide some evidence, either by phone from my office or something like that. He lives in the Devonport area.
- **CHAIR** What we might do, before we conclude proceedings today, is discuss how we can best handle that. We now have the capacity to do that via telephone.
- Mr MOONEY I want to open up with a statement of context about the STP that we are talking about today. This is the end of a long process that the valley has gone through. It started a number of years ago - about three and a half to four years ago - when the sewerage capacity of the valley and what was currently in place was looked at by local government. It was determined that no further development would be approved until a better management system could be put in for sewerage for the valley. That caused great concern obviously for the commercial operators and also for us because we are quite a high user of sewerage, in that we manage the park's reserve system in Cradle Mountain. More than 180 000 visitors come through our national park each year and they produce a fair bit of sewerage. There was general concern all through the valley that something had to be done. A tourism development plan was produced that had a high participation rate of all the commercial operators, visitors to the region and major stakeholders such as the State Government. Out of that process it was decided that a number of initiatives should occur at Cradle Mountain. They involved initiatives such as resurfacing the road to Dove Lake, putting in a number of new systems inside the national park and also looking at systems outside the national park, such as a new STP. That was one of the major recommendations of that tourism development plan.

After further discussion with the commercial operators and people like ourselves, it was agreed that the State Government would lead the process, in parallel with discussions with the local government, the Kentish Council, in establishing an STP. It needs to be noted that it is a little bit unusual for the Parks and Wildlife Service to lead such an infrastructure project. Normally we do not manage such projects. We only manage them inside our lands, but we took the lead role and volunteered to lead it for the State Government. In that process there has been a lot of deliberation, assessment and analysis of what should occur. What we have ended up with, as a result today, after a lot of assessment and analysis of other systems that may have been operable at the site, the actual design we have come up with meets all the needs of mainly the users, environmental outcomes and also the social side of the valley. It is a lot of money but at the end of the day we needed to have a system that could be put in next to a significant World Heritage Area site that would have very little impact on the World Heritage Area. As you appreciate, it has to go through Commonwealth legislation, State legislation and local government legislation. So it faces quite a significant approvals process.

So we ended up with this NBR system. The technical side can be discussed by my engineer and project manager colleagues, when you have questions about that. The real essence of the context is that we wanted to put in a system that allowed for the development of Cradle Valley and that is the whole crux of it. We believe that this system will allow further development and it is designed on a 25-year process. So what can be put in will be adequate for a 25-year growth period of the standard projections that we believe can occur in Cradle Valley. Those projections are not just pie-in-the-sky - they are solid, factual projections that we get from the commercial operators, which are the main users of the system.

The other issue to do with the new system is that we are putting in more potential for a more conservation-minded system to reuse water that is not the potable water. In other words, once the final product that comes out of the plant is a liquid, it is water that is reusable for non-drinkable sources. Again, that is not occurring at the moment and it does seem to make sense that, in the modern age of water conservation and recycling, we put that facility in. So, as you go through the technical data, you realise there is another, extra pipe that is put aside the other two main entry and exit pipes which will facilitate the reuse of a water system, which is not in place in many places in Tasmania.

As far as the design goes, it is also interesting to note that the new sewerage system that has been designed for Freycinet - Coles Bay primarily, the township and the National Park - is a very similar system. It is a NBR system as well. So that is a completely independent appraisal and assessment that has gone on at another location on the other side the State, but they have come up with much the same solution. So it is fair to say that what we have gone for here is not that unusual when you look at the contemporary standards required to meet environmental outcomes.

I suppose that is all I really wanted to say, just put everything in context. We want to allow commercial development to continue and grow here at a sustainable level and also, not for people to have to worry about the ongoing difficulties of sewerage management by a centralised system.

I suppose there is another emphasis to this and it will come out through some questions by you, I am sure, is that as far as the eventual owner of the system goes, it is fair to say that the State Government is building the system and design construction to the commissioning stage and we are still in negotiation with the Kentish Council about the final management process. Under the normal local government process, this area has been declared a sewerage district already and the local government will take it over. But I also have to announce that there is a sewerage and water authority process that is being looked at, as you know, statewide at the moment. So I cannot really comment too much on that. But it is fair to say that may have some influence on the eventual owner of this sewerage system, but I cannot give any details of that. I have just been advised that I should mention that. That is really, I suppose, to give some more security to Kentish Council, as far as their abilities to manage the system are concerned because it is a very small municipality with a very small ratepayer base. This is a very modern system which requires high standards and obviously some cost is involved in managing those high standards, compared to the system you might have put in 20 years ago and we acknowledge that.

That is about all I need to say for now. I am not sure about the process, but I think we have a presentation, a step-by-step process which explains everything in sequence.

- **CHAIR** Yes. I think that, given that overview, we should move then to that next stage and keep building on the evidence which you have provided. We will keep building our own bank of questions as you proceed -
- Mr MOONEY Can I be excused for a few minutes? Sorry, I have another issue.
- CHAIR Yes, we know you have an emergency. Just feel free to come and go as you wish.
- Mr DODSON I think you have all been given a copy of the submission to the committee.

### CHAIR - Yes.

**Mr DODSON** - We have a PowerPoint presentation on that and we will expect you to stop us at various points if you want to discuss particular issues in more detail. We will not go through things in too much detail but, at the risk of putting the cart before the horse, I might explain the sewerage system before we go back to square one and how we started the project and went through it.

We are all sitting down here at the visitor centre. Leary's Corner, where you came in from Devonport this morning, is down the other end. We have Cradle Mountain Road and the airstrip, and basically there is a hill in this area and all the wastewater will gravitate down to around the Pencil Pine Creek area. There will be a pump station installed there to pump the raw sewage back up through a system to the treatment plant, which is located up on the hill. So it will gravitate from down here, pumped to the top of the hill, gravitate down to another low point near the airstrip and all this area will then gravitate into the pump station and that pump station will be the next leapfrog in the system up to the treatment plant at the top of the hill. The treated effluent then discharges through a pipe all the way back to Pencil Pine Creek but along the way it will be pumped into a storage up on top of the hill and that will maintain pressure in that outfall system to enable the effluent to be re-used by developments, say for toilet flushing, fire hydrants or whatever. That is at a level that will maintain sufficient pressure.

valve at the river to maintain pressure in that system, so that we get pressure in this area as well. It is then discharged down into Pencil Pine Creek under certain conditions, which we will discuss later. Obviously to maintain the necessary dilution rates so we don't have significant impact in the river, we can only discharge under certain conditions.

The reason we are here is to convince you that we are spending money wisely and the project is being done sensibly. There is obviously a need for the system, to try to provide facilities for the major tourist development on the edge of the World Heritage Area. Ralf, you might like to say a bit about the Cradle Valley Tourist Development Plan. I think there was a committee set up some time ago to identify the need.

- **Mr ZENKE** Basically along the same lines that Peter Mooney mentioned earlier. The need for the plan was identified early on in 2001-02 and as a first step a demand analysis was undertaken to determine the current and the future needs and use that as a basis for an appropriate design response. We also undertook an option analysis about where we were going to site the plant and we came up with the current location as being the best suitable location from an environmental and engineering point of view. We took that as a basis for a design brief, which we then gave to GHD and they obviously came up with a design response. That is the background.
- Mr DODSON That tourist development plan came up with a list of 27 items, apparently, that are required for the development of the area and obviously, the centralised sewerage scheme was one of those which is what we are talking about today. But the main objectives of the centralised sewerage scheme are obviously to provide appropriate sewerage infrastructure in a manner that minimises environmental, visual and social impacts in this special area. Obviously we needed to come up with something that was reliable and that was appropriate for the conditions - the cold weather, varying loads, due to varying tourist numbers and those sorts of issues. It needed to be coordinated with other needs as well. Peter mentioned previously that they have this reuse line to try to make use of the treated effluent instead of just discharging it into the river. So we have provided that facility and also parts have required a water main to be put in parallel with the sewerage system, a potable water line, so that, hopefully, some time in the future a centralised water system may be able to be built here as well. We stayed here last night and the sign on the tap says, 'Don't drink the water.' That seems to be fairly at odds with the environmental feel of the place. So, I guess, the point is that parks are getting a bit further ahead than just the sewerage.

Just a bit of background on what is here now and how we are trying to address those issues. Currently, as you are probably aware, there are a couple of sewerage plants. There is one down at Cradle Mountain Lodge, which is privately owned, and one that Parks operate up at the Wilderness Village area. Cradle Mountain Lodge discharges into a tributary of the Pencil Pine Creek and, I do not know if you have had a chance, but at the end of the airstrip is where the other plant discharges, is to be irrigated to an open area there. So it does the job but it leaves a bit to be desired. So we have to do better than that with the new system.

- Mrs NAPIER What does the airstrip one pick up?
- Mr DODSON When we were looking at that map on the screen before, there was a hill dividing one section off and then you had the area from the top of the hill, to the

treatment plant. That basically picks up all that area. So it is the Wilderness Village, Cosy Cabins, Federals or whatever it is called now. So all of that area.

As you are probably aware, the effluent standards that the Government require are, quite rightly, much more stringent now than they used to be. In particular, when we are trying to discharge into Pencil Pine Creek, we need to have a very high quality effluent.

**Ms JUNGALWALLA** - In terms of the original planning of the project, the sewerage treatment plant was originally proposed in 2003, and DPMP was prepared at that time. The proposal at the time involved a dual system of irrigation to plantation, coupled with a discharge to the Iris River. That was an initial idea that was further investigated and deemed to be unfeasible, based on the evaporation rate, the rain in the area, the uptake of trees in plantation, slow growth rates et cetera, and the low flows in the Iris River. It was deemed not to be a successful option. Further work was done to investigate alternatives and at that point some options in the Dove River, further away in the western rivers, and other options further downstream in the Iris River were all investigated as potential discharge options for the treated waste water. That was the point at which it was deemed that the most suitable and successful option would be the discharge to Pencil Pine Creek near the visitor centre. The original proposal has now changed significantly to the proposal that has been put forward.

In terms of the statutory planning process, it a three-tiered process: approval from local government under LUPAA; approval from the State under the EMPCA - the board of Environmental Management and Pollution Control; and Commonwealth approval because of the issues with the World Heritage Area, which is protected under the EPBC act. In addition to that, because it is associated with the World Heritage Area, the World Heritage Area Management Plan is also relevant. The involvement of the World Heritage Area Consultative Committee - WHACC - is also involved and has been consulted throughout the process. At this stage, approval has been granted by Kentish Council and the Board of Environmental Management. We are waiting on approval by the Federal Government at this stage, and that is still pending. You may be aware that there was an appeal against the local council and the State decision, and that was settled prior to a hearing. That has been sorted out and now we are waiting on Federal approval.

- **Mr DODSON** The aerial photo we showed you before, I will briefly go through the main components of that. There is a pump station down at Pencil Pine Creek.
- Mrs NAPIER That is up on the left-hand side?
- **Mr DODSON** Yes. It is basically a system of two pumping stations: one down at Pencil Pine Creek and one at the airstrip. They pump sewage up to the treatment plant on the hill. The type of plant that we have recommended there is a membrane bioreactor. The reason for that choice was that it gave the best opportunity for reliably achieving the effluent quality that we need to achieve to discharge into Pencil Pine Creek. It had some other benefits in that it took up a fairly small footprint, so we are able to put it in a building, which helps with weather conditions, keeping things warm and secure; it is a fairly well-proven technology. There are a number around, particularly in areas like this in New Zealand, Canada and Europe. Part of the treatment system is treated effluent storage. As I mentioned to you before, we can't discharge into Pencil Pine Creek continuously because during low flows we would not be able to achieve the dilution

ration we need, which is about 180 times the river flow. There will be times in years to come where we will have to store. We have estimated that, provided we maintain the re-use component that is predicted, that we would need to provide a storage volume of about 23 megalitres. That will be part of the initial plant. If we are going to achieve that re-use level, we will have to expand the storage volume and that space is taken into account in the set-up of the plant. The effluent will be disinfected by UV - an ultraviolet system that will get rid of the nasties in the water. It will be discharged, as I say, into Pencil Pine Creek through a defuser to get the proper dilution and mixing into the creek. That will occur just below the bridge down here.

- **Mrs NAPIER** So you are going to collect it from the left-hand side, all the way through down to where the lagoon is, and your storage facility, I presume, is the lagoon. Is that what you mean by storage facility?
- **Mr DODSON** No. The storage facility is for the treated effluent. So it is all pumped up to the treatment plant on the hill and, because we may not be able discharge it at the same rate that it is coming in if the flow in the river is not sufficient to get the dilution ratio, then we have to store it somewhere. So we have elected to store it at the treatment plant on the hill and then it just gets pumped out of there.
- Mrs NAPIER Where does it get treated, though down at the lagoon?
- Mr DODSON The treatment plant includes the lagoon for storage as well.
- Mrs NAPIER So what is the capacity of the lagoon?
- **Mr DODSON** Initially it is 23 megalitres. So it will store a couple of month's worth of waste water in the worst situation.
- Mrs NAPIER Is that open to the air?
- **Mr DODSON** Yes, it is currently. There might prove to be some difficulties with that. You can imagine that the effluent quality requires a very high level treatment and that is regularly monitored. If we have problems with birds or possums or things like that then it may have to be covered. We are not intending to cover it initially because it is a very large cost and quite an exercise, as you can imagine, because it covers a hectare or a couple or hectares, I cannot remember the figure. It is quite a large storage. So covering it would be quite an expense and we do not believe that will be necessary. But if it is proven to be necessary, then that would have to be done.
- Mrs NAPIER Is there a problem if that freezes over?
- **Mr DODSON** No, it is not. The water level is up to about four metres deep. So we might have surface ice on it but it will not get four metres of ice, hopefully.
- Mrs NAPIER Then you pump it back?
- **Mr DODSON** Yes, that is right. We have this storage up on the hill here and it is like a water supply system, if you like. We have to have a storage at a high level in order to give everybody adequate pressure to use taps and flush toilets and whatever. So it is

pumped from here to there and then it gravitates from here to there. Do not forget there is a controlled outlet so that we can regulate when it discharges into the river.

- Mrs NAPIER You pump it back via the same path, presumably?
- **Mr DODSON** Yes, that is right and that is a good point. We have tried to minimise the amount of environmental damage cutting down of trees and digging up of roads et cetera in putting in these pipes. There are quite a number of pipes. You have the gravity sewer collection pipe, a water main for the future potable water system and, I think, in some instances there is another pipe. So there are three or four pipes in a trench. So you can imagine that the trench is quite a wide corridor. We have tried to locate that in the corridor that has already been damaged to some extent, if you like, by the Telstra cable put in there some time ago.
- Mrs NAPIER And the corridor is about 6 metres wide?
- Mr DODSON I think it is about 5 metres.
- **Mrs NAPIER** How much of the trees and shrubs need to be cleared for that 5-metre-wide channel?
- **Mr DODSON** The trench will probably be a couple of metres wide to accommodate the three or four pipes. We will need a bit of extra room for working with equipment et cetera, so it is probably a 4-5 metre wide corridor that would need to be cleared.
- Mrs NAPIER Visible from the road?
- **Mr DODSON** It will be in parts, but we have tried to minimise that by using the corridor that largely exists. When Telstra put their system in they made a corridor probably a bit larger than they needed to, so we have tried to reuse that where we can to minimise any new clearing that needs to be done.
- **Ms JUNGALWALLA** That was one of the considerations when we went through the stakeholder discussions. In some places the Telstra cable is significantly set back from the road, so with a few extra metres of clearance you will be able to maintain a buffer of trees along those locations. In the area down towards the creek where you can see the more cleared location, that is a grassland area and in those locations the grassland is threatened so the material will be scalped from the top surface, the cable will be laid and the material replaced over the top. In those areas you will not be able to tell that there is a route through there. In the other areas we have had to keep it back a little from the road so that we can maintain a tree buffer along the edge for that visual purpose.
- **Mr HALL** Ray, in the past there have been freezing problems, as I understand, with the effluent pipeline that came out underneath the boardwalk. This system has a lot of pumps in it, and obviously that puts up the annual operating costs. Can you convince the committee that, because of the temperatures up here, you are not going to have those problems again?
- **Mr DODSON** The pipeline that Parks has had a problem with in the park is above ground; it is hanging underneath the boardwalk.

- **Mr HALL** What is going to happen with those? Any use for them or are they going to be decommissioned?
- **Mr DODSON** No, they stay. We are only working outside the park. That problem does need to be addressed, but that is not part of what we are doing.

To avoid the problem in the new scheme, everything will be buried so it will be well below the frost line or the freeze line of the ground.

- **Mr BEST** Ralf, on page 4 of the report we have, it talks under 2.3 about the implementation of a centralised sewerage system. It is one of the 27 key initiatives and it talks further about the late Jim Bacon and his vision for this area. This project has been largely managed by a steering committee and my understanding is that there should be a management committee. Why hasn't that come about at this stage?
- **Mr ZENKE** We used to have the steering committee, which basically formed the management committee. Initially it was suggested that we have a steering committee and a management committee. However, the steering committee did a very good job and made all the executive decisions, so there was not much point in establishing another committee on top of one which already worked well and had a wide array of stakeholders, including the key stakeholders such as the council, Parks and Wildlife Service, the Cradle Coast Authority, Friends of Cradle, TCT and so forth. That seemed to work well.
- Mr BEST How long has the steering committee been in effect?
- **Mr ZENKE** The steering committee started in 2003 and has been the driving force behind the development.
- **Mr BEST** Okay. It is just that my understanding of steering committees and I may be corrected on this, Mr Chairman is that they are more of an interim structure. I suppose I am playing on words here. But a steering committee, as I understand, sets out for specific purpose and you then have a management committee. You are saying that that committee is doing its jobs, but a management committee would have been more inclusive, wouldn't it?
- **Mr ZENKE** It has done its job well and once the steering committee signed off on the decision to proceed with NBR plan and so forth, the project management of that was obviously passed onto Parks, being the link agency anyway, and in cooperation with the Kentish Council. If there were any decisions that had to be made, other than technical expertise, for which we have our own engineers, or environmental issues, the steering committee was basically recalled to sit and decide.
- Mr BEST Okay. So largely, who is on this steering committee? How many people?
- **Mr ZENKE** As I mentioned before, that is chaired by Tourism Tasmania, the Cradle Coast Authority, Kentish Council, Parks and Wildlife Service, the Cradle Mountain Tourism Association, Friends of Cradle, TCT and I think that is about it.

Mr BEST - So they form a permanent membership?

Mr ZENKE - Yes.

- **Mr BEST** Moving on to a couple of issues about the design. There was some mention that there could have perhaps been a boardwalk structure over the top of the pipes that could have linked different facilities in and around the area.
- Mr ZENKE Are you talking about outside the park now?

Mr BEST - Yes.

- **Mr ZENKE** Yes, that option is still there and there is a possibility in the future to do that. Currently, we do not have the funding for it.
- **Mr BEST** Mrs Napier mentioned this aspect of the 6-metre wide buffer zone for this construction. I notice on the plan that it does deviate quite a bit. You head down to an airstrip and then there are other sections where it deviates from the road quite a bit. Why wouldn't you locate it more adjacent to the road?
- **Ms JUNGALWALLA** Just on the visual side of it, the Telstra easement is set back quite a bit from the road and we have tried to follow the easement so we retain that vegetation buffer along the road because there are batters and so on, on the side of the road. If we were to put the pipe directly along the edge of the road there would be, from a visual perspective, quite a bit clearance as you are driving in. Obviously, from the tourism perspective, as you were driving along the side of the road the clearance would be a lot more visible than putting it with Telstra, so that you retain the buffer of trees.
- Mr BEST So is this exactly with the Telstra then, as we see it? Is that, pretty much, exactly following from -
- **Mr DODSON** Yes, the vast majority is. Just following up, did you ask, why is it not on the road? Was that part of the question?

### Mr BEST - Yes.

**Mr DODSON** - Because there are three and, in some case, four pipes, we have quite a large trench. It is probably going to be something in the order of two metres and you can imagine the type of earth moving equipment that is going to be needed to excavate that because it is fairly rocky, amongst other things. So if it was in the road, it would not be a matter of putting on the edge or the verge because, as you can see when you drive in, there is none. You are either on the road or you are in the bush. So locating it in the road would basically mean destroying, I would say, half the width of the road and also would make traffic along the road very difficult and very restricted during the course of construction. That option was looked at fairly carefully.

We discussed it with DIER, the owners of the road, and they were against that option for the reasons I have discussed. So on balance we believed that it was best to locate it pretty much in the same corridor as the Telstra cable.

- Mr BEST Your water source that drives all the toilets and so forth, I image that exists now, doesn't it?
- Mr DODSON No, it doesn't.
- **Mr BEST** What is proposed there with the water source? Even though we are up on top of a mountain and there is probably quite a lot of rainfall, we are always mindful, particularly through dry periods, as to how much water resource we have. Where would you be drawing that water from and how do you propose to manage that?
- Mr DODSON I am not quite clear what you are asking?
- Mr BEST Just about the water for the reticulation of toilets and so forth.
- Mr DODSON Are you talking about the re-used effluent?
- **Mr BEST** No, I am talking about the water that will drive the system the toilet system and where you are drawing the water from.
- Mr DODSON The current water supply to the area?

Mr BEST - Yes.

- **Mr DODSON** It is a combination of things. Some developments have bores, some have dams. I think Parks are currently building another dam to try to provide a water source. It is a bit of a strange situation when you think of Cradle Mountain. We think it's wet and there is plenty of water but that is not the case at all. Water is a real problem up here for drinking and availability. There are tanks to a degree but the storage volume is not sufficient and the water quality is such that you are not supposed to drink it, as you can see when you go into any of the motel rooms. One of the ideas of this scheme was to try to reduce the water problem by being able to re-use treated effluent for things like toilet flushing, hydrants et cetera.
- **Mr BEST** How does the reticulation occur from your recycled wastewater? Is that pumped back through somewhere, through another pipe that runs alongside?
- **Mr DODSON** It acts like a normal water system where you take water out of a river, pump it up to a reservoir on the hill and then the reticulation would be out of that. The houses would be a certain distance below the reservoir level in order to provide them with sufficient pressure for taps et cetera. That is basically what we have here. The water source is the treated effluent and that is pumped to a reservoir on a hill. That reservoir is at a higher level than all the developments through that area in order to provide sufficient pressure - although it won't be to taps in this situation because we don't want people drinking it - for toilet flushing and that sort of thing. The scheme only provides the main pipeline and the tank; it doesn't provide the plumbing from this pipeline to the individual developments. That is to be done by the developments to use treated effluent. That will be one of the conditions of approval for, say, the Grollo development here or any other chalet that is established in the area - to ensure that we get the amount of re-use that we require in order to avoid having to build extended storage at the treatment plant site.

- **Mr HALL** Ray, it seems a pretty complex engineering solution for this whole business. I realise that the environmental bar has been raised in terms of sewerage treatment plants and effluent discharge. However, with a \$12 million capital expenditure and a \$750 000 recurrent expense to operate it, did you look at any other technologies as an overall solution rather than the pure engineering solution that you have here? There are alternative solutions out there, I believe, for treating waste.
- **Mr DODSON** There are lots of people claiming to be able to do all kinds of wonderful things but not a lot has been proved. What we have to have here is something that we can sit back and relax about, and not have to worry every night that the thing is not going to work properly and we are going to have to fix something or whatever. When you say it is a complex system, it is not really, it is a conventional system. We just have a conventional collection system.
- Mr HALL Perhaps I am referring more to the pumping and so on?
- **Mr DODSON** We only have two pump stations, so it is not particularly difficult. I suppose the treatment plant is relatively sophisticated, but it needs to be sophisticated in order to produce the effluent at the standard that we need to discharge back into the river. We did look fairly carefully at other points of discharge and disposal. Really we only have two options. You can put it into the river or you irrigate it onto land. As Anahita has said to you before, the land option was not practical, so discharge to the river is all we have left. So the treatment level has to match that.
- **Mr HALL** The other issue you mentioned is that under the Local Government Act the Kentish Council were going to create, or already have, that sewerage district.
- Mr DODSON They have already.
- **Mr HALL** Given that and the number of operators here, and given that \$750 000 recurrent cost, is it going to be affordable? Have the operators here all ticked it off? Have they been given an indication of what their sewerage rate is going to be? If so, are they all happy with that?
- **Mr ZENKE** The operating costs are fairly high when you have very reliable system. The more operators that come on line in future developments, the cheaper the operation costs will be.
- **Mr HALL** Yes, but until that happens they are going to be hit with a pretty high recurrent cost, aren't they?
- **Mr ZENKE** Again, it depends on the future management arrangements, whether Kentish or a regional authority manages it or whether a depreciation component will apply to eventually replace the plant in 25 to 60 years - or if the Government or Kentish waives the depreciation. It is not up to me to decide.
- Mr HALL The water and sewerage authority may well be some time off.

Mrs NAPIER - It will be a regional one.

Mr HALL - It may well be a regional one.

Mr MOONEY - At the end of the day, the users want to know how much it is going to cost.

Mr HALL - Yes, that is right.

**Mr MOONEY** - Some figures have been floated. The main factor that has to be considered is whether, whoever runs the plant, it is decided that they consider depreciation costs as well in the user-pay costs because then that is the big difference. Basically, that is the guts of it. The order of difference is between about \$5 a kilolitre compared to \$9 a kilolitre. That is the order of difference. At the moment people are paying, with the current treatment plant, in order of \$8 a kilolitre here. What they pay now is about half what they could pay at the top end in the future. However they may pay less if depreciation is not considered. The difficulty we have today is that we cannot consider that as part of the design because that is the management and the running profile as far as depreciation goes. We have had ongoing discussions with the Kentish Council about this. We know their view because they are a small organisation that has only so much capacity. They have had some slight difficulties with a new plant that they installed in the last few years; they are having difficulty getting it continually commissioned. So they are a bit shy.

All I can say is, yes, the water and sewerage authority may be a clear answer, but when that comes on line is not decided yet, as you know.

That has to be considered in the light of all sorts of factors. The difficulty is we have been labelled with building a system that may be prohibitive for people to enter and use, but that is not our intention. Our intention is to build the best system we possibly can under the constraints we have. To be honest, we have produced a system which has been guided mainly by the environmental requirements we have been given from the State authority, which is the Environment authority. It is a bit of a catch-22 for us. By the way, we are going to be one of the users, probably a major user - about one-third. So I have to consider that in the Parks and Wildlife Service budget as well. I am in a bit of a difficult position in that I am a proponent but I am going to be a user as well, so I am fighting for both sides. We do not want to be paying an exorbitant amount because it comes out of our budget.

- **Mr DODSON** At the end of the day, though, I think you are saying that predicted costs are not hugely different to what the costs are currently.
- **Mr MOONEY** Yes, because at the moment they pay an average \$8 a kilolitre and the highest projection is around \$9-\$10 a kilolitre, so there is not a lot of difference.
- Mrs NAPIER And that includes depreciation?
- **Mr MOONEY** Yes, that will be with depreciation. The more users that come on line, the cheaper it will be eventually for everyone.
- **Mrs NAPIER** How many current operators here have indicated that they would want to tap into this new system?

- **Mr ZENKE** The major operators all have to connect to it under the new sewerage district. The big operators like the lodge, the camp ground, Federal Hotels, Wilderness Village and so forth all have to.
- Mrs NAPIER And how many don't? Do any not have to?
- **Mr ZENKE** It depends where you are, I guess. If you have a holiday shack which is about three kilometres from the pipeline, it might not necessarily be feasible for one toilet to be connected to the system.
- Mrs NAPIER So private, like a shack?
- Mr ZENKE Yes, but all the commercial operators will be required to connect.
- **Mr MOONEY** It is one of those conundrums, I suppose, in that to move forward and have advancement at a sustainable level they need it but they don't want to have to pay too much for it. That negotiation has been going on but it is not defined exactly to the dollar yet. The order that has been defined is not a lot different from what they are paying now for the current system use. This will have a lot more potential capacity with it, whereas at the moment they are sealed; they cannot develop any more.
- **Mrs NAPIER** The figure that was used of recurrent costs of \$750 000 a year, is that about right?
- Mr ZENKE It is around about \$680 000, including depreciation.
- Mrs NAPIER That includes depreciation, which you would logically need to include, I would have thought.
- Mr ZENKE It depends how a future authority will run it, but at this stage yes.
- **Mr MOONEY** Under normal local government processes they include depreciation in the management of the STPs. That is the normal local government process.
- **CHAIR** Can I just follow on from the questions that Mr Hall raised with you about your consideration, if any, of alternative designs? As Mr Hall has indicated, it is a \$12 million project. Ray, I heard your response, but I am aware from my own research that there are alternative effluent treatment plants available which have been used elsewhere in the world, which do not rely on electricity and pumping, and which would be as environmentally sensitive as this. It might have meant that you needed half-a-dozen of those smaller treatment plants to cope with the load but these have been installed elsewhere in the world and have been required to take account of sensitive environments.

Following from that, the obvious question and you made the comment a while ago, Ray, that you needed to come up with a design whereby you could sleep comfortably at night, knowing that the system would operate, regardless of any reasonable circumstance. You have a couple pumping stations here and I understand that is no different than a normal council sewerage scheme where you rely on continuity of power.

So the first question to recap was, what consideration, if any, has been given to other than this design which is a pretty standard design - gravity, pump, treat and recycle?

**Mr DODSON** - It has all been driven by the impacts that you are going to have on the environment and the effluent quality that you need to meet in order to minimise that impact. Those figures were nominated by the Environment division. So we are then trying to find a treatment process that will reliably meet those criteria. There are a number of processes around. Conventional activated sullage. I do not know whether people have the impression that an NBR is some whiz-bang, sophisticated system. Basically, an NBR is an activated sludge tank with these fine membranes, very fine filters, attached to the end of it. So that is really the only difference between an NBR plant and most other conventional, high level treatment processes.

An alternative that has been used at St Helens for the treatment of effluent is what is called an SBR, which is a sequential batch reactor. The only difference between that and what we are providing here is that there are two tanks in that situation, so that you are filling one tank while you are decanting and draining the other one. They still have a membrane downstream of that process, the same technology as we have here. So it is only the up-front stuff that is any different. The disadvantage with that is that you need two tanks, it is a bigger size and it is less able to be contained in a building, economically, which we need to do here to deal with heat, security and noise containment issues.

So we have looked at other types of plants. If you are talking about non-powered and non-whatever systems, I am not aware of any of those that are likely to be practical in this environment. Having a series of little septic tanks or similar types of systems, I think, is likely to make management and the risk of something going wrong much more difficult than having a centralised, single plant.

- **CHAIR** If I can go back to your earlier evidence: you said that there are a number or designers or people who claim to be able to deliver a range of environmental outcomes, but that you are not convinced of that? They are my words, not yours.
- **Mr DODSON** They can produce good quality effluent. There are lots of package systems around that produce a good quality effluent, but not to the standard that we are looking at here. This is almost a drinking water quality standard. It is a very high level of treatment, as it needs to be and it has to be a very reliable, proven system. We cannot have something that is going to work most of the time. We have to have something that works 98 per cent of the time.
- **CHAIR** That high level of treated effluent for the discharge is primarily because of discharge into Pencil Pine Creek?

## Mr DODSON - Yes.

**CHAIR** - Can I ask then, a very specific question of you? Have you, at any time, considered the application of and I will name the brand, a Vapocycle? I have been aware of this particular design plant being installed in many places overseas in environmentally sensitive areas. I mention that as one which doesn't rely on pump stations and the like. Are you aware of that system or are you aware of similar systems?

- **Mr DODSON** I have heard of it. I think it has been trialed at Meander Valley, as I understand it, but unsuccessfully. A lot of these things have great claims to fame but I think a lot of them are yet to be proven. Here you would want a system that was absolutely proven before you put it in this sort of environment. My understanding is that the one at Meander Valley has not operated properly.
- Mr HALL The one at Bracknell?

Mr DODSON - Yes.

Mr HALL - I thought it was going okay.

Mr DODSON - No, not to my knowledge.

- Mr ZENKE The management of the system is also important to consider. If you have, say, half a dozen individual systems, you obviously have to acquire the equivalent land to house the plant, which is not an easy task. As Ray said earlier, the environment up here is very special. You have a lot of other environmentally sensitive areas, but this is a World Heritage area and you have to produce a discharge quality into pristine water; that is the ultimate guideline and that is why we applied this system. We know many ways to skin a cat, obviously, and there are horses for courses, but we have to come up with a reliable system which works all the time and that has been proved to be effective and produces a high quality effluent.
- **CHAIR** It is appropriate to pursue that, in my judgment, because this is a large capital expenditure project, as Mr Hall has indicated. We understand the sensitivities of this environment, though nowhere near the degree you people do because you are working every day with it. Nonetheless, this committee has been here on three or four previous occasions with projects in the area so there is an appreciation of the sensitivity. However, the overarching question is what account have you taken, in the production of this design and this presentation to the Public Works Committee, of alternative designs to achieve the same outcome.
- **Mr ZENKE** We have undertaken an assessment of an alternative system about a year ago, which involved wetland evaporation and so forth. We have had professional advice that this would not work in this environment and, on the basis of that professional advice, we then decided to proceed with an MBR plant.
- CHAIR From whom did that professional advice come?
- Mr ZENKE GHD their process engineer in Melbourne.
- Mr BEST What happens if there is an emergency discharge and you don't have the capacity?
- **Mr DODSON** There are a couple of slides that we haven't gone through, which may cover your query.

- **Mr BEST** Can you also outline to us the design of the lagoon. Will it be lined? Are you going to fence it?
- **Mrs NAPIER** And also the pipeline itself, will that be sleeved to allow for dealing with rupture? I accept what you are saying, that hopefully it shouldn't freeze, but whenever you have freezing you also have pressure on the pipes. Sometimes the practice is to sleeve it with a membrane just in case there is a rupture of the pipe and that also then protects your groundwater.
- **Mr DODSON** I will deal with that first, if you like. The intention is to bury the pipe. It is fairly rocky ground, so there is risk there. The trench will be bedded with sand, the pipes will be laid and they will be covered with sand. So we will not get pieces of rock and whatever potentially causing mechanical damage to the pipes. The pipes will be located at a level well below where it will freeze. So we will not have that problem, which is what they are experiencing through the rest of the park here at the moment. We are not intending to put a pipe in a pipe because the risk of failure, we believe, given the quality of construction, the strength of the pipe and the pressure in it, is very minimal. The cost of putting each pipe in another pipe would be quite extensive. The cost of the actual pipework supply of the pipe and construction is about \$2.5 million. If we had to put extra pipes in you can imagine that cost would increase quite significantly. The cost would be much greater to save a little bit of potential risk.
- Mrs NAPIER Apparently there is a kind of plastic sleeve you can put over it?
- **Mr DODSON** I am not quite sure what you are talking about. But there will be a tracer tape put over the top to identify where pipes are. So people will see that before they go digging.
- Mrs NAPIER It would blow the cost out if you put a pipe around the pipe.
- **Mr DODSON** We have the raw sewerage coming into a building in which the treatment process occurs. So we have raw sewerage coming in, it is treated, then the treated effluent is discharged back out through another pipe, parallel to the inlet pipe. So you have two pipes in the one trench. The treated effluent goes into a couple of storage tanks and it is then discharged back out of the tanks to a pump, through a UV disinfection system, and out the pipe and back through the system.

If these temporary storage tanks overfill, then it goes into the treated effluent storage. So it is stored on-site. It is a lagoon of 23 megalitres, so it is quite a large storage, bearing in mind that the future daily inflow here is about 500 kilolitres, about half a megalitres. So you have 46 days storage there at dry-weather flow. If it overflows here it is stored into these lagoons. Those lagoons are earth structures lined with an HDPE liner to stop any leakage or what have you. So there is no chance of the effluent, even though it has been treated to a very high level, seeping into the ground water because we have the liner to protect it.

If we have a power failure here or over the whole area, part of the scheme is to purchase a generator system on a trailer. I think there is one or two, but the generator system can be used to fire up the pump stations to get the waste water up to this site. If we have a power failure over the whole area then obviously the treatment process is not going to work in there but at least we have it up to the site. That then going through a screening system and then gravity overflows into this emergency storage system, which is about 3 megalitres - so it is about six days of dry weather flow. Again, that is HDPE-lined to stop that getting into the groundwater et cetera. We have a pump station which, once the power is back on, will pump the sewage back through the system.

- Mr BEST Ray, what is the reservoir capacity above normal operating?
- Mr DODSON Normally there will be nothing in there; it will be empty.

Mr BEST - Oh, I see.

- **Mr DODSON** So you have 3 megalitres of storage, so six days. Also, back at the pump stations themselves we have eight hours' storage so that gives time for the operators to get a generator there and get things fixed.
- Mr BEST Is there a fence line around this? What is going to stop animals getting in there?
- Mr DODSON There is a fence around the whole site, including the lagoon.
- Mr BEST What sort of fencing are you thinking of?
- **Mr DODSON** It is a 2.4 metre high chain-wire mesh fence, with barbed wire on top. It will keep people out, as well as animals.
- **Mrs NAPIER** I notice that it has been designed to take into account the one in eight or one in 10 dry years. Will it also take into account if we have a really wet year?
- **Mr DODSON** In a perfect world the only sewage that would get into the system is what goes down the pipe, so wet weather or dry weather there shouldn't really be any difference in theory, but we all know that it is because you get leaks in pipes and people tap roof water into sewerage systems et cetera. Obviously during wet weather you get higher flows than in dry weather. We sized the pumping system for six times the normal dry weather flow, so it is a reasonably safe number. We have capacity to take six times the normal dry weather flow through the system. We are not going to treat six times; the treatment equipment is sized to treat three times dry weather flow. The excess is stored in a buffer storage; if that is filled, then it overflows into the storage so that provides some fairly significant security for very wet periods, as well as power failures.
- **Mrs NAPIER** If it overflowed I am trying to understand the topography there where would it run?
- Mr DODSON It would ultimately end up in the Iris River.
- Mrs NAPIER Is there a creek there?
- **Mr DODSON** There is a gully there and it would eventually find its way around into the Iris River. It would take a fair while to get there, obviously.
- Mrs NAPIER What is the likelihood of an overflow happening?

- **Mr DODSON** Well, I think it is fairly remote in that there are back-up pumps if a pump fails and we have generator sets to cope with the situation if there is a power failure at the pump stations. We have the eight hours' storage within each pump station in any case. Once it gets up here, we have a number of days. When I say there is 3 megalitres, that is to the normal operating level of that lagoon. The lagoon can actually fill up higher than that if we just block the overflow, and that would have to be the choice the operators would make. Sooner or later it has to overflow somewhere and you don't want it going into this lagoon; it has to go into somewhere it is going to do less harm.
- **Mr BEST** Most of your componentry is fairly stock standard, though, isn't it? Most of your componentry is not going to be something that you are waiting to get from the middle of Europe or something like that?
- **Mr DODSON** This 23 -megalitre storage is subdivided into two storages. If that is not currently being used and say you have a major power failure for a week or whatever and you do not have treated effluent in here because you are able to discharge it to the creek, you could overflow it into there if you chose to. That would have to be a fairly serious risk assessment. But that could be done. We have the facilities in there to do that, but it a matter of people opening valves and shutting gates and whatever. But obviously, that would have to be cleaned out very carefully before it was then reused for the treated effluent because we would not want cross-contamination. But all those things are possible. They are highly unlikely. So there are a lot of belts and braces built into the system, is really what I am saying.
- **Mrs NAPIER** I was reading the submission from Mr Simms. He talks about option B, which is not where the current lagoon is, it is where an old sawmill or something is. One of the issues he raised was the potential, if you get an overflow, of it going into Iris River and that if those problems arose, the old sawmill site would cause less damage. Where is option B?
- **Mr DODSON** I stand corrected, but I think the old sawmill site is here. But the issue with the sawmill site is that it is pretty much next door to the World Heritage Area and if there is an overflow, then it will pretty much go straight into the Dove River.
- Mrs NAPIER So there is a river there that it would flow into anyway?
- **Mr DODSON** Yes and that is right on the edge of the World Heritage Area. If we have a major failure up here, eventually it is going to get into the Iris River. I do not think the Iris River flows directly through the World Heritage Area. So, from a really bad failure point of view, this is less of a risk than the sawmill site.
- Mrs NAPIER Relative to the World Heritage Area?
- **Ms JUNGALWALLA** Yes. When we went through the development of the DPP and the back and forth in terms of, particularly the involvement of the WHACC, one of the biggest concerns raised was the potential, as you have discussed, as small as it is, for an overflow and for some sort of issue with the plant. On the map I just showed you then, you will see that site B is almost directly on the boundary of the World Heritage Area. It is very close to the World Heritage Area, as opposed to the current location. If there was

a discharge, it eventually would find its way to the Iris River, but even in terms of the Iris River, there is a significant distance and you would imagine it would have a lot of trouble getting there before it seeps in.

- Mrs NAPIER But it is further away from the World Heritage Area?
- **Ms JUNGALWALLA** Considerably. It is outside of the World Heritage catchment. Halfway through that image is the catchment for the Iris River at one end and the World Heritage-Dove River and so on, at the other. So one of the reasons for that site is that it is entirely outside of the catchment. It is in proximity, but also outside of the catchment itself.
- **Mrs NAPIER** Relative to the planning for future development, is that private land that is in the vicinity of that? Is there likely to be a resort built close to it?
- **Ms JUNGALWALLA** The only land that is potentially close is the land to the north which is that end of that figure. That is the land that is owned by Grollo and the effect of the appeal that was recently settled prior to hearing was in relation to development that they intend on their land.
- Mrs NAPIER Can you point that out on that map, where the Grollo land would be?
- Ms JUNGALWALLA It is here right up to the boundary of the site.
- Mrs NAPIER It is a bit of a hill isn't it?
- **Ms JUNGALWALLA** Yes, where the site is a bit of a rise; their land then comes across, lowering down and down into the flat area of Leary's Corner.
- **Mr BEST** No doubt you will have some specific benchmarking in the contract or the tender document regarding what you will expect from the contractors with sensitivity and those things, care and attention, driving on the roads, animals and so forth?
- **Mr DODSON** The tender documents require the contractors to provide environmental management plans and instruction management plans to minimise the impact of erosion, traffic noise and all those sorts of issues.
- Mr BEST So will there be an induction for construction workers and that sort of thing?
- Mr DODSON Yes, all that sort of thing will be covered.
- **Mr BEST** Just looking at your cost estimates, preliminaries are \$920 000; is that your estimate from where we are to date?
- Mr DODSON I am not quite sure where that figure is coming from.
- **Mr BEST** Sorry, page 23 in our report, 'Breakdown of costs'. A summary of costs based on the development design information has preliminaries of \$920 000.

- **Mr DODSON** They are the sorts of costs that a contractor would put in to cover things such as set up, disestablishment, paying insurance, and his own internal management systems. It is just a component of the construction costs.
- **Mr BEST** Could the committee get a breakdown of how you reached that estimate not today so that we can see how you have worked that through? Is that too sensitive for your tender?
- **Mr DODSON** No, it is not a problem. I think we have just taken a figure of 12 per cent of the actual construction cost. That is a normal sort of percentage that contractors would apply for construction management of a project, where they get subcontractors' prices or their actual construction prices and then add a percentage for managing the job. It is called 'preliminaries', but maybe that's not quite the right terminology.
- **Mr BEST** No, we see different terminologies with cost structures all the time. Could you elaborate on design contingency and project contingency?
- **Mr DODSON** This estimate was done probably 18 months ago and followed on from some earlier work and was a much smaller number. The design contingency is basically an amount to take account of unknowns at the time and things that happen during construction works. Generally there are things that you don't know about, the extent of rock, wet weather and those sorts of things, so it is really a figure to take account of unknowns and uncertainties.
- Mr BEST Unknown things in the design, yes, and then I suppose the project has unknown events. You have quite an amount there \$1.9 million for project contingencies and \$1.15 million for design.
- **Mr DODSON** Yes. This estimate was done about 18 months ago and it is to take account of things such as inflation. It had not been approved at that stage, so there are all sorts of things that come out of that monitoring of the river, the environment, the effluent quality. I think the actual estimated cost of that is something like \$200 000.
- Mr BEST That is listed separately, as opposed to the \$1.9 million and the \$1.1 million.
- **Mr DODSON** Okay. It will largely take account of inflation. By the time the project is constructed it will be the best part of three and a half to four years from when the estimate was done. In the current environment, with the amount of work around for pulp mills and other sorts of things, I don't think we are going to get very tight prices. I don't think the competition is going to be all that great. If you took 10 per cent a year over four years, you end up with a fairly large number, which is probably about that sort of number.
- **Mr HALL** It still seems to me a pretty fudgey sort of a number. You have about \$3 million worth of contingency there, which is about 25 per cent of the whole capital expenditure, and that is aside from the preliminary costs of \$1 million.
- **Mr DODSON** The preliminaries are not a fudge value; they are a real number. The construction contingency is to take account of unknowns and the sorts of things that are likely to change during the three or fours years from when that estimate was done until

now. We had not done detailed design at that stage, as you would appreciate, so there needs to be a -

Mr HALL - Are you saying that the original estimate started about 18 months ago?

Mr DODSON - Yes.

- Mr HALL We have an end date of 2008?
- Mr DODSON That is about right, yes.
- Mr HALL It still seems to me to be an extraordinarily large amount. You also have the \$225 000 for other costs, including monitoring and control. That is an after-project cost, I would have thought, that would be borne by Kentish Council.
- **Mr DODSON** No, it's not; it has been agreed that it would be paid by Parks because it is part of the project cost. Besides that monitoring cost, there are a number of other costs that have come out of the conditions that have been imposed by Environment. That includes things such as various studies on flora and fauna, before and after, and weed plans and systems that have to be taken account of. The list of conditions that we have to comply with is a number of pages long and many of those require expenditure. So part of those contingency numbers are to take account of those issues. Again, when we did that original number we were not privy to knowing what all those conditions were. It was an amount put in to cover those sorts of things.
- **Mr BEST** Do you know what they are now then?
- Mr DODSON We know what the conditions are.
- **Mr BEST** Well, is it \$1.9 million in relation to project contingencies, or is this figure 18 months old now?
- **Mr DODSON** We have some of those numbers, but I don't think we have them all at this stage. Some of them are things that we can get prices for, and some of them will be nominated by contractors they will be contractor prices.
- **Mr BEST** Sure, there is always going to be a variable. As a committee we have to approve an amount of spending and this is a little bit rubbery if we don't know a ballpark figure. Mr Hall has pointed out that it is quite an amount for unknowns.
- **Mr ZENKE** A contingency is not an expenditure, it is an allowance. It is like an insurance policy, so it doesn't mean we have to expend it. Mind you, as you probably know from your experience, there are hardly any projects which don't spend the contingencies. I know a lot of projects where they don't allow enough contingency. They run out of money halfway through and have to go through requests for additional funding, which is not easy. Coming to what Ray said earlier, when we did that we had to make a certain allowance and it sits there. If it doesn't get expended, we are all happy and we give it back to Treasury, no doubt about it.

**Mr BEST** - Maybe we could have a breakdown of what it is, though. I don't expect you to explain it now because you have said it is 18 months old and some of it you know and some of it you don't know. Maybe you could impart that knowledge to us and that would make it a bit clearer for us.

The monitoring and algae control, is that \$225 000 part of the commissioning? What happens in subsequent years? Who is going to pay that?

- **Mr DODSON** Because we are doing something new and to some extent unknown, there is a lot more monitoring required in the first couple of years. From then on you have trends and you have a better idea of how things are going to happen in the future. After the two years there will still be costs but those costs will be reduced because we will have to do less tests given that we will have knowledge from the prior two years.
- **Ms JUNGALWALLA** Most of those components are in relation to the response from the board in relation to the DPEMP and the conditions for ongoing work required. For example, we have been monitoring background water quality in Pencil Pine Creek since back in early 2006. Certainly we have been doing quarterly assessments of aquatic biology. There have been algae assessments in the creek to build up a background of data. Once the plant is up and running there is a fairly intensive amount of work required during commissioning and in the first year in particular. From the information we have do date, we believe that we will not have an impact on the creek, but it all needs to be tested fairly intensively in the first year. After that, the level of intensity can be dropped. There are a number of things that we test on a quarterly basis, for example, in the first year and then on a three-yearly basis after that.

So my understanding of that component was that it related to that initial start-up period, in particular the commissioning, until the plant is clearly up and running effectively. I guess that first impact has been measured because certainly there is a huge amount of work in the environmental component for the first year and during the commissioning, but that will drop back.

- **Mr DODSON** That was a hard number; it was not an estimate. We knew the tasks that had to be undertaken, so that is a genuine cost estimate.
- **Mr BEST** Finally, if you had some money left over out of your contingency, would you consider the boardwalk over some of the piping?
- **Mr ZENKE** This is for someone else to decide. It is not part of the project at this stage and it is not part of the brief. If the Treasurer or someone else decides they want spend money on that, then sure.
- **Ms JUNGALWALLA** In relation to the boardwalk, through the stakeholder discussion one thing that did come out is that a lot of the Telstra alignment, which is where we are planning to go parallel to, runs across private properties. There are significant issues in relation to safety on that boardwalk, insurance issues and so on, that did come up through those early discussions because most of the route is across private land.
- **Mrs NAPIER** In relation to the header tank, obviously it is up a hill. Is it visible from the road or from the village and what steps would be taken to disguise it?

- **Ms JUNGALWALLA** We have had a visual impact assessment done for the DPEMP and that took into account the view fields of the major infrastructure, looking at the treatment plant itself but also looking at potential views for the header tank. I did a lot of the botanical assessments for the site, and up from the header tank you cannot see the road in any capacity. It is fairly separate from everything. That was included in the visual assessment, to make sure it is not visible.
- **Mrs NAPIER** In terms of the power supply for your pumping stations, do you also need a power supply up at the header tank?
- **Mr DODSON** No. There will be a pump at the treatment plant site and it will pump up to the header tank and then it will gravitate out of the header tank down to the -
- Mrs NAPIER So you will pump it from where the lagoon is?
- Mr DODSON Yes. That is correct.
- **Mrs NAPIER** So it is unlikely that there is going to be an impact of having to put some power poles that do not already exist up through the bush?
- Mr DODSON There will not be any power. There is no need for power to the header tank.
- **Mrs NAPIER** Is there likely to be additional power lines required to be able to do this project beyond the initial stage, some power lines that would need to go into your settling ponds and your lagoon?
- **Mr DODSON** The power into the treatment plant will be underground, and it is overhead along Cradle Mountain Road.
- Mrs NAPIER That already exists, though, doesn't it?
- **Mr DODSON** Yes. There is a overhead link across the road to a pole on the other side and from there on it will be underground in the same trenches as the sewer pipes going up to treatment plant.
- Mrs NAPIER Similarly for Pencil Pine River or is the power already there?
- **Mr DODSON** With the power for the two pump station sites, my understanding is that is underground as well from the existing roadside overhead power.
- **Mrs NAPIER** What are the thoughts in terms of the pricing of re-used water? As I understand it, there would be a requirement for re-use of non-potable water. Is there also going to be a pricing edge used to drive that re-use?
- **Mr ZENKE** It is for the local authority which is the Kentish Council to decide whether they want to put a charge on it or a nominal charge. I don't know. In the interest of getting parties to take it up, a nominal charge would probably be recommended, but that is up to the council.

- **Mrs NAPIER** The other question was in relation to odour. Could you run me through what your assessment is of the odour potential in relation to the exit at Pencil Pine Creek and also at the lagoon?
- **Ms JUNGALWALLA** An odour assessment has been done by Tim Pollock, who is one of the GHD people in our Melbourne office. He has 30 years experience in odour modelling and assessment for treatment plants. He looked at the design information sent by Ray and Robert van Oorschot, our process engineer. He considered information based on the odour-control beds that will be put in place the soil filters and then determined appropriate buffers at the treatment plant site to establish that there is no odour impact beyond the boundary. In relation to the discharge side at Pencil Pine Creek, it was established, based on Tim's knowledge and experience, that it will have no potential for odour because of the high level of treatment. Based on his work there is considered to be no potential for odour impacts at the creek or from the treated effluent in the storage facility, so it is only at the plant.
- **Mrs NAPIER** What potential is there for odour outbreaks to impact on surrounding private properties?
- **Ms JUNGALWALLA** The work that Tim Pollock did was to establish an appropriate buffer distance, based on the local topography and air drainage and so on. The buffer distance determined was smaller than the standard recommended distance, which is 200 metres. He established that a smaller buffer was appropriate. The precautionary principle was then applied and we have said, based on that, we should be allowing 200 metres, which falls within the site itself except for a small area on the southern boundary of the site, which is across into private property. There is work in the DPEMP to establish how big that small crescent that goes onto another property is and what percentage it is of that property. I think approximately 2 per cent of that property is affected by the edge of the buffer. The remainder is retained within the land owned and the actual plant site. That is a fairly standard approach for establishing a potential for odour.
- Mrs NAPIER It's nothing like the Hoblers Bridge treatment plant?

Mr DODSON - No.

- Mrs NAPIER It is pretty bad if you are near it sometimes.
- **Mr DODSON** The pump stations would be potential sources of odour. The pump station is enclosed in a concrete tank with a lid and covers on it. As Anahita said, it will be ventilated to a soil filter, which is an above-ground structure because we don't want it below ground because of groundwater table levels. That is filled up with various materials in which bacteria grow, so the air from the pump station is ventilated to that and filtered through the system. That is a well-proven technology in lots of places in Tasmania and other areas. The existing treatment plant sites, to the best of my knowledge, do not have odour problems. This treatment plant is right in the middle of that development so if there were odour problems they would be pretty well known. The sewage is pretty fresh because it is not travelling large distances. The fact that we don't have problems there lends a fair degree of confidence that we are not going to have problems with what we are doing. We are pumping it this distance so there is some extra

travel time involved, but it is not all that significant when you think about the wastewater that is pumped out of the park that has travelled God knows how many kilometres and sometimes does not get there for weeks because it is frozen et cetera. To the best of knowledge there is no significant odour problem with that either. There is no history of an odour problem. What we are doing, we are going to a lot of trouble to minimise those risks et cetera. Up here at the treatment plant site, everything is housed within a building, but the odorous areas in that building will be covered and ventilated to a separate odour control facility there. So we have really gone to a fair amount of trouble to make sure that we do not have a problem with odour because obviously odour is a major issue in this environment. I think we can look you in the eye and say that has been looked at very carefully. That is not to say that something is not going to go wrong, but we have certainly taken some fairly positive steps to minimise that risk.

- **CHAIR** Can I come back to the matter of design consideration and this question would be to the proponents of the project either Ralf or Peter or both? What is your process with regard to going out to public expression of interest in terms of generating a range of submissions to the department from interested parties who might be able to provide a solution to the scope of what you want to achieve? Or do you just go specifically to, in this case, GHD because you believe they have the expertise to address the issues raised for this project?
- Mr ZENKE Are you talking about the initial stage of engagement of consultants?
- **CHAIR** Yes, even before engagement go back a step from that. You have produced some scoping of what you want to achieve. Do you publicly advertise for expressions of interest to address the project?
- **Mr ZENKE** This happened before I came on board, but I know there was the initial Thompson and Bedford report, which did the options analysis, and a KPMG report was done which looked at feasibility and so forth, and which formed the basis of the next step which was engaging a consultant through an open tender process. So everyone had an opportunity.
- CHAIR So how many expressions of interest were there from consulting engineering firms?
- Mr ZENKE From memory, I think, about five.
- CHAIR What is the process used by the department to make its selection, based on -
- **Mr ZENKE** The selection is based on the submission. It is not based on price. You have a submission and you have assessment criteria. It is a quality-based assessment based on what services are offered, expertise as and track record.
- **CHAIR** I would be less than thorough in my questioning of you if I did not raise this matter. In response to an earlier question from me, you indicated, Ralf, that a wetlands outfall was considered, but that you had obtained expert advice that would not work in this particular environment. In response to a further question, you disclosed to the committee that advice came to you from GHD. Can I be reasonably crude in my assessment of that and suggest that isn't that Caesar appealing to Caesar? You have

GHD, who are going to design a solution to the problems raised. In terms of a wetland disposal process, you go to that same engineering firms and they say, 'Oh, that will not work.' Couldn't I be forgiven for even making a presumption that the design which we now have before us is a reasonably expensive design?

I accept, on the evidence you have provided, that it will achieve the outcomes being sought. But I think one could be forgiven for at least making not only that assumption but raising that as a question. How can this committee be convinced that it is not a process of Caesar advising Caesar, if I can be that crude? I don't mean that as a criticism, but this committee is tasked with the responsibility of, in the most rigorous way, challenging any project which comes before it as to proper expenditure of public funds.

- **Mr MOONEY** A series of events occurred which narrowed our ability to make decisions, and one of them was compulsory purchase of land. The land was purchased a while ago for this STP which did not involve multiple purchase of land. The particular wetlands-type technique you are talking about required up to four independent purchases of land to have that achieved. That was not considered, simply because we had already purchased a large block of land for the STP, so we had gone down the track a fair distance as far as a centralised site of an STP was concerned, rather than a number of individual sites.
- **CHAIR** Peter, the evidence to the committee earlier was that a wetlands process wouldn't work for this environment. That did not factor in in the evidence previously -
- Mr MOONEY The Environment division advice was that a wetland system wouldn't work.
- CHAIR But you have just indicated to the committee that -
- **Mr MOONEY** So that, together with the pre-purchase of land, was convincing enough evidence that a wetland system wouldn't work. The Environment division has the main State agency's environmental advisers. The nearest system is on King Island. It has a workable wetland system and the Environment division would have provided that information and they gave us their assessment on a wetland system, similar to the King Island system.
- CHAIR The Environment division?
- Mr MOONEY Yes.
- Mr ZENKE And we had a report from GHD done as well.
- **Mr MOONEY** So there were two separate advisers basically the GHD one and the Environment division.
- **Mr ZENKE** While that might not have been appropriate that GHD assessed that option, on the other hand GHD is one of the biggest consultancy firms in Australia and you would expect that they have some professional credibility and are going to maintain it, so they would obviously give us their advice as they see it, given the circumstances of where the plant is and all the rest of it. So taking their professional credibility into account, combined with all the other circumstances, I think the decision was taken to proceed.

- **Mrs NAPIER** I have a question in relation to the decommissioning of the current wastewater treatment plants, presumably it is the two that you pointed out before. Do they get removed? What does 'decommissioning' actually mean?
- **Mr DODSON** The plant that is owned by Parks is to be removed. There might be bits of it that they want to keep. There might be a building that they can reuse for some other purpose, and they may choose to leave that. The other treatment plant is a private plant. I think we have allowed an amount in the estimate to remove certain components of that, but I am not quite sure what that is.
- Mrs NAPIER So the private one is not allowed to continue to operate?
- **Mr DODSON** No, it can't. It doesn't meet the new environmental standards and it can't accommodate the flows from new developments et cetera. It has no capacity for expansion.
- **Mrs NAPIER** In terms of the 25 years from now that this is being built for, what is the capacity for growth in the area? Can we double the size of the existing number of holdings? When will we need to look at an expansion?
- **Mr ZENKE** Currently the maximum daily flow is around 225 kilolitres a day. We are designing for 350 kilolitres a day. We are taking into account that we could have two major developments like the lodge or Federal Hotels to reach the 350 kilolitres. That is the current capacity of the plant. The plant has allowance in terms of space for future extension of the plant itself, should the need arise.
- Mrs NAPIER So using the existing sites you could double the capacity if you need to?
- Mr ZENKE You could increase it from 350 kilolitres to 500 kilolitres.
- **Ms JUNGALWALLA** In the DPEMP the application has been made for 500 kilolitres. My understanding is that the pipework and the pump stations have been sized for 500 and that the plant has been sized a little smaller. But in terms of the all the environmental assessments and the potential flows, the footprint and so on, that has been established for the 500. So you can build the smaller one now with the understanding that the assessment has been made of the potential for that full 500.
- **Mr DODSON** That is basically right. The upgrade from 350 to 500 kilolitres is largely just adding equipment into the existing structures that will be built at the treatment plant. So it will be additional membrane sections, some additional pumps, additional aeration and an extra blower. There will not be much physical building work required or virtually nil. It is mainly just adding equipment -
- Mrs NAPIER Inside your existing structures?

Mr DODSON - Yes..

**Mrs NAPIER** - Presumably that is a list of expenses to make that expansion? Some would say that only two major developments is fairly tight. Then again, I guess we do not want

too many people trudging through the park anyway. You could argue to build the 500 now. For the record, can you say why the decision has been made for the 350 rather than the 500 kilolitres?

- **Mr DODSON** As Anahita said, the collection system, the pump stations and pipework, collecting the waste water and putting it up to the treatment plant, are all designed for 500 kilolitres. In the treatment plant there is a tank inside that houses the membranes and the aeration equipment, and that is all sized for 500. The dosing system is sized for 500. So to go from 350 now to 500, some extra aeration equipment would be added to that tank, and some extra membranes put in the tank, and a few extra pumps. That is basically all that is required. We do not have to rebuilt or duplicate tanks and do expensive things. That has all been done
- Mrs NAPIER So you could do it for \$500 000 or something like that?
- Mr DODSON Yes, that is right, that sort of order.
- **Mrs NAPIER** Where it goes along the roadside, where you can see it, presumably there would be an attempt to provide some vegetation to reduce the scaring impact?
- Ms JUNGALWALLA In terms of revegetation?

Mrs NAPIER - Yes.

**Ms JUNGALWALLA** - At the moment there is a program in place, as specified in the DPEMP and as a requirement for the permit, that the material taken from that area will be stockpiled on the site, retained and replaced. So the vegetation will be put back on. The soil will be stockpiled into horizons, the subsoil and surface soil, and put back on in the same horizons to increase the chance of revegetation. There has been a seed collection program undertaken and the local provenance will be used to reseed that area. Because it is a pipe it will not have any really big trees growing on it. That means that it can have lower growing shrubs and vegetation, so from a visual perspective it does not look like a scare. That has been built in and there is to be revegetation plan prepared as part of the conditions of the permit.

CHAIR - Thank you very much for the presentation.

### THE WITNESSES WITHDREW