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O/N H-966126

INDEPENDENT PLANNING COMMISSION

MEETING WITH APPLICANT

RE: VICKERY EXTENSION PROJECT

PANEL:	**PETER DUNCAN** **PROF ALICE CLARK** **PROF GARRY WILLGOOSE**
ASSISTING PANEL:	**MATTHEW TODD-JONES** **DAVID WAY**
APPLICANT:	**PAUL FLYNN** **TIM BURT** **MICHAEL VAN MAANEN** **BRIAN COLE** **GREG ROADS** **CHRIS THOMAS** **JOHN WASSERMAN** **STEPHEN BEARE** **ALEKS TODOROSKI** **JOSH HUNT**
LOCATION:	**IPC OFFICE** **LEVEL 3, 201 ELIZABETH STREET** **SYDNEY, NEW SOUTH WALES**
DATE:	**2.51 PM, THURSDAY, 6 DECEMBER 2018**

MR P. DUNCAN: So, formally, if I could welcome everybody this afternoon. Thank you for coming in. Before we begin I would like to acknowledge the traditional owners of the land on which we meet and pay my respects to the elders past and present. My name is Peter Duncan. I'm chair of the IPC panel that has been put together. Joining me are Professor Alice Clark on my left and Professor Garry Willgoose on my right. The other attendees at the meeting are – and, Paul, I will ask you to introduce people from your - - -

MR P. FLYNN: Yes. Thank you. Paul Flynn. I'm the CEO and managing director of Whitehaven Coal. I'm joined by our EGM of project delivery who is our project lead for the Vickery project, Brian Cole. Brian, and the rest of the team?

MR B. COLE: To my left we've got Mike van Maanen who is the EGM for business communications. And further – further down the end we've got Tim Burt who's our general counsel. On my left we've got Josh Hunt who is from resource strategies who have overseen the EIS. And then we will – I will just go through the - - -

MR FLYNN: Might be best just to get them to introduce themselves one by one. That might be easier.

MR DUNCAN: I'm happy if they introduce themselves.

MR COLE: Yes. Okay.

MR G. ROADS: Yes. Greg Roads from WRM. I've been looking at the flooding aspects of the project.

MR C. THOMAS: Chris Thomas from Advisian which is part of WorleyParsons group. I've been project director addressing the surface water assessment project.

MR J. WASSERMAN: John Wasserman. I'm from Wilkinson Murray and we did the noise and blasting assessment.

DR S. BEARE: I'm Steven Beare. I'm from ANALYTECON and I've been responsible for the economic analysis.

MR A. TODOROSKI: And I'm Alex Todoroski, Todoroski Air Sciences. Considering air quality.

MR DUNCAN: Thank you. And with us as well is David Way and Matthew Todd-Jones from the IPC secretariat. In the interests of openness and transparency and to ensure the full capture of information, today's meetings are being recorded and a full transcript will be provided and made available on the Commission's website in due course. As there a number of speakers, if you could please introduce yourself prior to speaking as I've previously mentioned. The meeting is one part of the

Commission's decision-making process. It is taking part at the preliminary stage of our process and will form one of – it will inform one of several sources of information upon which the Commission will base its decision. It's important for the Commission to ask questions of attendees and to clarify issues whenever we consider appropriate. If you are asked a question are not in a position to answer please feel free to take the question on notice and provide us some additional information in writing which we will then put on our website as well as the transcript. So with that formality I will now begin, and hand to you, Paul.

MR FLYNN: Thank you very much. And thank you very much, members of the IPC and secretary for making the time for us. We have invaded your office, of course, with a significant number of people. So to the extent that we're not able to cycle people through with the microphones that are there, they may just move here and we will rotate through.

MR DUNCAN: Yes.

MR FLYNN: I do want to make some opening remarks about the project itself and then I will hand over to Brian who will go through the more details specifics of our proposal. I would like to add our recognition of the lands in which we meet as well, being that of the Gadgial people, the Eora nation. Our business is actually centred in the Gomeroi lands, with whom we have a very close connection. But we do pay our respects to elders past and present here today.

So just on our Vickery Project – and a few facts and figures just on our company, if I could just start in that way, and I do have a presentation here. But Whitehaven is a listed company on the stock exchange in the top 100. We are the largest pure play coal company, independent coal company in the country. Whilst coal mining has a long history in our basin, we've been there for about 20 years, a business that started from scratch and has evolved through and, in fact, just passed our 10 years as a listed company.

We operate six mines in the Gunnedah Basin. We have an undeveloped deposit we bought recently in Queensland, but we do consider the Gunnedah Basin our home where our six businesses reside. We have a very good record, a strong track record in operating safely and in an environmentally responsible way, including, most critically at these times, valuable water resources. A little bit about our coal, if I could. The Gunnedah Basin has become synonymous with very high quality, low ash, low sulphur and very high energy coal, and, in fact, it's probably the best seaborne thermal coal you can buy in the marketplace.

It is powering advanced and developed nations alike right across Asia, and we are very well known for both this high quality coal and the Vickery Project, itself, would actually be the high water mark in that coal quality paragon, if you like. Its thermal will be as good as Maules Creek, which is, as I say, the best you can buy in the seaborne trade. Its metallurgical coal properties are even better than Maules Creek, and that's why we think predominantly it will be a metallurgical coal project. The

customers, actually, that we speak to – because this is an area that has been mined before – actually recall the Vickery coal quality and are very keen to see it return to market.

We are a growing company, and our growth aspirations are underpinned by what we see as the International Energy Agency's predictions for growth in coal consumption in our region in particular where they say there's a half a billion tonnes, more or less, of coal equivalent required in their outlook period out to 2040. Underpinning that, of course, there are 24 countries who submitted coal as part of their NDCs for COP21. Interesting at a time when COP24, obviously, is happening as we speak. Again, now, thermal coal in particular attracts a premium because of its high quality nature, and it is certainly 100 per cent aligned to consumption within the most efficient, lowest emitting power stations in our region.

As a company, we are committed to greater education awareness of our industry and creating understanding with the community and legitimacy and trust within that, and I will go into the underpinnings as to why we think we do that. This is founded on, obviously, identifying and developing very high quality resources which are long in life. That long tenure underpins the notion of value of sustainability, and that is that there is no notion of sustainability unless the community is behind you, and in order to promote that, we are focussed on long-term job creation. We focus our procurement very much on the local community, so there is an active business stimulus that occurs from our growth.

That long-term position that we have does mean that we are engaged in the business of capacity building. As a local employer, we must do that. And the length of these investments being intergenerational in their duration, allows us to build not just jobs and skills, but also infrastructure in the area. But also, we must – not just about the economics; it is about how we behave, and it is that, the behaviour, that actually will, through time, instil trust in us as a responsible member of the community over time, particularly with our environmental stewardship. And so beyond ourselves, we believe that we are creating an environment which will have an enduring impact well past the life of our mines, long as they are.

A few more specifics just on us, if you like. We are the largest single private sector employer in the region by some measure. We've got about a 1500-strong workforce. Over 70 per cent of them are based in the area. We're not a fly-in, fly-out business, don't support long-term fly-in, fly-out. That is our choice. We do that because we have viable communities in the region. We're not impugning that notion of FIFO in any way; it's just not appropriate for our setting. One in seven people in a working age actually work for us, so it's – we're quite a big component of the community, and in doing so, we've delved deeply into the Aboriginal community, which is eight or nine per cent of the population in our region. and now our company, five to six years later since we've started this initiative, we're now 11 per cent of the company as a whole, which is a standout in our – not just in our region, but certainly, I think, in New South Wales.

MR DUNCAN: Yes.

MR FLYNN: We invest heavily. So after last – the last five years, we invested 1.5 billion in the north-west. And, of course, it's not just about wages and royalties coming back to the state, and so on, the individual councils themselves have benefited with direct payments to the tune of $41 million over the seven years from '12 to '19. So we're very conscious of our community orientation and it's not just about having a proposition in words, you've actually got to measure how you're going. So we do do that. In fact, we've been measuring it over the last four years. So I've depicted here some of the sentiment towards the business, not just our industry, but our company as well.

And this is what our polling tell us: now, this is research that we commission every year which goes to not only focus groups and direct interviews, but statistically relevant polling throughout the region. And what this tells us is that the blue at the top of this, over this 2015 to 2018 period, the blue is consistent. People who align to what you do. They've been consistent through that period. And – but the interesting part is actually at the bottom. When you look at brown shades there, what we've been able to do with the right orientation, the right focus on the community, has been to convert people who perhaps weren't potentially aligned with what we do, or indifferent to it. To actually put them into the neutral basket, which I think has been very positive for us. So overall, our favourability, or the view of the company awareness obviously increased. You can see from the top line the aware has been consistent right through the period. It's just how they feel about us that has changed.

MR DUNCAN: Yes.

MR FLYNN: So if you see again, there is a differential between the two LGAs that we most impact. And if I look at the 70 per cent of our employees and the 1500-strong workforce, it's about 70/30 between these two LGAs. So you can see the impact of them. Historically, actually, Narrabri has been the one that has benefited – the Narrabri LGA and its council has benefited directly from payments to them.

MR DUNCAN: Right.

MR FLYNN: But is actually where the employees are embedded, which is more disproportionately based towards the Gunnedah side where the sentiment is highest. I think that's – that makes sense in terms of where the people are spread.

MR DUNCAN: Yes.

MR FLYNN: But overall, very positive and we're – this is work in progress. We continue to work on it, but we will continue to measure also.

MR DUNCAN: Okay. Thank you.

MR FLYNN: The Vickery project itself, is predominantly, as I say, a metallurgical coal project. The coking properties will be the high water mark of this basin. So this is very much anticipated by the market. In aggregate jobs between construction and enduring employment, that we think there is about 500 during construction and 450 enduring. The net present value of wages in the community they're at 244 million. The indigenous community, I think, again, will be a focal point for us. We've done so well in this regard. We will make the same commitment we made with Maules Creek that we wanted to get 10 per cent of our workforce within five years.

As you can see we made that commitment with Maules Creek. We've surpassed it, because it's now 11 per cent of the whole company. But we see it's an appropriate thing to continue on that path of good work. The government, obviously, will benefit from this, as should the people of New South Wales, with royalties alone. The net present value of that being $671 million. So quite significant. And that's good money for schools and hospitals, all the services the government provide, particularly when other areas, as we're saying here, stamp duty and others, may be declining in the backdrop currently. It's good for exports. There's no doubt about that. We are an exporting business.

We don't sell coal domestically, but for a very small amount for some boutique users. So this will be, again, another export story. Customers are first, as I say, to receive this coal again. So we're very keen to be able to deliver it to it. It will be good for the local environment and also the amenity of the community. Some of the key changes we've made between what is already approved at four and a half million tonnes to the 10 million tonne version of this, are quite significant changes for amenity and the environment. I've noted a couple here. The closure of our Gunnedah plant, which was out of town, but because the town has grown, as we have, we feel it needs to be moved over time and we would relocate and build a state of the art on the Vickery site.

That would allow us to then process on site. We will be – we will be then railing coal straight to the port of Newcastle which allows us then to remove coal haulage of public roads which we think is a fantastic benefit for the community. And the current mined area which as we know has been mined in the past, there are five voids there in the footprint as it resides today. We would like to collapse that into two. We think again which is a superior final landform after our mining activities. And, of course, Whitehaven gets bigger and stronger. It makes a more diverse and stable environment for the community. And I think at this time when agriculture is doing it tough there's no doubt we're playing a critical role in underpinning still a growing environment in our community. So that's all I wanted to say, so I will hand over to Brian.

MR DUNCAN: Thanks, Paul.

MR FLYNN: Sorry. Before I get to that, just I will – if I could indulge you. We have got a small movie which I wouldn't mind you playing. This is not specifically made for this purpose, actually, but what it is it's – we made it a little while ago and

it tells you a little bit about our company and the opportunity that the company represents for local people. And it's actually in their words. So if you allow us to indulge us for a couple minutes, we will play this.

MR DUNCAN: Just a quick question on the presentation, will you make that available to us as part of the process?

MR FLYNN: Yes, of course. Yes, of course.

MR DUNCAN: Okay.

MR FLYNN: We've assured that everything today was available for you.

MR DUNCAN: Yes. Thank you.

VIDEO SHOWN

MR FLYNN: Just a few words from our employees - - -

MR DUNCAN: Okay. No. Thank you.

MR FLYNN: - - - a few of our people and some community members. One further thing I had omitted to mention in my opening remarks, and I think it is important and I would like to highlight it here, is that – well, it's not only, obviously, the community members and shareholders of the company who are obviously keenly interested in the progress of the Vickery Project. We do have significant foreign interest in this project as well and, as you've seen, our model in the past has been to incorporate some equity participation in the projects with end users.

Expressions of interest, particularly out of Japan, Korea and Taiwan, is very strong in this project because of the high quality thermal coal it has, but, in particular, they know that this metallurgical coal is, as I say, the high watermark of metallurgical coal in our basin. So I do make that comment, because it is our intention to use that model again with this project, despite the fact that the company is fully funded and could fund 100 per cent of it itself. Thank you.

MR DUNCAN: Okay. Good. Thank you. Thanks, Paul. Brian?

MR COLE: Okay. Well, Brian Cole is my name. I'm the executive general manager for project delivery and, as Paul said, I have carriage of this particular project. Thank you for the opportunity to provide a briefing on the Vickery Extension Project. In this presentation, I intend to touch on the key elements of it, as expressed in the Vickery EIS. In addition, we have key specialists who are engaged by Whitehaven to undertake the impact assessments in accordance with the SEARs that were issued by the Department of Planning and Environment. Those specialists

will seek to brief you on the key aspects of the studies that they have undertaken. Now, what I would like to say also is, look, we will seek to respond to your questions, but, as you would understand, the EIS is a comprehensive and detailed document and, out of respect for that document, we will reserve the right to take any of our questions – any of your questions on notice.

MR DUNCAN: Yes.

MR COLE: To set a bit of context, I will give you a bit of a description of the site. I'm not sure how familiar you are with the actual Vickery site, but it is a site that's located some 20 kilometres north of Gunnedah, or roughly 15 kilometres south of Boggabri. It's a former mining site, with mining commencing in the 1980s and ceasing in the late 1990s. Therefore, the site is heavily disturbed – or has been heavily disturbed over time, with multiple mining voids remaining on the site as a result of the open cut mining. The Vickery Coal Mine, referred to as the approved mine in our presentation, was approved in 2014.

It has not been developed to date, because, following the acquisition of what was known as the Vickery South deposit, we re-scoped the project to attempt to achieve a better outcome; a better outcome in terms of efficiency of mining activities, but, as Paul has indicated, a better outcome in terms of impact on the community, which, you know, has been a passion of Paul's in this whole process. Nevertheless, it's intended to move forward with the approved project during 2019. As Paul has indicated, the coal quality of the Vickery Extension Project is very good and can be marketed primarily as a metallurgical coal, supplemented by high energy thermal coal, which is becoming increasingly important throughout Asia.

As the name indicates, the Vickery Extension Project is an extension to the approved mine designed to deliver improved outcomes. The extension areas are shown on the slide, which are basically the areas that are coloured yellow. They comprise an extension to the open cut basically into the Vickery South deposit, which was immediately south of the Vickery deposit. It also encompasses some extensions to the overburden emplacement area. It also covers the rail spur; it covers the infrastructure area on site, which, as Paul has already indicated, will be a processing plant located on the site, and it includes a borefield to the north of the site.

During the development process, we did look at reopening what was the Blue Vale open cut. That was one of the sites that had been previously mined by Rio Tinto and remains as a void at the moment. There were six or seven million tonnes of coal there that could be mined, however, in our discussions with the community during that development phase, they did express concerns about the proximity of the pit to the Blue Vale void to the Namoi River. And even though the modelling that we had done, and quite extensive modelling, quite extensive ground investigations, had indicated that there was no threat to the Namoi River, in taking on board the comments that have been made and the feedback, we elected not to proceed with reopening the mining of the Blue Vale pit.

And I think that represents a clear demonstration of the fact that Whitehaven is prepared to listen during the development phase for the project to the concerns that the community were raising. Any projects of this nature, of course, involves a lot of consultation with the local community. And we've certainly undertaken that over the last few years with, you know, members of the local community, landholders, business groups in the area. We've run a number of community information sessions in Boggabri, Emerald Hill as well as in Gunnedah and also on site. We have a community consultation committee that has been set up under the approved mine and we've been running regular meetings with that body. But we've used that as a vehicle to also talk to the community group about the various aspects of the project.

During the EIS period you will understand the EIS went up on the website, but some people prefer to actually see the document themselves and have a chance to read it. So we made copies of that available, and as you know it's four very large folders. But we had a number of extra copies printed and personally handed those out to people, gave them briefings where they asked for them. In addition to that, we extracted sections of the EIS that related to particular land holders. The ones who were in the close proximity to the mine so that they could see the bits of the EIS that related directly to their particular situation. So we handed those out to people, gave them briefings where they asked for them. As has already been indicated, we've backed up the consultation with the qualitative and quantitative surveys of general community sentiment. And that has been able to inform us on some of the activities that we've undertaken. We've also done a social impact assessment that is required under the SEARs that we operate under and followed the Department of Planning's guidelines in that regard.

A key element of the project is the rail spur. As we've indicated that provides the opportunity for us to take coal trucks off the Blue Vale road and it also lends itself to processing on site which, of course, in our view creates significant benefits to the community. We've located the rail spur as in the proposal on largely Whitehaven land. For obvious reasons. In the case where private land is involved we have access agreements with those land holders and they are quite agreeable to the rail spur progressing across their particular property. During the conceptual design phase of the project we looked at a whole series of alternative corridors, including one that links to the north to the existing Boggabri Maules Creek rail spur. It brought with it a range of issues that we looked at in a lot of detail. Some of those issues include that there would be congestion on the common section of that rail spur. We didn't – we're a shareholder in that. We don't have access to the whole thing. We only have our share and there wouldn't have been enough for us to accommodate the tons that we were looking to produce.

There also was some offset areas in the alignment area which were going to create some particular issues from a biodiversity point of view. Of course, the other obvious aspect is it pushes more trains through Boggabri. And, you know, I don't know whether you know Boggabri or not, but the train line runs, you know, basically through the centre of town and there are people living quite close. And, of course, you've got the increased travel distance between the mine and the port which is a

significant consideration as well. So the rail spur does bring with it some issues, you know. We can't ignore that and we've certainly investigated those very – in much detail during the EIS phase.

The – as part of the Maules Creek project, we built a rail spur across the floodplain. So, as a company, we have experience in doing that sort of structure – or building that sort of structure – designing it and having it built. The – in this case the superstructure is proposed to be similar to the existing Maules Creek rail spur. And by the way, when you're up there for the site visit, we will take you up there and show you that, in case you haven't seen it.

MR DUNCAN: Thank you.

MR COLE: The location chosen was in – where you had private properties involved, was chosen in consultation with the landholders so that they could continue with their agricultural business and operate, you know, quite effectively with the rail spur being there. The closest existing dwellings are located on one property which are between – somewhere around 500 to 750 metres from the rail alignment, with all other dwellings located more than, approximately, 800 metres from the rail spur. Noise modelling that was undertaken – and John will talk about that soon – confirmed that there would be no – there would be compliance with the relevant noise criteria for private rail spurs predicted on all existing private dwellings.

The other aspect, obviously, that has been raised is: is it going to impact upon flood flows across the floodplain? And the answer to that is we're not going to be able to do that. It's – the floodplain, quite sensibly, is well controlled and the flood modelling confirms that the concept design complies with the Namoi Floodplain Management Plan. Further to the modelling for the EIS, optimisation of a design and constructability has resulted in a decision being taken to elevate the section of the rail spur to the west of the Namoi River all on piers.

MR DUNCAN: As shown in the slide.

MR COLE: Yes. That's right.

MR DUNCAN: Yes.

MR FLYNN: You will see that when you visit up there.

MR DUNCAN: Okay.

MR FLYNN: The other example of this we've constructed in the past.

MR DUNCAN: Okay.

MR COLE: You will all be aware that we're living in – we – the agricultural sector is under extreme stress at the moment because of the drought, and projection of water

resources is a fundamental issue and particularly in the Gunnedah Basin. You know, it is an important natural resource and we have to pay very strict attention to that and, of course, that's what we want to do. We want to work hand-in-hand with our agricultural partners. So we've, therefore, undertaken assessments of the – both surface water, groundwater impacts during the EIS process. The – those particular impacts had been closely studied for the approved mine, and if you think about the changes that we've made for the Vickery Extension Project, which really largely relate to the rail spur and the infrastructure on site, there is a small change to the, obviously, mining footprint, but those particular aspects of the approved mine were considered to be acceptable because the approved mine was obviously conditioned.

o in undertaking the assessment of the extension project, considerable subsurface investigations were undertaken to verify that the alluvium – because the landholders in the area that are extracting water for the agricultural pursuits are taking them alluvium, and we wanted to check to see whether there was any connection as – because, obviously, we needed to be able to assess what impact there might be, and we did that and what we were able to demonstrate was that the mine basically lies on what has been termed an island of rock and, therefore, we do not intersect the alluvium, and as a result the inflows to the – that may affect the Namoi River or the quality are basically the same order of magnitude to the approved mine.

The other aspect of any mining project these days is the final landform. And compared with the approved mine, the final landform that we've been able to achieve is significantly improved, we believe, including the reduction of a number of final voids. Compared with the approved mine, which has two final voids of some 490 hectares extent, the extension project ends up with one final void of 250 hectares. Modelling confirms that the final void would act as a groundwater sink and capture any salinity that's – from infiltration from rainfall. The Department of Planning and Environment, in its issues paper, has commented that the proposed final void appears to be a considerable improvement on the approved final void, in terms of number and catchment area of the voids and the long-term groundwater inflows.

In terms of the shaping or sculpting of the final void, you know, we intend to use micro-relief to incorporate that into the design to assist in developing a stable landform. We intended to progressively rehabilitate the overburden dump as is the practice these days in mining projects. We intend to do that with native revegetation and areas suitable for agriculture. Our thinking with that is that immediately to the west of the Vickery Project you have the Vickery State Forest and what we were looking to do was basically extend the vegetation from the forest through to the Namoi River. Of course, that will be subject to discussions with OEH who basically are the ones that we will negotiate with over the biodiversity strategy. The other aspect of it is that in terms of emplacement area, it's actually – its height will be such that it will be of a lower height than what the ridge line is for the Vickery State Forest, and it will be something you will see when you're out on site.

In terms of agriculture and biodiversity, as I say, the site has been heavily disturbed over time by both agriculture and mining activities. As a result – you know, most of

the vegetation has been removed over time by farming activities and as a result there's really limited remnant vegetation on site and it's basically isolated to, you know, a few trees here and there, again something you will be able to see when you're on site. Of course, the disturbed mining areas have been rehabilitated by Rio as part of, you know, finishing up on site. The other aspect which is, again, importantly today, in the context of how mining relates to agriculture, is to do with V-cell or high value agricultural land. The studies showed that there's none of that within the Vickery Extension Project footprint and we were able to get the certificate in the early stages of the EIS. Much of the vegetation actually on site is actually regrowth, in terms of now what's native grassland.

So we've developed a – what we consider to be a feasible and appropriate offset strategy where we've applied the methodology that's set out these days with the calculator, etcetera, and it has been subject to ongoing dialogue with OEH. When we submitted the EIS, we've been in constant dialogue with them to date and we expect that that will continue where we move towards reaching some agreed biodiversity strategy. And, of course, one of the other things that we were very keen to do was – in any of the deliberations over the footprint for the project was that the Vickery State Forest remained untouched. So that's certainly something that we've sought to do.

I now want to move to, I guess, some of the more detailed presentations on the EIS. The specialist that we've engaged will now present a summary of the work that they've undertaken. They've been chosen based on their track record in mining-related assessments. One of the specialists that could have been present is Dr Noel Merrick who is the groundwater specialist. He happens to be overseas at the moment. He undertook the groundwater assessment for the approved mine, so he is very, very familiar with the site and has operated quite extensively on mining projects throughout the Gunnedah basin as well as obviously other areas.

That groundwater assessment was reviewed by Kalf & Associates and, again, you would be able to see that in the documentation. The DP&E peer review for the groundwater assessment commented overall a methodology is consistent to be best practice and, again, you will be able to study that at your leisure. What we're doing, of course, is that the comments that have come through from the agencies on the groundwater work and on the other specialist studies – we're in the process of responding to them as we will with the peer reviews, so that will be something that will happen. Dr Merrick can be available if you require at another time or else any particular written questions, I'm sure that we will be able to respond to.

MR DUNCAN: I appreciate that offer and we may need a follow-up meeting. This is early in the process, so - - -

MR COLE: Sure.

MR DUNCAN: - - - that would be helpful.

MR COLE: Sure. So, look, I will now turn to the specialist and we will lead off with Greg Roads on the flood studies.

MR G. ROADS: Thank you.

MR .....: .....

MR ROADS: I might go down the other end.

MR .....: Why don't you move up here?

MR .....: .....

MR ROADS: Thank you very much, but – yes. My name is Greg Roads. I'm a director of WRM Water Environment, a specialist water resource company based in Brisbane. I've got 30 years experience as a water resource engineer specialising in flood plain management. First 10 years were with the New South Wales Department of Water Resources and the Department of Land and Water Conservation in their rural flood group, and whatever they are now, I'm not sure. OEH, Water New South Wales or wherever – nobody knows.

MR .....: What's the name this week?

MR ROADS: I'm not sure. Lot of experience in the area. I'm doing the flood plain management plain for Narrabri. I finished their flood study for Narrabri Shire Council. I've just finished the one for Moree Plains Council, so I guess I understand big flood plain flood studies and how they behave, I guess. I also do undertake quite a few peer reviews for the New South Wales Office of Water to assess their rural flood plain infrastructure for – that farmers want to build. The peer review or the flood study was undertaken by Rohan Hudson from Royal Haskoning, and he has got 18 years experience as a water resource engineer.

He also has experience in peer reviews for government. So what Whitehaven asked me to do was to assess the potential impact of the project on the existing flooding characteristics of the Namoi River flood plain as well as the adjacent tributaries. Obviously one of the biggest issues for the project was going to be the rail spur, so the flood modelling that we developed for the project was going to – or prepare a concept design for that rail spur that would satisfy and achieve compliance with the flood plain management plan criteria that's in place. This is a declared flood plain that's managed under rural flood plain management plans developed by OEH. Just the key conclusions of the study is that the project mining area is located beyond the Namoi River flood plain. Other than the rail spur, they've – the – all the mine infrastructure is outside the probable maximum flood extent. The rail spur that we've developed for the concept design complies with all the relevant FMP requirements.

And those FMP requirements are, effectively, negligible afflux, negligible change in velocities and negligible change in distribution flow for a flood event – historical flood event which is about the 1984 flood. To put that in context, that's about a 10 to 20 year flood. The mine – Whitehaven has decided to up that criteria and achieve the same criteria for a one per cent AEP flood which, to put in context, is about three times the size of the design flood event in the FMP. We developed hydrology and hydrologic models of the Namoi River floodplain and this just shows you the depths of flooding across the Namoi River floodplain for the one per cent or that one in 100 year flood event. As you can see, the depths – the scale of the depths you can see on the right-hand side.

The Namoi River flows from the bottom of the page northwards. As you can see, the Namoi River is basically along that eastern side of the floodplain. There's a flood channel on the western floodplain that's called Deadmans Gully. There's also – there's a creek coming in from the western side, Colliger Creek and there's also a tributary at Stratford Creek – Stratford Creek on the southern side of the mine – the project area. There's also a channel called Driggle Draggle Creek on the northern side of the floodplain, as you can see. It's a bit fancy. Driggle Draggle, Stratford. These – Stratford Creek and Driggle Draggle Creek – they're about 100 to 200 square kilometres. In contrast, the Namoi River is about 17,000 square kilometres. So you get different flooding. Different hydrology mechanisms causes floods in the two systems whereas Stratford Creek – you will get a rainfall event and they will respond within probably six to 12 hours whereas Namoi River – it will rain and then two days later the flood event will turn up.

And generally it will be what's called a sunny day flood in this particular area. And as a result of that, floods from Stratford Creek and Driggle Draggle Creek generally would occur either the day before a flood event if the rainstorm was produced at the same – within the same meteorological event or you would get one occurring here and you wouldn't get one in the Namoi. Or vice versa, you would get one in the Namoi and not necessarily one in the local catchments. Flood depths across the Namoi River are about a metre, a metre and a half depth. You get some shallow areas in places like this across the floodplain whereas the river itself is about eight metres deep.

In contrast to the local tribs, they're – they basically travel more as broad overland flow parts due to the soil types in the area with very minimal channel definition and flows basically flowing as an overland flow path. It's just the nature of the floodplain out there. So as I said, one of our jobs was to come up with a design that satisfied the criteria of FMP and what we came up with is this – or the best option was to have sections of elevated structure, as you saw in the figure in Brian's presentation, as well as embankment sections. And if you go back one section in there, the embankment through here – these sections of embankment – if you look back in here, this is the shallow flooding through here, so we thought, well, that was probably an obvious place to put embankments through here.

So this is basically the design that we – that was adopted for EIS, with embankments, with 100 per cent blockages through here and an elevated structure through here which had the superstructure, as in the rail component. That was above the one per cent AEP flood plus freeboard with piers coming down. The assumptions we have used for the piers is a – used a blockage factor is how the modelling works. So it assumed a five per cent blockage underneath the superstructure. Now, put that in context. That's a pier – a one-metre pier every two metres. And as you can see, when go out there and you have a look at the Maules Creek, that's obviously a much wider expanse between the piers out there. So it was just something to use for the assessment purpose.

Obviously, you will get it wider through there, because the piers won't be in the river, and then you will get the Stratford Creek coming through here. So that's the design that we've used in the – in the – for the EIS. And, as you said, there's the – that's the conceptual layout of what the elevated sections would be. The embankment sections ..... to the embankment sections that's on the – the rail, the – the northern – north-western rail which this would connect into. The flood modelling we did, I showed you earlier what the existing conditions flooding were, so we were able to put the – the rail into the model and then to run it through all the different design flood against – flood events again.

One thing that the flood models are very good at doing is, is assessing impacts. If you do everything else exactly the same and the only thing that's different is the infrastructure or the asset that you're trying to assess, it should by rights assess the impact of that infrastructure quite well. So in this particular figure I'm showing the differences in water level between the existing and proposed bridges, and strangely enough the embankment sections is where all the impacts occur, here and here. Those impacts, if you can see the scale up there, you've got – you know, a point 2 metre impact right at the – at the embankment section, and that extends down to less than five centimetres about a kilometre upstream. So this is a pretty big floodplain, it's about 10 kilometres wide.

More importantly, the bridge showed that – by having such elevated sections there was very little impact on velocity because the obstructions – they're so minimal and, even more importantly again, the – there was no real change in the distribution of flow. The amount of water that comes through the river is pretty much the same. The – there's a – the majority of the floodplain flow actually occurs across the floodplain, and if you have a look at the figure before, Driggle Draggle Creek – although it's called a gully – actually carries very little flow because it's kind of somewhat perched. That's where the majority of the flow comes through section, in there.

A little bit comes through there, from that Stratford Creek side, as well. So that's – basically, it satisfied the criteria of the floodplain management plans that are in place. There's the 2006 Carroll to Boggabri Floodplain Management Plan, which is still in place, which is done under part 8 of the 1912 Water Act, and it is being replaced by the Upper Namoi Floodplain Management Plan, which was prepared in 2016. The

assessment of the performance criteria in the two studies are different, but effectively from a hydraulic point of view they're pretty much the same. And that's based on changes in distribution of flow, increased in velocity and ..... and impact on key infrastructure, such as houses.

So the design that we've come up with satisfies and obviously far and away exceeds it, given that we're going up to the one per cent ..... event. Obviously, the detailed design has yet to be done. The final height and size of those spans and piers and ..... be determined during detailed design, obviously in consultation with OEH. As Brian told you earlier, the – Whitehaven have now committed to removing the embankment sections on the western of the rail, and that would obviously mean that these impacts at this location here would then basically look like everywhere else, so you will have just literally those sorts of impacts associated with the embankment on the eastern side of the rail.

PROF G. WILLGOOSE: What are those green – two green spots? They're – they just from the photograph, or - - -

MR ROADS: These green spots here?

PROF WILLGOOSE: Yes.

MR ROADS: Are off stream storages for the local farms.

PROF WILLGOOSE: Okay.

MR ROADS: So they're embankments that are already two metres proud of the floodplain.

MR COLE: They're extracting groundwater, Garry, and they put it in the - - -

PROF WILLGOOSE: Yes.

MR ROADS: So there's a couple there and there's - - -

PROF WILLGOOSE: .....

MR ROADS: - - - also a couple on – that's all irrigation paddocks there, and there's a couple on this side as well. Yes. So just the key conclusions again. As I said, the actual main assets of the infrastructure are the minor off - - -

MR M. VAN MAANEN: You skipped – sorry, you skipped two, Garry, so go back one more.

MR ROADS: Sorry. I skipped two? Bit fast there. Yes. As I said, had two peer reviewers, Whitehaven engaged Royal Haskoning to do a peer review, and they said that the flood modelling that we did was taken in accordance with best practice. And

you guys have obviously had a peer reviewer as well, WMAwater, and they also said that the modelling is undertaken with industry best practice.

MR DUNCAN: That's the Department of Planning.

MR ROADS: That's Department of Planning, sorry. And they – the DBE best practice did come up with a few suggestions to make it more readable, I guess you could say, and those – and those responses will be responded to in – in Whitehaven's responsive submissions. Just to summarise the key conclusions, yes, as I said the main infrastructure areas is beyond the Namoi River floodplain, as ..... other than the rail spur, and the conceptual design that we've done – got for the rail spur, that's obviously going to be improved during the detailed design stage. It currently shows that there's negligible floods for the one per cent, negligible chance in velocity, and negligible change in the distribution flow.

MR DUNCAN: Thank you. Any questions at this stage, Alice or Garry?

PROF WILLGOOSE: The only question, I guess, is the calibration of the floodplain model itself.

MR ROADS: Sure.

PROF WILLGOOSE: I mean, there was some mention in one of the reports that I read – not the EIS – if it being calibrated to a historical event.

MR ROADS: Two.

PROF WILLGOOSE: Two historic events.

MR ROADS: Yes. That's – it's a loose term.

PROF WILLGOOSE: Yes, okay.

MR ROADS: They're – with the – the Carroll to Boggabri Floodplain Management Plan, they did a calibration of the ..... model, that goes all the way from Boggabri to Carroll. In that study, they had a range of – of ..... for the 1998 flood, as well as the 1955 flood.

PROF WILLGOOSE: These are measured as opposed to modelled?

MR ROADS: Surveyed debris marks, which they - - -

PROF WILLGOOSE: Okay. So - - -

MR ROADS: - - - were able to – and keep in mind that that's – I think the study was done in the turn of the century, in 2000, picking up people's recollections of what happened in 1955.

PROF WILLGOOSE: Sure.

MR ROADS: As well as in 1998, which was still one in – in close memory ..... only give us six or seven points there, we got for the 1998 flood. Only one or two points for the 1955 flood.

PROF WILLGOOSE: Yes.

MR ROADS: So we have calibrated the model to those events. To put in context, we also calibrated both of those events for Moree and Narrabri, as well. And Narrabri, which is on the Namoi, so the flows that we're using for our – ours – for those historical events are pretty consistent with the Narrabri study.

PROF WILLGOOSE: And then the elevation data you've used is altimeter data?

MR ROADS: There's a range of – a range of information. There was the original data that was used for the Carroll to Boggabri study, there was LIDAR obtained by OEH. There were some issues with that one. So over time with – Coalworks originally did some photogrammetry work for the work we did for Vickery South. Whitehaven have undertaken two more additional LIDAR runs to extend our data set. The – where the actual rail is, is based on the – the photogrammetry/LIDAR – I can't remember which one it was that we did for Vickery South ..... rail spur option. So there's a range of it, and the best information available has been – is being used where possible.

PROF WILLGOOSE: If I - - -

MR DUNCAN: Yes, I've got one too.

PROF WILLGOOSE: One very quick one. Could we go back to a picture of the – of the water levels for - - -

MR ROADS: Yes.

PROF WILLGOOSE: Yes, that one there.

MR ROADS: Yes.

PROF WILLGOOSE: So ..... so the flow is from bottom to - - -

MR ROADS: South to north.

PROF WILLGOOSE: Bottom to top, yes. Okay. So I'm just looking at – okay, the square pattern, which is probably a result of fence lines and that sort of thing in your model. Why is it that on the upstream side the water levels are lower than they are on the downstream side?

MR ROADS: A little bit of laser levelling.

PROF WILLGOOSE: Okay. So it's – it's actually the topography itself is actually modified.

MR DUNCAN: Land use.

PROF WILLGOOSE: Okay.

MR DUNCAN: Could I have one further question, then. I think where you've referred to – I thought it was the 1994 flood is the one in 20 year flood.

MR ROADS: 1998, yes.

MR DUNCAN: Okay. The wrong year. But the – so what was the '55 in that - - -

MR ROADS: About one per cent.

MR DUNCAN: About one per cent. Okay. Which is what your flood event - - -

MR COLE: The '55 is generally considered the - - -

MR DUNCAN: Yes, okay.

MR ROADS: - - - one in 100 year event for New South Wales.

MR DUNCAN: Yes. Okay. Good. Nothing else? Thank you.

MR COLE: Thank you. We will now pass over to Chris Thomas, who will cover the surface water aspects of the project.

MR C. THOMAS: Thank you very much. My name is Chris Thomas. I'm principal and practice lead at – our practice lead ..... water resources at eVision which is the consulting arm of WorleyParsons. I have been the project direction responsible for the surface water assessment for the Vickery Extension Project. A little bit of background about me, I've got 30 years' experience as a water resources engineer, and I'm practiced in all facets of water resources ranging from floodplain management, catchment and flood hydrology, surface water management, surface water/ground water interaction, water balance, dams, and water quality analysis.

During that period, I've been the principal hydrologist responsible for a number of surface water assessments for a range of New South Wales coal mining projects, including the Ashton, Moolarben stage 1, stage 2 mines in Mt Arthur in the Hunter Valley. I've also undertaken a peer review of surface water assessments for a range of projects, including quarries and mines. Most notably, more recently, the Bylong Coal Project. I'm actively involved in the water resources sector, immediate past chair and long-standing member of the Sydney division of the water panel of

Engineers Australia. Our report was peer-reviewed by Professor Tom McMahon from the University of Melbourne.

It's worth noting I've just flown in this morning from the Hydrology and Water Resources Symposium where Tom was lauded amongst the group that was there as being one of the most eminent hydrologists in Australia over the last 50 years. At the outset, it's worth pointing out that the project is an extension to the – it's worth pointing out it's an extension to an approved mine. There's some incremental impacts, but the extension of the approved mine into the ..... south area has had minimal impact on any of the surface water management regime. The western placements, no closer to the Namoi River. There will be a reduction from two final voids to one with associated reduction in the final void catchment area.

And overall, there's no additional impacts compared to the approved mine. In terms of the surface water management assessment for the extension project, we set out to undertake or address the number of primary objectives. The principle of that was to develop a water management system and a water balance for the project life of the mine which firstly demonstrated there is sufficient water to meet mining needs while at the same time demonstrates that water inflows can be effectively managed. In addition to that, we set out to assess the impacts of any changes to the water flow and quality in the receiving environment.

The key outcomes from that was that we were able to develop a water management system that's designed in accordance with relevant guidelines and which prevents the release of mine water offsite. The water balance demonstrates that Whitehaven's holds sufficient licences for the life of the mine, and that the potential downstream impacts on water flow and water quality are considered to be negligible. Before I drill into some of the detail associated with the analysis, it's worth understanding and getting a bit of context about the existing environment in the context, I say, of water flow and quality. At a regional level, we have the system – the area effectively drained by the Namoi River which is the major artery through the valley.

It's a regulated river which has a number of dams upstream, namely Keepit, Caffey Dam and Split Rock Dam. Locally, in the vicinity of the site, we have intermittent streams which are the primary drainage paths which very rarely flow, and the photos on the right-hand side are characteristics of those streams. I think Greg has mentioned a few of them. Some of these streams are difficult to identify when you're on site, and you will see that when you're there. When we talk about quality, water quality, the mining companies have undertaken a range of previous monitoring of the areas around the mine site and also on the Namoi and, typically, we're finding under – average conditions, but the water quality is characterised by low electric-conductivity or salinity.

pH is within guideline values for ANZECC criteria, and total suspended solids are at typically acceptable levels, except perhaps after you get major storms or a ..... river which is what you'd expect in this sort of environment and reflective of the colour of the water you see in the photo on the left-hand side. In terms of the detail, the water

balance model was undertaken to assess the performance of the water-managed system in terms of the capacity to ensure security of the water supply for operational purposes.

In order to look at the frequency and volume of any potential discharge from the mine site through the life of the mine, and to provide a tool which could be adapted and used as a – for monitoring and management into the operational phase of the mine. In addition to that, we undertook a separate water balance analysis to assess the long-term water level and salinity in the final void following mine closure. So in terms of the water balance modelling results, similar to the approved mine, the proposed water management system will operate effectively and meets the requirements for coal processing dust separation. Water balance modelling indicates that the system is capable of operating with no discharge of water that has been in contact with coal, that is, the mine will function as a nil discharge mine.

Sediment dam releases that might be required from time to time to restore dam capacity within five days of rainfall event succeeding that design capacity would occur as what we've – what are termed control discharges. This is in accordance with the standard practices outlined in the blue book published by Landcom in 2004 and would be in accordance with contemporary environmental protection license conditions. There's no significant changes to the quantity and quality of service water available to third party users or to the environment. There will be no risk of overflow from the final void following mine closure, and while the salinity in the final void is expected to increase progressively with the accumulation of salt, the modelling shows that it will take many, many years for that to manifest.

In terms of an assessment of the impacts in relation to the Namoi River, again, one needs to put in context what the mine will involve in terms of its aerial footprint relative to the overall catchment. So there's some minor catchment reduction during the mine life of up to 2.5 square kilometres, and following completion of the mine, of a little less than that, and that effect is that that's about .01 per cent of the total catchment to the Namoi River. There will be approximately nine square kilometres of rehabilitated waste rock and placement area which will drain towards the Namoi River. Notwithstanding all that, there will be no perceptible measureable change to the flow regime expected on the Namoi.

In a similar matter to the approved mine, we do not expect to be any change in the overall water quality of the Namoi River due to, primarily, the measures that are going to be put in place to protect the quality of water that will be discharged or make its way from areas around the site to the water courses that surround the site, and those are those same water courses I showed in the waters, the ephemeral intermittent streams. With regard to those intermittent streams, the water quality, in particular, is of concern and of note, and what we've established by way of the concept that we've put forward is that all water in contact with coal will be retained on site, so it won't get to any of those surrounding streams. Sediments, they will be captured on site or around the perimeter of any placement we control by being stored within sediment dams.

If there is any discharges from those sediment dams that might be required during episodic events, prior to any of that discharge, those sediments would be allowed to settle. Usually by the aid of a flocculent to ensure total suspended solid concentrations are maintained at less than 50 milligrams per litre, and that's consistent with existing environmental protection licence issued for nearby mines like Maules Creek Coalmine, Tarrawonga and the Boggabri Coalmine. In the case of wet weather and discharges to restore the sediment dam capacity, these would be undertaken in accordance with an EPL, which would specify water quality requirements and limits, including monitoring and discharge requirements.

Finally, it's worth noting that gypsum would be used to treat any areas of the final waste rock emplacement that might exhibit some erosion at the face of that during its rehab. So, in summary, implementation of the sediment control measures would ensure that any control discharge would have minimal impact on the water quality of the local watercourses that surround the site. This plot shows the final landform. I'm not sure the contours are – I've got my glasses here. I can see them now, yeah. It shows the final landform. And it's worth nothing that that final landform has been – incorporated conceptual drainage systems. It's been designed to minimise flow velocities and therefore minimise the potential for erosion.

There'll be one final void, and that final void will be isolated by a perimeter bund. That's down in here. The final void will be entirely contained within the hard rock coal measures and will not intersect the Namoi River alluvium. As part of the groundwater assessment, HydroSimulations has undertaken, or has assessed the relationship between inflow and void water level. In terms of the surface water assessment, we've included detailed modelling that incorporates the groundwater inflows, runoff, rainfall, evaporation, and from that, undertaken an assessment to predict the elevation at which the final void body would equilibrate.

So under a range of climatic sequences, we've established – and they include climate-change scenarios – we've established from the water balance model, that modelling that we've done, that the final void volume – sorry, the final void is predicted to act as a groundwater sink into perpetuity. That is, the water body would equilibrate at a level below the pre-mining water table level and would remain at about 140 metres below the spill point of the final void. So, in other words, the final void volume is totally isolated.

Part of our proposal involves, obviously, the recognition of the need for monitoring and licencing. And we've developed – we recognise that there'll be an operational water-management plan, probably something similar to that that exists for the approved mine, that incorporate provision for climate monitoring, provision for site service, water discharge monitoring, provision for ambient surface water quality monitoring as well, and operational water balance monitoring and management. It will develop to address the environmental protection licences, requirements in relation to conditions for water quality monitoring and sediment dam discharge. So there's been a number of views; one has been undertaken by Tom McMahon, who I

mentioned, and he's provided a concluding statement in his review – and I'll quote that, as follows:

> *In summary, the study detailed in the Vickery Extension Project Surface Water Assessment Report was completed in a professional and detailed manner and the conclusions in the report are appropriately supplemented by suitable modelling studies carried out by the consultant.*

The Department of Planning and Environment also undertook a peer review and engaged BMT to prepare that review. And they made the following conclusion – and, again, I quote:

> *The assessment results include the outcome of detailed water balance modelling completed with respect to mine operations. The review determined that the parameters and the methodology adopted for the modelling of surface water are appropriate. The results obtained from the modelling can be used to consider the water balance of the mine and likelihood of discharges occurring from the mine to receiving downstream water courses.*

And there's a few comments that arise from BMT's review and we're in the process of reviewing those and we will provide, through Whitehaven, a response to submissions, a detailed response to each of the issues that they've raised.

MR DUNCAN: Okay.

MR THOMAS: Thanks very much.

MR DUNCAN: Thanks, Chris. Any questions at this stage? Thank you.

MR COLE: Okay. Thanks, Chris

MR DUNCAN: Okay.

MR THOMAS: Thanks very much.

MR DUNCAN: Thanks, Chris. Any questions at this stage? Thank you.

MR COLE: Okay. Thanks, Chris. I will now pass on to Aleks to give you a review of the work that has been done air quality.

MR DUNCAN: Thanks, Aleks.

MR TODOROSKI: All right. So I just introduce myself: Aleks Todoroski. I have 20 years of experience in air quality. That includes working on assessments and approvals for hundreds of new and modified mine projects. I'm the director of Todoroski Air Sciences since 2011. Prior to that, I was the principal technical policy adviser at New South Wales EPA, in the air branch. I worked there for 10 years.

I've conducted numerous peer reviews on the – on behalf of the Department of Environment and Planning and various other agencies and governments. I conducted the peer review of the Vickery Extension Project air quality assessment which was prepared by Ramboll. The objectives of the assessment were to identify the necessary and appropriate mitigation measures for the project and to predict the potential air quality impacts and to compare these impacts with recognised criteria – the primary objective. The conclusion of the assessment is quite straightforward. There – it predicts compliance with all criteria at all privately owned receptors at all times.

The – just worried I'm missing slides, I think. The modelled air quality controls were focused on the haul roads. This is one of the key handful of sources of dust from the site. Dust suppression is achieved using watering, which is administered by water carts. It's a best practice measure within the industry. The modelling applied a 90 per cent control factor for that watering and that's consistent with industry benchmarking. This was raised in one of the EPA questions. The Whitehaven mines in this area and, indeed, the majority of coal mines in New South Wales achieve better than 90 per cent controlled as directly measured through pollution-reduction programs with EPA, and EPA has required mines to achieve at least 80 per cent controlled as that's – yes. The other measures there are the use of large vehicles, which reduces the number of trips needed. The larger vehicles also reduce the turbulence on the road surface because the body of the truck is higher up. And, of course, restricted speed limits on these roads will reduce the dust emissions as well.

Other than that, key measures include progressive rehabilitation of the disturbed areas. As the mining progresses, the rehabilitation keeps, you know, in close step with the mining. That's fundamental into the mine plan and it controls wind erosion from those exposed surfaces. Very similarly, minimising of the pre-strip areas that are about to be mined achieves the same thing. So you only clear what you really need to do. Water sprinklers would be used at the coal handling and preparation plant. The coal piles are relatively fixed. You can actually have fixed water controls in there and they would be activated when, you know, winds reach certain thresholds or temperatures and so on. As I said earlier, the predicted results show compliance with all criteria at all privately owned dwellings at all times. Those are the key criteria you can see on the slide.

It's, I think, noteworthy that there's quite a margin of compliance in this case. In nominal terms, the air emissions from the mine could be almost doubled and you would still achieve compliance with the most important annual average criteria. It's also fair to note that the 24-hour levels are dependent on the background levels. So, for example, the recent dust storms we had, that sort of event does cause levels above criteria and that's quite normal at virtually every site across the State. So any short-term levels due to environmental factors, such as dust storms and so on, can exceed criteria. The air assessment also considered rail transport, plant exhaust emissions and blasting of overburden, and no adverse air quality impacts are predicted due to dust from coal – rail transport of coal, diesel exhaust emissions from plant on the site or blast emissions.

The submissions also talked about potential effects at the township of Boggabri. Given that the nearest receptors, which are just a few kilometres away, don't experience impacts, Boggabri is approximately 15 kilometres away. It's several times further than any scope of measurable impact from the mine, and you would not be able to detect anything or measure anything from the mine at that sort of distance. The operational monitoring is a key part of best practice. It is known as a real-time proactive air quality management system. It consists of forecast meteorological data and real-time monitoring of emissions there to identify adverse weather conditions. So, for example, wind speeds in the order of 10 metres per second and hot weather would cause, you know, visible dust and things, and in those conditions the triggers would be raised, people would be notified by text messages and emails and modifications would be made. Things would move lower into the dump or, if necessary, some activities may stop at those times.

Real-time dust monitoring does the same thing. There's a trigger set in the monitor. It will notify operators both by text or email or other ways that this trigger has been set. It's known as a TARP, a triggered action response plan, and it's usually – it's used to control short-term, 24-hour impacts to prevent them exceeding criteria. The whole process, the management and documentation, is set out in an air quality management plan. And in summary, with these measures, which are just, quite frankly, the normal best practice measures that you would expect at a mine, there is a – the risk of dust impacts from the project is considered to be very low. As I indicated, there's quite a large margin of compliance already in effect in this case, and that concludes my part.

MR DUNCAN: Thank you. Questions? Yes. Thank you. Thanks.

MR COLE: Thanks, Aleks.

MR DUNCAN: Thanks, Aleks. Yes.

MR COLE: I will now call on John Wasserman to explain the noise modelling that has been done.

MR WASSERMAN: So how does this work?

MR COLE: That's right. Yes.

MR WASSERMAN: There we go. Thank you very much. So I'm doing the noise presentation. So by way of introduction, my name is John Wasserman. I'm a director of Wilkinson Murray. Wilkinson Murray was engaged by – thank you, Brian – was engaged by Whitehaven as the principal acoustic consultant for the Vickery Expansion Project to prepare the noise and blasting assessment. I have over 25 years experience in acoustics and vibration. Prior to being a noise consultant, I was manager for the noise assessments area in EPA. I've also worked with the Department of Planning in the assessments area. So, therefore, I have both consulting and regulatory experience in noise. The peer review was conducted by

SLR. Specifically, it was conducted by Glenn Thomas from SLR. Glenn has over 25 years experience in the assessment of noise from coal mines, including reviews at the request from the Department of Planning.

The main objectives of the noise assessment were to identify reasonably feasible mitigation so that these could be adopted in the noise model. The model was used to predict noise levels at sensitive receivers and compare the predicted noise levels to criteria specified in various New South Wales noise policies. The key conclusion of the noise modelling was that there was no additional noise-affected properties compared to the approved mine.

For blasting, the objectives of the assessment were to confirm compliance with human comfort and building damage criteria at buildings and confirm compliance with building damage criteria at heritage sites. The blasting assessment concludes that compliance with criteria can be achieved. The noise impacts presented in the report represent sort of a culmination of an iterative approach intended to determine feasible and reasonable noise mitigation. The iterative steps undertaken were sort of preliminary noise modelling of scenarios representative of the maximum noise envelope, identification of potential noise exceedances of criteria and then evaluation of various combinations of noise management and mitigation measures, review of the effectiveness of these measures and assessment of their feasibility, and then, finally, the adoption of reasonable management and mitigation measures by Whitehaven for this particular project.

As a result of this sort of iterative approach, modifications to the mine plan were undertaken in order to improve acoustic performance. So the key reasonable and feasible mitigation to be adopted for the project are as follows: procurement of low-noise fleet items – and at this stage it should be sort of noted that the majority of the model sound power levels are based on data from measurements of existing mines and that there has also been a significant sort of change in technology or an improvement in technology with regard to noise performance of mining equipment in recent years.

Other important mitigation measurements are the – the treatment of a select – a selection of mobile plant and infrastructure items to reduce omitted noise levels. And then refinements to the – the – the waste rock emplacement and mining progress to provide opportunities for shielding of operations. Now, just a summary of the operational noise impact assessment. So, the noise criteria adopted for the assessment are the most stringent that can be applied under the noise policy for industry. The methodology adopted for the noise modelling sort of results in – in conservative noise predictions.

With the adopted mitigation measures in place, compliance with the criteria is predicted at all privately owned receivers, except at the three closest properties, and these are 131, 132 and 127. So, for properties 131 and 132, only a negligible exceedance, as defined by the noise policy for industry are predicted, with this level of exceedance being unlikely to be perceived. Property 127 is the closest property to

the project. The owners of this property have the right to acquisition upon request under the current consent for the approved mine, and it is expected that these – these rights would apply to the – the new project.

Submissions received on the IS queried there were no significant increases in noise predictions for the project, when compared to the approved mine. The main reason is that the – the improvements in noise mitigation technology since assessment for the approved mine, that is while the project requires an increased number of fleet items, noise performance improvements have resulted in a decrease in the total sound power level of all equipment. In addition, the project will reduce noise when compared to the approved mine, by the cessation of road traffic noise along the approved road – transport route, the cessation of noise from the Whitehaven Coal prep plant in Gunnedah and also the removal of the approved easement placement which will reduce noise impacts for the receivers to the south of the mine.

The assessment considered train noise along the project rail spur, with compliance with criteria predicted at all existing private receivers. It should be noted that the noise associated with locomotives idling on the rail loop is also considered and is included in the operational noise modelling. Project trains once on the main line are also separately assessed cumulatively with all the other trains on the main line.

The removal of overburden material at the project would be undertaken using a drill and blast program, sort of, a standard assessment methodology was used considering distance to receiver and maximum instantaneous charge. The blast sizes were designed to achieve human comfort criteria therefore the blast assessment predicted compliance with human comfort criteria for vibration and over pressure at all privately owned dwellings. In addition, blasting is not predicted to result in any building damage at the Kurrumbede Homestead with compliance with building damage criteria predicted.

With regard to the management of noise from the mine, it will be managed – I'm sorry – I forget – it will be managed to its project noise limits typically specified in the – in a development consent or EPL. Similar to air qualities, proactive, real time monitoring and management would be used on-site. This would use meteorological forecasting and real time meteorological monitoring to identify potential noise-enhancing weather conditions, real time noise monitoring. Alarm levels would be set below the criteria as triggers.

Alarms will be sent to mine personnel to review date and manage activities as may be required. So these management measures will be documented in a noise management plan. Similarly, blast limits are expected to be specified in the conditions of approval, monitoring of all blasts would be undertaken to confirm compliance with those criteria. And that's the completion of the summary of the noise assessment.

MR DUNCAN: Questions?

PROF WILLGOOSE: Well, it's a minor detail, I guess, but in the noise assessment for the trains, you talked about idling but what about coupler noise when, you know, trains are braking and when they're accelerating? I mean, that's – you know, I live in an area which has – mine coal ..... plants and that's the noise you actually hear rather than the actual idling of the locomotives. Has that been included?

MR WASSERMAN: Maximum noise levels have been assessed.

PROF WILLGOOSE: Yes.

MR WASSERMAN: And that's, sort of, part of that maximum noise level.

PROF WILLGOOSE: So that would be included in .....

MR WASSERMAN: That is included.

PROF WILLGOOSE: Okay.

MR DUNCAN: I think at the last slide, you mentioned a property – I know where the – one property is, the 127 dwelling. What was – where's the location roughly on that plan, the one you mentioned?

MR WASSERMAN: .....

PROF WILLGOOSE: ..... Kurrumbede - - -

MR DUNCAN: Yes.

MR .....: ..... homestead ..... Kurrumbede

MR WASSERMAN: Kurrumbede?

MR DUNCAN: Yes.

MR WASSERMAN: Let me have a look.

MR DUNCAN: ..... just point it out.

MR WASSERMAN: It's one 1V - - -

MR DUNCAN: Have you got a number for it?

MR WASSERMAN: 1V, I think .....

MR DUNCAN: 1V, is it?

MR WASSERMAN: Yes.

MR DUNCAN: Okay. No, I was just curious to know where it was. That's all.

MR COLE: It's directly south of the mine.

MR DUNCAN: Okay. okay. The other property where the 127 is is to the west.

MR WASSERMAN: That's exactly correct.

MR DUNCAN: This is just to the south.

MR WASSERMAN: That is correct.

MR DUNCAN: That's fine.

MR WASSERMAN: It's not that one, though, is it? My eyes aren't what they used to be, I have to say.

MR DUNCAN: Yes. It's fairly small print.

MR WASSERMAN: Yes. But it is 1V.

MR DUNCAN: Alice? Thank you.

PROF A. CLARK: In terms of noise and, I guess, the topography - - -

MR .....: 1V. It's just here.

MR DUNCAN: Understandable. Yes.

MR WASSERMAN: Sorry.

PROF CLARK: In terms of noise and topography and, I guess, meteorological, kind of, impacts on the – are you looking into any of those things?

MR WASSERMAN: That was part of the - - -

PROF CLARK: Part of it?

MR WASSERMAN: - - - whole assessment methodology.

PROF CLARK: Okay.

MR WASSERMAN: It's only a small a time we have - - -

PROF CLARK: I understand. Yes.

MR WASSERMAN: - - - doing the presentation. There are sections in the noise report which discuss of that, so there's – a line plan is incorporated in the noise model so the topography and then we did a very detailed assessment of the different weather conditions and then how it enhances noise levels as well, particularly at night.

PROF CLARK: Thank you.

MR WASSERMAN: And .....

MR DUNCAN: Okay.

MR WASSERMAN: Thank you.

MR DUNCAN: Thank you.

MR .....: Thanks, John.

MR DUNCAN: Yes.

MR COLE: All right. Well, in any major project, the economics are important - - -

MR DUNCAN: Yes.

MR COLE: - - - and I will call on Stephen to – as our last presenter – specialist presenter – to run you through the economics of the project.

DR S. BEARE: My name is Stephen Beare and I'm the director of ANALYTECON and when I thought back about it and I had to come up with I've been involved economics and statistics for 40 years. It scared me. I have been and a good part of that time was spent at the Bureau of Agricultural and Resource Economics – ABARE, as it was known in my time, and that's where I got my grounding in Australian agriculture, resources industries and water policy and I also eventually looked after the agricultural and natural resources area and became the chief economist where I had the opportunity to try and control 150 economists in one building, which is an interesting proposition, but I was responsible for vetting a great deal of the proportion of the material that came from that organisation.

With me on the project – I have been a private consultant for 12 years. I formed ANALYTECON in 2009. It's a specialist company that looks at quantitative analysis, particularly in relation to market analysis and spatial analysis. It's quite varied. I have done, just in the last year, an assessment of the structure of retailing of the pharmacy in Australia – I've done something for Google on the impact of Google on the internet content of traditional media's websites; I've done some work on bringing machine language learning – machine learning into one of the larger – largest mining companies in the world and so it has been a very varied environment,

but I've had a nice association with Resource Strategies and Sabine ..... who is also on the project.

She was responsible for liaising with Whitehaven through Resource Strategies to translate the mine plan into something that would fit into a sensible cost-benefit framework, as well as going through the extent of guidelines and past reviews about criticisms about economic reviews so she made a major contribution. Peer review was done by Dr Brian Fisher AO, who was the managing director – he was the managing director of BAEconomics and he is the economic expert for the UN and the IPCC on climate change is probably his most prominent role, but he's recognised as leading agricultural economist in Australia and that was the overall team put together for the project.

The objectives were to identify – well, estimate and identify the net benefits of the project to New South Wales and the regional economy, and I just wanted to dwell a little on net benefits – benefits being the gross benefits less the opportunity cost. These are the gross benefits to New South Wales residents and to the New South Wales government on the behalf of residents less the resources of New South Wales that are committed to the project that might otherwise be usefully used. So ..... distinction between those resources and, for example, the resources committed by shareholders of Whitehaven which are an internal part of Whitehaven's decision process, so those – and that's part of the clarity that's ..... but in conclusion, I suppose, just to start out with, Brian Fisher's peer review said the project would make a large contribution to the economy of New South Wales if approved.

The general approach was to identify and estimate benefits, both that accrue directly and indirectly to the State of New South Wales and the local regions. We were given two scenarios to work with, one in which if the project was not approved that there would be no mining operations and one if the approved mine was to continue to operate. We used a framework that we've been developing over a number of projects which is consistent with the guidelines for the assessment of mining policy and gas proposals in New South Wales as they have evolved and/or finalised, and to use a consistent and fairly well understood and transparent accounting system which is the same as used for Australian GDP – New South – GSP – it's used across Australia. It's used in most developing countries.

It's a well understood accounting process that does not double count and so we felt it was appropriate for – to keep something transparent. There are a lot of figures in the report and to drag you through them – so here we've just ..... the reports for no mining operations, but I think it's worth noting that if you go to the approved mining operations that the benefits are roughly about 60 per cent – net benefits are about 60 per cent less, or if you're like me, you divide by two because that's easy. So the net benefits – the direct benefits from the project is a total of $1.2 billion approximately and you can see the key or the big components of the benefits are 670 million in royalties.

They were slightly higher in the DRG ..... study which used higher set of coal prices – 271 million in employment benefits in terms of additional disposable income. The remaining benefits accrue from taxes on both individuals and profits that are repatriated to New South Wales and the profits to New South Wales shareholders which were ..... New South Wales. The reason for disposable income is exactly that issue of double counting. If you have total income and you take care of taxes, then you have counted some proportions of income twice. So that's why it really isn't worthwhile sticking with a really rigid accounting framework.

Flow-on benefits of those benefits which are basically, you know, just for the general increase in economic for the mine demanding additional goods and services from New South Wales, you know. Those – in – those can sort of pile on top of each other. It can be a first round benefit of the direct acquisition of, for example, capital equipment, machinery – those firms have to increase their – you know, and demand more and there's more income, but we tend to focus on a simple system in doing that and I will come to that later. But there was the flow-on benefits to New South Wales. Over the life of the mine, an average of 316 full-time equivalent jobs. Now, that's not every year.

The construction is higher – during the end of the mine, it's lower, but on average is about 316 full-time – and 146 million in NPV terms – again, DRG study was higher I guess in terms of they've used a higher set of flow-on – of multipliers, but the estimated increase in value add to the State was 322 million. So I think if you come up and add them all together it comes to about $1.8 billion in total benefits to New South Wales. There are flow-on benefits to the local economy.

These include 255 full-time equivalent jobs over the life of the mine, 224 million in additional disposable income and flow-on effects of 181 full-time equipment – equivalent jobs and 92 million. It is relevant when calculating flow-on effects to account for the loss of agricultural land because land is a fixed resource and so, therefore, it's not available for something else and that was deducted from the flow-on effects of the mining itself to come up with a proper accountancy there.

The planning asked for a peer review with Todd James and Markden – Marsden Jacob – sorry – and I think just the overarching comments were pretty simple really. But, basically, that the guidelines were followed, that the accounting methodology was appropriate, and that the indicative benefits seem to fit with their expectations. There were some specific comments and queries about assumptions. We will respond to that through resource strategies and the overall response from Whitehaven back. But they, I think, are relatively easy to deal with. So I think all these numbers and all the methodology is in the report. I want to just put this thing into a little bit of context.

We were involved in the development of a series of involvement study with the second part of Warkworth, second go at Warkworth, and then re-examining how you might put the economics in a framework that was going to be more intelligible and more understandable. So we took a very conservative view, and by conservative

view I mean using assumptions and methods that are not prone to over-estimation which err on the side of under-estimating benefits, in particular. And I can give you some examples. We have assumed that only 20 per cent of jobs created by the mines are new jobs. 80 per cent are displacements from other places in New South Wales.

So the employment benefit are really predominantly the difference in the average mining wage and the average wage, not in the fact that we've only got 20 per cent new creation. And I will bring that up again later. The market based assessments of externalities wherever possible are done on a market based criteria: greenhouse gases that we go ahead and we get the cost of offsets in a market in Europe. We look at the costs of compliance, the cost of everything in terms of air quality and all those things that go into those sorts of things. So wherever possible we use a market based number. Where there is no market based assessment, we identify the direction qualitatively, but we do not put a non-market based assessment into the cost and benefits.

It's too easy to say you're willing to pay for more money than you have. So I think it's important to – you know, that there's a discipline in having a budget and it's difficult to impose on those sorts of studies and so we don't use them. I mentioned we use a very conservative or the smallest possible input/output multiplier. We use input/output analysis, as opposed to more complicated models. But the advantage is the data and the methodology is available on the ABS website and recreated in full in the appendix, so anybody can recreate our methodology and see how those numbers work and change assumptions if they so wish. And I think that level of transparency was also a thing that we felt was very important.

And probably one of the most important things is we only to local economies attribute unambiguous benefits. That means employment and rates. It's not that the mine will not demand local goods and services from the region and that there's going to be flow-on effects there. But we don't know what percentage of goods and services that are supplied in these regions actually come from within and which are done within. We don't actually know who owns the IGA. We do know who owns the Woolies. So we don't know how to distribute these things. So, again, we note that those are positive effects, but we do not include them to give a conservative view.

And this conservative view is, I think, is again seen in the DRG submission which comes up with a higher set of benefits that were a bit more bold. My last comment I think addresses something specifically that was raised in Gundagai, but it has been a general issue with, you know, mining and agriculture. It's what about the competition between agriculture and mining. You bring in mining, you lose labour from agriculture. Well, agriculture is generally the primary source of employment throughout rural Australia. But the use of labour in agriculture has been declining due to the improvements in machinery and farm chemicals, in particular, and that trend has been – well, it exceeds probably my grandparents. So – and I'm pretty old.

So but over the last 10 years – over the last 12 years it has declined 19 per cent pretty steadily. That's a steady trend in what has been happening in agriculture. And regional Australia is not immune from other trends that have been happening in Australia. There has been steady declines in manufacturing over quite a long period of time. And I would say over the last – in the last six or seven years, the decline in retailing has been quite steady – and also in rural areas as well, as people go to internet-based services. This is putting downward pressure on an awful lot of regional economies, regardless of whether you want to call them LGAs or what else. This is putting a lot of downward pressure on things.

And I think when we look at the two LGAs – the top graph shows the ABS figures on mining and employment. So we can see that post-2006 there has been a sharp increase in employment, particularly in Gunnedah but in both. And we can see correspondingly on the lower graph that it corresponds – I mean, you can't cause causality with a graph, and no one should ever claim that they can. But this certainly is an indication that in Gundagai there has been a sharp reversal of that downward trend and a levelling off in Gundagai.

MR WASSERMAN: Gunnedah.

DR BEARE: Gunnedah. Sorry. Narrabri. Gunnedah and Narrabri. I'm sorry. I was getting – so I think that – and these sort of sustained increases in population have other benefits to that community, the sort of amenities that exist in a larger community than a smaller community: better schools, better health – and in particular, if you look at some more ABS statistics, you will see that the service sector in Gunnedah has recovered quite strongly. In fact, it has grown. And that's – you know, that's something that usually only happens in regional centres. And it has at least stabilised in Narrabri.

So I think the argument would be stronger that mining has replaced jobs that had been displaced and agriculture rather than the other way around and that 80/20 assumption might very well be a 20/80 assumption, in terms of the actual sort of local benefits that you would expect to see around there. So I think that's an important contextual place to put everything, and I think it really sort of supports some of the introductory comments that were made at the very beginning of the presentation. Thank you very much.

MR DUNCAN: Thank you. Just before you go – any questions?

PROF CLARK: Not from me .....

MR DUNCAN: Thanks, Stephen.

MR COLE: Thanks, Stephen. Well, I'd like now to summarise our presentation. Today in framing the presentation what we've sought to do is to touch upon what we believe to be the key issues. And they will be presented in the various submissions that have come in from the agencies and the other stakeholders out there. We're very

familiar with them, obviously, because of the amount of consultation that we've done. So for that reason, we've brought along some of the specialists that we've used to cover off on those key issues.

No doubt other questions could arise, in which case, we're able to mobilise other specialists, if you need. So in summarising the presentation, one of the key aspects of the project is the rail spur. By elevating in the way we've chosen to go about doing it, to largely locate it on our own land, and where we don't own the land, we've been able to negotiate access agreements. By elevating it in this – and the concept design we have, it's clear that it has no impact on the flood flows, be they flood levels, be they velocities, be they distribution.

You know, we – it's pretty clear that we can comply with the flood plain management plan. And in the final design that we will go through to optimise the configuration of the superstructure, we will work with OEH on that, as we already have. We've spoken to them a number of times. Of course, the benefits for rail transport means that coal trucks that run up and down the Blue Vale Road, and when you're out there I'm sure you will see them coming and going, we will be able to taken off the road. And our investment that we're prepared to make by putting a coal handling plant, a coal handling and preparation plant on site, will also benefit the community of Gunnedah.

Along the way we've been very concerned about groundwater resources and surface water resources. And as you've seen the best practice modelling that we've done confirms that those impacts on Namoi River flows, the water quality and groundwater resources generally are all well within the currently approved levels and can be effectively managed. The borefield that will be part of the project will not impact on any of the surrounding bores. Amenity impacts which are, basically, your noise and dust impacts on your surrounding neighbours. Of course, they're important and hopefully from the presentations that you've heard from people that are well respected in the industry, those impacts are in the case of air quality within the allowable thresholds, and in regard to noise again in general within the accepted thresholds. We will be working with the neighbouring properties to discuss arrangements with them, agreements whereby some of their concerns can be effectively addressed.

As you've heard the project delivers significant employment and economic benefits to New South Wales and the local economies. And, importantly, you know, we don't see any conflict with employment in the agricultural sector. We've sought to provide a snapshot today on the project. No doubt there will further interchange with the IPC where we look forward to the public hearing that is occurring later this month and also to show you around the area on the 19th. We're happy to take questions but as I said previously where we – where we want to get into detailed questions, we will take those on notice.

MR DUNCAN: Thanks, Brian. Garry, is there anything at this stage?

PROF WILLGOOSE: I mean, there's one question that is, sort of, just rattling around in my head. And it's not a very specific one. But you got the approval for Vickery, the original Vickery four years ago. You now come back with a newer, relatively speaking, bigger proposal. What was the reasoning behind not doing that four years ago?

MR COLE: A couple of reasons, Garry. We were developing the Maules Creek project and a lot of Whitehaven's resources went into that. But the other aspect was that about the same time we picked up the Vickery South deposit. And that gave us the chance to, sort of, have a look at it again from the point of view of was there a better way of developing the Vickery resource.

PROF WILLGOOSE: So you didn't own the Vickery South resource four years ago?

MR FLYNN: That was part of a public company taken over, a company called Coalworks that owned it. That Whitehaven executed back in 2012.

PROF WILLGOOSE: Okay.

MR FLYNN: So our plans – our plan for what you saw as the approved project were already well in train as a company. And in order to, as Brian says, incorporate the potential of this yet to be acquired area, we thought we better just lodge this as it's currently planned and then come back and address the integration of the Vickery South adjacent deposit at a later date. Our view at the time, at least on a preliminary basis and I think the work that we've subsequently done has proven to us that the enhancement and optimisation of the combined footprint allows significant benefits to the optimised project. And as I say, the rail clearly is a piece of that puzzle that the bigger project makes viable. Incorporating that does remove the trucks off the road from our Tarrawonga project which is contemplated as part of this approval as well.

The CHPP from Gunnedah which the existing approval contemplates trucking to the process as we've mentioned before. Our view is that, long-term, that's in the wrong location for the town that's growing at the rate it is, and it's better located up on site with the start of the art facility as our Maules Creek mine has. When you aggregate the benefits of all that together, despite the capital required, this makes a far more robust project through the cycle. And that has been our clear objective. We are the largest employer in the region, as you know. To be downsizing, you know, through difficult times is not the right that we want to be engaged in too often, I have to say. Cycles to occur. Whatever we can do to make the project as robust as possible, we should do. This is part of that.

MR DUNCAN: Okay. Right.

MR WILLGOOSE: Yes.

MR DUNCAN: Alice.

PROF CLARK: Nothing further from me.

MR DUNCAN: Secretary, is there any questions from - - -

MR WAY: No.

MR DUNCAN: Well, I think that's it for today. This is the first day of our discussions. We have talked to the department today, as well. And I'm sure we will have some other questions which we can formally put to you and you can answer that way. And we've got set aside travel, I think, on the 17th, but 18th and 19th - - -

MR WAY: Yes. So we will travelling up to – on the 17th. Public hearing on the 18th and then a site visit.

MR DUNCAN: So, David, have you got the agenda finalised yet? I've seen a draft. But is that the - - -

MR WAY: There's a draft agenda. I was going to touch base with Brian - - -

MR DUNCAN: Okay.

MR WAY: - - - probably tomorrow morning just to – I think, firm up some of those .....

MR DUNCAN: I think we've almost has got it tied down.

MR WAY: We've got a – yes, the timeframe, but figuring out some of the content of that.

MR DUNCAN: Imagine there would be a lot of people who will want to talk to us both at the meeting and in the inspections, and things like that. So we will do that. Is there anything further, questions of us, from your point of view, before we - - -

MR COLE: No. I understand that you will be speaking to the shires on the morning of the 19th, is that - - -

MR DUNCAN: Yes. That's correct.

MR COLE: Yes.

MR DUNCAN: Both as well.

MR WAY: Both. Yes.

MR DUNCAN: Yes.

MR FLYNN: I think the only other thing I would say, is that on the 19th, I think that's excellent that there's the time for a good look around the region.

MR DUNCAN: Yes.

MR FLYNN: And I say that purposefully, because it's not just about the site itself, which, once you were there, you will be given a tour, it will point out, obviously - - -

MR DUNCAN: Yes.

MR FLYNN: - - - the pre-mining activities that have all been evidenced there and the rehabilitation that has gone on. But it is a regional opportunity, this revision of this project, as I said, because of the prep plant, because of the rail line, because of the removal of trucking it affects our operations in quite a material – but, you know, but a very beneficial way. And I think the community – once you get a bit of a look at the overarching impact, I think that will give you a holistic view of the project itself.

MR DUNCAN: Yes. And, look, I think that's probably going through our head that, you know, the changes that you're making and then how does that translate to things in the region, so that the rail line, as you mention, the prep plant, and the borefields. So how does it all come together.

MR FLYNN: Yes.

MR DUNCAN: Yes. It's probably about three scenarios here: one now, there will be an interim one and then something in the future, should this be approved. So just for us to understand that. And that will help on the day to have a look at that, I think.

MR FLYNN: Yes.

MR DUNCAN: Okay. All right. I think that's it. So formally that's the end of the meeting.

MR FLYNN: Thank you very much for your time. Thank you.

MR DUNCAN: Thank you very – and I should say – for the record, I should say thanks, Paul and Brian for your presentation, and all the presenters today. Very thorough. Thank you very much. And I will close the meeting at that point.

MR FLYNN: Thank you.

MR DUNCAN: And one final apology, we've all been sitting on planes for too long recently, so I apologise for any - - -

PROF CLARK: Sorry for my coughing.

MR FLYNN: No. Not at all.

RECORDING CONCLUDED **[4.53 pm]**