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TRANSCRIPT OF PROCEEDINGS

TRANSCRIPT IN CONFIDENCE

O/N H-1328826

INDEPENDENT PLANNING COMMISSION

PUBLIC HEARING

RE: MAXWELL UNDERGROUND COAL PROJECT

PANEL:	**PROF MARY O'KANE AC (Chair)** **JOHN HANN**
ASSISTING PANEL:	**RICHARD BEASLEY SC**
LOCATION:	**VIA VIDEO CONFERENCE**
DATE:	**10.03 AM, WEDNESDAY, 11 NOVEMBER 2020**

PROF M. O'KANE AC: Good morning, and welcome to day 1 of the Independent Planning Commission's electronic public hearing into the state-significant development application for the Maxwell Underground Coal Mine Project. I'm Mary O'Kane, and I'm chair of the commission and of this panel. Joining me is deputy chair of the commission and fellow commissioner, John Hann. We also have with us Richard Beasley SC as counsel assisting the commission at this public hearing. Before we begin, I'd like to acknowledge the traditional custodians of the land on which we variously meet and pay my respects to their elders, past, present and emerging.

Maxwell Ventures Management Proprietary Limited, the applicant, owns the Maxwell Infrastructure site located nine kilometres south of the Muswellbrook – Muswellbrook in the Upper Hunter Valley. It is seeking planning approval for a new underground coalmine. Under its proposal up to eight million tonnes of run-of-mine coal would be extracted per year using longwall and bord and pillar extraction methods over a period of 26 years. The application has come to the commission for determination, because more than 50 unique public objections were received. The Minister for Planning and Public Spaces has directed the commission to hold a public hearing into the application.

He has asked the commission to provide its determination within 12 weeks of receiving the final whole-of-government assessment report prepared by the Department of Planning, Industry and Environment. I note that the department in its assessment report has recommended approval with conditions. In line with regulations introduced in response to the ongoing COVID-19 pandemic, we have moved this public hearing online with registered speakers being provided the opportunity to present to the panel via video conference or telephone. In the interests of openness and transparency, we're livestreaming proceedings on the commission's website.

A full transcript of this two-day public hearing will also be published in the next few days. Now some notes on the commission and its role. The commission was established by the New South Wales Government on the 1st of March 2018 as a standalone statutory body operating independently of other agencies, including the Department of Planning, Industry and Environment, DPIE, except that DPIE carries out certain consent authority functions on behalf of the commission, including preparing the assessment reports for state-significant developments that are coming to the commission. The commission plays an important role in strengthening transparency and independence in the decision-making process for major development and land-use planning in New South Wales.

The key functions of the commission include determining state-significant development applications when certain conditions are met, conducting public hearings for development applications and other matters, providing advice when requested by the Minister for Planning or the Planning Secretary. Commissioners make an annual declaration of interest identifying potential conflicts with their

appointed role. For the record, no conflicts of interest have been identified in relation to our determination of this development application. You can find additional information on the way we manage conflicts of interest on our website.

Now, a few notes on the process and where we are in it. This public hearing forms just one part of the commission's process. Commissioner Hann and I have already met with the Department of Planning, Industry and Environment, the applicant; Muswellbrook Shire Council; and the Upper Hunter Shire Council. Transcripts of all these meetings have been published on our website. We have also carried out a site inspection and a locality tour. Notes of these are also published on our website. After the public meeting, we may meet with relevant stakeholders if clarification or additional information is required or matters raised.

Moving now to next steps. Following the public hearing, we will work to determine the development application in line with the Minister's request regarding timeframes. Written submissions on this matter will be accepted by the commission up to 5 pm on Friday, the 20th of November 2020. That's 5 pm, Friday week. You can make a submission via email or post or using Have Your Say portal on our website. The purpose of this hearing is something I'd like to talk about now. We invite interested individuals and groups to make any submission they consider appropriate during the hearing. However, the commissioner is particularly assisted by submissions that comment on the Department of Planning, Industry and Environment's assessment report and the recommended conditions of consent.

All submissions made to the department during the exhibition of the environmental impact statement have been made available to the commission. As such, those speaking today are encouraged to avoid repeating or restating submissions they've already made previously on this application. The commission must emphasise that there are certain matters that by law it is not permitted to take into account when making its determination and therefore submissions on such matters cannot be considered. These factors include the reputation of an applicant, as well as any past planning law breaches by an applicant. Now, we'll talk about how the hearing will run.

So I'd like to outline today's events, as they're – they should unfold. We'll first hear from the Department of Planning, Industry and Environment on the findings of its whole-of-government assessment of the application that is currently before the commission. Secondly, we will hear from the applicant. We will then proceed to hear from our registered speakers. While we will endeavour to stick to our published schedule – and we're already a couple of minutes late, my apologies – this will depend on registered speakers being ready to present at their scheduled time. Counsel assisting, Richard Beasley, will introduce each speaker when it's their turn to present to the panel.

Everyone has been advised in advance how long they have to speak. A bell will sound when a speaker has one minute remaining. Two bells will sound when a speaker's time has expired. To ensure everyone receives their fair share of time, I

will enforce time-keeping rules. I do reserve the right, however, to allow additional time as required to hear new information. If you have a copy of your speaking notes or any additional material to support your presentation, it would be appreciated if you could provide a copy to the commission by emailing it to ipcn@ipcn.nsw.gov.au. Please note, any information given to us may be made public.

The commission's privacy statement governs our approach to managing our information on what we do make public. Our privacy statement is available on our website. And I'd like to mention that, of course, today is Remembrance Day, so we will pausing briefly at 11 o'clock to remember those who have fallen. And so it's now time to call our first speaker, so I'll turn to Mr Beasley.

MR R. BEASLEY SC: The first speaker we have is Mike Young, who's the executive director of Energy, Industry and Compliance at the Department of Planning, Industry and Environment, who's one of the co-signatories of the department's assessment report. Before you speak, Mr Young, I've just got a question. Is Mr Sprott going to be having a speaking role this morning or is it just you?

MR M. YOUNG: Thank you, Mr Beasley. Yes. We have a presentation for the commission this morning, and I'll be starting off that presentation, but then I'll hand over to Matthew Sprott to complete the presentation and then I'll probably come back to summarise our position.

MR BEASLEY: All right. Very good. It's not all up to you, then. Mr Sprott, I should say, is the Director of Resource Assessments for the department, and he's also a co-signatory to the department's assessment report. All right, Mr Young, please go ahead.

MR YOUNG: Thank you, Mr Beasley, and thank you, commission, for the opportunity to present our whole-of-government assessment report today for the Maxwell Underground Coal Mine Project. We've prepared some slides, which hopefully you can see now. I think if we go to the next slide, that would be helpful. Look, I don't propose to dwell too long on the assessment process. You've outline where we're up to in that process. I guess the only thing to say, the role of the Department of Planning, Industry and Environment is to undertake the whole-of-government assessment for state-significant projects, such as major coal mining projects in accordance with the requirements of the Environmental Planning and Assessment Act and associated regulations.

So the report we've presented to the IPC, to the commission, for determination represents not only the department's assessment, but has a range of input from other government agencies as required as relevant to their jurisdictional responsibilities. In terms of the role of the commission, as you've indicated, the commission is a consent authority for this application, as there were more than 50 objections received on the project. And we'll talk a little bit more about those objections and other submissions

on the project. We've just prepared a diagram there that maybe assists the commission and others watching the hearing today.

I guess the key points to make there is that we are at the final stage for a final public hearing and determination by the IPC, but there has been a very long process over the last – well, over two years now in terms of setting requirements, the company going away and preparing an EIS in accordance with those requirements, public consultation through formal and informal consultation with stakeholders and an exhibition report from the company responding to the matters raised in submissions and obviously the preparation of the whole-of-government assessment report that's now been referred to the commission. Next slide, please.

So I think it's also important to note that major mining proposals and, indeed, many other major projects in New South Wales, whilst the key permit or – or approval that is required is arguably the planning approval under the Environmental Planning and Assessment Act in New South Wales for state-significant development applications, there are a number of other approvals required for major projects such as – as the Maxwell Underground Mining Project. In particular, under the Commonwealth environmental legislation, the Environment Protection Biodiversity Conservation Act, the project has been declared a controlled action.

And whilst our assessment report does consider matters under the Commonwealth legislation, ultimately after any decision at the state level, the project or the application would be referred to the Commonwealth for a final decision under the EPBC Act. We have assessed the matters of national environmental significance under the Environment Protection Biodiversity Conservation Act in accordance with the accredited assessment process under the bilateral with the Commonwealth Government. Importantly, in addition to both the planning approval and the EPBC approval, any mining project in New South Wales requires a range of other state licences and permits and leases. In particular, a mining lease under the Mining Act, environment protection licence from the EPA under the POEO Act, a range of water-access licences under the Water Management Act and, in this case, there are some matters that would require permits for accessing road reserves and for road works under the Roads Act and the relevant road authority.

For those, it would either be Transport for New South Wales or Muswellbrook Shire Council. So all those matters would need to be obtained and addressed subsequent to a planning approval, but many of those matters are also considered and the advice of those agencies, relevant agencies, have been considered in our whole-of-government assessment report. So next slide, please. So in terms of the strategic context for the Maxwell Underground Project, clearly it is an area and a site within the Hunter Valley that has had some history in regard both the strategic and statutory planning framework, but also in regard to previous mining projects.

In particular, the site has been subject to two previous open-cut mining proposals from Anglo a number of years ago for the Drayton South Project. Both of those proposals were formally refused by the Planning Assessment Commission, the

predecessor to the IPC, for a range of reasons, but particularly in regard to concerns about potential impacts on the CICs, being the critical industry clusters in that location; and, in particular, two key horse studs, thoroughbred horse studs, being the Coolmore and Woodlands studs that located south of the site.

So in recognition of the concerns about potential interactions and compatibility, land use computability issues associated with particularly open-cut mining on the site and the proximity of those critical industry clusters and the thoroughbred horse studs, the department and the government acted to amend the Mining State Environmental Planning Policy in 2017 to essentially, I guess, confirm the fact that from a strategic planning perspective the government considered that the site was not suitable for future open-cut mining proposals. And to provide greater certainty to all stakeholders, including the equine industry and the mining industry, open-cut mining was prohibited on the site, and so that any future mining applications would have to be – consider that and be restricted to underground mining methods only.

It also, as a result of that prohibition, Malabar, who is the parent company for the Maxwell project, has relinquished its expiration rights south of the Golden Highway. And clearly the Maxwell Underground Project, in its very name, is an underground mining proposal and therefore complies both from a permissibility perspective in terms of the restrictions associated with open-cut mining on the site, but arguably, and as you'll see based on our assessments, the fact that it is an underground mining proposal significantly minimises and reduces the impacts of the project. In particular, minimises the interactions and potential impacts on those critical industry clusters and therefore our conclusion is that it's consistent with those aims and objectives reflected in that amendment to the Mining SEPP in 2017.

I think now Matt Sprott, the Director of Resource Assessments, who works in my area in the department, is now going to describe the project and detail the findings and conclusions of the department's assessment, so next slide, please, and I'll hand over to Matt.

MR M. SPROTT: Thank you there, Mike. For the purposes of the transcript, my name is Matthew Sprott. I'm the Director of Resource Assessments within the Department of Planning. As has been already identified, my team has been involved in leading the whole-of-government assessment of the Maxwell Underground Coal Project. As shown in this slide, the primary site of the Maxwell Underground Project is shown in a – in a dark green shade there and, as previously described by Mike, there are the Godolphin Woodlands stud and the Coolmore stud, who are two significant contributors to the Upper Hunter equine critical industry cluster located to the south of the proposed underground site, as well as a large viticulture establishment, Hollydene Estate, which is also located to the south of the Golden Highway.

The Maxwell Underground site itself is ..... around nine kilometres south of Muswellbrook, which will be shown in a subsequent slide. And the site itself is wholly owned by Malabar Coal. It's surrounded to the east, north and west by a

range of existing primarily open-cut mining operations, as well as a number of proposed and approved underground operations in the area, which are, generally speaking, shown by the various shades of grey in the slide that is currently displayed. Next slide, please. As described in the name, the project involves the establishment of a new underground mining area known as the Maxwell Underground site.

This area would be connected to an existing processing facility at the Maxwell Infrastructure site by a dedicated haul road and transport corridor. The project would look to operate over a 26-year period to extract up to 148 million tonnes of run-of-mine coal, most of which, at least 75 per cent of which, would be high-value semi-soft coking coal, which is suitable for steel making. This represents a diversification of coal mining particularly in the Muswellbrook area, both in the nature of the proposal being underground operation, but also in the fact that it is targeting the Whittingham coal measures and recovering a high-value semi-soft coking coal product.

Next slide, please. As shown in this slide, the Maxwell Infrastructure site to the north is a existing mine site. It was originally established in the 1980s as the former Drayton Mine and has been operating for many decades and has recently closed following the exhaustion of resources at that site. Malabar is proposing to upgrade and refurbish that site to process the coal that would be extracted from its underground operations, effectively making this a more efficient expansion, reducing the footprint of the project by utilising those existing pieces of infrastructure. In essence, the underground operations can be seen as a brownfield extension of the existing mine site, allowing a new resource to be extracted and processed within the existing facilities.

Malabar would also be looking to finalise and remediate and rehabilitate the existing Drayton site as part of the underground operations, which will lead to an improvement in the long-term outcomes for that site as well. As shown, the site is connected by a yellow transport corridor shown in this figure, which will allow for a haul road, which will allow a short-term period where coal can be trucked to the prep plant and will allow access for site personnel to come from the existing road access off Thomas Mitchell Drive through the Maxwell Infrastructure site to access the Maxwell Underground. There is a label which is hopefully easy enough to see in the centre of the slide there, at the base of the yellow line, which is the mine entry area.

So this is the area where all of the underground mining access will be undertaken from and has been strategically located between some existing ridgelines on the Maxwell Underground site to protect it from views from the majority of surrounding locations. The underground operations themselves would occur within the white dotted line on the slide, which is entirely within Malabar-owned land, with the exception of the Edderton Road reserve, which is shown on the left-hand slide or left-hand side of the area there. In order to facilitate the extraction of coal within the area, Malabar has proposed to divert the southern extent of Edderton Road to the west of the mining footprint in order to manage subsidence impacts on that infrastructure asset, and I will return to this a little later on.

The actual underground mining itself is being proposed using a range of traditional mining methods that are well established in New South Wales. There's four target seams. The shallowest seam would be undertaken using a bord and pillar method, which is a very stable method of secondary extraction of coal and then the subsequent three seams underneath this, the Woodlands Hill, Arrowfield and Bowfield seams would be extracted using a variety of lengths of longwalls, up to about 4.1 kilometres long. These are traditional longwall mining methods used elsewhere in the state and have been designed to manage subsidence impacts in a cumulative manner through offsetting of the longwall layouts.

Next slide, please. The department exhibited the project publicly for an extended 42-day period in late 2019. And as a result of this exhibition period, we received over 230 submissions from the community and special-interest groups. The vast majority of these submissions were in support of the project. However, a little over 20 per cent of submissions have objected to the project for a range of reasons. We've also received advice from 14 government agencies. While many of these agencies did seek further clarification on various aspects of the project to finalise their advice, none of these agencies have objected to the project proceeding.

Where applicable, we've also adopted any recommendations that these agencies have made on the project and have incorporated agency feedback on the proposed conditions that have now been put to the commission. Muswellbrook Council also provided a detailed submission identifying a number of matters that it considered required careful consideration in the assessment of the proposal. And these matters have been considered by the department as part of its assessment process. However, it's important to note that council has not objected to the project. The Upper Hunter Council in the neighbouring LGA did express its objections to the project, but has acknowledged that – that – that – that the project lies within the Muswellbrook LGA.

And finally following a recent look at the – the impacts of the project in more detail on the adjacent thoroughbred studs, the department has sought further advice from the animal welfare experts within the Department of Primary Industries – Agriculture, who have confirmed that they do not foresee any issues with ..... or health of horses at the studs as a result of the predicted air quality, noise or blasting impacts associated with the proposed underground operations and considered that the proposed monitoring and mitigation approaches put forward would be appropriate to manage any residual impacts associated with these issues. Next slide, please.

As can be seen in this slide, the majority of objections to the project raised a range of concerns, primarily relating to impacts on water resources and the nearby thoroughbred equine CIC, as well as a range of matters associated with the cumulative impacts of mining in the Hunter Valley and amenity impacts on surrounding properties, particularly air quality and noise impacts. Those in support would primarily focus on the economic benefits of the project and the creation of employment opportunities in the region, particularly given the – the current employment framework in the Hunter Valley. They also identified operational

expenditure and investment in the local area and local businesses as a – as a key benefit for the support of this proposal.

Next slide, please. With respect to the department's consideration of impacts on the project, our assessment report provides a very thorough and detailed consideration of all assessment matters and I have tried to provide a key summary of the – the key issues of concern in this slideshow. The department's assessment of water resources has been undertaken to provide a bit of an identification of these matters. The site itself is located within the Hunter River Catchment and drains via Saddlers Creek to the northwest of the underground operations and via Saltwater Creek to the southeast of the operations. The project would result in some depressurisation of the Permian aquifers, which are the – the aquifers associated with the coal seams being mined.

However, these aquifers have already – already been substantially modified in this area by historic mining operations in the broader region and are generally typically identified as highly saline water that has limited use for primary production and agriculture. The department's assessment report indicates that the project would be unlikely to substantially alter the flow regimes or water quality in the Hunter River or the quantity or quality of water in the associated alluvium. While there is a small amount of drawdown within this alluvium associated with the depressurisation, this is not a – considered likely to affect the flow regimes or quality of water in this system.

Some additional localised drawdown is also associated with the Saddlers Creek and Saltwater Creek alluvium, but likewise this drawdown is not predicted to have any material impact on surrounding groundwater users or riparian vegetation in these areas. Overall, the groundwater drawdown associated with the project would be expected to comply with the provisions of the New South Wales Aquifer and Interference Policy. There would only be one privately-owned bore, which would be expected to exceed the two-metre groundwater drawdown level 2 impact threshold and that bore would be provided with compensation for this drawdown impact.

All other privately-owned bores in the vicinity of the site would be expected to be maintained within the level 1 impact criteria under the policy. Malabar has also confirmed that it holds sufficient water licences for all surface and groundwater take associated with the project over the life of the project and, as such, as is appropriately licenced under separate regimes to account for its water impacts. In developing our recommended conditions, the department has consulted with the ISC and other government agencies and has incorporated their advice where appropriate. Next slide, please. These conditions provide for compensatory water, where any private landowner is adversely and directly impacted due to drawdown associated with the project.

It includes requirements for detailed surface water and groundwater monitoring programs in accordance with industry best practice and consistent with other projects throughout the state; impose strict water performance measures that would be applied to all relevant rivers and creeks around the site and would ensure that the

project is required to have negligible impacts beyond those predicted in the EIS, which, in and to themselves are already minor impacts. And that any additional impacts that are unforeseen are remediated and compensated for. Consistent with the department's approach, the mining company would have to develop trigger action response plans to proactively manage and respond to any exceedances or any likely exceedances of the performance measures that have been set through the conditions of consent.

And lastly the company, Malabar, would need to prepare a detailed water management plan for the site in consultation with DPI Water, the department's water experts, and to the satisfaction of the planning secretary. Next slide, please. As an underground mining operation, the subsidence impacts of the operation are a key consideration as part of the assessment of the proposal. In this particular case, being a multi-seam mining operation with four target seams, the proposed impacts of vertical subsidence would reach up to 5.6 metres, which is to be expected of a mining proposal of this nature. These impacts would be associated with the area where all four seams overlap, so not the entire footprint of the mining site, but mainly the centre of the proposed underground operations where these overlapping longwalls and bord and pillar operations occur.

With the exception of Edderton Road, all of these subsidence impacts would be contained entirely within the land owned by Malabar Coal and, as such, would not impact on any private landowners outside of the project site. Impacts to natural features, including steeply-sloping land, there a number of ridgelines across the site. Existing biodiversity, vegetation and water courses would need to be monitored throughout the project life and trigger action response plans, again, would be implemented to manage and remediate any impacts, such as surface cracking and erosion, which is expected to occur as a result of the subsidence features.

The predicted subsidence expressions are considered to be consistent with those of other projects of this nature and very manageable within existing industry best practice protocols. Built features around the site, primarily – the primary impacts of the project from the subsidence perspective on built features would be the subsidence of the portion of Edderton Road, which would be directly undermined. The southern end of this road would therefore need to be realigned in order to allow for continued operations into the third seam, the Arrowfield Seam, which would occur in about 2032. This – this is essential to allow for the extraction of the two deepest seams, as the subsidence impacts at this point would not allow the road to be maintained in its current alignment.

Nevertheless, the road can be maintained in the meantime for the initial operation, both with the bord and pillar mining in the topmost seam and the initial longwall mining in the second seam to be extracted. Malabar has committed to undertake 24-hour monitoring of the road during extraction and have a repair crew on standby 24 hours a day during this period to monitor and rapidly respond to any subsidence impacts on this road, of course, in consultation with Muswellbrook Council as the relevant roads authority. There's also an Ausgrid power line that runs adjacent to

Edderton Road. That would be monitored and managed for excessive tilts to any of the power lines and would be repaired and remediated, as needed to ensure to the ongoing safety and security of – of that power network.

Should the power line be impacted to a degree where it needs to be relocated, Malabar has committed to work with Ausgrid to relocate that powerline along the new road alignment. Aside from this, there are no predicted subsidence impacts predicted to occur at the Golden Highway, Hunter River or associated creeks in the area or any privately – private residences or listed heritage homesteads in – in the region. The department considers that the project subsidence impacts are more than manageable in accordance with contemporary practice and has incorporated the advice of relevant government agencies and the ISC into developing the performance measures in its required conditions. Next slide, please.

MR J. HANN: Mr Sprott, if I may just - - -

MR SPROTT: Yes.

MR HANN: - - - ask a question. It relates to the Aboriginal cultural heritage assessment and subsidence particularly. In your report, you note that there are some 235 sites that lie directly above the proposed underground operations, including one stone quarry site, which are predicted to be impacted by subsidence. So could you explain how these will be protected and particularly in relation to any remediation, where I think it's noted that it's the remediation that could pose the greatest risk.

MR SPROTT: Yes, so there are a number of Aboriginal cultural heritage sites located throughout the – sorry. Can I possibly just ask you to go back a few slides there, Mr Beasley, just to the slide showing the project layout. So there are a number of Aboriginal cultural heritage – that's the one – cultural heritage sites located throughout the project area sites, located between the existing Maxwell Infrastructure site and within the – along the transport route and in the mine entry area would be salvaged in accordance with an Aboriginal heritage impact permit and in consultation with local Aboriginal representative parties, as being directly disturbed by the project.

Those directly disturbed items would be stored and managed in accordance with a protocol established with those registered Aboriginal parties. With regard to the underground mining area, there are a – a number of additional heritage items located above the underground workings. Most of these items are not predicted to be – not predicted to be materially impacted by the direct subsidence of the landfall. The key issue is where larger surface expressions, fractures and cracking occurs where these items might need to be salvaged if larger expressions occur. Most of the expressions are expected to be rather minor and would be naturally infilled with sediment and, as such, it would be less invasive to these heritage items to leave them in situ and allow for the natural filling of these cracks with – with sediment, so as not to disturb the Aboriginal heritage resource in the area.

Where there are areas that need remediation to address any surface expressions where they need actual mechanical intervention by Malabar, these items would be salvaged, again, in consultation with registered Aboriginal parties and in accordance with an established management protocol and management plan for the site.

MR HANN: Thank you.

MR SPROTT: So, sorry, Ms Beasley, can I please move forward.

MR BEASLEY: You're making a very big assumption, Mr Sprott, if you think I'm controlling the slides.

MR SPROTT: .....

MR BEASLEY: ..... take credit for it, but otherwise it's – there's someone else here that's doing that, but I'm sure if you ask them nicely - - -

MR SPROTT: Fair enough. Thank you very much.

MR BEASLEY: - - - they'll find the right spot for you.

MR SPROTT: Thank you. Just next slide, please, and one more. So very briefly, as I've already touched on, the department has recommended a range of performance measures for key impacts associated with the subsidence of the site. This is on water courses and alluvial aquifers, groundwater-dependent ecosystems, a range of infrastructure in the area, as well as heritage sites. While these performance measures should be manageable and are consistent with performance measures applied elsewhere, as a conservative measure, if these performance measures are exceeded for an unexpected reason, Malabar Coal would be required to undertake remediation in the first instance of the sites, and if remediation is not possible, would be required to provide a compensatory measure or offset to account for these impacts.

As I've mentioned, they will also need to prepare a detailed extraction plan for the site. I won't go into all of these details, but this will be prepared in accordance with the requirements of other relevant regulatory agencies, such as the Resources Regulator and DPI Water, affected infrastructure providers, importantly council as the roads authority for Edderton Road and Transport for New South Wales as the road authority for the Golden Highway, which will be connected to Edderton Road with the realignment, as well as Ausgrid associated with the powerlines. The department has also required that the company consult with key users of Edderton Road, including the Coolmore and Godolphin thoroughbred studs to ensure that the extraction plan and management of the extraction process factors in and is considerate of the use of this road by these important agricultural operations.

Next slide, please. With regard to the amenity impacts of the project, the department has – has reviewed this. The – the amenity impacts of the project are really broken

up into two key receiver groups. The northern receiver groups are based around what was the former Drayton Mine, which is primarily residential receivers in the Antiene rural residential area. These receivers are predicted to experience some noise impacts primarily as – as a result of the operation of the project and particularly the coal-handling and preparation plant. Four of these receivers are expected to experience marginal ongoing exceedances of the relevant noise criteria under the Noise Policy for Industry.

MR BEASLEY: Mr Sprott, can I just – given your time's - - -

MR SPROTT: Yes.

MR BEASLEY: - - - expiring quickly and – well, it has expired, can I just ask you a couple of questions about this, because some of the material I can see on the screen is material that's been provided in writing. I actually - - -

MR SPROTT: Yes.

MR BEASLEY: - - - don't mind whether this question is – is answered by – by you or Mr Young or both, but the – the commission sent a letter requesting further advice to the department on 26 October to which a response was provided by the department to Professor O'Kane, the chair, on 5 November. Do either or both of you have a copy of that letter?

MR SPROTT: Yes.

MR BEASLEY: All right. What I wanted to ask you was this, first of all, in relation to blasting, if you can look at that letter. And as I said, it's – the letter's signed by Mr Young, so I don't mind whether he answers or you answer, but in relation to blasting, the further information provided to the commission was that – it was considered that the impacts would – for blasting would remain below relevant ..... criteria for human annoyance; that the impacts would remain below the existing overpressure and vibration levels reported as being generated at the boundaries of – of Coolmore and Godolphin due to blasting events at the existing Hunter Valley operations and at Mount Arthur.

And there's a comment then that the – it's considered that the blasting activities at these existing mines have no discernible impact on the operation of the thoroughbred studs. I certainly understand that. In the next paragraph, you say that the department considers that the magnitude of blasting impacts associated with the project are:

…unlikely to be noticeable at the Coolmore and Godolphin studs –

and then go on to say again no greater than existing mining complexes and provide an opinion that would not pose a significant risk to horse health and safety. My question is:

…unlikely to be noticeable at the Coolmore and Godolphin studs –

is that a – an expression of opinion in relation to humans and horses or is that in relation to humans only?

MR YOUNG: Mr Beasley, it may be if we go to either the next slide or the slide after that, I think there is a summary - - -

MR BEASLEY: Right.

MR YOUNG: - - - and maybe the next slide.

MR SPROTT: Yes. The – the blue slides.

MR YOUNG: Keep – keep going a couple of slides further, sorry. Keep going. Yes. There's some – some summary information there about particularly the potential impacts on the – on the studs in regards to noise blasting and air quality.

MR BEASLEY: Yes.

MR YOUNG: In terms of:

…unlikely to be noticeable –

the – the – this is an underground coalmine and so - - -

MR BEASLEY: Yes.

MR YOUNG: - - - the nature and extent of the blasts are very different to, say, what would be experienced or expected from an open-cut coalmine.

MR BEASLEY: Yes, understood.

MR YOUNG: So the – the – the blasts that are required to develop the mine initially are – are relatively small and can be managed. The – the – the MIC associated with the blast can be managed to a – you know, a – not only comply with the ..... criteria, but comfortably comply with the ..... criteria.

MR BEASLEY: I – I understand all that, but question was really simply directed to when you're saying impacts considered negligible or unlikely to be noticeable and unlikely to be noticeable in the letter to Professor O'Kane of 5 November, are you talking about horses as well as humans or - - -

MR YOUNG: I don't think we've – Mr Beasley, we've done no analysis of what hearing and, you know, the – that horses can have. I guess the noticeable would – we – we are required to assess things in accordance with EPA - - -

MR BEASLEY: Yes.

MR YOUNG: - - - criteria, which is obviously around human health and amenity.

MR BEASLEY: Yes.

MR YOUNG: However, in order to, I guess, apply that to the extent that's appropriate for a planning assessment to the potential impacts on the wellbeing, welfare and health of the horses - - -

MR BEASLEY: Yes.

MR YOUNG: - - - we sought the advice of the relevant people within the Department of Agriculture, DPI Agriculture.

MR BEASLEY: Yes.

MR YOUNG: And they've looked at those – that information supplied – that's outlined in our letter - - -

MR BEASLEY: Yes.

MR YOUNG: - - - and indicated that they have no concerns about - - -

MR BEASLEY: Right.

MR YOUNG: - - - the health or welfare of horses.

MR BEASLEY: And is – is that – is that – is that primarily - - -

MR YOUNG: Now, we .....

MR BEASLEY: Is that primarily based on the fact that there hasn't been any impact on the studs in – in relation to blasting activities at the other mines mentioned, like Hunter Valley and – and Mount Arthur?

MR YOUNG: So our understanding, and I guess you would need to ask the studs, but – who I understand are presenting later, that the – the impacts of blasting at those open-cut operations - - -

MR BEASLEY: Yes.

MR YOUNG: - - - are something that has been occurring for a long period of time - - -

MR BEASLEY: Sure.

MR YOUNG: - - - and is obviously something that allows coexistence. Now, whether the horses can hear them or – or notice them, I guess, that's – I'm not qualified to comment on that.

MR BEASLEY: Sure.

MR YOUNG: But clearly we have no evidence to suggest that it's an adverse impact on the horses' welfare or health or the ability of those operations to – you know, to – so they can operate things without significant interruption - - -

MR BEASLEY: Right.

MR YOUNG: - - - from mining.

MR BEASLEY: .....

MR YOUNG: So we – we would argue that the evidence shows that the impacts of this particular project would be less than existing open-cut operations - - -

MR BEASLEY: Right.

MR YOUNG: - - - at the studs.

MR BEASLEY: Understood. Speaking of - - -

PROF O'KANE: I'll just follow up there.

MR BEASLEY: Yes.

PROF O'KANE: Mr Young, was there any impact of the former open-cut mine on that site on horses? Do we know anything about that?

MR YOUNG: In terms of Drayton South or in terms of the existing operation?

PROF O'KANE: No, in terms of – well, you've already answered about the others, but in terms of Drayton South over the years it ran. Do we know - - -

MR YOUNG: Of Drayton North, so the main Drayton Mine?

PROF O'KANE: Yes.

MR YOUNG: I – I would argue that it is at – at least as far, if not further away, and behind ridgelines from where the studs are, compared to, say, the Mount Arthur operations. And so I don't have any specific evidence, but I – I – I would suggest that given that distance and given the intervening topography, that any issues around blasting at the Drayton – the former Drayton Mine would have been no greater or more significant than, say, what's happening now at Mount Arthur. But clearly, you

know, I – I have no evidence or information on that and – and maybe the – the relevant people from the – the studs could comment upon their experience of that.

PROF O'KANE: Thank you.

MR BEASLEY: Thank you. Can I just ask a couple of questions about the – the issue of – you raised the phrase "evidence" a moment ago. Can I ask you very brief questions about noise assessment and groundwater assessment. I apologise if these questions sound a bit like Dorothy Dix. That's not intended. It's a function of time, but dealing with groundwater first, in the EIS, there's a – a – a report by HydroSimulations and there's a peer review by – by Dr Kalf. Can I just ask generally to either of you, is there – has there been any evidence provided to the department whether from another government agency or elsewhere that – that throws any expert doubt on the conclusions reached either by HydroSimulations or Dr Kalf?

MR YOUNG: I'll maybe let Matt Sprott answer that.

MR SPROTT: There – there's no evidence or no comments that I am aware of by the government agencies that throw doubt on their – on their report. There was further information sought by the - - -

MR BEASLEY: Yes.

MR SPROTT: - - - department's water division regarding some of the licensing aspects of the project. However, this has been subsequently resolved through the provision of additional information by the company.

MR BEASLEY: Yes.

MR SPROTT: But as far as the integrity of the actual modelling is concerned, I am not aware of any advice from government agencies that would indicate that this an issue with the work that has been undertaken.

MR BEASLEY: All right. Thank you. And does – does the same apply in relation to the – the Wilkinson and Murray noise assessment in the EIS?

MR SPROTT: That is – that is correct. The assessment of the EIS, likewise the EPA, has provided advice on the noise assessment.

MR BEASLEY: Yes.

MR SPROTT: Ultimately, the EPA have provided their support for the outcomes of the project - - -

MR BEASLEY: Yes.

MR SPROTT: - - - and have provided a range of recommended conditions associated with what they would seek to impose on their environmental protection licence for the site.

MR BEASLEY: Yes.

MR SPROTT: And the department has incorporated those recommendations where appropriate to reflect them in the development consent from a planning perspective.

MR BEASLEY: All right. Thank you. I'm – I'm sorry. I interrupted, so whoever's still – I'm not sure whether we're with Mr Sprott still or – or - - -

MR SPROTT: So - - -

MR YOUNG: Look, I – I think given – I'm not sure of the timing, because we were a bit delayed in terms of the start, so, look, if it pleases the commission, and we've run out of time, you know, we – we'd be happy just to respond to questions if – if that would be of most assistance, if there are any residual questions.

MR HANN: Not from me.

PROF O'KANE: No. I don't think there's anything from us at this time. Thank you.

MR YOUNG: All right. Well, maybe we'll just go to the final – the second-from-last slide, perhaps, and just summarise our position. Maybe go for that slide. So I just think that it's important to obviously recognise there the concerns and impacts of the project and – as indicated by Matt, you know, there are a range of residual impacts. We consider that the – the – those impacts can be managed through appropriate conditions and monitoring and adaptive management, but also obviously the project would have a range of significant benefits as outlined here and as outlined in our report. In particular, I think, it's important to recognise that this would be a diversification in the local economy as matters indicate, in terms of underground mining versus open-cut.

We consider it would have significantly less impacts than an equivalent open-cut operation and the coal supply produced by the mine would primarily be for steel making. And next slide, please. So just in summary - - -

MR BEASLEY: Just – just on steel making, Mr Young, Mr Sprott, I think I said – I think said that – that the coking coal is – is used for – for steel making. There's actually, at the moment, technology – it requires coking coal for making steel, doesn't it? There's no other means of making it at the moment.

MR YOUNG: Mr Beasley, look, from a technology point of view, no, there are other – are other ways to – to make steel. Obviously one of the key innovations in recent times has been the use of hydrogen - - -

MR BEASLEY: Yes.

MR YOUNG: - - - to – in – in steel making. My understanding, and – and I'm not an expert on this, but my understanding is that there are limited operations around the world - - -

MR BEASLEY: Yes.

MR YOUNG: - - - that use hydrogen at a commercial scale to - - -

MR BEASLEY: Yes.

MR YOUNG: - - - to produce large quantities of steel.

MR BEASLEY: Yes.

MR YOUNG: And certainly I'm aware that at this stage in Australia, whilst there are some movements by BlueScope and – and – and steelmakers such as that to investigate the use of hydrogen. The indication I have and the understanding I have is that the commercial application at scale is – is some years, if not many years, away.

MR BEASLEY: Thank you.

MR YOUNG: So, look, I mean, I think – I don't want to belabour the point, but, you know, obviously we've undertaken a very comprehensive assessment over the last – particularly over the last year. You know, we – we consider that the project really has been designed to minimise impacts to the greatest practicable, particularly by using underground mining methods and relying on the existing infrastructure at the – at the former Drayton Mine. We consider that the residual impacts can be managed in accordance with the conditions that are – are standard conditions in – in the main, but also customised to the particular aspects of the project that we consider need detailed management, such as the realignment of Edderton Road, for example.

And so our view is from a whole-of-government perspective and from a state interest or public interest perspective that – that the best option – that the project represents the best option of successful coexistence of coal mining, managing impacts on the critical industry cluster – in particular, the thoroughbred operations and the – and the viticulture operation nearby – and would have no material impacts on the operations of the Coolmore and Woodlands studs or the health and wellbeing of the thoroughbred horses based on the advice that we've received from DPI Agriculture and other information supplied in the assessment process.

And on balance, you know, we consider that those economics and social benefits that I outlined would have significant benefits for the state and that those benefits outweigh the residual negative impacts of the project. And so whilst we – it is - - -

MR BEASLEY: Yes.

MR YOUNG: - - - clearly that the – the commission's determination as to whether it be approved or not and – and I want to make it clear that we – we haven't necessarily recommended that it be approved. We – we have recommended or – or indicate that based on our assessment, the project is approvable, subject to those recommended conditions of consent.

MR BEASLEY: All right. Look, thank you, both, very much for your presentations and evidence to the commission. We're going to have a break now for Remembrance Day and come back in about four minutes.

MR YOUNG: Thank you.

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MR BEASLEY: Do we have Mr Seabrook from Malabar Resources?

MR SEABROOK: Yes. Yes. I'm on the call now.

MR BEASLEY: Thank you. Please go ahead, Mr Seabrook.

MR SEABROOK: Yes. Thank you. Good morning. My name is Wayne Seabrook. I'm chairman of Malabar Resources, and thank you, Commissioners O'Kane and Hann, for providing Malabar with the opportunity to present. Before I begin my presentation, I would like to acknowledge the traditional owners of the country on which we meet today, the Wonnarua people. We recognise their continued connection to the land, waters and culture, and pay our respects to their elders past, present and emerging. I will now take you through my presentation. Malabar Resources is an independent Australian public company. Our operations are located entirely in the Upper Hunter Valley. These are the Maxwell Underground Project, the existing Maxwell Infrastructure. This is extensive infrastructure that we acquired previously supporting the obviously now closed Drayton open cut. We're re-utilising it for supporting the underground operation and the Maxwell Solar Farm.

We are industry leaders with more than 300 years of experience in the mining industry, and delivered and operated six underground coal mines in New South Wales. We're immensely proud of the Malabar team. It has worked with great innovation and passion to bring a contemporary approach to developing our Maxwell Project in the Upper Hunter. Our approach focuses on sustainable development that is sympathetic to or co-exists with existing and future industries and enterprises. Two of our team, James Johnson and Donna McLaughlin, will also present today to talk about employment, environment and the community. Just turning to the underground project, I won't dwell too much on some of the aspects of this map here

because Matt Sprott from the Department of Industry and Environment and Planning has described much of what is on this page.

Obviously the underground mine is located east of Denman and south of Muswellbrook. This magenta area is the area below the surface where the underground workings will be. The underground mine entry here – hopefully you can see my little pointer – is five kilometres approximately from the Golden Highway, and further to the north, about 15 kilometres from the Golden Highway is existing Maxwell infrastructure. The bright green area is the Maxwell Solar Farm, and over here on the west, this red area, is our Merton Vineyard, home to the Small Forest Wines. We're planning on producing high quality coal, with at least three-quarters of the coal produced capable of being used in steel manufacturing. The balance would be suitable for HELE power stations but, of course, underground mining means significantly lower environmental impacts than an open cut, and as I've stated, we've carefully placed the underground entry in a valley 5 ks north of the Golden Highway.

As a result, the mine entry and surface infrastructure will not be visible to those in the south, and we believe this different approach addresses concerns that were raised in relation to the previous proposals. The Solar Farm – we gained approval in August 2020, and the panels will be located on an area that was previously open-cut mining disturbance. The farm is adjacent to the major generating hub in New South Wales, and in proximity to high voltage large capacity lines, and as you would likely be aware, the Liddell Power Station is due to commence winding down from about early 2022. The farm will have capacity for about 25 megawatts, which would be sufficient to power around 10,000 local homes, nearly all the homes of Muswellbrook and Singleton.

Just looking back at the recent history of Malabar, we've been committed to developing a project that co-exists with our neighbours, and contribute positively to the local region, and in 2017, we announced that we would develop the project solely as an underground mine, and we proactively put forward significant constraints on the project to ensure that that was enshrined in the conditions of title on the exploration licence. And so when the exploration licence was renewed in 2007, it had those conditions. In addition, we voluntarily relinquished that portion of the licence that is south of the Golden Highway. In about the same month, Malabar also supported the government's amendment to the SEPP to prohibit open-cut mining in this location.

So in essence, there's two layers of protection to ensure that there's no open-cut development in the area of the Maxwell underground: the conditions on the title and the SEPP. Then we – we – ownership of the assets transferred in early 2018, and about a week later, we commenced rehabilitation activities of the former Drayton mine. In August last year, the EIS went on exhibition to support our development application and, of course, at the end of September, the Department of Planning, Infrastructure and Environment assessment report was released stating the project's approval, and referred it to the IPC. Our philosophy has been to develop sustainable

long-term enterprise, to maintain and broaden our engagement with our neighbours and community, and being continually aware of their points of view, maintaining and improving our agricultural assets.

We look forward to supporting local employment, particularly the younger generations, with apprenticeships and traineeships, and we look to continue to support and expand our support for local businesses, as we develop the project. And this philosophy has driven key design decisions and criteria for the Maxwell Project. Obviously it's going to – it will only – will not only bring an underground mine together; it will be minimising additional infrastructure by using that which already exists at the Maxwell Infrastructure site, locating the mine entry in an area sheltered by ridgelines, and we're also going to ensure that the maximum height of any structure is below the ridgeline, so invisible to our southern neighbours.

We will access the project site from the Thomas Mitchell Drive, and we will seal that road from the Thomas Mitchell Drive down to the mine entry. There will be no direct subsidence of either the Hunter River or Saddlers Creek, and we will transport the long haul coal via covered conveyor to the existing Maxwell infrastructure. We are comfortable committing to these design criteria, despite significantly greater capital intensity at start-up than previous open-cut proposals. We believe these design criteria have addressed the concerns of the past, so visual impact – the mine has a very small footprint and obviously is located in a valley 5 ks north of the Golden Highway.

With regard to air quality, underground mining operations will have minimal impact on air quality, and dust emissions from the project will represent less than 10 per cent of the emissions that would have been generated by the previous Drayton South open-cut proposal. There will be no production blasting for underground operations. Noise – there will be limited surface activities, given it's an underground project, and so we've demonstrated that there will be indistinguishable background noise for those south of the Golden Highway. With regard to land use, agricultural activities can continue on Malabar-owned land above the underground mining activities, and there will be negligible impact on use of the Hunter River and users of alluvial groundwater.

Regard to co-existence, the project has been designed to ensure all industries in the area can thrive, including our neighbours, whilst ensuring economic and social benefits flow through the local community. So we believe the project strikes the right balance between creating jobs and opportunities for local communities, whilst not disturbing other industries and maintaining the amenity of the region. There are some benefits of our project on the slide. Firstly, of course, the certainty that there will never be an open-cut mine in this area. We will generate 350 direct jobs and many more indirect. Our direct jobs will generate 55 million per year in annual wages to the local community. We will be exporting about 500 to 700 million of export product annually through the port of Newcastle, and generating about 1 to 1.2 billion in royalties to the New South Wales Government over the initial 26 years.

In addition to that, other contributions to New South Wales via levies, payroll tax, council planning agreements, council rates are something around 150 million, plus we will continue our ongoing contributions to community groups. In regard to rehabilitation outcomes, we believe that the underground provides better rehabilitation outcomes to the existing open-cut rehabilitation activities that we're currently undertaking, and I'll touch on those a little bit later. There's a page showing community groups that we've supported in the past eight years, and Donna McLaughlin, who will be following me, will talk a bit more about this.

This diagram of the project boundary shows the region which we're in, and I think, you know, Matt Sprott, again, has given a good description of this area, but just to reiterate, up here in the north, if you can see my cursor, is the Maxwell infrastructure, and I'm just – my mouse is just sort of wandering around the old open-cut area that we substantially rehabilitated. To the east is Liddell ash dam, and further to the east off the diagram is Liddell Power Station, and on the west is BHP's Mount Arthur operations, and down to the south-east is the Hunter Valley operations of Yancoal and Glencore. The yellow corridor is the transport corridor for our access road and overland conveyor, which will bring our workers down to the mine entry area.

From there, they will go underground, and run-of-mine coal from the underground workings will travel back up to be processed through the Maxwell infrastructure, and shipped out through our own train – our existing train load out to the port of Newcastle. And, of course, the yellow line, as the department has indicated, is the relocation and realignment of Edderton Road prior to the extraction of coal from the Arrowfield Seam. And this aerial simulation puts it in perspective. This illustrates how the visual impact of the mine is minimised throughout its life, and here you can see the mine entry area in a basin, and the white line, of course, is the overland conveyor, about 10 kilometres heading out to the existing infrastructure.

Importantly, the aerial simulation puts it into perspective in regard to other operations in the area and, indeed, in regard to the old Drayton open-cut that operated here for about 30 years. Construction materials for the mine entry are designed to blend in with the surrounding area. Native landscaping will complement this approach, and lighting will be designed to minimise spill. Just putting that into 3D perspective, here is the mine entry, again, about 5 ks as the crow flies from the Golden Highway, and I reiterate that we've imposed constraints on our engineering team to ensure the top of any structure remains below the southern ridgelines.

We're obviously looking to maximise use of the infrastructure, so this has an element of brownfields development, because we're reusing all of this existing wash plants, rail load out, product handling and so forth that we acquired from Anglo. The project will also support continued rehabilitation of the old open cut, and so if you can see my cursor, you can see the outline of the open cut and the rehabilitation that we've undertaken since early 2018. The underground project will support the continued rehabilitation of the open cut, including reduction by East Boyd through emplacement of reject material generated by coal processing activities. We're very

proud of the progress we've made since 2018, with backfilling, shaping and rehabilitating the open cut.

In conclusion, the Maxwell Project will provide significant benefits to the local community. As has been mentioned before, the coking coal product plus underground mining techniques provides industry diversification for the Muswellbrook local government area. The project will also create increased local employment and benefit local businesses. We have commenced employing local staff, and they have the responsibility for delivering the project following approval. Our commitment to underground projects is very different from past proposals. As I've stated, we voluntarily relinquished that portion of the EL that is south of the Golden Highway, and voluntarily imposed conditions to prohibit open-cut mining and, of course, this dramatically reduces the impact from dust, lighting, noise, eliminates production blasting, and retains the visual amenity of the area.

We have listened to the community and shaped the project accordingly. Our stakeholder and community engagement for the last eight years will continue and broaden. Our extensive environmental monitoring program provides the basis of the robust EIS and our planned environmental measures going forward, and we continue to enhance our agricultural outcomes on our land, whether that's the vineyard, our cattle grazing or cropping. We're comfortable with the draft conditions in the New South Wales DPIE's assessment report, and are pleased they concluded that the Maxwell Project has approval and in the public interest. When one considers the sum of the various actions we've taken and our future ambitions for the location, we believe Malabar has taken a lead role in how resource companies can manage their transition to the new economy.

PROF O'KANE: Thank you.

MR SEABROOK: Thank you for the opportunity to present, and I'll leave you with a photo of some of the existing infrastructure ..... care and maintenance, and will be used for processing and handling the product from the underground mine. Thank you.

PROF O'KANE: Thanks, Mr Seabrook. A question: you've pointed out directly and through various indirect things, that you've listened carefully to the community. Could you tell us a little bit, particularly about how you've listened to the community of the horse breeding studs nearby, the community represented by them, and did you investigate how this project might have an impact on the horses there? And if so, can you tell us what you concluded from that investigation?

MR SEABROOK: Yes. Right from the outset, we've sought to design a project where we've dealt with all the issues, and as far as engaging with the horse studs, we've had – we've visited Coolmore, and we also had representations from Coolmore to our mine on a number of occasions, and taken them to where we intend to put the mine entry area. And likewise, we visited Godolphin, and have had obviously a number of discussions with them, also at our open days, and we've

provided particular bespoke booklets, which condensed as best we could, the effects of the project which were specific to their particular operations. And when it comes to, I guess, your question about the impacts on the horse operations, I'm not obviously an equine expert, so we took the advice from our experts in the area, and, again, just reinforcing the information and comments by the department, because of the reduced – the low levels of dust, the absence of any sort of negative impact on noise at those locations, and the fact that the construction and blasting will be significantly less than the existing operations, we saw that these were design matters that would address the – you know, the issues that the equine industry had with the previous proposals.

PROF O'KANE: Thank you. Tell me a little – in this regard, tell me a little bit more about relinquishing that portion of the licence that you gave up. What was your particular reasoning about it? What was the concern that if you actually had mined there, that could have been a problem for somebody, presumably the studs?

MR SEABROOK: Yes. We saw that – that obviously there had been a lot of – you know, obviously a lot of issues in the past. We've got substantial coal resources north of the Golden Highway, and so we saw that by taking that issue off the table, was a way of making sure that, you know, there would be no disturbance on their operations, whatever it may be. So we thought – we saw that taking that away, given that we've got 1.4 – you know, 148 million tonnes of coal north of Golden Highway in an area where we're not mining under either the Golden Highway or the studs, was a pragmatic and sensible thing to do.

PROF O'KANE: And one last question from me, could you just remind us how deep the mine will be, as you come up to the Golden Highway.

MR SEABROOK: Yes. As we come up to the Golden Highway, the shallowest seam, the Woodlands Hill Seam would be around about 200 metres deep, and the deepest seam is about 400.

PROF O'KANE: Great. Thank you.

MR BEASLEY: Not from me.

PROF O'KANE: Anything, John?

MR HANN: Yes. Mr Seabrook, just a question around Edderton Road and the realignment, and particularly the timing. As we understand it, subsidence of around 4.3 metres is predicted once you start extracting the Arrowfield Seam, and that's around 2032, based on your time line. However, we do note that subsidence of some two metres, nevertheless, would occur earlier than that. How will you ensure that the existing alignment of Edderton Road will be maintained as a proper thoroughfare, and serviceable for all of the important traffic when you've got substantial subsidence predicted?

MR SEABROOK: Yes. Yes. Obviously we will be putting in place 24/7 monitoring on that road, and obviously there has been prior examples of subsidence of this nature being managed without roads being interrupted in the area, you know, specifically on Broke Road and Charlton Road, and so the geological conditions and what we're seeking to do here are not that different to what took place over there, so we could learn a lot from the management techniques and – that were undertaken in those circumstances, and so with that experience in the region, combined with our modelling, because obviously we can predict very precisely when we're approaching the road, we can obviously prepare ourselves for when we go under the road, and clearly before we even get to the road, we can monitor the conditions of subsidence leading up to the road. So there's a lot of things which assist us in planning going forward, and preparing our monitoring and remediation when we go under the road. So it's not something that's new or novel; it's been well done in the area by reputable firms in the past, and we're comfortable that we can manage subsidence of the Woodlands Hill Seam under Edderton Road.

MR HANN: Thank you, Mr Seabrook.

MR BEASLEY: All right. Thank you. Do we have Mr Johnson from Malabar Resources now?

MR JOHNSON: We do. We do. Thank you.

MR BEASLEY: Please go ahead, Mr Johnson, when you're ready.

MR JOHNSON: I'll show you my presentation. Can you see that on the screen, Commissioners?

PROF O'KANE: Yes, we can. Thank you.

MR JOHNSON: All right. Good morning, Commissioners, and other members of the IPC, and thank you for the opportunity to speak today on behalf of Malabar Resources and the Maxwell Underground Project. Firstly, I would like to start by acknowledging the traditional owners of the land upon which we stand today, the Wonnarua people, and pay my respects to the elders past, present and emerging. Just by way of background on myself, my name is James Johnson. I live in the Hunter region with my wife and our four young children, and have been with Malabar Resources as general manager development and operations since mid-2019.

I grew up in the Hunter region, and almost the entirety of my life has been benefited from the Hunter coal industry, with my grandfather, father, brother and many more of my extended family and friends serving some or all of their careers in the coal mines of our region. My career in the mining industry began when I was 15 years old as an apprentice fitter and machinist, and I have worked in the New South Wales underground coal industry since 1999, starting firstly as a tradesman at the face, and progressing through a variety of key management roles. I have worked at several

high performing underground coal operations, and have been involved at a senior level in the successful development and ramp-up of a greenfield operation.

I'm a graduate of the university in Newcastle, completing a Bachelor of Engineering in 2006, and hold many of the New South Wales mining industry specific qualifications, including practising certificates as a mine manager and mechanical engineering manager. I am here today to talk about the training and employment opportunities our project can provide, and some of the design aspects we've incorporated into the project plans based on the feedback we've received during consultation and the assessment process so far. As you've heard, co-existence is a fundamental principle of our project, and we understand the value of this to our community. To continue to be a vibrant community, we need a wide range of jobs to support a diverse group of people.

The types of new jobs and development opportunities our project can provide will assist to keep families and young people in the region. Co-existence means the community continue to reap the benefits of many different strong local industries that have worked side by side for over a century, and all the jobs and economic investment they both provide. As you've already heard today and throughout the assessment material, the Maxwell Project will deliver 350 direct new jobs into the local economy, and many more indirect jobs throughout the region and state. We already have a workforce of 13 staff and many more contractors and consultants living and working in the Hunter region.

Through our onboarding program, we will provide training to develop people, including those that may not have worked in an underground operation before. This will ensure we are developing local workforce capacity while also providing people with career opportunity and choice. In addition, we will engage four local apprentices each year once we commence longwall operations. Extrapolating this out means our project can provide career paths for almost 100 young men and women to learn and earn much-needed trade skills. We believe in diversity in the community and the workplace, and will provide employment and training opportunities for indigenous Australians and women in mining. We know how important it is for this project to employ from within the local community. Where possible, we will prioritise employing locally and structure our operations with community and family friendly rosters to support employees living locally.

Developing and operating a successful underground coal business requires a wide range of hands-on and technical skills, from operators and trades personnel such as electricians and mechanical fitters, as well as engineers, including geotechnical, mining, chemical, mechanical, civil, electrical and information technology. We also require geologists, surveyors, environmental scientists, safety professionals and project managers, accountants, human resource specialists, commercial personnel, logistics, as well as sales and marketing. The list is not exhaustive, but I've listed enough to make the point, though, that our project will create a broad variety of opportunities.

To develop local skills and ensure we are building capacity, we will support local schools and tertiary institutions like the university in Newcastle and Muswellbrook TAFE by providing onsite work experience and vacation work opportunities to support studies and career decisions. We will develop specific training programs and identify local and young people with an interest in employment in underground coal. Supporting our local suppliers – the development of this project will provide ongoing support and growth opportunities for local and regional businesses for many years ahead. Our existing operations already support many local and regional contractors and suppliers, and since 2018 have contributed in excess of $20 million into businesses throughout the Hunter region.

Project design – the project has been designed to minimise disturbance as far as practical. The design features that support this objective include only accessing site from the already established purpose-built access road off Thomas Mitchell Drive, some 10 kilometres from the mine entry area; establishing a narrow transport and services corridor via the existing coal lease to the mine entry area for the covered overland conveyor and access road; and the beneficial reuse of substantial existing Maxwell infrastructure for coal handling, processing and train load out, as well as water storage and reject emplacement. Other key design inputs have been to, as far as possible, limit visibility and noise, and although a little difficult to make out on this slide, I can point out that the area surrounding the mine entry area is quite undulating, and we have placed it in a natural valley to reduce visibility and noise impacts.

By reusing the Maxwell infrastructure, this has enabled us to design a compact mine entry area and minimise disturbance of the surrounding pasture and woodlands. The area contains only elements required to directly support the underground mining operation, such as operational offices, bath house, infrastructure for managing water, portal entries for establishing the underground access strips, and a small coal surge bowl for transferring onto the overland conveyor, with all other key infrastructure reused from prior mining operations, and located at Maxwell Infrastructure some 10 kilometres away from the mine entry area, as shown on the previous slide. The layout also incorporates features we heard were important during the consultation, including keeping the coal surge bowl small to minimise dust and noise, and keeping all infrastructure below the sightlines of the nearby horse studs. As you have heard from our chairman, Wayne Seabrook, already this has been key to the design criteria we have applied.

The project is for underground mining only, no open-cut. The longwall targets coal seams that are deeper in the sequence, producing coal that is suitable for use in steel making. The depth varies generally due to surface topology, and is up to 425 metres deep, and is suitable for longwall mining. The mine layout and panels are designed such that there will be no direct subsidence on the Golden Highway and the Hunter River to the south-west of the panels, or Saddlers Creek to the west of the mining area. Also as shown on the diagram, is the planned relocation and upgrade of Edderton Road and the associated Golden Highway intersection. This upgrade and relocation will be completed prior to commencing longwall mining in the Arrowfield

Seam. Also, as is good practice in longwall mining and to support reducing subsidence effects, the longwall panels are designed so they are staggered between seams, so the chain pillars do not align.

In concluding my presentation, we absolutely understand the value of co-existence to our community. This has been and will remain fundamental to our decision-making throughout our project. Based on the value of co-existence, we committed to design and develop the project as an underground mine only, and reuse the Maxwell infrastructure. We will continue to support the many local and regional contractors and suppliers who can benefit from the construction and operation of the underground mine. The project will deliver 350 new jobs into the local economy and many more indirect jobs throughout the region and state and, importantly, we will provide development - - -

PROF O'KANE: We've lost the sound.

MR JOHNSON: And that concludes my - - -

PROF O'KANE: Yes.

MR BEASLEY: Yes. Mr Seabrook, I'm not sure if you can hear us – sorry, Mr Johnson. I'm not sure if you can hear me but the last 30 seconds of what you said, we missed. Obviously can't hear me. All right. Given the problem we've just had with Mr Johnson, we might come back to his last 30 seconds after a 10-minute morning tea break.

RECORDING SUSPENDED **[11.32 am]**

RECORDING RESUMED **[11.47 am]**

MR BEASLEY: All right. I think Mr Johnson had finished his evidence, and I think we now have Ms Donna McLaughlin. Ms McLaughlin.

MS D. McLAUGHLIN: Yes. That's correct.

MR BEASLEY: You're also from Malabar Resources. Please go ahead.

MS McLAUGHLIN: Thank you. I'll just pull up my presentation. Has that come up on your screen okay?

MR BEASLEY: Yes, it has.

MS McLAUGHLIN: Good morning, commissioners. Firstly, I would like to acknowledge the traditional owners of the land on which I stand on today, the Wanaruah people, and pay my respects to elders past, present and emerging. My name is Donna McLaughlin. I'm the health, safety, environment and community manager for Malabar Resources. I've been working for Malabar for the last two and a half years. I've worked in the New South Wales mining industry for the last 12 years in both site-based and environmental consultant roles. In that time, I've seen quite a lot of change and progression in regards to environmental management practices and mining approvals.

I grew up in the Hunter region and went to the University of Newcastle, completing a Bachelor of Environmental Science. I live in the local community with my husband and two young children, and I'm based at the former Drayton Mine site, now known as Maxwell Infrastructure. I'm here today to talk about the Maxwell Underground project and more specifically the community support for the project and the rehabilitation of the Maxwell Infrastructure site.

Malabar is continuing to foster relationships in the local community, and I can say that I'm proud to work for a company that understands and values its social licence to operate. At Malabar, we know we must coexist within the local community and with other local industries. We value community feedback and have incorporated this into the Maxwell Underground project. We believe this is evidenced by the strong and positive community support and response in regards to the public exhibition of the Maxwell Underground EIS. We believe this project strikes the right balance between creating jobs and opportunities for the local community whilst minimising environmental impacts. Of the 245 submissions received for the Maxwell Underground EIS, a total of 187 submissions were received from members of the public, with 146 of those submissions in support of the project. That's a total of 78 per cent of all public submissions. 72 per cent of organisations that made a submission also supported the project.

So what makes this project different to other mining projects? Underground mining has the ability to coexist with other land uses due to less environmental impacts and smaller surface disturbance when compared to open-cut mining methods. Importantly, agricultural activities that have occurred in the area since European settlement can continue on Malabar-owned land above the underground mining area. It creates local employment and local supply opportunities and will reuse substantial existing infrastructure at the Maxwell Infrastructure site. And, lastly, there will be community investment for a planning agreement with local council and the continuation of the Malabar community sponsorship program, which has been running since 2012.

Malabar is an active member of the local community. We have supported and continue to support numerous local organisations, charities and individuals as part of the community sponsorship program. Our program focuses on projects that support community health and wellbeing, have a focus on improved education outcomes and encourage sustainability. Our total community contribution since 2012 is well over

400,000. I will now provide just a few examples of the community projects that Malabar have been actively involved with over the last few years.

In 2018, Malabar donated three defib units to organisations within the local community. These organisations included the Upper Hunter Riding for the Disabled, who are a volunteer organisation providing equine-assisted activities for people with disabilities; the Wanaruah Aboriginal Land Council, which was first established in 1984; and the Denman and District Development Association, which provides community support in and around the Denman area. In 2018, Malabar also fully funded and installed a sensory garden at Muswellbrook Public School, which has over 500 local students enrolled. The garden included plants and materials with different textures, shapes, colours, scents and heights and provided a great outdoor learning area for children of all ages.

In 2019, Malabar partnered with Wakegetti Indigenous Corporation to sponsor a three-day camp for young indigenous men living in the Hunter Valley. The camp was fully funded by Malabar and provided an opportunity for participants to learn about cultural wellbeing through dance, story, art and explore cultural identity, connection to country, empowerment and leadership. During May 2020, when the community experienced firsthand the impacts of COVID-19, Malabar donated three large hampers to the residents at Calvary Muswellbrook. These residents, who were having reduced contact with family and friends at the time, were gifted with items such as cards, board games, puzzles, handcraft activities, personal care products and writing sets.

During August 2020, Malabar partnered with local not-for-profit organisation Where There's a Will to provide free youth mental health training in Muswellbrook. Where There's a Will work with local schools and the community to improve mental health and wellbeing. The training was fully funded by Malabar and was well-received by all participants, which included parents, teachers, youth workers and members of the public.

I would now like to highlight that Malabar's business extends beyond coal. As Wayne had mentioned earlier, we have the recently approved Maxwell Solar Farm. In addition to this, we also own and have under long-term lease agreements substantial pastoral properties in the local area. Malabar also owns and runs the Merton Vineyard, which is located on the Golden Highway at Denman. Since purchasing the vineyard, we have invested in improving the quality of the fruit and expanding the infrastructure to make the vineyard a viable business. We now have three large wineries buying our fruit, and they have done so for the last four consecutive years.

Now I'm going to talk a little bit about the rehabilitation of the Maxwell Infrastructure site. Malabar commenced rehabilitation activities within one week of taking ownership of the site. In doing so, we were keen to make some improvements, with a key focus being on vegetation establishment. Firstly, we undertook a gap analysis of the existing rehabilitation. This helped us to understand

what worked well in the past, what didn't work well and where we needed to focus our efforts on going forward. In consultation with an agronomist and an ecologist, we reviewed the seed mixes to target species likely to occur in the area and under these conditions. We introduced the application of gypsum to break up compact clay soils and the use of soil ameliorants such as biosolids and compost. We also incorporated dams and more natural looking drainage lines on the rehabilitation.

We've had some clear rehabilitation objectives from the start, and these include creating a safe and stable landform that is capable – sorry – compatible with the surrounding landscape, creating a landform that is capable of productive land use that achieves the nominated land capability, establishing vegetation that is self-sustaining and provides a sustainable habitat for local fauna and successive flora species, creating a landform that enhances the local and regional habitat corridors, and developing land uses that are sustainable and benefit the future use of the site for the local community.

I would now like to take this opportunity to highlight some of the work that has been undertaken by Malabar at the Maxwell Infrastructure site over the last two and a half years. We've completed over 439 acres of rehabilitation. We've commenced a cattle grazing trial and a native grass trial on the mine site. We've planted over 60,000 trees in our woodland corridor. We've improved soil nutrients through the use of soil ameliorants. We've developed fit for purpose drainage and installed nine rock structures to assist with water management. We've undertaken targeted weed management activities on rehabilitation. And we've undertaken remedial work on an area that was rehabilitated in 2016, prior to our ownership, to improve drainage and vegetation growth. In total, over 2075 acres of land at the Maxwell Infrastructure site has now been rehabilitated.

I will leave you today with a photo of the Angus cross Charolais steers that were part of the grazing trial. These steers came to site in November 2018 and were sold in 2020, meeting all primary marketing criteria. At Malabar, we are committed to good rehabilitation outcomes and creating a landform that is compatible with the surrounding landscape and capable of a productive land use. Thank you for your time today.

PROF O'KANE: Thank you, Ms McLaughlin. That was very clear. A question for you. You talked about what had worked well and what hadn't worked well with remediation before Malabar took over.

MS McLAUGHLIN: Yes.

PROF O'KANE: Could you tell us a little bit about what are the greatest challenges to achieving the quality of remediation that you're seeking to establish. So what really are one or two or three maybe top challenges to getting there?

MS McLAUGHLIN: Yes. So there's three that I could probably mention. One is in regards to the water management and having contours that can, I guess, transfer

the water off the overburdened emplacements into the final voids and making sure that they're designed to a certain standard to maintain that. The second one was probably around in regards to the nutrients in the topsoil that was here on the existing mine site and improving some of those nutrients through use of biosolids and mulch and adding in organic matter to the soil. And the last one, I guess, is probably around the seed mix that we're using. In particular, when we purchased the site, we were, you know, in the middle of some quite dry times and in particular drought conditions, so being able to modify, I guess, our seed mixes to make sure that we were still getting good vegetation establishment, which also feeds into the water management as well.

PROF O'KANE: Thank you.

MR BEASLEY: Nothing from me. Thank you. Thank you, Ms McLaughlin. I think we now have the first speaker from Hunter Thoroughbred Breeders Association, Cameron Collins. Are you there, Mr Collins?

DR C. COLLINS: Yes, I am. Thank you, commissioner.

MR BEASLEY: Please go ahead.

DR COLLINS: Good morning and thank you for your time. It's nice to see you again. Before I start, I'd like to note that the Hunter Thoroughbred Breeders Association acknowledges the traditional owners of the lands on which we meet and their leaders past, present and emerging. I'd just like to share my screen, if I can. Has that come up on your screen?

MR BEASLEY: It has. Yes. Thank you.

DR COLLINS: Great. Thank you. So as you know, my name is Cameron Collins. I'm a veterinarian with 25 years experience in equine reproductive practice in the Hunter Valley and internationally. I'm the managing director of the Scone Equine Hospital, a member of the Australian and New Zealand College of Veterinary Scientists and Equine Medicine and the president of the Hunter Thoroughbred Breeders Association. It is as the president of the Hunter Thoroughbred Breeders that I speak to you today.

I would like to explain what we do, why this proposal is relevant to us and to help you understand the scale of our industry and its importance to the region. The Hunter Thoroughbred Breeders represents some 200 organisations and many individuals who make their living from breeding horses and the associated activities in the valley. In fact, were it not the case that we are currently in the middle of the equine breeding season, the busiest time of the year for our industry, I expect we would have twice the number of applications to present to you on this matter. I apologise for that.

So our industry has a 200 year history of sustainable farming in the Hunter Valley. Our members have been doing it for generations, and our business is producing the world's best equine athletes. It is, therefore, with great concern that I appear here before you to, once again, defend and preserve the Hunter's critical industry cluster. We understand the historical role that mining has played in the economic development of the Hunter region, but times are changing. The future of this region lies in a diverse economy and in a range of sustainable industries. Agricultural industries such as ours are the future, and destructive short-term projects such as this one with significant disadvantages for the environment, the neighbours and the community should not be approved at the expense of those sustainable industries.

The Hunter's multibillion dollar breeding industry is the largest in Australia and the second largest in the world. The Hunter is considered one of three centres of excellence of thoroughbred breeding alongside Kentucky in the USA and Newmarket in the United Kingdom. One in every two thoroughbreds born in Australia are bred in the Upper Hunter. It is Australia's largest producer, supplier and exporter of premium thoroughbreds. 80 to 90 per cent of the catalogue of horses auctioned at yearling sales around the country every year are the progeny of Hunter stallions. 80 to 90 per cent of Australia's thoroughbred exports are the progeny of Hunter stallions. Some 50 per cent of the races along the eastern seaboard on any typical racing day contain the progeny of Hunter stallions.

Our industry is world-recognised and world-renowned. It is interconnected, vertically integrated and concentrated in a critical mass in the Hunter Valley. Its people, infrastructure, horses and the environment are central to this reputation. The industry is fundamentally based on the value and performance of our stallions and their progeny and critically the environment in which they are bred and reared. Our industry makes an annual contribution to the Hunter region of $565 million, to the state of $2.6 billion and to the national economy of around 5 billion. The industry is the largest agricultural employer in the region, with around 5000 direct jobs. It contributes 53,000 jobs to the state, and around 250,000 jobs are related to it across the nation.

Racing is one of Australia's oldest sports and is the second most popular sport in Australia behind the AFL, with other two million attendances every year. It is part of the fabric of rural community across the country, and in New South Wales alone, there are 134 race clubs. Our industry produces the equine athletes for the entire country.

The thoroughbred industry is a substantial an important agricultural industry. Its contribution to the economy of this region is twice the value of irrigated agriculture, four and a half times the value – sorry – and 25 times the value of dairy. It's a significant agricultural industry. As a result, it has been recognised by the New South Wales State Government and has been declared a critical industry cluster and of national significance. It has been protected from coal seam gas mining, and numerous previous planning assessment commissions have recognised that coal mining and international scale horse breeding operations cannot coexist in close

proximity. They have repeatedly recommended that buffers and preservation zones are required to protect it.

So here we have the perfect environment to produce horses. It's an agricultural landscape with the climate, the topography, the soil and the water we need. It has exactly the conditions necessary to produce horses, and it has a 200 year history of producing some of the best in the world. It is not an accident that the horses, the farms, the expertise and the people are concentrated here. It is the best place to breed horses in Australia. But to be the best requires that we have each of these factors, and the environment is central to our success and our reputation. This fact has also been recognised by previous planning assessment commissions.

Coolmore and Godolphin are the largest and most successful horse breeders in the world. Their presence in the Hunter Valley is clear evidence that it is the best place to breed horses in Australia. Their presence and contribution is also critical to the success and the reputation of the industry. They are the largest stallion farms in the country, and it is the premium stallions that they stand that attract mares and people which support the interconnected web of services that make up the industry. Without Coolmore and Godolphin, the industry in the Hunter begins to dissolve. This central role of these two businesses has also been recognised by previous planning assessment commissions.

So that's us, what we do and why we're here, why are we concerned about this project. After 10 years, three proposals and five planning assessment commissions and IPCs, we understand the situation in this location in intimate detail. We know our business, we know our industry, and we also know the problems with mining on this site. We have had independent experts assess it five times. We actually know it better than the proponent. We know the damage it will do to our industry, the disruption it will cause to our community and the threat that it is to our environment.

Commissioners, we firmly believe that this project on the doorstep of the two major participants in our industry does not make economic or environmental sense. Once again, we have engaged independent scientific and economic experts to assess this project and provide you with the data and their findings. These people will present following me. Once again, we find that the proponent of the project has overstated its benefits and underestimated or ignored the costs to our industry and the community.

Commissioners, this mine threatens Godolphin and Coolmore and by extension the future of our industry. We are a long-term sustainable agricultural industry and an essential part of the Upper Hunter's future. This is a short-term destructive project based on an industry in decline. It should not be allowed to jeopardise what we currently have and our future contributions to the economy and the community. This project is not in the public interest, and we believe it should be rejected.
Commissioners, I will now hand over to Helen Georgopoulos, who is the Hunter's director of policy, to continue this presentation and introduce our future .....

MR BEASLEY: Just before you do, Dr Collins - - -

DR COLLINS: Sure.

MR BEASLEY: - - - I was wondering if I could just get you to state for the commissioners what do you say are the key risks or threats posed by the Maxwell Underground project to the thoroughbred breeding industry in the Hunter Valley.

DR COLLINS: The key risks are the threat to air quality - - -

MR BEASLEY: Right. Air.

DR COLLINS: - - - water - - -

MR BEASLEY: Yes.

DR COLLINS: - - - and to – and the effect on the equine behaviour. Basically, we will have experts present on equine behaviour, so the threat that blasting presents to horses in the region.

MR BEASLEY: All right. So - - -

DR COLLINS: The safety threat and .....

MR BEASLEY: - - - air, water and construction blasting are the three big ones from your point of view; correct?

DR COLLINS: That's my personal point of view.

MR BEASLEY: All right.

DR COLLINS: I think you will hear a range of other concerns that - - -

MR BEASLEY: I was going to come to that. In terms of speaking to those risks, you would prefer to leave that in the hands of others; is that right?

DR COLLINS: That's correct.

MR BEASLEY: All right.

DR COLLINS: I think we're better to hear from independent experts in each field.

MR BEASLEY: All right. Thank you.

PROF O'KANE: Dr Collins - - -

DR COLLINS: But I'm happy to take – I'm happy to answer questions following - - -

MR BEASLEY: No. No. That was – I think Professor O'Kane might have a question, but - - -

PROF O'KANE: Yes. Dr Collins, thank you for the presentation. Could you just quickly outline some of the overstated benefits. So which ones are of greatest concern? Maybe the top three.

DR COLLINS: The overstated benefits, I guess, are based on the economics, Professor. I think the suggestion that this mine can produce economic benefits for the community and the state are in complete opposition to all of the previous statements we have heard when there was an open-cut proposal on this site. So we were told that it was uneconomical to mine this site underground. So, you know, we're quite concerned with the mixed messages we've heard from that. I guess that is – that's probably the major overstatement of the benefits that we think comes out of these kinds of projects. The benefit to the state's economy is generally overstated, in our opinion, and I think our economic expert who will speak later today will be able to go into that in more detail.

PROF O'KANE: Thank you.

MR BEASLEY: Thank you, Dr Collins. I think, as you said, the next speaker is Ms Helen Georgopoulos. Are you there, Ms Georgopoulos? We can't hear you at the moment.

MS H. GEORGOPOULOS: I'm sorry, commissioners. I am here. Good afternoon.

MR BEASLEY: You're all good now. Thank you.

MS GEORGOPOULOS: Thank you. I, too, would like to acknowledge the traditional owners on whose land we meet and their leaders past, present and emerging. My name is Helen Georgopoulos. I am the director of policy for the Hunter Thoroughbred Breeders Association and I have been for the past 10 years. I would like to share my screen with you and go through some of the issue that the commissioners have raised to date. Just bear with me. Okay. Commissioners - - -

MR BEASLEY: We can see that.

MS GEORGOPOULOS: Thank you very much. I won't repeat what Dr Collins has said other than to say this, that we have intimately been involved in assessing the impacts of mining directly across the road from two of our largest and most respected studs not only in Australia, but in the world. And our view when it was a thermal open-cut coal mine was that it wasn't in the public interest then, and our view continues that now that it is somehow a coking underground mine that it is not in the public interest now.

Thank you, commissioners, also for paying particular attention to the impact of this particular proposal to our equine cluster and to the studs that are across the road. They are referenced some four times in the secretary's environmental assessment requirements, as are the issues of cumulative impacts, the agricultural productivity of verified BSAL, subsidence, air quality, water, noise, heritage and economics. And we would like to attest to you that we take this process very seriously and take the New South Wales Government guidelines that require comprehensive transparent analysis and the inclusion of worst-case scenarios very seriously, and this is a failing that we have seen with past proposals and, indeed, with this one.

To go to the question of the benefit to New South Wales, our economic expert, Mr Rodd Carr, has done analysis in this area, and we find that when we make some very conservative adjustments to coal prices, capital and operating expenses – sorry – my screen has – sorry – other externalities, greenhouse gas emissions that the $1.1 billion claimed benefit is actually a $148 million loss to the New South Wales economy, and this is without any other externalities, including impacts to our industry, legacy impacts on water, Aboriginal heritage, cultural landscape and the broader community.

Water is the lifeblood of our industry. We have two experts who will be presenting to you on this matter today both from a surface and groundwater perspective, and as you would understand, this is particularly critical in times of drought. We know that the Hunter water systems are stressed, and we know that the impacts on surface and groundwater will be particularly important to our industry. However, our analysis suggests that the analysis done by the proponent and accepted by the department – we have no confidence in the water balance model.

We don't understand the impacts. We don't think that there's any serious understanding on the part of the department or the proponent of the potential subsidence impacts and the impacts on nearby agricultural users and productive soils. The model, in our view, is not fit for agricultural purposes, as we cannot assess the risks and impacts to our water quality, quantity and security. The impacts could be unforeseen, undetected and irreversible. They can't be made good. And legacy impacts could last for 100s of years. We consider these to be unacceptable and that the precautionary principle should apply.

You will hear from our subsidence expert that every site is geologically unique. Therefore, subsidence predictions are inherently uncertain and unpredictable. The rule of thumb as applied by the proponent and accepted by the department for modelling in this area is simply not good enough. Alternative modelling will show and our experts will show that subsidence could have a much greater spread, including possibly onto stud land, and could have significant and permanent impacts to the Hunter River and its alluvials, Saddlers Creek and its alluvials, the Golden Highway and Edderton Road and, as we acknowledge, that this one critical issue will also materially affect water, soils and indigenous heritage. Frankly, we consider these risks to be unacceptable.

You will hear from our BSAL experts that, as you know, BSAL is a precious commodity and is represented only in three per cent of New South Wales land, yet on this particular site, somehow BSAL has mysteriously disappeared, and our experts estimate that it should be two to three hundred hectares more than claimed. What we do know is that the Maxwell project will degrade BSAL on this land and that it also will have an impact on critically endangered ecological communities, which will be placed at risk or face the risk of extinction. We also know that the preferred offsets lack detail and can be unsuitable for purpose.

On air quality, we have a project that starts and is accepted by the department with exceedances both at the PM10 and PM2.5 levels. We have a project where the cumulative impacts have not been assessed and where scope 1 and 2 emissions are allocated to other providers and contractors, where scope 1 emissions could be much higher than predicted, possibly five to six times higher, scope 3 emissions have not been addressed, and we have another example of where we're seeing responsibility shifting to other mining companies or the community. Dust suppression is overstated and dust management is ineffectual. And as we understand it, the background cumulative creep has not been accounted for by the department. This poses serious risks to our environment.

Noise and blasting. We have yet another project, again, acknowledged by the proponent and by the department which will start with continual exceedances. There is no contemporary background noise measurement on which we can properly assess this project. Worst case scenarios have not been contemplated. And the noise modelling software, again, is outdated and inscrutable, inscrutable to us, inscrutable to the department and inscrutable to yourselves. Blasting standards, we submit, are not suitable for or safe for humans or horses. They pose unacceptable safety, operational and reputational risks for the studs, and it is very clear to us that blasting for at least four years near the studs is anathema to the tranquil environment and operations of these studs and the – who are the equine critical industry cluster central players.

Mr Beasley, you asked a question about horses and humans and whether the impacts had been assessed, and may I say that the department is correct in its advice. They have not done any analysis on this point. And from their response and including that response that was made in November recently as a result of requests from the IPC, it's clear to us that they have no expertise in this area. Our experts will speak to these points. But I would like to leave you with this message, that right across the road from this particular proposal, there are communities of people who reside on these studs, and the operational and reputational risks are real, and having a mine across the road with these potential risks is unprecedented and a very risky experiment.

I'm sorry. I'm getting short for time, but I will leave the experts to speak on human and horse health and on heritage and landscape, both of which will be impacted quite significantly, and I will go to the department's assessment report. Every proposal should be assessed on its merits and subjected to critical and scientific analysis. In

this case, we don't think it has happened, and it should not be by comparisons to previously failed proposals.

It is extraordinary to us that the department has introduced discredited information from previous applications on equine impacts to fill a gap in the proponent's analysis, and yet it has not applied any other learnings from the previous four packs on this matter, including that the studs should be afforded the highest level of protection from mining. The Department of Primary Industries' no comment on the EIS is extraordinary, and we cannot understand why they do not after all these years understand the impacts on our operations. This is disappointing to witness, as is the lack of any proper assessment of this proposal on the studs or the equine cluster and any government policies that are to support our industry and the diverse and resilient economy that it supports.

In conclusion, we're reminded of the words of the former premier, Premier Baird, when he last visited the Hunter Valley, where he said that mining cannot go everywhere, but more protections should be put in place, and we need to get the balance right. Our analysis of the Maxwell project is that it will result in negative benefits to New South Wales, it will cause potentially irreparable environmental harm, it will alter the landscape and heritage values of the Upper Hunter forever, it will place at risk the operations and reputations of Australia's and the world's two largest thoroughbred breeding operators, Coolmore and Godolphin, and through them the entire equine critical industry cluster, it will place at risk Australia's reputation as a global centre of thoroughbred breeding excellence, and, in our view, this proposal does not by any measure meet the merits test and should be refused.

MR BEASLEY: Thank you, Ms Georgopoulos. We're getting pushed for time, and Professor O'Kane has a question or two for you, so I think I will ask her to ask you the questions.

PROF O'KANE: Great. Thanks, Ms Georgopoulos.

MS GEORGOPOULOS: I appreciate that. Thank you for your patience.

PROF O'KANE: So two questions. First of all - - -

MS GEORGOPOULOS: Yes.

PROF O'KANE: - - - you referred to critically endangered ecological communities, being that that issue hadn't been addressed well and they could be made extinct, I think you said. Could you just elaborate on that so we know particularly what species and so on you're referring to.

MS GEORGOPOULOS: Commissioner O'Kane, may I rather than take up your time now and I appreciate you're running over time – our expert, Dr Pam Hazelton, who will be speaking, will be able to address that point directly for you.

PROF O'KANE: All right. And then the second question which, again, you might have an expert but I couldn't work out who - - -

MS GEORGOPOULOS: Yes. Certainly.

PROF O'KANE: You said that blasting standards are not acceptable to humans and horses.

MS GEORGOPOULOS: Correct.

PROF O'KANE: Just because you will have people talking about horses who, I think, can do it, blasting standards not acceptable to humans, can you just tell me a little bit about the basis of that assertion.

MS GEORGOPOULOS: Certainly. As I've mentioned, there are communities that live across the road from the proposed proposal and not just, you know, a clock in, clock out operation. And it's well-documented through a lot of work that we've done previously as a result of the two applications for the previous mine that any blasting that might be of earshot, eyeshot or smell within the scope's vicinity will be dangerous to their operations, to their reputation and, indeed, to the people who live on those communities.

PROF O'KANE: Okay. Thank you.

MR BEASLEY: Thank you, Ms Georgopoulos. The next speaker we have, again, on behalf of the Breeders Association is Mr Rod Carr. Mr Carr, are you there? Yes. Thank you, Mr Carr.

MR R. CARR: Good afternoon, commissioners. My pleasure. Thank you very much for the opportunity to talk this afternoon. I will now just setup a quick screen share, if we can, for a presentation. While that's happening, my name is Rod Carr. I'm a director and economist with Marsden Jacob Associates.

MR BEASLEY: Thank you.

MR CARR: I've been working in this field for over two decades, and I thank the commissioners for the opportunity to present today. As part of this project, you should now hopefully be able to see the share screen. Yes.

PROF O'KANE: Yes. Thank you.

MR CARR: Okay. So I've been engaged by the HTBA and its members, Coolmore and Godolphin, to review the economic assessment of the Maxwell Mine. In preparing this presentation, just to be clear, I've particularly focused on the economic assessment of the proposed mine, the responsive submissions and the New South Wales Government's assessment report. But in preparing my review, I've also

drawn upon previous submissions and other studies and contemporary studies that have been undertaken.

Some summary points at the start. Economic analysis of projects of this nature needs to assess the full range of costs and benefits in a detailed, balanced and demonstrably unbiased and conservative manner. Marsden Jacob review finds that there is bias in the analysis, and it's due to assumptions that favour the mine. There are key assumptions – and I will talk these through – that either overestimate the benefits or underestimate the costs over the period of the proposed mine. And there are also enduring costs, legacy costs and cumulative impacts which would further increase the economic costs of the mine that haven't been considered. Legacy impacts will include such impacts as groundwater or surface water system impacts that other experts will talk about that result from subsidence and interception. And there may also be cumulative impacts, such as relating to water, air, noise and amenity from the proposed mine, that haven't been factored into the analysis.

The analysis of the economics is very sensitive to the assumptions. And I will show you in the coming slides that by changing a few key assumptions that were provided to Deloitte by Malabar, the results become negative at a New South Wales scale, and this is before impacts on neighbouring studs are taken into consideration. Now, what we're looking at here is a sensitivity analysis, and the New South Wales Government guidelines state that sensitivity analysis is critical and standard practice because of uncertainty. Guidelines state that sensitivity analysis should be undertaken across a range of key assumptions, including prices, discount rates, royalties, taxes, environmental costs, public infrastructure costs, and that proponents are encouraged to test scenarios using multiple sensitivities and also considering worst case outcomes.

Just to talk you through some of the things that I'm going to show you in the coming slides, when I had a look at the economics of this project, there are a few key areas where concerns emerged and where material issues are present. If we look, for instance, at coal price and coal quality, which is a really important economic assumption. The analysis assumes that we've got 75 per cent semi-soft coking, 25 per cent thermal. But if this product mix is not achieved and instead a higher proportion of coal is thermal, this has huge impacts on revenue and royalty implications for this project. And this is a situation that isn't without precedent. You will see on the right there that Maules Creek asserted that they would produce 75 per cent metallurgic coal, 43 per cent thermal coal in 2015, and their website now asserts them as being a producer of the highest quality high-end thermal coal, producing a significantly smaller proportion of coking coal, more like, I understand, about 20 per cent, than what they asserted in their EIS. So this is - - -

MR BEASLEY: That mine is in a totally different geographical area, though, than this proposed mine; correct?

MR CARR: Agreed, commissioner.

MR BEASLEY: Yes.

MR CARR: I'm just sort of using .....

MR BEASLEY: No. It's Mr Beasley, not commissioner.

MR CARR: Sorry, Mr Beasley.

MR BEASLEY: That's all right.

MR CARR: I wasn't understanding. I can barely see on the screen who's asking the question.

MR BEASLEY: That's all right.

MR CARR: Apologies, Mr Beasley. Yes. It is in a different area, but I think it just highlights the importance of testing the result to this assumption, because it is a critical assumption that underpins the merit of this project, and if it's not achieved, the merit of the project is significantly impaired from an economic perspective. The production schedule assumes an average production rate of 5.7 million tonnes ROM, 71 per cent. But the other experts will talk about the fact that there are a range of operational and market risks, both current and future market risks, as an economist we look at and go there are particular threats to demand moving forward with reducing carbon intensity in a number of economies, and these could significantly reduce the production rate, which, again, impairs the economic merit of this mine. A number of externality impacts are either underestimated or only qualitatively assessed. And the list goes on.

Royalty benefits, I believe, we overstated. This is a bit of a complex one, but they've included all of the royalties in the benefit stream when this is a mine that they're asserting is 48 per cent New South Wales owned. That means that there's a transfer payment present here, and it's also linked to the product split and coal prices as to the royalty returns that are achieved. Similar issues emerge with company tax, but also we know that where they've assumed 30 per cent, mining companies typically pay considerably less. Now, this also impacts on producer surplus. And I realise that there are pluses and minuses in that, and in the work that we've done and the review of this, we've taken those into consideration.

So we've not attempted to undertake a full and detailed recalculation of this mine. Actually, it's not possible. There's a lack of transparency in a number of key aspects in this economic analysis that render that unable to be done. But the review highlights what in my mind is a consistent optimism bias in the assumptions and that more conservative analysis needs to be considered of this mine. I'm now going to run through some sensitivities to highlight what this means. In doing these sensitivities, we've put a summary here of some of the things that we've adjusted, but I will jump straight to sensitivity 1.

So the mine starts out at $1.01 billion. If we adjust for royalties, the mining engineers advise me that 10 per cent capital and opex is a sensible and reasonable sensitivity test. If we adjust the product split so that it is similar in its proportion to what happened with Maules, we reduce the product schedule and we incorporate the greenhouse gas emission impacts – at the moment, what's happening is only about 30 per cent are being included and they're being included at a significantly lower value – that value there, by the way, is from the Transport for New South Wales guidelines and has been adjusted to 2018 dollars, so it's based on New South Wales Government economic analysis guidelines, where they state a value of over $60 per tonne should be applied to greenhouse gases. We've got a significantly reduced net social benefit to New South Wales from this mine.

But what happens when we use coal prices that are reflective of World Bank and KPMG forecasts rather than those that are currently assumed in the economic analysis? Now we've got a very marginally positive outcome for New South Wales of $7 million. What then happens if the production schedule is worse than what has been assumed, now 20 per cent? We're now negative. And what happens if greenhouse gas emissions are higher than they've estimated in the project? And there seems to be some evidence emerging from another expert that is looking into this that neighbouring operations' emissions are considerably higher than what has been assumed in this analysis. And you've now got a result with a net present value of minus $148 million.

MR BEASLEY: Which – what GHG emissions are you talking about? Scope 1, scope 2, scope 3?

MR CARR: Only scope 1 and 2 emissions.

MR BEASLEY: Right. Okay.

MR CARR: Not scope 3 emissions.

MR BEASLEY: Yes.

MR CARR: This is purely scope 1 and 2, because scope 3 are out of scope for an - - -

MR BEASLEY: Yes.

MR CARR: - - - economic analysis. There are a number of externality impacts that also have not been quantified by the applicant. So these are not in the analysis at the moment, not in those numbers that I'm talking to you about. Legacy impacts on surface water resources from subsidence, Aboriginal heritage, which has been previously factored into analysis for this site back in the early 2010s, non-Aboriginal heritage, landscape impacts, many of these are going to be concentrated within the vicinity of the proposal. I acknowledge that. But they impose significant costs on the local community that haven't been considered, a local community that – where

you've got a project that's in the midst of an equine CIC, as has already been spoken about, that is recognised by the government and is in numerous New South Wales Government planning documents and decisions, but the current analysis doesn't effectively assume any impact on these operations.

Why is this important? Why do we need to think about the impact on neighbouring operations? Well, there a number of studies around that economic diversification is a key priority for the New South Wales Government in this region, and so you don't want to impair existing diversity. You actually want to do things that maintain and strengthen the region as it transitions away from mining and coal-fired power stations.

This is my last slide, commissioners. So concluding remarks. You're faced with the situation of evaluating a number of factors when you think about the economic merit of the proposed mine. It's really important, I believe, in making your assessment that you consider a balanced, detailed, unbiased and conservative set of assumptions. We have identified a range of issues with this, and I believe it's really crucial that decision-making is undertaken reflecting conservatively framed assumptions. Interestingly enough, I asked the question how can a project be approved when the revenue from royalties may be less than the cost of greenhouse gas emissions, scope 1 and 2 alone, and that when you apply conservative assumptions, the net merit of this project is considerably impaired and shifts from being net beneficial to net negative, even without a number of externalities taken into consideration. Thank you for the opportunity to talk this morning – or this afternoon.

MR BEASLEY: Now, Mr Carr, can I just ask you, the slide presentation you've been using, is that an extract from a report you prepared or is that – was that purely for the purposes of your presentation today?

MR CARR: So I will be submitting a report - - -

MR BEASLEY: You will. Okay.

MR CARR: - - - which will provide the detail behind the assumptions and the calculations and the information that you see in this slide deck.

MR BEASLEY: All right. I'm not going to criticise you for this, but for the purposes of the public hearing, it's very difficult, I think – I'm making an assumption here, but I think it's difficult for the commissioners to engage with you to the full extent that they would have without having that report first. But that's just the way it has happened. I'm not going to criticise you for that. All right. Thank you.

MR CARR: My pleasure. Thank you for the opportunity.

MR BEASLEY: And I think we have Owen Droop for the Breeders Association now. Mr Droop - - -

MR O. DROOP: That's correct.

MR BEASLEY: - - - can you hear me?

MR DROOP: I can.

MR BEASLEY: Thank you.

MR DROOP: Can you hear me?

MR BEASLEY: Please go ahead.

PROF O'KANE: Yes, we can.

MR DROOP: Okay. Thanks very much. I will just share my screen and bring up a presentation as well. Can everybody see that okay?

PROF O'KANE: Yes. Thanks.

MR DROOP: Okay. Fantastic. Good afternoon, commissioners, ladies and gentlemen. My name is Owen Droop. I'm a hydrologist and water resources engineer with over 25 years of experience in catchment scale hydrology and water supply, including the Hunter catchment specifically, as well as in mine water supply and management and the fundamental requirements of and issues associated with mine water systems. I was commissioned by the HTBA to undertake independent review of the surface water aspects of the Maxwell Underground EIS and provided advice regarding the validity of the reported outcomes and conclusions. Specifically, I was asked to comment on whether the information is scientifically robust and could it be relied upon with confidence as a real picture of the potential impacts.

In short, our review finds that a range of important predictions and conclusions made in the EIS cannot be relied upon. The key question we asked ourselves was does the work undertaken accurately assess and report the project's behaviour and impacts as they would occur in the real world both over the 26 year life of the project but also post-mining into fundamentally effectively indefinitely. There are a range of issues with the assessment which don't provide confidence in the reported conclusions, with several of the main ones listed here, which I will go through briefly in a little more detail in the following slides.

A key component of any mine water assessment is the development, calibration and application of a site-specific water balance model. When seeking to understand what impacts are likely to occur into the future, we need to have confidence in these models that they realistically simulate the movement of water into, within and out of the mine and project area. In these types of assessments, a poor model is worse than no model because it implies that we know more than we do and it can lead to predictions that, even though stated confidently, just can't be relied upon. The justification of the model's validity is provided by a robust calibration based on good

quality recorded real world data over a wide range of climatic conditions. This demonstrates that the model provides a good representation of what we could expect if the model was in existence under any of the conditions under which it might be expected to operate.

For the Maxwell Project, the reported calibration was based on very limited real data, about two years in total. It showed very poor reproduction of that recorded data, which subsequently required an effectively arbitrary addition of a constant six megalitres per day to the model or 2200 megalitres of water per annum to provide some level of match between the modelled and the recorded behaviours. Now, what this represents is simply curve fitting and doesn't in any way represent a valid form of calibration. It provides no confidence that the model can be used for predictive purposes either for the project water balance or the associated water quality assessment, for which no calibration results were provided but that the model has nonetheless been applied to.

A second issue with the assessment is that surface water and groundwater represent two linked interdependent elements of an overall hydrologic system. They don't operate as isolated standalone systems. As such, it is critical in any assessment that is undertaken in a well-coordinated fashion to ensure those linkages and interfaces between surface and groundwater are well-understood and well-represented, and that, again, hasn't been the case in this assessment.

A fairly simple example of this which nonetheless has critical implications for both the surface and groundwater assessments is shown here relating to the additional 2200 megalitres per annum added into the water balance as described in the previous slides. Remembering that 2200 megalitres per annum over 26 years would represent around about 60,000 megalitres of water, it is justified by referring to a groundwater assessment, ie, the groundwater assessment outcomes fed into the surface water model providing that input. And while linkages of this type are necessary and, in fact, good practice, they do rely on the groundwater assessment being scientifically robust and justifiable.

However, in this case, the assessment to which it refers doesn't report any such outputs, but, in fact, states that it was the surface water assessment that factored in this component and that outputs from the surface water fed into the groundwater. So there's simply no point of truth here between which model is informing which. It's worth noting that the independent expert scientific committee also noted this problem and stated this discrepancy of a factor of about 700 is not acknowledged or explained and that in the proponent's subsequent response to that review, again, no acknowledgement or explanation was offered.

An important characteristic of the proposed underground mining is the potential impact associated with subsidence on the local water courses and the wider catchment resources through the Hunter alluvial aquifer and the Hunter River itself. The project subsidence report notes that surface cracking of between 25 and 50 millimetres is generally expected, with cracks up to 300 millimetres predicted in

some areas. Cracks this large could allow for substantial volumes of water to be lost from surface flows, with fundamental changes to both surface and groundwater behaviours. However, project reporting effectively assumes away the impact of subsidence on surface flows and in particular provides no meaningful analysis of the potential impact of the environmentally important low flow portion of the flow regime.

A key example of this incompleteness of this analysis is the treatment of the extent to which subsidence could be expected to occur. As mentioned earlier, angle of draw or angle of subsidence as is shown on this figure is terminology used regarding the fracturing, cracking and shifting of soil and rock around and above the underground workings and the extent to which this effect radiates outwards to create a zone of influence and subsidence which can extend well beyond the area of the underground mine itself. You will hear further detail from Peter Scott, who will be presenting later. However, fundamentally, it is not easy to accurately predict this angle of draw. And the actual final values according to Peter Scott after the mine has been worked out can range between 10 to 60 degrees, with a great deal of uncertainty associated with the predictions. Project assessment reports a single quite precise value of 25.6 degrees, with no apparent recognition of the uncertainty associated with this prediction or the consequences of it having been unpredicted.

Now, the importance of this and of understanding this uncertainty can be seen by noting within this figure the extent of conventional subsidence, which is the white dotted line in this figure which this adopted quite precise value of angle of draw indicates, comes within much less than 500 metres of both the centre lines of the Hunter River and Saddlers Creek and within some 50 to 60 metres of physically intersecting the Hunter alluvial aquifer. Now, if the actual angle of draw turns out to be greater than that adopted in the studies, the area of subsidence would be greater than shown here and could extend to these key surface and groundwater resources, with particular risk of physically intersecting that Hunter alluvial aquifer, which provides direct hydraulic connection between the work underground, the alluvial aquifer and onto the Hunter River. This would impact how surface water, groundwater systems behave in the area and has implications for the local and wider catchment water resources and simply hasn't been acknowledged.

The final concern I would like to touch on is the potential long-term risk, by which I mean very long term, effectively forever, associated with the post-project plan. The plan as proposed comprises leaving the remaining mine pits, so three of them in total, and allowing them to fill with water. Now, there's two potential ways that can play out in the long-term. One is if the final water levels in the pits remain below the level of the local groundwater, as concluded in the EIS, the water would eventually become hypersaline due to that evapo-concentration type behaviour, by which I mean five to 10 times more salty than seawater, leaving these large volumes of hypersaline water perched within the local groundwater system.

If, on the other hand, the final water levels in the pit exceeded the local groundwater levels, then an uncontrolled transport of salt and other toxicants from the open pit to

the surrounding groundwater and onto the local surface water systems would occur unless significant works were undertaken to mitigate this discharge. In either case, the legacy this leaves the potential for, perhaps sooner, perhaps later, flow of salt and other toxicants from the pits into the surrounding waters, and this simply hasn't been assessed, recognised or considered.

So why does all of this matter? All these potential outcomes would have long-term regional impacts, environmental, social, economic, that must be understood and considered. The long-term cumulative impacts of mining on water are critically important for all neighbours of mines current and future, noting particularly that the Greater Hunter Regional Water Strategy has already shown the Hunter system to be less secure and under greater stress than previously thought and that the ongoing effects of a changing climate with likely only exacerbate this further. The potential severity and in particular irreversibility of these impacts also recognised by the independent expert scientific community is a critical consideration for this project and why the precautionary principle forms an important part of risk assessment for projects of this type. The types of impacts that can occur associated with projects of this nature can't be robustly conditioned to avoid or mitigate risk because we simply can't come back later when we find out we were wrong and fix things.

In conclusion, nobody, including us, the proponent or the department know, what the real impacts would be. The lack of a justifiable water balance model and incomplete subsidence analyses means we can't trust critical parts of the work or conclusions drawn from it. In those areas where we do have some certainty imply very long-term legacy issues for the state and local community. Given that water use and availability are such critical parts of the ongoing viability of the area and the Hunter Valley in general and the irreversible nature of the potential impacts, this remaining uncertainty does not allow for well-founded conclusions about the real impact of the project as proposed. Thanks for your time.

MR BEASLEY: Thank you. The next speaker, again, for the Breeders Association is Sean Murphy. Mr Murphy, please go ahead if you can hear me. Perhaps can't hear me and we can't hear him.

MR S. MURPHY: Good afternoon. Yes.

MR BEASLEY: We can now.

MR MURPHY: Okay. Good afternoon, commissioners and Mr Beasley. I will just put up my presentation now. I'm Sean Murphy. I'm a hydrogeologist of 26 years experience in mining, water resource management and environmental fields. I was asked to conduct this review on the purposes of groundwater, and I've come up with a number of main issues that I will speak to now. Firstly, model data, conceptualisation, calibration and sensitivity of the model. There is insufficient groundwater monitoring in the south and southeast, leading to a model focus being predominantly on the mine. Consequently, conceptualisation of the areas to the south and southeast, including the alluvial aquifers of the Hunter River, is poor. This

is problematic, given these areas are most likely to be negatively impacted by changes caused by the Maxwell Mine and any cumulative effects created with adjacent mines.

The groundwater flow model calibration is also poor, with errors between five and 25 metres between the actual and calculated water levels and calibration hydrographs. Little confidence can be given in predicted drawdowns of 10 or more metres when calibration errors are significantly greater than the predicted outcome. Poor calibration is also indicative of poor parameterisation of such fundamental factors as hydraulic conductivity and storativity of the model and indicative of limited understanding of the character of the aquifer in certain areas.

The independent expert scientific committee expressed concern that the sensitivity and uncertainty analysis needs to be improved for parameter combinations including model boundary conditions, parameters, recharge, evapotranspiration, riverbed conductance, drain conductance and strata conductance at general-head boundaries. Those adjustments hadn't been made after that concern. A review of the model was conducted by Dr Frans Kalf, who found that the model was compliant with the Australian groundwater modelling guidelines. However, an opportunity to address the need of additional data for higher impacted areas was missed. It should be noted these guidelines are mainly procedural-based, and compliance does not necessarily indicate a good model. The determination of required level of monitoring in both a temporal and spatial sense becomes fairly opinion-based.

Inadequate analysis of the effects of subsidence on groundwater. The independent expert scientific committee in 2018 and 2019 expressed that the inherent uncertainty in model conceptualisation and parameterisation does not warrant the unrealistically high confidence with which subsidence and groundwater impacts are presented. Given the potentially irreversible and severe impacts to groundwater resources and surface water, explicit consideration of the uncertainty involved in predicting subsidence and ground movement is needed.

Groundwater subsidence modelling was undertaken by initially using a stacked drain methodology, and if subsidence occurred, this was altered to time variant material packing, which is undertaken by changing the hydraulic parameters in an attempt to estimate hydraulic values of the fractured aquifer. This essentially means that a new uncalibrated model is created to account for fundamental changes in the aquifer geology and flow characteristics. This means that the subsidence modelling results are built on averages and assumptions.

The angle of draw, as Owen Droop just mentioned, chosen is an average of 26.5. As Peter Scott will discuss later today, this angle can be significantly larger and as much as 40 degrees – 60 degrees or more. The level of fracturing is based on averages, and the hydraulic parameters are assumptions. The results of this modelling have been presented as a confident prediction. It is not. A more robust and appropriate scientific presentation of results would be as a range of results based on the potential range of parameters which were used to obtain those average values. That range of

values would indicate that more severe impacts are probable or possible to both surface water and groundwater associated with the Hunter River. The current groundwater subsidence model can't be effectively calibrated, it is not reflective of the original calibration and cannot be used as an effective predictive tool, as it is not possible to calculate its veracity or uncertainty.

What are the consequences of an inadequate subsidence assessment? Water levels in the alluvium is predicted to fall by between two and eight metres. Further induced losses will ensure a depleted aquifer, with consequential loss of water allocations, groundwater-dependent ecosystems and other vegetation. Even under the current uncertain predictive results, this means the loss of base flow to Saddlers Creek, and an eight metre fall in groundwater is likely below the base levels of much of that system, endangering groundwater-dependent ecosystems within that system. A two metre loss in water levels of the Hunter River alluvium is representative of a long-term loss of base flow supply to an important water source that is already stressed.

The groundwater assessment contends that subsidence of 20 millimetres or greater will not extend significantly into the alluvials associated with Saddlers Creek or the Hunter River. If the range of potential values was actually used, it would indicate that the alluvium would, indeed, be impacted, with cracks and fractures underlying that alluvium. Impacted alluvials will lead to the capture of surface water and groundwater from the Hunter, directly impacting water allocations, vegetation and even greater reduction in soil moisture content on the alluvial flats. Stated remedial actions are that any cracks or fractures would be found and remediated. The identification of surface cracking under alluvials is extremely difficult, if not impossible, and, therefore, would lead to ongoing losses to the Hunter system.

Mine void deposition and water disposal. The current proposed mine plan allows for the deposition of spoil, rejects, tailing and water to open voids to the north, south and east of the mine. The stored material in the voids will contain hypersaline water, the salinity of which will intensify through leeching of potential acid forming spoil, rejects material and surrounding rock driven by evaporation. These voids present a long-term future risk to surrounding water resources. Add to this the potential addition of ash from the Liddell Power Station and it creates a reservoir of acidic saline water and sludges, upgrading of an important water resource and viable agricultural land.

Should void water levels rise to above surrounding groundwater levels, flow directions will be reversed, leading to the reverse of hypersaline and likely acidic water to the environment. Further, should the parent rock be more permeable or fractured and faulted more significantly than currently understood or the void overtopped in severe rainfall events, the void water will present significant risk to downgrading of water resources, including the highly productive alluvial aquifers of the Hunter River. Potential ..... from the voids presents a permanent and significant social, economic and environmental risk to water quality of the catchment.

Make good arrangements are implausible. Maxwell proposes the following make good arrangements. Additional losses to groundwater will be made good with the purchase of additional water licences. This approach seems highly improbable in a fully allocated water source, given they have already conducted an extensive campaign to obtain only 100 megalitres per year for their current requirements, the fact that the water sources are regularly subjected to announced allocations which historically have been as low as zero per cent .....

Water losses to other users will be made good by the supply of on-site water. For site water, if available, to be supplied, the impact water used is likely to be sourced from contaminated mine site water, void water or dewatering offtakes. All this water will require significant treatment prior to any make good arrangement, and it is highly unlikely that this water will be available without long lead times, meaning that it is likely unavailable when beneficial to the recipient. Treatment costs will be high and transport of water difficult.

Groundwater vulnerability not assessed. Groundwater vulnerability maps for the Hunter River basin are no longer available to the public. A partial coverage from previous mining application review indicates the area directly south of and adjacent to the mine boundary is classified as highly vulnerable, indicating that it is already in need of remedial action or prohibition of additional extraction. This has been ignored.

Groundwater review outcomes. How does the assessment match with the required confidence? It doesn't. There remains significant doubt in what the potential impacts will be. The following issues remain unresolved. The groundwater assessment does not provide any confidence in the predictive outcomes.

MR BEASLEY: Mr Murphy, can I just – and I apologise if it's Dr Murphy, but the - - -

MR MURPHY: No.

MR BEASLEY: - - - material you're reading from, are you going to send that in to the commission?

MR MURPHY: Absolutely. Yes. And a report as well.

MR BEASLEY: All right. Can I just ask you very briefly if you could summarise this, and it may well be in your report, but what recommendations would you give to the commissioners as to what further work you say needs to be done for a more reliable groundwater assessment that produces more reliable or more realistic confidence level assessments?

MR MURPHY: Yes. Off the cuff, I would suggest that significantly more monitoring be done in the alluvials associated with the Hunter River, particularly to the south and southeast of the area.

MR BEASLEY: Yes.

MR MURPHY: There needs to be greater understanding of the voids and the likelihood of leakage or overtopping of those voids.

MR BEASLEY: Yes.

MR MURPHY: There needs to be significant work done on changes to groundwater quality within the mine site area and any potential offsite leakage from that – sorry. I'm talking myself around in circles.

MR BEASLEY: Yes.

MR MURPHY: Any – groundwater quality is not well-addressed in the whole report, particularly not well-addressed within influence of fresh rock exposed from fracturing in subsidence. It's not well-addressed in the potential outcomes that could come from leakage from the voids or overtopping of those voids. There's a significant amount of work there - - -

MR BEASLEY: All right.

MR MURPHY: - - - that needs to be looked at.

MR BEASLEY: Is this – are these matters that are covered in your written material?

MR MURPHY: They will be. Yes.

MR BEASLEY: All right. Thank you.

MR MURPHY: Yes. Thank you.

MR BEASLEY: All right. Thank you, Mr Murphy. I think the next speaker we have also on behalf of the Breeders Association is Peter Scott. Mr Scott, are you there?

MR P. SCOTT: Yes, I am.

MR BEASLEY: Please go ahead.

MR SCOTT: Thank you, commissioners. I need to share the screen. Okay. Can you see that?

PROF O'KANE: Yes.

MR BEASLEY: We can. You will just need to expand it.

MR SCOTT: I was just about to do that.

MR BEASLEY: All right. Got it now. Thank you.

MR SCOTT: Okay. All right. I'm presenting a review of adequacies of the rehabilitation of the Maxwell Underground and Maxwell Infrastructure. My name is Peter Scott. I'm a geoscientist with 48 years of specialist experience in the assessment, management and rehabilitation of mining waste for mine sites, including mine subsidence. I would like to acknowledge the traditional custodians of the land on which we meet and pay respect to their elders past and present. So a summary of issues. Rehabilitation ..... is likely to be inadequate to complete rehabilitation of the entire site. Uncertainty in the Maxwell Infrastructure - - -

PROF O'KANE: Excuse me, Mr Scott.

MR SCOTT: Sorry. Yes.

PROF O'KANE: Could you share full screen? Because it's very hard to read the writing.

MR SCOTT: Yes. Good point.

PROF O'KANE: Thank you.

MR SCOTT: Try to do that now.

PROF O'KANE: It's the little button down – yes. You get .....

MR SCOTT: I know exactly where it is, but I will tell you what I think it might be. Just hang on a moment. If I get rid of the other screen, that might come through. I apologise for this, commissioner.

PROF O'KANE: No. Make it easier to understand if we can read it.

MR SCOTT: Absolutely. Yes. No. Good point. Just hang on a moment. Okay. Is that better?

PROF O'KANE: No. Yes.

MR BEASLEY: Yes.

PROF O'KANE: Thank you.

MR BEASLEY: That's it. That's it.

MR SCOTT: Right. Okay. Sorry about that. Okay. So acknowledgement. Now, back on to the issues. So bond inadequacy, uncertainty in the Maxwell Infrastructure

Rehabilitation Plan, minimal details provided in the EIS and supporting studies, and to do with subsidence, extensive subsidence is likely, complex final landform likely, potential extensive rehabilitation needed to restore key features, permanent damage to the groundwater aquifers, no apparent use of geological and geotechnical knowledge of the Maxwell Underground resource to define the extent of subsidence, reliance on averages in other sites for the data to define subsidence, and the EIS and supporting studies are conceptual with minimal detail, used averages rather than ranges and did not identify impacts adequately.

Rehabilitation. Provisions for rehabilitation of Maxwell Infrastructure is likely to inadequate. The items that are listed below should be provided for in the bond estimate of about 50.6 million, and the ones in red don't seem to be documented. Rehabilitation of the Maxwell Underground hasn't been considered. The items that should be provided for the bond estimate is about – of 55 million are listed below, and they include in the remediation of subsidence affected land, including BSAL and drainage lines.

Subsidence. Subsidence formation. The longwall mining creates an underground void into which the roof and overlying rock collapses. This typically results in horizontal and vertical movement at the land surface which can extend beyond the mine footprint and impact on natural and built environments. The mine subsidence and surface ground movement varies on a site-by-site basis depending on local geology and geotechnical properties, mine layouts, including seam thickness, panel width, depth of seam, thickness of overburden.

Subsidence predictions and uncertainty. Subsidence predictions are inherently subject to geological unknowns and geotechnical uncertainty. Empirical and numerical models are unable to accurately predict surface subsidence in greenfield sites unless representative data are available and utilised. The magnitude of subsidence depends on input parameters being representative of the specific site conditions, including geology and geotechnical properties of the seams and the overburden. Particular care has to be taken when predicting subsidence for a new mine due to the need for site-specific data. Most modelling is based on single seam extraction. There is very limited data on subsidence for multiple seam extraction, for which Maxwell is an example. And there are a lot of data that can be used to inform prediction.

Uncertainty of subsidence impacts not acknowledged. Uncertainty can be reduced or managed by utilising local geology and geotechnical properties of the greenfield project such as Maxwell Underground. Averages, rules of thumb and single values for key parameters were used, and no sensitivity analysis of the data was provided. These facts were not pursued in the EIS, in supporting studies, in supplementary information, in the DPIE assessment report or by the EPA. So Maxwell Underground subsidence is significant and potentially underestimated. MC undertook a modelling of this and found that the maximum subsidence predicted to be 5600 millimetres. The angle of draw that was used in the prediction assessment

was 26.5 degrees. Most of the secondary extraction is classed as super critical, resulting in maximum disruption of the overburden and the surface drainage.

The surface area damage due to subsidence. The proposed underground mining is predicted to result in subsidence of approximately 2134 hectares of the mine footprint land and possibly more. This is just a simple diagram just to show, among other things, the angle of draw, what we're talking about, the maximum depth of subsidence and the extent of the area that is subject to subsidence. Subsidence will cause cracking and will permanently impact groundwater aquifers. Near surface cracking will occur. It will be shallow, less than 15 metres, and it may impact on alluvial flats, smaller drainage lines and probably the Saddlers Creek alluvials and potentially the Hunter Valley – the Hunter River alluvials. Subsidence will alter the hydraulic and storage characteristics of the deeper aquifers and aquitards, and there will be an overall increase in the rock permeability, and groundwater levels will reduce.

Angle of draw. And it's probably underestimated and not tested. The angle of draw is a term used to define the observed, estimated or modelled limits of subsidence trough. The rule of thumb in New South Wales when no data are available to predict subsidence impacts is to use an angle of draw of 26.5 degrees. However, much larger angles are commonly measured and reported. The angle of draw can vary from 10 degrees to greater than 60 degrees, but typically in New South Wales coal fields it ranges from 26.5 to 40 degrees.

So if we take the angle of draw and we look at the Hunter River and alluvial flats using an angle of draw of 26.5 degrees as used in the MSEC analysis, it shows that the Hunter River is greater than 375 metres outside the angle of draw and the alluvials are greater than 50 metres outside the angle of draw. If we use an angle of draw of 35 degrees, it shows that the Hunter River is greater than 315 metres and also outside the angle of draw, but importantly the angle of draw is 60 metres closer to and encroaching the Hunter River alluvials. This needs to be reviewed.

Saddlers Creek and alluvial flats. A similar angle of draw of 26.5 degrees at Saddlers Creek is greater than 170 metres and is outside the angle of draw and so are the alluvials largely. Using 35 degrees angle of draw, Saddlers Creek, again, is 140 metres outside the angle of draw, but part of the alluvial flats in the southern side of Saddlers Creek are likely to be inside the angle of draw. Golden Highway and the adjoining stud lands to the south. Using a 26.5 degree angle of draw, Golden Highway is greater than 90 metres and it's outside of the angle of draw, but using a 35 degree angle of draw, the highway and adjoining stud lands are potentially inside the angle of draw. Edderton Road, of course, is inside the angle of draw, whether it's 26.5 or 35 degrees. And the EIS should have included a range of angles, not just a single rule of thumb value for angle of draw, and should have included a sensitivity analysis based on representative data, but this wasn't done.

When you actually plot those up on a plan showing – this is the plan of the Woodlands Hill Seam panels. We can see here a dotted line – a red dotted line,

which is the 26.5 angle of draw, and then a solid red line, which is the 35 degrees angle of draw. And starting on the bottom of the diagram, the Hunter River alluvials location, the Golden – and then moving clockwise, the Golden Highway stud land and the Edderton Road and then the Saddlers Creek area.

So in summary, the issues, the rehabilitation bond is likely to be inadequate for full project area. 49.5 million has been provisioned for the bond, but an estimated 105 million is likely to be required. Uncertainty in the Maxwell Infrastructure Rehabilitation Plan remains. Large areas of subsidence in the order of 2000 plus hectares due to proposed Maxwell Underground projects. Significant consequential - - -

MR BEASLEY: Mr Scott, I think we've – we can read what's on there, but I will just quickly ask you this. The - - -

MR SCOTT: Go for it. Yes.

MR BEASLEY: In the event that the commissioners were to grant an approval, the department has drafted some recommended conditions, some of which relate to rehabilitation and some of which relate to subsidence. Did you have any comments on those?

MR SCOTT: I think that the subsidence – more work needs to be done on subsidence to actually get some realistic data in terms of looking at different angles of draw but also looking at the geology of the mine.

MR BEASLEY: All right. And is that covered in your written material?

MR SCOTT: It's covered in my written material.

MR BEASLEY: All right. Thank you.

MR SCOTT: Thank you.

MR BEASLEY: All right. Thank you very much. I think the next speaker we have, again, for the Breeders Association is Peter Stephenson. Mr Stephenson.

MR P. STEPHENSON: Mr Beasley, I'm here.

MR BEASLEY: Please go ahead.

MR STEPHENSON: And I will just share the screen.

MR BEASLEY: All right. We can see that.

MR STEPHENSON: Good afternoon, commissioners and Mr Beasley. Thank you very much for the opportunity to present. My name is Peter Stephenson, and I've

been involved in emissions and air quality for the last 30 years. I've got five critical issues. The overview is that the – issue 1, background particulate is already too high. Issue 2, the mitigation measures are insufficient. Voluntary land acquisition was put forward, but it's not a mitigation solution. Scope 1 greenhouse gas emissions are underestimated and not addressed for the whole of life of mine and after mine. Finally, Maxwell will produce 148 million ROM tonnes, run-of-mine tonnes, over the life of this application, but have not acknowledged any greenhouse gas impacts associated with this production.

As far as emission sources go, dust suppression has been overstated, and with Maxwell Infrastructure's own monitoring data, they show that the current control measures appear ineffectual, and they also note that – other particulate matter sources are noted as prime contributors to their cumulative emissions. This table presented as out of the Todoroski Air Sciences air quality impact assessment presented on behalf of Malabar, Maxwell indicates the concentrations of PM10 particles, less than 10 microns for the years 2013 to 2017. And you can see that in the year 2016, when the mine closed, the maximum 24 hour average PM10 started to decrease. The data has flattened for annuals, as you would expect.

And so when you look at the Upper Hunter air quality monitoring network monitoring stations for Jerrys Plains and Muswellbrook, MW, you can see that there are peaks in the 24 hour cycle from month to month, year to year, and some of those peaks are quite clearly in the spring and summer months. So there is already a significant amount of air quality impact within the region. The average measured PM10 concentrations for, again, maximum 24 hour PM10s indicate that for the years 2013, '14 and '16 and '17 – sorry – I can't see – 2013, '14, '15 and '17 all exceed the 50 microgram criteria limit, and it's only 2016 that scrapes home under that. And for the annuals, the approximate annual average is about 70 per cent of the criteria already.

We're aware of health impacts, and we know that particularly with the recent bushfires over the summer season that there was increased hospital admissions. And it's well-documented now and the hospital admissions and the numbers follow this through that for every 10 microgram increase in PM10 concentrations, there's about a one per cent increase in hospital admissions.

The current measured – again, this is measured data for PM2.5. So they're the particles less than 2.5 microns. The limit for those – the criteria limit is eight micrograms for an annual limit, and as you can see, this is a – this is an indication of the levels, and for – 24-hour limit of 25 micrograms per cubic metre, but you can see the bulk of those particles are well in excess of the eight microns – micrograms per cubic metre. So for all receptors, all mines, all stations, all year, we can see, since mines don't work 9 to 5, that there's going to be a significant contribution to cumulative impact. Again, the Upper Hunter Air Quality Monitoring Network has been reporting annual average PM2.5 since 2013 in excess of the criteria limit. In my opinion, these air quality exceedances are not appropriate for an Australian country town.

MR BEASLEY: Accepting all of what you're saying about PM10 and PM2.5 as things exist now, is – is – is it your view that this project would significantly increase particulate matter?

MR STEPHENSON: No, this project has got a minor contribution.

MR BEASLEY: Right.

MR STEPHENSON: But when you look at this next slide, Mr Beasley - - -

MR BEASLEY: Yes.

MR STEPHENSON: You can see what the impact is on the Coolmore and Woodlands Studs. This data came in. It was requested by the Independent Planning Commission, the Commission that's sitting today, and the response from the Department on 5 November indicates that the assessment criteria for a project only, which is what you're referring to, is only based on 24-hour predicted annual impacts – 24-hour air quality impacts.

MR BEASLEY: Yes.

MR STEPHENSON: It is not related to the cumulative impact. So the system at the moment allows for background creep in air quality up to the cumulative air quality criteria being achieved. So your question is linked to this slide, because when we look at the numbers that are presented by the Department and the wording they use in sub-comment (c) under the table, which you all have a copy of - - -

MR BEASLEY: Yes.

MR STEPHENSON: These levels are realistic and measured background levels. Realistic and measured background. If you look at those numbers for PM2.5 for 24 hours, you can see they range from 1.4 to 21.4 on the Coolmore and Woodlands Studs, and for PM10, 24 hours, 4.9 to 45.5 micrograms per cubic metre.

MR BEASLEY: Yes.

MR STEPHENSON: Now, the limits, as you again well know, for PM2.5 is 25, so we're scraping in under that.

MR BEASLEY: Yes.

MR STEPHENSON: And PM10 is 50, and we're scraping in under that. Now, my – my comment is that this is not a reasonable sharing of air space.

MR BEASLEY: I see.

MR STEPHENSON: Now, with respect to greenhouse gases, the – the greenhouse gas report as part of the ..... Air Quality - - -

MR BEASLEY: So can I just ask you what – what precisely you mean by "reasonable sharing of air space".

MR STEPHENSON: Well, if we have got – I detail it in the report that goes with this presentation.

MR BEASLEY: Right. Yes.

MR STEPHENSON: But a reasonable sharing of air space is that if you're going to exceed the criteria, then that is not reasonable. I will – I will fill that out for you in the report, but if we're exceeding the criteria, which is defined as the law of the land - - -

MR BEASLEY: Yes.

MR STEPHENSON: Then that's not reasonable. Is that a fair response?

MR BEASLEY: Well, it's your response.

MR STEPHENSON: Okay. Thank you. Are you happy for me to proceed?

MR BEASLEY: Yes, please.

MR STEPHENSON: As far as greenhouse gases go, scope 1 and 2 have been reported for the 26 years of project. However, they are averaged over the full 26 years, so it only states emission peaks on an annual basis. We're contending that the scope 1 greenhouse gas emissions are not rigorous enough and appear to have allocated some of those scope 1 emissions to other providers and contractors to minimise the maximum total greenhouse gases inventory. In particular, if you look at the level of CO^2 equivalent emission for another mine, we have 0.39 times per run of mine tonne for 148 million tonnes, and we get about 58, whereas in the report from Maxwell, they call it 9.9 .....

MR BEASLEY: Sorry, did you say another mine?

MR STEPHENSON: Another mine, but if you look at the number that Maxwell is using, it's 0.41.

MR BEASLEY: Right.

MR STEPHENSON: And this is 0.39. So the argument that it's another mine and therefore a different coal seam is fair.

MR BEASLEY: Yes.

MR STEPHENSON: However, the numbers, 0.41 and 0.39, from a scientific point of view, are the same number. The other things that are left out are diesel and nox greenhouse gas emissions, and they have been allocated to other balance sheets. Vegetation clearing and the equipment used for that and the emissions from that and the loss of the greenhouse gas absorption sink are not included. Finally, cumulative air quality continues to rise and it's driven by this fundamental flaw which enables background creep. Coal mines are only required to meet a 24-hour project-only assessment criteria. Scope 3 is not addressed, and DPIE has dismissed air quality matters. And finally, I have been working in this field since the eighties, and in the eighties it was predicted that air quality would peak in 2015 when the emission – emission control capacity was superseded up to a drop-dead deadline of 2050. We're heading to 2050. We passed 2015 and that point, so we need to have it under control well and truly before 2050. Thank you, Commissioners and Mr Beasley, for the opportunity to present to you today.

MR BEASLEY: Thank you. I think we now have Frank Butera – I hope I have pronounced that correctly – from the Breeders Association. Mr Butera.

MR F. BUTERA: Thank you, Commissioner.

MR BEASLEY: Please, go ahead.

MR BUTERA: I'm just preparing my screen.

MR BEASLEY: Sure.

MR BUTERA: Can we see the screen?

MS O'KANE: Yes.

MR BEASLEY: Yes, you – we can, thank you.

MR BUTERA: Thank you. I will now proceed.

MR BEASLEY: Yes.

MS O'KANE: Yes, please.

MR BUTERA: Dear Commissioner, my name is Frank Butera. I'm an associate with Arup, an international multi-discipline engineering firm. I have over 20 years experience in largescale environmental, industrial and transportation projects. My area of expertise is in noise, vibration and acoustic planning. I would like to address the IPC regarding the noise impacts associated with the proposed application. Wilkinson Murray Acoustics have prepared a noise impact assessment. However, Wilkinson Murray have not completed any background noise measurements, and it is unclear if Wilkinson Murray visited site. The Wilkinson Murray data – Wilkinson Murray adopts data that has not been verified.

The background noise data adopted by Wilkinson Murray was previously presented by Bridges Acoustics. That data set investigated four sensitive properties from 2003 to 2006. It is unlikely the background noise data set undertaken for other mine proposals to be representative of the existing ambient noise levels in the vicinity of nearby noise-sensitive community. In correspondence dated January 2007, the DEC rejects the background noise data presented by Bridges Acoustics, because the data does not reliably exclude noise from the then-existing Drayton Operations. The data set presented by Bridges Acoustics was not considered acceptable in 2007.

However, Wilkinson Murray adopts the project noise limits previously considered for the site without acknowledging the true and current background noise levels for this application. The Wilkinson Murray approach is similar to a desktop assessment which is inconsistent with verifying, measuring – verifying, measuring existing conditions and completing noise measurements – onsite noise measurements. Wilkinson Murray clearly demonstrates that operational noise will exceed the project noise limits that were developed by some background noise data that was not considered reliable. In table 1 of the development consent conditions, the Department details operational noise levels in excess of the permitted noise levels in accordance with the New South Wales Noise Policy for Industry.

It is inappropriate to accept the noise limits presented in table 1 due to continuous exceedance of the New South Wales Noise Policy limits. This representation and misleading use of not-reliable background noise data conducted between 2003 and 2006 at four locations, and Wilkinson Murray have not verified the existing conditions. The Wilkinson Murray noise model is based on indicative and incomplete fleet inventory. The noise modelling demonstrates exceedances at the noise-sensitive community. The noise assessment introduces questionable mitigation measures identified as proactive and reactive procedures. These procedures are not reflected in the DIP conditions.

It is suggested that the operator will continuously operate real-time noise monitoring while adapting the changing metrological conditions, and then modify work practices to comply with the project noise limits. The noise modelling demonstrates that for typical metrological conditions, the project limits will not be achieved. Then during forecasted adverse weather event, Malabar will modify operations to reduce noise impacts to the noise-sensitive community. It is unclear how Malabar will be implementing these actions and the impacts to their production. According to the methodology outlined by the New South Wales EPA, adverse metrological conditions will occur for 36 to 44 per cent of the daytime period.

During these periods, it is proposed to engage proactive and reactive noise mitigation. Mitigation actions proposed by Wilkinson Murray is to suspend the use of critical mobile and fixed equipment for the duration of the adverse conditions and incorporate undefined truck attenuation package. Although theoretically achievable, it is unknown impact as how these events are to be fulfilled, publicly reported or monitored by the New South Wales EPA, and in my opinion, the proposed mitigation methodology is impractical. Wilkinson Murray implements at least two noise

reduction parameters, and these are – they include a minus one to two DB for proactive and reactive mitigation during the extractive process, and they include a minus 5 DB time correction associated with the use of equipment during the construction phase.

The noise-sensitive community is unable to distinguish between earthmoving equipment for use during the extractive process or during the construction periods. Construction noise limits are significantly higher than operational noise limits, and the consent conditions do not nominate or comment on construction noise limits. It is unclear how proactive and reactive noise mitigation processes which include metrological assessments will be distinguishable for operational and construction noise activities. Wilkinson Murray reports on breaches that are negligible and marginable. It should be acknowledged that noise limits are absolute and should be – and should not be considered as aspirational.

If the Wilkinson Murray report presented a worst case scenario with regards to adverse weather conditions and continuous operations, including construction activity, the number of impacted properties will be higher than recorded in the EIS. The noise assessment is likely to under-predict the actual noise impacts to the noise-sensitive community. On the basis that background noise data is not reliable as indicated by the DEC, and note – and not the actual background levels within the noise-sensitive community, the noise intrusiveness assessment in accordance with section 2.3 of the Noise Policy for Industry is incomplete. The intrusiveness limit is often determined as the measured background level of 5 DB. Operational noise will be 15 to 20 DB higher than the expected background noise surrounding the site.

It is expected that ambient noise levels within the noise-sensitive community to result in low background noise levels, most likely less than 30 DBA. Based on my experience, raw ambient levels are generally between 20 to 30 DB, and these are from environmental noise sources. Considering the findings in the matter of Gloucester Resources Limited v the Minister for Planning of New South Wales in 2019, Preston CJ commented that operational noise emitted from the Rocky Hill Coal Project had the potential to contribute to adverse social impacts to nearby noise-sensitive community. Preston CJ acknowledged that background noise levels of less than 30 DBA will result in operational mine noise to be more noticeable and likely to impact the residents' acoustic amenity.

MR BEASLEY: But that – that proposed mine had residents living – I can tell you, I – I went there, that are – that were a couple of hundred metres from the mine site. That's a different scenario to here, isn't it?

MR BUTERA: Well, we're referring to background noise levels and the impact of background noise levels and the changes - - -

MR BEASLEY: Yes, but the acoustic – acoustic amenity was because there were residents basically with the mine at their back yards for Rocky Hill.

MR BUTERA: The – the – if you – if we are discussing acoustics and noise impacts, it's the level that's important.

MR BEASLEY: Yes.

MR BUTERA: And if the level is going to be significantly increased, then you have a more noticeable and a – a highly impact - - -

MR BEASLEY: For residents.

MR BUTERA: For residents, that's right.

MR BEASLEY: Yes. Who are they? Right. Please – please, go on.

MR BUTERA: Background noise levels are – background noise levels are required to address social impacts, and noting that the Wilkinson Murray report omits the data, the presented social impact assessment remains incomplete and inaccurate. The Wilkinson Murray noise modelling was undertaken using ENM software. The developer of ENM no longer supports or maintains the software and it has not been commercially available for over a decade. Changes to noise policies that have been issued by the New South Wales Departments have not been implemented or verified for the software. This includes a metrological impact assessment that is known as Fact Sheet D in the Noise Policy for Industry.

It is proposed to adopt blasting limits in accordance with ANZEC 1990. ANZEC provides limits for control to damage for structures. DEIS refers to 10 millimetres a second and five millimetres a second designed to limit impacts on structures. There is no assessment with regards to human or animal comfort from ground-borne vibration, blast over pressure or noise impacts associated with the proposed blasting. Wilkinson Murray suggests that that blasting will be undetectable at Coolmore and Godolphin. However, works completed by Bridges Acoustics for previous applications suggested that compliance with the ANZEC noise limits result in ground-borne vibration for greater than 10 seconds per blast at Coolmore and Godolphin. The limits proposed in the conditions are inadequate. In 2015, the PAC for Drayton South Open-cut Coal Project reported:

> *The Commission finds that blasting requirements of the mine represents a potential risk to the operations of the stud, particularly Coolmore. These risks are threefold, namely, potential safety concerns for workers handling horses that might be startled by blasting at the mine, potential business impediments should Coolmore's suggestion that it would not be able to conduct live coverings during scheduled blast periods prove necessary, and most significantly, potential reputation impacts should evidence of blasting become apparent to clients during visits or via media. Regardless of the actual impacts to the horses, blast impacts are inconsistent with the image so carefully cultivated by the studs.*

The proposed consent conditions for blasting allow for more blast events than proposed in the 2015 consent conditions which were identified as a risk to the operations of Coolmore and Godolphin. On that basis, blasting remains a significant risk to Coolmore and Godolphin operations.

MR BEASLEY: Just on that, there's – the blasting for this mine is construction only, correct? Not – doesn't occur once the mine is operating. Do you agree with that?

MR BUTERA: That's – that's my understanding.

MR BEASLEY: Yes. Just on – if I could ask you about noise. There – the Department has proposed the conditions where it states that the applicant must ensure that noise generated by the development doesn't exceed certain criteria. Do you have any comment on that proposed condition?

MR BUTERA: Well, the proposed condition – the – the – the limits that the Department has put through - - -

MR BEASLEY: Yes.

MR BUTERA: - - - are higher than what the policy says they can be, and – and the report demonstrates that the – that the ..... - - -

MR BEASLEY: So you're critical of that. You don't think that's appropriate.

MR BUTERA: No, I don't think that's appropriate.

MR BEASLEY: All right. And – and I think you have already said that you – in terms of the proposed condition about ensuring blasting doesn't exceed certain criteria regarding over-pressure, you're critical of that also?

MR BUTERA: Correct.

MR BEASLEY: All right. Okay. And that's in some written material you are going to supply.

MR BUTERA: That's right.

MR BEASLEY: All right. Thank you.

MR BUTERA: I have just got two more slides, if I quickly get through these.

MR BEASLEY: All right. Yes.

MR BUTERA: Coolmore and Godolphin farms have developed their properties to replicate areas of tranquility. Areas of tranquility are commonly defined as spaces

with low noise level, natural sounds rather than man-made sounds, natural features in the area, and a place which is perceived to be natural and relatively quiet and calm. The European Union director of 2002 and the UK Government have implemented an assessment to define and protect areas of tranquility, and it is international best practice to undertake tranquility mapping. And in summary, the noise assessment is incomplete and fails to provide an intrusiveness assessment with regards to true and current background noise levels.

The noise assessment blurs operational and construction noise and relies on impractical real-time noise monitoring and immediate actions by the operator to continuously modify their operations to comply with the project noise limits. The noise assessment demonstrates continual exceedance of the New South Wales EPA noise limits. The noise assessment does not demonstrate the true representation of the current or future noise and blast vibration impacts, and in my opinion, cannot – the Commission cannot rely on the findings of the current state of the noise assessment. Thank you.

MR BEASLEY: Thank you, Mr Butera.

MS O'KANE: Thank you.

MR BEASLEY: We will have a break now until 2 o'clock.

RECORDING SUSPENDED [1.38 pm]

RECORDING RESUMED [2.02 pm]

MR BEASLEY: All right. Thank you. I think our next person to give a presentation or speak is for the Breeders Association again, Mr Peter Bacon. Mr Bacon, can you hear me?

DR P. BACON: Yes, I can.

MR BEASLEY: We can hear you, so please, go ahead.

DR BACON: Okay. Well, firstly, thank you very much for the opportunity to provide professional opinion on the potential impacts of the Maxwell Underground Mine on soil properties. I'm a professional soil scientist with over 40 years experience in soil and plant and water investigations. I first undertook work – investigations work in the Hunter in 1990 when I was looking at impact of rehabilitation techniques on water supply and plant moisture stress in the Hunter Valley soils around Musswellbrook. What I wish to do – address today is the impact of the underground mine on the soils. So – okay. Got it. Thanks. So I'm concerned

with the loss of productive land and soil resulting from the proposed Maxwell Underground Mine.

So why are land and soil critical? Well, it's because the productive land and soil plus good quality water creates sustainable sources of food and fibre. It's a really important part of – of our civilisation and our existence. The points I wish to make, firstly, there will be a loss of BSAL. BSAL is biophysical strategic agricultural land. There's only about three per cent of New South Wales meets this criteria. Mine sites creates depression – compression and cracking soils, and this increases the risk of activities such as flooding, water logging, seepage and reduced agricultural activity. Subsidence is a particularly big and significant threat for the Hunter River and Saddlers Creek, because if we have subsidence near a drainage line such as the Hunter River and we get floods – and we all know the Hunter River floods – and the flood extends to these depressions, they become a major problem with the – within the landscape and the water has just got nowhere to go.

It's a closed depression. It just sits there, and we obviously lose the agricultural value of that site. Importantly too is the fact that all this cracking we talked about earlier on creates an opportunity for saline water to move into the soil through the crack strata and into the mine, and as it goes through the – particularly the – the rock strata, if there's any salts there, the – the water percolating through will pick out those – will dissolve those salts, mobilise them and deposit them into the mine itself. So we have – we have a flooded mine through of saline water. Where does that water go? The proposed mine site in this area includes BSAL and also critical industry cluster areas, and these areas will be degraded.

I suggest that the development of that site is incompatible with the Regional Strategic Land Use Plan for the Upper Hunter issued by the Department of Planning and Infrastructure in 2012, and the development is also incompatible with the Hunter Regional Plan 2036 Actions. Mine – in a nutshell, mine subsidence is a critical issue. It will degrade BSAL, resulting in its loss, and there's only three per cent of New South Wales has BSAL classification. This slide was put up by Peter Scott. I just reiterate that at the – the area – the area surrounding is crack – subsidence area, the soil will go through expansion crackings. In my case, from the soil point of view, those cracks open up.

We can split or shatter the strata below that, creating conduits for water to move through the soil and down into the mine and create problems with saline water incursion. The surface compression in the – towards the centre and edge of the expanding – of the – the slope into the depression becomes compressed. That means that we lose – infiltration rate drops off. We have – drainage and soil becomes lower. We also have a problem with air moving through the soil because the compression has pushed all the – the pore spaces together, making it very difficult for air to get through, and as a consequence, we lose production.

As I mentioned, subsidence also creates – can create closed depressions in the landscape. Obviously, if you have got a very hilly landscape, you're not going to get

that, but you are certainly going to get the long drainage lines. The next point is the subsidence extends beyond the long wall mine edge. This is some data from Kestrel mine near Emerald in Queensland by Rio Tinto. You can see the long wall block is, you can see, about 250 metres. The area of influence, referred to as the angle of draw by Peter Scott earlier on, determines how far beyond the wall this goes. As he pointed out, as the angle gets steeper, the impact becomes greater. So it's not just where the mine is but it's – but also looking at beyond the mine and – where the effects can be quite devastating.

Loss of biophysical strategic land. This diagram is taken from the Gateway process copied from Bailey – Hansen Bailey in 2015. It looks at the distribution of BSAL land identified for the original Drayton – Drayton South mine. 218 hectares of initially verified BSAL. You will note that the area, the dotted red line to the south and east of the mine, that's the expanded footprint of the proposed Maxwell Underground Mine. That's important, because the area where that expansion is – and it's about the third of the area – really hasn't been investigated. There's almost no soil sampling. There's some right in the corner there. And the – the – the value – and there's no – there's blanket comments, which we will go to in a moment, but I point out that this ..... you're only about 0.5 of a kilometre form the centre of the Hunter River to the mine.

Now, when you think about that mine, what happens when the Hunter River floods, water moves out onto the landscape, on – onto the floodplain. By definition, that goes closer and closer on the ..... sands towards the subsidence areas, and I think that's a major risk. The other thing to note is the dark brown area is considered to be all greater than 10 per cent. Realistically, if you think about what a hilly countryside looks like, you have obviously got areas that are greater than 10 per cent hill slope and you have got areas that are a lot less than 10 per cent hill slope, and these areas, particularly the low ones, tend to be closer to drainage lines in lower parts of the landscape. So they're not even recorded in this particular map. The other thing that's notable in this map is the series of blue little streaky lines across the map.

Now, if you can read the legend, you will see that they are actually BSAL, but the argument that's put forward by the client is that they're not contiguous, and you need to have 50 – sorry – 20 hectares of BSAL land in a – in a clump, or a contiguous body before it's considered to be BSAL. Now, they have drawn the map on here as this continuous line along drainage systems. If this was out and around Broken Hill, that might be correct, but it's not correct here. You do – the drainage lines connect to each other and they flow down the landscape. So it's just plain wrong and there's a real need to basically do this properly, is a good – simple way to put it. It is possible when the – when those simplifications are removed that up to 300 hectares of BSAL is present within the proposed Maxwell mining area.

Are we prepared to lose 300 – up to 300 hectares of BSAL? What's the relationship here between the mine, the associated subsidence impacts and – and on the soil, in terms of loss of soil quality, to the Hunter Regional Plans? This is map 6 from the Strategic Regional Plan for the Upper Hunter. In the right side, you can see a – a

bracket. That is on top of the Maxwell Mine, and you can see enclosed in this bracket we have two – two things. If ..... those bracket extend down towards the river. One is BSAL, which is the green area along the river, and the other one contains the – the equine and viticultural critical industry clusters. In other words, the strategic plan says that the mine – this mine, the way it's set up, is going to be under these strategic – critical industry clusters, and because of the floodplain and the water moving across the floodplain and the impact of soil and subsidence, they – the BSAL soil is also going to be affected. If we think about the relation to the Hunter Regional Plan – okay.

Very quickly. There's two items there, protect location and can accommodate agricultural enterprise from compatible development and manage by a physical strategic land for other important thing – for other important activities such as agriculture and complementary. BSAL loss should not be in this. So to summarise, extent of BSAL and industry clusters are understated. There will be significant loss of BSAL areas, and therefore a loss of soil quality. The development is inconsistent with the major land use plans, and there are specific risks that are significant from the subsidence resulting in mine floodings with salinised water from Saddlers Creek and the Hunter River, and then you have to say, well, what do you do with that water? Thank you.

MS O'KANE: Thank you.

MR BEASLEY: Thank you, Dr Bacon. The next speaker is Pam Hazelton, also for the Breeders Association.

MS O'KANE: Yes.

UNIDENTIFIED MALE: Okay. We're going to share a screen ..... now too.

MR BEASLEY: All right. All right. That has come up now, Dr Hazelton, so you can go ahead.

DR P. HAZELTON: Thank you. Thank you for the opportunity to present here. I am a soil scientist of over 35 years, but in the last 20 years I have also worked in the identification of endangered ecological communities prior to land use change and – and development. In this presentation on the impacts of biodiversity, we are dealing with critically endangered ecological communities. Three have been specified as being on the site, and that it has also been reported by the DPIE that subsidence and soil cracking will develop on the – on the site as a result of mining, and this will have a deleterious effect on the EECs, because it will have a change in water infiltration, and this water infiltration then will no longer get to the EECs and they will decline.

Soils themselves actually play a – a very integral part in the ecosystem processes, and soil itself is actually one of the criteria used in the determination of EEC. So it's very hard not to consider both soils and vegetation together. If subsidence disrupts the water flow through the soil to the plants, the plants will obviously die. It will

also create water logging. It will create, as mentioned previously by Dr Bacon, a groundwater drawdown, and salinity itself will create bare surfaces on the landscape, and, of course, the bare surfaces being so compacted you get – don't get any vegetation that really wants to grow in those areas.

The EECs themselves are not by themselves. They are connected to the landscape, and so they tend to influence the landscape and the landscape influences them as well. So if the EECs are lost, the connectivity between the rest of the landscape is also lost. Now, besides the – the EECs themselves, there's a swamp forest which is not an EEC, but it – it too would be impacted by the soil salinity, leading to vegetation loss, and the bare areas always with the chance of storm impact or wind impact can result in being eroded, the sediment moving off into the streams or into the air, often with contaminants connected, and the problem is exacerbated with the whole scene being – going into the mine.

There's a risk – therefore, there is a risk of these critically endangered ecological community and other threatened species, and in fact, the New South Wales Threatened Species Scientific Committee – sorry, I hadn't done any of that. Pardon. Pardon. The risk of extinction of these by the New South Wales Threatened Scientific Committee says that there's an extreme risk of extinction in Australia in the immediate future. Also, the actual community itself may have threatened species within it and they also will be lost. So to overcome this, the mine has set up a – an offsite on which you will – which they hope would be able to offset this problem that – of the EECs.

However, one of the problems of offsets is that they are very – it's very difficult to do in the – in the first place, and also, it's the fact that the offset should provide the same ecological values of, let's say, the biota, soil type and – and land form, and to do that, you need to have comprehensive data collection. Otherwise, you don't know what you're doing like for like. It's – and you're not able to mimic actually what was on the original site on the offset site. So it's not a – an easy situation. So when you look at the – the offset site, it's not tremendously large, and yet the area of the – of the critically endangered communities is – is over 1500 hectares, round about.

And so when you look at the offset site, you can see that it's also on top of the mine, and being on top of the mine, it's also going to be – have the same problems then of subsidence and water logging and crack development, etcetera. That has already been indicated by the assessment report. So it's going to be subject to the same problems, and yet you are trying to grow something on it that you originally said was going to have a problem in the first place. So the next problem then, just briefly, is saline soils. Saline soils are – especially cause problems for plants, but the main dominant plant, the E. blakelyi, is – is very salt-sensitive, and if subsidence then creates a saline conditions, the E. blakelyi will die, and as it's dominant or co-dominant of the EEC, then the critically endangered EEC will decline and you will no longer have that particular community.

So finally, there's a lack of detailed information, lack of maps. We do have some very old maps that gives us some idea of the fact that there could be sodic soil, so soils which, of course, will disburse when the area is – is disturbed, and so that's another problem that you're facing. But the detail – the lack of the detailed information is very critical in this particular situation. So the key points are, in the opinion of the New South Wales Species Scientific Committee, the White Box-Yellow Box-Blakely's-Red Gum Grassy Woodland is – has an extremely high change of not surviving, especially in the future. The mine subsidence itself will actually create depressions in the landscape and this will increase the chance of water logging, and once again, the E. blakelyi, which is dominant, will not – will not actually survive.

It's also known, of course, of a – I just mentioned that it doesn't like to survive – that particular plant doesn't like to survive in salinity, and you will impact any other threatened species there. So overall, in – in conclusion, if you're facing a high risk of extinction, there's lack of detailed information on the site. The map provided shows that you are actually on top of the – on the area to be mined and therefore it's going to be affected by all of the soil issues of – of subsidence, crack development, water logging, bare areas, salinity overall. All that you could come to the conclusion is that these soil issues really make the offset site not suitable for the preservation of the EECs and the EECs will become extinct. Thank you.

MR BEASLEY: Dr Hazelton, thank you. The chair, Professor O'Kane, just has a question for you.

MS O'KANE: No, Mr Hann.

MR BEASLEY: Sorry, Mr Hann.

MR HANN: Yes. Dr Hazelton, I just wondered, do you have any comment in relation to the groundwater dependent ecosystems related to the swamp, predicted – because of the predicted drawdown in Saddlers Creek?

DR HAZELTON: Yes, I do. Now, let me see. I – I did do that. There – if – if you have – what I had in Saddlers Creek, that there would be – if you get drawdown and you get salinity, it will come also from the drawdown and from the infrastructure construction – do you want me to put that slide up? I have got it on - - -

MR HANN: No, that's okay. That's all right.

DR HAZELTON: That's okay.

MR HANN: We don't need the slide.

DR HAZELTON: Okay. Okay. So that would get – you would lose the vegetation type and any associated terrestrial ecosystems that are associated with that. You would get soil erosion, overall because you would get bare areas, and the sediment

movement with possible contaminants would actually go into the waterways, and the waterways, of course, are the waterways of, for example, Saddlers and Saltwater Creeks, and the water quality there will decline. But their aquatic ecosystems will also decline, because the aquatic ecosystems and the terrestrial ecosystems go together, because once you get terrestrial ecosystems dying, then you find eventually that the aquatic ecosystems will go into decline as well because they tend to be linked, because there are some animals that like to go from the terrestrial to the aquatic and – and back again. Frogs are probably a good example of that. So you would get a decline in water quality which would continue to decline.

MR HANN: Okay. Thank you very much, Dr Hazelton.

DR HAZELTON: Thank you.

MR BEASLEY: Thank you. The next speaker is Associate Professor Brett Tennent-Brown.

MS O'KANE: I think Professor Tennent-Brown is - - -

PROF TENNENT-BROWN: Yes, good morning, and thank you for allowing me to address the Committee today.

MR BEASLEY: Thank you. Please, go ahead. We can hear you.

PROF TENNENT-BROWN: My name is Brett Tennent-Brown. I'm an Associate Professor in Equine Internal Medicine at the University of Melbourne. I have been an equine veterinarian for over 20 years and became specialised in equine internal medicine 15 years ago. Today I would like to comment on the effects of coal mining activities on equine health. I will restrict my comments to the adverse effects on respiratory health, where Dr Andrew McLean will comment on the effects of light, noise and vibration on horses. The Department's final report ignores equine health almost completely. The terms "equine health" or "horse health" appear on just a handful of occasions in the materials provided by the applicant and within the Department's final report.

Despite this lack, the Department has suggested that there will be negligible impact on the health of horses. This appears to be based on air quality modelling designed to meet human health criteria. As will be mentioned in a minute, methodologies used to determine air quality for humans are almost certainly inadequate when attempting to quantitate the dust burden of grazing horses, and it should not be concluded that equine health will not be affected if human air quality criteria are met. Because the provided materials are inadequate, it is not possible to confidently state that dust arising from coal mining will have no adverse effects on equine health.

As I have just said, the Department has suggested that there will be a negligible impact on equine health, but has provided little or no data to support that contention. In stating that there will be negligible effects of coal mining activities on equine

health, the Department has ignored the well-known adverse effects of dust derived from mining activities on respiratory health in humans, including the adverse effects on health seen in those living in neighbouring communities but who might not be directly involved in coal mining activities. The detrimental effects of increased dustiness on the lungs' normal defence mechanisms and the increased risk of respiratory tract infections, which has been documented in horses, has also been ignored in the Department's report.

The Department has cited a report that was commissioned in support of the Drayton South Project, titled the Equine Health Impact Statement. This report, prepared by a veterinarian with limited expertise in equine respiratory health, did not provide any evidence to suggest that dust related to coal mining activities was not harmful to horses. The Equine Health Impact Statement included a large volume of largely irrelevant material that has been repeated in the – in the Department's current report. Although deficient in relevant information, the equine health impact statement did acknowledge that the equine lungs are exquisitely sensitive to the effects of dust.

Again, the Equine Health Impact Statement that has been cited by the Department in their final report contains no directly relevant information when considering the effects of mine dust on equine health, and in particular, equine respiratory health. Scientific research in this area is undeniably scant, in part because nobody would consider placing a horse stud next to a coal mine. However, the good quality relevant literature that does exist for horses was not considered in the Equine Health Impact Statement and has not been considered in relation to the current proposal. Once again, the equine respiratory tract is exquisitely sensitive to the effects of fine particular matter, and there is clear evidence to show that fine dust will reach the lower airways of horses where it can cause disease.

Standard methods used to determine air quality are almost certainly inadequate when assessing the dust burden on the equine respiratory tract. This is because horses spend a large portion of their day grazing, disturbing and inhaling dust that has settled on the ground. The quantity of dust inhaled by horses will therefore be much higher than suggested by standard air quality measures. In my report, I have included some information that gives an indication of just how much the modelled values will underestimate the likely dust burden on horses. This is an absolutely critical point, since the thoroughbred horses bred in the Hunter Valley are reared to perform as elite athletes. Respiratory function is crucial to their athletic performance, and any impairment in respiratory function has a potential to adversely affect the ability to compete at a top level. In conclusion, insufficient information has been provided by the proponents to determine that a risk to equine health does not exist.

Air quality methodology used is inadequate to assess the risk to horses, and a lack of evidence on the adverse effects of dust from coal mining on equine health does not indicate that there is no effect. In fact, evidence does exist that suggests that dust derived from coal mines could be injurious to horses. Because there is insufficient evidence to determine that a risk to equine health does not exist for the current

proposal, and because the consequences of getting this decision wrong are significant, I have strongly recommended that an extremely cautious approach be taken. This is an example of when the precautionary principle should be followed, which in effect states that if there is a risk that an action could cause harm but that risk cannot be adequately assessed, that action should not be pursued. Thank you very much for your time today. I will be happy to address any questions that you might have.

MR BEASLEY: I'm just wondering if – is that you, Associate Professor? Right. Okay. Well - - -

MS O'KANE: Do we have Professor Tennent-Brown with us? I know he was going to be available. No.

MR BEASLEY: Is it – is it possible to get Associate Professor Tennent-Brown on the phone? You will look into that. All right. We will try and get Associate Professor Tennent-Brown back, but at the moment I think we have – is it Dr McLean – Dr Andrew McLean?

DR A. McLEAN: Yes, that's right. Can you hear me?

MS O'KANE: Yes.

MR BEASLEY: Yes, we can. Please, go ahead, sir.

DR McLEAN: Is the screen visible with my PowerPoint?

MS O'KANE: Yes.

MR BEASLEY: Yes.

DR McLEAN: Thank you very much. Good afternoon, Mr Beasley and Commissioners. My name is Dr Andrew McLean and I'm a specialist in equine behaviour and learning. I have 40 years experience in both academic and practical elements of horse behaviour, and I have published over 90 articles, including conference proceedings, and I have also authored and co-authored six textbooks. I have been asked by the Hunter Thoroughbred Breeders Association to provide my professional opinion regarding the impact of the Maxwell Project Underground Mine on thoroughbred horse behaviour at Coolmore and Godolphin Studs in the Hunter Valley.

The horse evolved in the open grassland setting, and like other animals such as antelopes evolved in similar environments, they face the prospect that they were always within the visual scope of their predators. Thus, they have a very strong flight response, which is a tendency to run away from danger and to do anti-predator behaviours. The amygdala is small neural unit in ..... brain whose job it is to modulate fear, and the horse has the largest amygdala of all domestic animals. When

racing first began a couple of centuries ago, the docile farm horse was infused with sensitive Arabian blood, and this accentuated the flight response to a far greater degree than before, and the thoroughbred was born.

So consequently, the thoroughbred horse has extremely acute senses and a very pronounced instinct to run away from danger. Now, the flight response doesn't just imply bolting from danger. It also includes behaviours such as rearing, shying, which is a – a rapid swerving, and also bucking, all of which pose a huge risk to – to humans as well as to horses. Consequently, horses are the most dangerous animal in the Western world and the injury statistics are quite astounding: one serious injury requiring hospitalisation for every 350 hours of contact, which is 20 times higher than motorcycling. So dealing with horses is a seriously dangerous matter.

Now, on top of this, we need to consider that the thoroughbred horse is even more flighty than your typical horse. A key element of the flight response that makes horses even more dangerous is the fact that the flight response at certain thresholds can cause the horse to run blindly into objects and injure itself, sometimes fatally. People often refer to this as an irrational element of horses, but, of course, it's all to do with their evolved survival mechanisms. Another major aspect of the flight response is that it is also contagious, so one horse panicking can cause others to panic likewise. As with all mammals, a predictable world is extremely important, but it is particularly more important and obvious in sensitive animals such as thoroughbred horses.

This predictability provides mental security. In fact, the idea of horse training with signals and cues is to place stimuli from reins and leads into predictable, controllable elements. If that isn't done properly, horses can become insecure and show conflict behaviours which show up as aggression or fear. Horses have excellent hearing with a range from 50 hertz to 33.5 hertz, and their large, mobile, funnel-shaped ears enhance sound by around 20 decibels. Enhanced by flight response and sensitivity, random loud noises are aversive to horses and can lead to mental insecurity if aversive noises or other stimuli are unpredictable. Insecurity in horses shows up in many ways.

For example, horses can become neophobic. That is, afraid of things that normally wouldn't bother them in their known environment or elsewhere. Insecure horses can also show separation anxiety, where they are overly nervous when herd mates disappear. And finally, insecurity can also show up as stereotypical behaviours where horses show repetitive, seemingly pointless behaviours. Examples of stereotypies are wood-chewing, which is also known as crib-biting in the horse world, and weaving, which is a swaying from side to side. In fact, many problematic behaviours can become ritualised in insecure horses. For these reasons, a tranquil environment is absolutely critical in breeding establishments, so that as young horses during the early, important times of their nurturing, their world is full of easy-to-learn, predictable signals and stimuli.

Unpredictable stimuli, particularly when they are repeated, typically lead to chronic stress which has a large swathe of detrimental effects. Chronically stressed horses show raised cortisol levels. Cortisol is a long-term stress hormone with a much longer half-life than adrenaline, and is damaging to the horse's physiology. Chronic stress also causes significant learning and memory deficits, which has ramifications for thoroughbred race horses, because it is not simply just a matter of sitting on a horse in a race. Horses need to be broken in and trained and to learn much about their environment to keep them safe to make the world predictable.

Chronic stress also causes a range of physiological compromises such as immune and gut issues which can lead to increased susceptibility to serious illness. Stressed animals are often aggressive and therefore may endanger handlers, and aggression may be redirected toward other horses also. Chronic stress can also cause an inhibition of responses and a tendency to not trial learned responses. Sleep patterns may be altered which is deleterious for growth and repair, and finally, learned helplessness may arise from the horse's inability to resolve its stress, because of repeated aversive inescapable stimuli. But it is important to recognise that conditioning and therefore training are actually impossible when it comes to habituating horses to aversive, unpredictable stimuli.

Horses are certainly intelligent animals and a thoroughbred is believed to be among the quickest to learn. However, there are some important aspects surrounding unpredictable, aversive stimuli and flight response that makes learning to cope with unpredictable blasts and noises impossible, and if anyone were to undertake some kind of protocol to habituate horses to the effects of such unpredictable stimuli, the outcomes of such training may well be catastrophic because of the horse's acute sensitivity. Although I have desensitised horses to various elements myself during my horse training career, both my academic knowledge as well as my practical experience tell me that it's not possible to habituate sensitive horses to unpredictable, aversive stimuli.

One of the biggest problems is that fear behaviour can be learned from just one ..... episode, and once learned, they are indelible. Furthermore, fear behaviours have evolved to show spontaneous recovery where they may rebound later, sometimes completely out of context and in a dangerous way. Another aspect of unpredictable, aversive stimuli is the learning phenomenon of sensitisation, where exposure to unpredictable, aversive stimuli can make a horse increasingly over-reactive to even mild versions of the same stimuli. It needs to be recognised that the thoroughbred horse has been selectively bred to bolt. In summary, I would like to say, because of all of these factors, it's important that the precautionary principle, as Brett mentioned earlier, is applied, because there are too many unknowns regarding the blast manifestations, including the timing of the blasts.

The Maxwell Project proposal has overlooked the unique distinction of the thoroughbred that makes it different, not only to other animals but also to other horses, such as its extreme flight response, nor does the DPIE assessment report acknowledge in any way the deleterious effects of unpredictable stimuli, the fact that

fear reactions can be learned in a single episode, that they're incurable and indelible, and that sensitisation may occur where thoroughbreds, regardless of pedigree, are unable to reach their potential because of neophobia, where they have learned now to be suspicious of things and unnecessarily frightened of anything. The importance of a tranquil environment for horse breeding cannot be overstated and is jeopardised by the Maxwell Project. The proposed underground mine poses a very significant threat to the Australian thoroughbred breeding industry, and above all, it's an extremely risky experiment to undertake on two of the most eminent breeding establishments, not only in Australia but for the world. To my knowledge, this incompatible experiment where underground mining is proposed next to thoroughbred breeding has never been attempted before. Thank you, Commissioners, for listening.

MR BEASLEY: Thank you. Dr McLean, I can see from your presentation slides that many of the things you were speaking to seem to have references to what are no doubt peer-reviewed publications, and I think you may have been the author of – or a co-author of a number of them. But I'm just wondering, in relation to various threats or risks you were pointing to in relation to unpredictable behaviours in horses, neophebic responses, or neophobic responses, I think you were referring to, separation distress, chronic stress, I'm just wondering, are you aware of any evidence of the horses currently in the Hunter Valley, the foals, the yearlings, the sires, the mares, whether they – they are suffering any of these behaviours or problems as a result of the current mining activity up in the Hunter?

DR McLEAN: No, no, I'm not aware of that.

MR BEASLEY: All right. Okay.

MS O'KANE: Could – Dr McLean, thank you very much for the presentation. That was very clear. Could you tell me a little bit about the – the bolting response to unexpected stimuli like lightning/thunder, which must have been horrendous through the last summer, through the bushfire season, and did – was there a lot more self-damage to horses on the studs? Because they were very close to one of the big fires.

DR McLEAN: Yes. That's certainly true, and lightning is always a problem for horse studs, and that's one of the reasons why they have strong visible fencing, because horses can bolt. But even visible fencing can sometimes be no barrier to a bolting horse, because as I said, at a certain threshold of flight response, they will run blindly, even into objects, and that has been – that's well known amongst horse people, and it's a significant problems for thoroughbreds in particular because of their flight response.

MS O'KANE: And did many – like, were there many more horses hurt last summer than had been in the summers immediately previous where the fires - - -

DR McLEAN: Yes, there – yes, there certainly were. There are many horses that – and when – more so than cattle and sheep where they – you know, they couldn't escape and they got burned. With horses, there are many examples where they

bolted through fences and were lost and later found with, you know, broken legs because they have run into things and injured themselves in wire. I don't think there's any other domestic animal that has that kind of panic effect. Even a cow will shake its leg out of a wire fence, but a horse will just absolutely panic and a thoroughbred horse has a higher proclivity to do that.

MS O'KANE: Thank you. And I would like to ask Professor Tennent-Brown a couple of questions.

MR BEASLEY: Yes. If – I have got some questions also. I think – Associate Professor Tennent-Brown, are you there?

PROF TENNENT-BROWN: Yes, I am.

MR BEASLEY: Thank you.

MS O'KANE: Thank you.

MR BEASLEY: Thank you for making yourself available.

PROF TENNENT-BROWN: No, I – I apologise for the technical errors .....

MR BEASLEY: No, that's quite all right. Do you want to - - -

MS O'KANE: Yes.

MR BEASLEY: Yes.

MS O'KANE: Thank you. Again, thank you for the presentation. It was – as I said, that was clear too. Could you tell me a little bit about the deleterious effects of coal dust on horses in terms of what is it in the coal dust that is particularly damaging, or is it several things? So is it the different size particles, PM2.5, PM10 perhaps, or is it something else, some other aspect of the – of the coal dust?

PROF TENNENT-BROWN: Yes. It's the – the size is important in terms of how far down the lungs that – yes, the dust reaches, and then there is quite a bit of debate – we don't know very much about horses because people haven't looked, but there is quite a bit of debate about what the actual agent is that causes the injury in human coalminers and people exposed to coal – people exposed to coal dust. But we certainly see – in pet ponies, there's historical reports of pet ponies having the same pathological lesions, and there are reports of horses in California at pasture that developed silica pneumoconiosis, which is – which is – which shares – shared some similarities, and silica is one of the components that is thought to contribute to coalminers' lung disease.

MS O'KANE: And how would they be absorbing the – the silica?

PROF TENNENT-BROWN: Inhaling. Inhaled dust.

MS O'KANE: Okay. Thank you.

MR BEASLEY: Associate Professor, the – when you were talking about the equine respiratory tract, and I think you used the word – or words that horses are exquisitely sensitive to dust. Was that to draw some sort of distinction, whether it's a fine or more broad distinction, between the sensitivity of horses to dust, as distinct from humans?

PROF TENNENT-BROWN: Yes. So horses do appear to be very sensitive to dust, and part of the problem is that horses have enormous reserve capacity, and so at rest we might not see those effects of dust. But certainly, horses living in – and this doesn't necessarily apply directly to this situation, but horses living indoors, and even in well-ventilated barns, will develop conditions that are similar to – to human asthma. Now, those environments don't bother humans for the most part, but they will – they will bother – they will impair performance in a significant portion, sometimes 40 to 60 per cent, of horses that are kept in that environment. So – so 40 per – 40 to 60 per cent of horses kept in an environment that doesn't worry a human will impair performance in a horse.

MR BEASLEY: Right. Okay. Is there any – has there been any research conducted, or is there any evidence the Commissioners could look to about whether the thoroughbred horses being bred or living in the Hunter Valley have been impacted or harmed in any way by the current mining activities?

PROF TENNENT-BROWN: Not that I'm – not that I'm aware of.

MR BEASLEY: Right.

PROF TENNENT-BROWN: I think one of the things to be conscious of is that those – the evaluations are going to be quite evasive. So they're going to require things - - -

MR BEASLEY: Yes.

PROF TENNANT-BROWN: - - - like post-mortems and so on. And so that's – that's going to be a challenging study – study to do.

MR BEASLEY: Sure.

PROF O'KANE: And there's nothing coming out of the US, from Kentucky, for example, where there's horses and mines?

PROF TENNANT-BROWN: Not that I'm aware of, no.

PROF O'KANE: Okay. Thank you.

MR BEASLEY: All right. So in terms of the precautionary principle you were speaking of and how you say the commissioners should approach the threat of a risk of serious harm, in relation to this project, you say, what, that this project will inevitably produce some particulate matter and that that, based on your expertise in equine health, poses, albeit an uncertain amount, some form of risk that is serious to the lung health of horses?

PROF TENNANT-BROWN: Exactly. That's exactly right.

MR BEASLEY: All right. Thank you. I understand the point you were making. Thank you very much for coming online.

PROF TENNANT-BROWN: Thanks very much for your time; I appreciate it.

MR BEASLEY: All right. Thank you. I think we now have Mr Owen, is it? Tim Owen?

DR T. OWEN: Dr Owen, yes.

MR BEASLEY: Sorry. I apologise, Dr Owen. You're also making – giving a – speaking on behalf of the Breeders Association, so please go ahead.

DR OWEN: Okay. Good afternoon, Commissioners and Mr Beasley. I acknowledge the Wonnarua people of the living traditional spiritual owners of the land about which we speak. Today's schedule allows me 15 minutes, and I have prepared a presentation of that length. My name is Tim Owen and I'm a principal of GML Heritage, with a PhD in Aboriginal archaeology. I am a senior research fellow at Flinders University and I have 20 years experience in Aboriginal historic heritage, working with and for Aboriginal communities across New South Wales and South Australia.

I have reviewed the project's EA in collaboration with GMLs CEO Sharon Veale. Our slides, speaking notes and review of heritage were provided to the IPC for your consideration. I understand that the proposal would have a direct surface and subsurface impact, including land force subsidence impacts, dewatering impacts and vegetation impacts. My understanding has been reached through review of the 2020 New South Wales Government Assessment Report and provision of data by HTBA experts as already presented to the IPC.

The Upper Hunter's historic cultural landscape is recognised by four Acts and IPCs as having cultural significance due to its historic and continuing land use patterns, with built heritage structures, unique topography, land forms and environment which may warrant listing at the state or national level. In 1984, parts of this area were listed by the National Trust for their aesthetic, scenic, historical, social, geology and landform values. The listing was identified as an area termed the Muswellbrook-Jerrys Plain Landscape Conservation Area. You can clearly see it outlined as that large green zone.

The assignment of the LCA boundary appears to have been drawn on the basis of a semicircular ridgeline system which extends in an arc through the centre of the proposed subsidence area. The proposed Maxwell project would clearly cut this landscape conservation area. The project documents have not assessed the subsidence or other impacts on the MJP cultural landscape but simply state:

> *The MJP LCA would not be directly impacted by the Project and there would be negligible impact on its broader setting. No specific action would be provided or required.*

Given the described likely inputs – impacts, I am very uncertain how a conclusion of no impact was reached. I identify the proposal could have a diverse – a direct and irreversible impact to the region's historical cultural landscapes. Application of the precautionary principle should have seen substantial further work, assessment and management for this valuable cultural landscape; however, the conditions of consent have no provision or requirement for historical heritage, historical archaeology or the identified regional landscapes.

There is a continuing by large-scale proposals such as Maxwell to appropriately consider this historical landscape's living heritage values, including for aesthetic qualities and character and its attendant social and spiritual meaning. The landscape of the Upper Hunter is reaching a point of irreparable damage. The cumulative impact, holistic landform mutation, with the loss of local heritage items and intact historic landscapes is amply demonstrated by considering the visible expansion of coalmines over the last three decades.

I'll turn to Aboriginal heritage. The Upper Hunter Valley is a complex cultural landscape with intertwined natural Aboriginal and non-Aboriginal heritage values. These physical and non-physical values are historic, aesthetic, social, spiritual and scientific. They constitute cultural significance under the Australian ICOMOS Burra Charter. In 2015, in collaboration with the PCWP, GML prepared an overview of the cultural landscape identifying a range of tangible and intangible heritage items and connections. This document was provided to a former PAC to inform decisions associated with previous Drayton South hearings.

The document was confidential, but a version has since been placed on the DPIE website. 26 separate but interconnected Aboriginal heritage aspects are identified in the document. These combine Aboriginal intangible and tangible landscape, traditional, historical and archaeological items. The Aboriginal heritage items and connections identified under the document remain valid today. The items, their connection and importance to Aboriginal people have not diminished. There is a clear set of well-articulated tangible and intangible Aboriginal heritage values associated with this landscape and places in the region. A final versions document was supplied to this ICP as evidence to identify and support your understanding associated with specific Aboriginal cultural landscapes.

In my review of the Maxwell proposal, three key issues have been identified with respect to Aboriginal heritage. These issues identify – individually and collectively, would result in an adverse impact to Aboriginal culture, heritage, wellbeing and connections at the local and regional levels should the Maxwell proposal proceed. To quantify the direct impact of subsidence on Aboriginal heritage, an understanding of the Aboriginal heritage present and the impacts of subsidence must be understood.

The project documentation I have reviewed does not adequately address these matters. I identified that the majority of non-Aboriginal – Aboriginal heritage items identified in the GML 2015 document, particularly intangible aspects associated with wide areas, are not assessed or have been dismissed. For example, recent communications between yourselves, the IPC and DPIE on the 15th of October discussed one of two identified Aboriginal historical massacres in the region. Professor O'Kane inquired into the potential massacre site, to which Mr Sprott replied, "That site is actually located within the Mount Arthur complex and is not or would not be impacted by the current project that is on foot." This statement reduces the whole history and social complexity of Aboriginal/colonial relationships and the suite of events that led to the massacre into a single timepoint and focused location. For the Wonnarua, such events are retained as cultural memory associated with the whole intact cultural landscape.

The historical massacre and the discussion was the culmination of months of activities and eventually a few days military activity that crisscrossed a wider area. For Aboriginal people, this event can only be recalled and understood by being in and on their country and being able to lead that country. As such, projects such as Maxwell should not be dismissing all associated intangible connected values by attributing all events and association to one time and one location, even noting that the location of this massacre remains undefined.

Earlier today, Mr Hann raised a question on Aboriginal archaeology. My expert opinion directly addresses this question and corrects some aspects outlined by Mr Sprott. The Maxwell mine contains a high density of Aboriginal surface-based archaeological sites – the word is "surface" – within a landscape that is archaeologically intact. The project's EIS adequately describes this surface archaeology, but the EIS does not quantify any subsurface archaeology beyond the designation of broad areas with sensitivity – high sensitivity. You can see the mapping of the high sensitivity, bottom right.

Within the proposed Maxwell mine area, surface-based archaeology is clearly present, top left. A total of 238 Aboriginal sites are located within the proposed underground mine areas. This is 1.3 per cent of the whole region's identified Aboriginal archaeological resource. In the Upper Hunter, visible surface-based archaeology represents a small fraction of actual archaeological evidence. The majority of Aboriginal archaeology is located below the ground, buried in the subsurface context. The project's EIA identifies landforms that are highly sensitive for subsurface Aboriginal archaeology. This sensitive area includes around 50 per cent of the proposed subsidence area. At the current time, there is no understanding

or quantification of subsurface archaeological sites or their heritage values within that subsidence area.

The matters for your consideration are that the proposed mitigation measures for identifying Aboriginal archaeology are limited to surface developments and only after-the-fact mitigation proposed for any subsidence impact. Both the proposed conditions of consent have no upfront requirement for further assessment, management or mitigation of subsurface Aboriginal archaeology. The regulator has not identified this technical oversight, nor provided any requirement for its future management, and the likely impacts extend beyond the subsidence footprint in and across the Aboriginal cultural landscape and country of the Upper Hunter.

Mr Sprott stated this morning that future Aboriginal heritage impacts will be subject to an AHIP. An AHIP is an additional statutory approval under the National Parks and Wildlife Act and could provide a further layer of protection of Aboriginal objects; however, as this project is SSD, there is no such requirement for an AHIP. Findings at this IPC represent the last stage of approval, approval that will allow direct and enduring impact to all Aboriginal sites, known and unknown, inside Malabar lands. The assessment of Aboriginal heritage states that Aboriginal heritage impacts will occur if neither the nature of Aboriginal values is correctly represented or the scale and nature of degree of direct impact from five metres of land subsidence or all other post-impact management directives are not accurately represented.

The proposed conditions of consent cannot, therefore, be implemented. Recommended conditions of consent, B54 to B56, require that the applicant must ensure the development does not cause any direct or indirect impacts to any identified heritage items beyond those predicted in the documents listed in condition C2. The proponent will not be – will clearly not be able to limit management of impacts simply because the nature and extent of Aboriginal sites in a subsurface context is unknown. The project area will contain substantial quantities - - -

MR BEASLEY: Just so you know, Doctor – sorry to interrupt, but I think you mentioned you had 15 minutes. I'm not suggesting it's your fault, but all experts were actually allocated 10 minutes, which is why you've just heard a second bell.

DR OWEN: Okay.

MR BEASLEY: So if you could bear that in mind and perhaps summarise the rest of your - - -

DR OWEN: Okay. The timing schedule clearly outlines that I was allocated 16 minutes.

MR BEASLEY: Again, I'm not suggesting it's your fault - - -

DR OWEN: Okay.

MR BEASLEY: - - - but just bear that in mind.

DR OWEN: Well, to summarise, of course, I suggest you look at the implementation of conditions B54 to B56 because the impacts of subsidence quite clearly are going to affect an awful lot more subsurface archaeology than the small little dots shown - - -

MR BEASLEY: B54, as I understand it, you say just – it can't be met?

DR OWEN: It can't be met, no - - -

MR BEASLEY: Right. Yes.

DR OWEN: - - - because they're only allowed to impact the small little dots in the top left figure that you can see.

MR BEASLEY: Yes.

DR OWEN: The archaeology, the objects that are going to occur in and across this landscape, according to the project EIS, will be everywhere in the blue zones, bottom right. So there's a dichotomy between what they're saying will be impacted and what they're saying actually exists, and there's been no quantification of that. If we just flip to the next one - - -

MR BEASLEY: Don't you have to read B54 with 55 and 56? Would that - - -

DR OWEN: Yes. I'm saying B54 to 56.

MR BEASLEY: Yes.

DR OWEN: Yes. And then if you want to implement B51, which is biodiversity management plans, B52, rehabilitation, all those actions require direct impact to the whole surface area inside the subsidence zone. They will clearly remove any Aboriginal archaeology that is located in that subsidence zone. This is not recognised to the project assessment - - -

MR BEASLEY: Right.

DR OWEN: - - - as a direct impact. I would like to, if you would permit me, detail something that's very important, and that – the Muswellbrook LGA has a high proportion of Aboriginal people compared to other areas. This group of people is a key local group and is repeatedly identified as being a part of having this area as part of their cultural landscape and traditions. The project EIS identifies that there has not been an – or there is no association between the intangible Aboriginal cultural heritage and the physical archaeological resource.

The recommendations fail to recognise the harm, both the direct and physical and indirect and social, on Aboriginal health, culture and people at the regional level. Such impacts represent the systemic and continued cultural harm and impact to Aboriginal communities, which the wider Australian public is only beginning to understand. These impacts are cumulative and, within the context of the Upper Hunter, represent significant further impact to the regional Aboriginal cultural landscape country, which is being systematically destroyed by mining, notably over the last 50 years.

The indirect impacts of mining activities on these Aboriginal communities has only recently been recognised by Australian governments and courts. Even when recognised, the impacts to the Aboriginal people are often cited to be outweighed by economic imperatives. I turn your attention to the Land and Environment Court decision for the Rocky Hill Coal Project. In that, Justice Preston found that social impacts would occur to the local Aboriginal community and these impacts would significantly affect their culture and country. These impacts were part of this finding which overturned the approval for that coalmine, the two findings that are relevant, because both identify the nature and importance of cultural value of country to living Aboriginal communities today. They identify these impacts and aspects of heritage will be significant and affect the social and mental wellbeing of local Aboriginal people. These impacts were described by Justice Preston as cumulative and could not be healed.

The New South Wales Government, in its assessment report, requires a social impact plan be prepared in collaboration with the local Aboriginal community. Such a plan should have been required prior to any approval for this project. The project approval should have addressed distributive equity as Aboriginal people represent a significant portion of the local Upper Hunter community. Aboriginal people are socially and economically disadvantaged and they have experienced impact and harm from development but have seen few net benefits. I find it unclear how such a social impact plan could manage the cumulative impacts on Aboriginal heritage across the broader cultural landscape that has cultural significance for Aboriginal people. Thank you.

MR BEASLEY: Thank you very much, Doctor. We now have, I think, Ballanda Sack, also speaking on behalf of the Breeders Association.

MS B. SACK: Good afternoon.

MR BEASLEY: Good afternoon. Please go ahead.

MS SACK: So good afternoon, Commissioners and Mr Beasley. In your assessment of this mining proposal, your overwhelming consideration must be the public interest. I'm just bringing up the PowerPoint now, hopefully. There it is. So moving through, similar standards of rigour must be applied to the assessment, whether it's economic, social or environmental. You need to be satisfied that the impact assessment before you is based on appropriate and current empirical data, has

been undertaken in accordance with relevant standards, clearly articulates all underlying assumptions, assesses offsite impacts and makes adequate provision for areas of uncertainty. Where there is an – where there is uncertainty or a divergence between experts, you must take a cautious approach. Realistic worst-case scenarios must be considered. Little weight can be placed on the department's report to the extent that it merely summarises the proponent's application and does not engage with and critically assess technical analysis provided by the proponent's experts.

I note that for each of the previous rejected proposals for a mine in this location, the department has recommended approval. The predicted models for environmental impacts provided by the proponent are in almost all circumstances not fit for purpose, being either one or all of the following: uncalibrated to real world conditions, unjustified by or even inconsistent with empirical data, based on rule-of-thumb calculations and assumptions or inappropriately siloed. Some of them assume the effectiveness of unproven or impracticable mitigation measures or measures that would impose significant but unaccounted for operational constraints.

There are important interactions between impacts. EEC habitat – sorry. The subsidence impacts will change surface soil and groundwater interactions so as to irreversibly change the productivity of soil. EEC habitat conditions will be also affected and the subsidence will destroy or desecrate Aboriginal heritage. Noise and air quality impacts the proposal, will impact the amenity of local residents, cause social change and put at risk an equilibrium reached between mining and other land uses in the Hunter Valley.

In relation to noise and a previous question that you had posed to Frank Butera, I note that residents – there are residents in close proximity to the Maxwell infrastructure area, which is a significant noise source and the cause of the predicted exceedances. I note also that key impacts on equine health and water soil productivity impacts for the surrounding community have not been assessed by the proponent. Putting it bluntly, the only reason that a project of this nature is capable of approval is if its economic benefits to the public clearly and with certainty outweigh its considerable adverse impacts; however, these predicted economic benefits will only eventuate if mining commences promptly and within the assumed capex budget and the mine produces coal of the quality stated at the production rate proposed, sold for the price assumed, and employing the staffing levels proposed, on a continuous and uninterrupted basis, for each of the next 26 years.

The commission has already been provided with evidence of the cyclical nature of the mining business, the likelihood of further automation and the information on the likely reductions and the demand for coal, including for semi-soft coking coal, and reductions in price. If one or more of these variables change, so will any justification in favour of the mine proceeding. The majority of the mines now operating in this region were originally approved 20 to 30 years ago. Many of these have years to run. In the Hunter Valley, there has been a steady encroachment of mining on what has been traditionally agricultural land with specialised equine and viticulture uses. Decisions made today have implications for cumulative impacts for decades to come.

Importantly, the current background impact that has been monitored is less than what is already approved to occur. There are many mines that are either approved but uncommenced or operating below their approved production rate. Your cumulative assessment must take into account all approved and permissible background emissions and impacts. These could be significantly greater than the current monitoring results. Cumulative impacts have not been assessed on this basis.

The community is also experiencing significant cumulative impacts from mining. These impacts relate to air quality, noise, historical and Aboriginal heritage and to landscape with associated social and implications – implications for a sense of place. For example, the current air quality regularly exceeds relevant human health criteria. Any impact is therefore, on its face, unacceptable. I note I've just provided an image there from a previous proposal, but it gives you a sense of the importance of the buffer for Woodlands and Coolmore, so you can see that there in front of you.

The mining SEPP proposes a number of mandatory considerations. One of these relates to the existing and preferred land use. You're required to consider existing approved and preferred land uses of the land in the vicinity of the development and the impact of the proposed mine on those uses and then evaluate and compare the respective public benefits of the mine and those of the surrounding existing and preferred land uses. This is more than a simple assessment of whether the mine is made permissible by the SEPP. This is a proposal for a new mine in a place where there is currently no mining, and the LEP specifically prohibits mining on this land. It adjoins equine and viticulture CICs and there is valuable BSAL on and around the site.

The Upper Hunter Strategic Agricultural Land Use Plan and the Hunter Regional Plan both emphasised the importance of protecting and enhancing agricultural productivity. This site provides a critical land buffer between the thoroughbred breeding industry and mining. You have been provided with evidence of the adverse impact of the mine in perpetuity on the agricultural productivity of the site and potentially adjacent land, primarily due to subsidence and water impacts. Adjoining landowners, that are valuable and critical to the economic prosperity of the region, have made submissions that they and their entire industry is put at risk by this proposal. There is clear evidence of the likely direct adverse impacts of the mine on water resources, agricultural productivity, Aboriginal heritage, protected ecology, air quality, acoustic and visual amenity, and those consequential social impacts on the public.

In relation to the comparative public benefits of this mine and the preferred and actual land use of the land and the region, there is significant uncertainty in the quantum of the asserted economic public benefits of this mine. While the mine may provide economic benefit to the state in the form of royalties and provide jobs in the mining sector, this has to be contrasted with the inescapable fact this mine will make this land and its surrounds agriculturally less productive in perpetuity. There are many coalmines in the Hunter, with many years of extraction already approved. Many of these are uncommenced or in care and maintenance or on reduced

production. The two thoroughbred studs that underpin the entire thoroughbred horse-breeding industry in the Hunter and New South Wales adjoin and are put at risk by this mine.

The mining SEPP also requires that you consider an assessment of the greenhouse gas emissions of the development. This assessment of scope 1, 2 and 3 greenhouse gas emissions for the project must be on a whole of life cycle basis. The estimation of scope 1 emissions you've been provided with does not include all construction emissions, for example, those associated with vegetation clearing. It does not include operational emissions from post-mining. That means emissions from stockpiles, and it does not include legacy emissions post-decommissioning. It provides insufficient details of the assumptions and methodology used to calculate the direct emissions from the mines operations.

You are specifically required by the SEPP to consider scope 3 emissions. The magnitude of scope 3 emissions is relevant in your consideration of the public benefit of the mine. The Rocky Hill case makes it clear that greenhouse gas emissions, scope 3, and their likely contribution to adverse impacts on the climate system, environment and people is a relevant public interest consideration that would weigh against approval of an application and that in appropriate circumstances it could be the primary ground for refusal.

If a project warrants refusal, it cannot be made otherwise by the promise of strict conditions. The department has asserted that all adverse impacts of this mine can be overcome by conditions of consent. Setting meaningful and enforceable conditions cannot be done without a detailed understanding of baseline pre-mining conditions. You do not have this information in respect of groundwater, air quality and acoustic impacts. You are specifically required to consider whether impacts on water resources and ecology can be avoided or minimised. These are underestimated and unspecifically assessed. The mine's offsite water impacts are also unassessed. The impacts of this mine on human health, water, agricultural productivity, ecology, Aboriginal health, equine health, or the thoroughbred industry are irreversible, may not be perceived for some times afterwards – for some time afterwards and cannot be made good.

You cannot condition that the asserted economic benefits will, in fact, occur as predicted by the proponent. The proposed mine adjoins two extremely sensitive receivers. The sensitivity of the Coolmore and Godolphin studs to the impacts of this mine have been acknowledged by the four previous assessments of mining in this location by the PACs and by the designation of the land adjoining the site as an ECIC. The mining SEPP effectively prohibits you from conditioning the blasting and vibration impacts from the mine in a manner which could even theoretically make it an acceptable adjoining land use for a thoroughbred stud.

In conclusion, your primary duty is to make a decision that is in the public interest. This requires a detailed understanding of the realistically likely benefits and burdens in this project and consideration of the precautionary principle and principles of

intergenerational equity. The economic benefits of this mine are aspirational and they are outside your control. They are conditional on, for example, the prevailing price for coal, the mine operator's commercial motivations, future technological innovation and automation and the export demand for coal. The adverse impacts, on the other hand, are certain. Subsidence will occur. Soil productivity will be lost. Aboriginal heritage and protected ecological species will be destroyed and the community will experience increased air quality impacts on their health and intrusive noise.

The benefits and burdens of this project are unevenly distributed, both within and across generations. The asserted benefits of the proposal, which are solely economic and short-term, benefit the proponent and possibly the wider community of New South Wales via tax if any is paid, or royalty payments, whereas the burdens or costs of the proposal, such as the environmental, social and economic costs, are primarily borne by the local and regional community. The adverse environmental and social consequences of proposals such as water impact, soil productivity loss and climate change contributions will persist for generations. This mine, in this location, is not in the public interest.

MR BEASLEY: Thank you, Ms Sack. All right. We might have a break now till three twenty – just after 3.20 we'll be back. Thank you.

RECORDING SUSPENDED [3.16 pm]

RECORDING RESUMED [3.23 pm]

MR BEASLEY: All right. Hopefully we now have Ross Cole from Godolphin available to make his comments. Thank you, Mr Cole.

MR R. COLE: Thank you, Commissioners, and, Mr Beasley. I will just get my presentation. My name is Ross Cole. I'm the director of corporate services for Godolphin in Australia. You've already heard about the interaction of the industry and specifically ourselves and Coolmore in various applications on this site and I don't think I need to develop further on that issue, but I'd like to move very briefly into a bit of background about Godolphin in Australia. We're part of the world's largest integrated breeding and racing operation and we have sites not only in Australia but also around the world including America, Ireland, Japan, the UAE and the UK.

Our model in Australia is that of a model of breed to race and race to breed. That is, briefly, we breed the vast majority of our horses with a – with a vision of racing them and then selecting the most elite from those racehorses to return them to our breeding operation, but there's broodmares and ultimately to produce stallions to stand in our – our nominations and stallion operation at Kelvinside principally. So that's the

pointy end of what we do. In Australia we have six main operational sites, three stud farms and three training facilities broadly, and that – that entails the New South Wales – there's two stud farms in the Hunter Valley at Woodlands and Kelvinside. We have two training facilities in the Sydney Basin at Warwick Farm and at Richmond.

In Australia we employ approximately 350 staff. 150 of those are split between the two operations in the Hunter Valley. We maintain around 800 horses, 300 horses in training, 18 stallions, approximately 300 broodmares, and fundamentally the model includes or involves fundamentally a clean, green and serene operating environment. Specifically for these farms, Kelvinside and Woodlands operate as a – one integrated breeding facility spanning approximately nine – 9000 acres between them. As you know, Woodlands is approximately 6000 acres. Woodlands is bounded on one side by Saddlers Creek and Saddlers Creek enters the Hunter River within the property.

It flows through both properties – Kelvinside and Woodlands – and is a vital water source for both. Edderton Road is also a link between those two properties, so I think as we – as hopefully you got the benefit of the explanation when you visited, the mares travel to Kelvinside, are served by the stallions and return. It's also an important route to the veterinary facilities in Scone plus, of course, for our staff. Both properties are world class international scale facilities that have a long and continuous uninterrupted history of – of thoroughbred breeding in the area from the 1820s. We also in – play host to approximately 4000 clients, visitors and others to the sites per annum.

Importantly, Woodlands – Woodlands also runs about 130 cattle at the moment. It's home for 34 adults and 15 children with some 33 dwellings. So throughout our interactions on this site obviously the past history with Anglo, certainly we've given our impression. Our impression was that we had a – a site which was based on thermal coal and certainly the presentation – certainly the impression we had was that it couldn't be conducted economically underground – no. Sorry – as an – as an underground. We're now faced with another proposal which suggests that underground mining is economic. It's high quality coal, coking coal, and it will produce 75 per cent high quality coking coal.

We, therefore, I suppose, come from a position which is difficult for us to correlate. I think what we have learnt in our experience over the years in doing these proposals is that we really need to go away and – and have obtained our own independent expert advice, scientific and economic, and found that we really need to bore into the concepts which have been placed before us and get our own independent view because we just couldn't rely on – in all honesty – the – the proponent's propositions or, indeed, the – for whatever reason, whether it's resource based or otherwise – resource as in people or expertise, that of the department's. So that's the approach we've always taken.

We're trying to take a scientific expert and, I suppose – this is, like, a histrionic sense. We can approach to – to each of these proposals. What we've found here, as

you've heard today – and we'll sum up – I'm going to repeat, I – I suppose, a lot of what's already been put before you, but what we – we end up with today is what – what we believe is unacceptable water impacts. They're shown to be poorly and, therefore, unreliably modelled based on arbitrary inputs, invalidly calibrated. We've got no confidence in that analysis on this critical issue or others. Some of those are listed there and I don't think it really serves to repeat those and we'll give those further in submissions.

What has been, I think, hopefully established over that time in our various presentations is that Coolmore and Woodlands are recognised as essential to the broader economic areas of the Equine CIC and ought to be given the highest level of protection from the impacts of mining. That slide contains quotes from the various – various prior PACs. So where we end up, in our submissions, today is that we believe we're a highly sensitive receptor whose whole business reputation – reputationally and operationally is centred on a clean, green and tranquil environment, as it has been from its inceptions. The department's analysis to the effect that these impacts are less than other proposals which have been put forward on this site is, we suggest, unhelpful and irrelevant.

Each of these proposals will be judged on its own merits. This is a different project with different impacts. Our operations are current, approved and preferred, long term and sustainable. They're predicated on producing champion athletes in a clean, green, pristine, serene environment. Our business model is particularly vulnerable to threats to our environment, image and reputation. They're all impacts – all those things impact on clients and perceptions and expectations of what we're trying to produce. We submit that this proposal, therefore, doesn't follow – doesn't pass the merits test. Fundamentally – fundamentally we submit there's no robust criteria – critical analysis of the basis of the underpinning science or economics.

Too much is left to chance based on arbitrary assumptions and mode of connectivity. For example, in the water material based on our update baseline material and no worst case analysis, this should be balanced against the background of a precautionary principle and a particularly vulnerable and sensitive natural environment. We have the fears of serious and potentially irreversible environmental impacts and this proposal takes away the buffer have to existing mining operations. We, therefore, submit that the proposal would not be considered in the public interest and it ought to be refused. Thank you.

MR BEASLEY: Thank you, Mr Cole. I believe the next speaker is Mr Tom Magnier from – speaking on behalf of Coolmore Australia.

MR T. MAGNIER: Thank you.

MR BEASLEY: All right. We have you, sir. Please go ahead when you're ready.

MR MAGNIER: Commissioner and Mr Beasley, good afternoon. My name is Tom Magnier and I am the principal of Coolmore Australia. Thank you for the

opportunity to address you today and also for your visit to the farm last month. Before I begin, I would like to acknowledge the traditional custodians of the land upon which we meet today and pay my respects to their elders, past and present. I would like to make a point – just to discuss a point made earlier about Kentucky. Coolmore has a base in Kentucky and I can clarify that there is no coal mine within 100 kilometres of any stud farm. Four years ago almost to the day for the third time I presented to the Planning Assessment Commission regarding a proposed coal mine at Drayton South, now called the Maxwell Project, previously called the Saddlers Creek Project.

This exploration licence has had a few names, mind you, and as many owners, proposing various plans for coal mines which to date four independent Planning Assessment Commissions have rejected as being both inappropriate and unacceptable. On each occasion the New South Wales Department of Planning recommended the proposed mine application for approval. I cannot support this mine because the critical issue of water supply cannot be guaranteed not just for Coolmore but for all agricultural uses on the Hunter River water. Champion racehorses have been raised on this land for more than 100 years. This – this success is in no small part due to the topography of the land, the access to essential water from the Hunter River, the fertile soil and the clean air.

For the past 24 years the land upon which Coolmore Australia operates its business has had one owner, my family, where we constantly carry out our business, offer secure employment and ongoing training and skill development, as well as supporting both local and national suppliers and businesses. The home of champions is a marketing slogan that our company uses around the world. It rings particularly true at Jerrys Plains where 61 individual group 1 winners, including superstar Winx, have been raised and grazed. My family have been breeding racehorses continuously for more than 200 years. It has been a family business since the early 1800s. In 1991 we bought a stallion Prospect in partnership with Australian stud farm Arrowfield.

That horse was Danehill who, without a doubt, became the greatest and most influential stallion to ever stand in the Southern Hemisphere. He was a breed changing superstar whose name can now be found somewhere in the pedigree of nearly every thoroughbred in this country. In 1996 we acquired this farm with a view to sending more of our stallions to Australia for the Southern Hemisphere breeding season and, thus, giving local breeders access to the best bloodlines in the world which has previously been unavailable to them. Our farm at Jerrys Plains has been central to raising the quality and standard of the Australian thoroughbred internationally to international levels and can be seen by the success of locally bred horses all over the world.

We are very proud of that and our contribution to it. It's been a tough few years trying to operate a stud farm in one of the worst droughts in memory. Yet here I am, having to again defend our business, the staff and suppliers who depend on it from

risks that a – another neighbouring coal mine proposal brings to our door. In February 2017 the PAC, and I quote, said:

> *The Commission considers that the public benefit of the Equine CIC is sustainable in the long term and is vital to the diversification of the Upper Hunter. The Commission finds that the public benefits of the project are time limited and not critical to the future of mining in the Upper Hunter.*

When the PAC refused the Anglo American proposal coal mine for the fourth time in February 2017 we thought we had certainty. Certainly the certainty that encouraged us to further invest in our business, which is what we have done for the past four years. We expanded our local footprint through the purchase of a large local farm to produce lucerne hay on its river flats. In the past 12 months Coolmore has invested 33 million in purchasing broodmares and yearlings in the local Australian market. We were the leading purchaser and vendor at the Premier Inglis Easter Yearling Sale. Coolmore also brought US Triple Crown winning stallions American Pharoah and Justify, two of our most valuable assets, to Australia to allow Australian breeding industry access to these legendary racehorses.

This is not only part of the additional investment that we have undertaken since 2017. We've done our bit. We took the decision of the previous PAC and its merit and we have invested on that basis. Now we and everyone at Coolmore Australia face uncertainty again, particularly with respect to the surface water that sustains our farm and the groundwater that nourishes it. I tell you all of this not only to give you an insight into our business and how critical our farm is here in Australia in the Australian thoroughbred industry but also to stress to you how at Coolmore Australia we take the long view with the hope that generations of the same families will be able to continue to live and to work for us here alongside future generations of my family.

How I not only want my children, all of them horse mad, to take over the farm from me today, but how I hope to live long enough to see my grandchildren becoming involved in the business here too and how I want my grandchildren's grandchildren to do the same and so on, just as Magnier's have done in Ireland for over 200 years, generation after generation. This mine threatens that intergenerational equity. The damage – the damage – the damage the proposed mine will do to our water now in just 26 years of my lifetime will be felt for many generations to come.

The mine proposal, which the Department of Planning acknowledges will have long-lasting impacts on an already stressed surface water and ground water system, our experts tell us that these impacts are material, significant and prone to great uncertainty such that our ability to operate our stud farm into the future will be affected. Commissioners, I ask you, why take the chance? Why take the chance on a mine proposal with a limited life, a mine which may or may not be developed and a mine that endangers our business and the livelihoods of those who depend on our business? I respectfully ask you to reject the proposal. Thank you for your time.

MR BEASLEY: Thank you, Mr Magnier. Next speaker is Lindsay Maxsted, also speaking on behalf of Coolmore Australia. Mr Maxsted.

MR L. MAXSTED: Thank you, and good afternoon, Commissioners and Mr Beasley. Thank you for the opportunity to speak today. My name is Lindsay Maxsted and I'm the chairman of Coolmore Australia. I too would like to acknowledge the traditional owners of the respective lands on which we meet and pay my respects to elders, past and present. Now, before I outline Coolmore's concerns with Malabar's coal Maxwell Project, I should preface those comments by saying that Coolmore has very much tried to look at this constructively. Where we have commissioned expert opinions we have looked to those experts for reassurance that what is stated in Maxwell's environmental impact statement would give rise to no adverse effects on our farm and business.

Unfortunately, that is not the picture that has emerged. Allow me to also address by way of introduction some brief remarks on the issue of Maxwell and how it relates to its predecessor, Drayton South. The Drayton South experience was an arduous and a bruising one for all at Coolmore. It was also an incredibly expensive one. Millions of dollars spent on protecting our operations and our business and on protecting the environmental integrity of the farm. Time and again the Department of Planning ignored our concerns and recommended approval of each new mine proposal.

So today we remain deeply grateful of the process put in place by the New South Wales Government and that on each occasion the Planning Assessment Commission listened to our real and justified concerns and preferred our knowledge of our operations, business and industry and our experts' evidence over the proponent. To quote from the PAC report of November 2015:

> *While mining is a far bigger sector, the mining industry is not heavily reliant on this one mine. The same cannot be said of New South Wales thoroughbred breeding industry, the standing of which is integrally connected to the quality of the stallions that it stands, a significant portion of which are in the hands of Coolmore or Darley in the Upper Hunter.*

And now three years later, the department has made a recommendation in favour of Maxwell largely on the grounds that it deems the mining impacts to be less than those applicable to Drayton South, presumably because, of course, it is an underground mine. The mine proposal may have changed from an open cut mine to an underground mine, but our core operations and business have not changed other than the growth and investment in our business that Tom Magnier has just put forward to you. Moreover, whilst it is true that certain negative elements of the previous proposals are no longer present, in particular visual aspects and some elements of dust issues, many of the negative impacts remain and, indeed, some new ones have been introduced.

I'll now address some of our key concerns in respect to the proposed mine. The first, of course, is water. Water is the lifeblood of any agricultural enterprise, and this is

particularly the case for Coolmore Australia. Water related impacts are our most serious concerns with Maxwell. Our experts have already detailed to you the significant gaps, the discrepancies and the uncertainties that they've found in Malabar's assessment reports, in the department's assessment, and where they believe the concerns of the Independent Expert Scientific Committee have not been fully resolved. The department acknowledges that water resources in the region have already been, and I quote:

> *…substantially altered by existing and approved mining operations.*

To date, our operations have not been unduly adversely affected by other mines because of their distance away from us, but we hold genuine and reasonable concerns that this will change if underground operations begin on an immediately adjacent property. The first principle in the State Government's groundwater policy is that, quote:

> *All systems should be managed such that their most sensitive identified beneficial use or environmental value is maintained.*

It is clear to us that this principle will not be honoured if this mining proposal is allowed to proceed. Our experts have told us and have addressed the Commission today that the Maxwell Project will have a significant impact on both groundwater and surface water otherwise available for agricultural activity and, in particular, for us at Coolmore. Our experts further remind us that these impacts will be magnified in times of drought and in a world increasingly impacted by climate change. Coolmore irrigates its property using our general security water licences from the Hunter Regulated System. The recent drought significantly impaired our licence and earlier this year our allocation was reduced to just 20 per cent.

This drought also created new operational challenges for us owing to the low level of the river system. The department appears to ignore the impact of droughts on the river system including the alluvium of the river, stating that these alluvium primarily recharge from rain events and regulated releases from the dam, two events which, of course, will not exist in a drought. As John Borg will talk about immediately after this presentation, the Department of Planning's assessment report discusses impacts on base flow in the Hunter River, citing at one point a median flow rate of around 240 megalitres a day. This is in contrast to an actual seven megalitres a day flow in the Hunter on some days during the recent summer.

Yet the proponent and the department assure us that if the damage to the river system is worse than expected the proponent will make good using its general security water licence. This is not a realistic proposal on a day when there is a seven megalitres flow in the river. Put simply, this mine and its impacts need to be imagined in what will be very likely severe climatic conditions. This is not the lens through which the proposal is being put forward. Separately, the groundwater impacts on our high value agricultural land and the potential impacts to our operations have not been adequately assessed.

We know from our previous interactions with the former Saddlers Creek coal venture that there are areas of high groundwater vulnerability beneath our farm. Groundwater is intrinsic and essential to subsoil moisture and the soil moisture content that underpins the quality of the Coolmore paddocks. Lowering the water table beneath the farm threatens to disturb the in situ system and potentially exacerbate drought conditions when they arise. This important consideration should not be overlooked. Coolmore's clear preference is to use water from the Hunter over bores; however, in the event of a serious drought bore water would have to be considered.

Maxwell's impacts to the water table have the potential to impair or inhibit our ability to source any of this water from bores in the event that we have no other option. And so the combination of these surface water and groundwater impacts and the associated risk, coupled with their longevity, makes it really difficult to mitigate or adaptively manage. The damage here is done quickly and the repair, if indeed possible, will take decades or even centuries, and we take little comfort from any make good provisions as it is inconceivable they will survive much beyond the life of this mine. Let me turn to the second concern, which is equine health.

Equine health is of critical importance to Coolmore. Even the perception of adverse impacts on this front is potentially damaging to the reputation of the farm and has negative consequences for our business. Our equine health concerns stem from both air quality and noise impacts and we must stress once again that Coolmore is a receiver of the highest sensitivity for both. Clean air and tranquil surroundings are critical to our success and our reputation. Coolmore's business is breeding and racing top quality equine athletes. Respiratory conditions such as inflammatory airway disease are known performance inhibitors and this condition is one exacerbated by dust.

This means we're constantly looking at ways to reduce the horses' exposure to dust, from their feed, their hay, bedding, and their environment generally. The cumulative impacts of mining on air quality in the region is already worsening, as evidenced by data from the Hunter Valley Air Quality Network. Annual deposition safeguard levels have been triggered at Muswellbrook for the last two years and the last year at the Jerrys Plains monitor, which is actually situated on our farm. The five year study on air quality undertaken by Malabar did not take into account the last two years where drought conditions have further exacerbated the local mining industry's impacts.

Malabar and the department have assessed the proposal and made assumptions about it against human criteria and displayed a lack of awareness of the potential air quality impacts on our operations and the most sensitive part of them, the horses themselves. Any dust is bad dust and the department yet again seems satisfied that because human criteria have been met that all is well. Similarly with noise impacts, we have concerns around the issue of blasting. A horse's hearing, as you heard earlier, is much more acute than ours. Noise levels we perceive at 27 decibels will be perceived by a horse as forty – 47 decibels. In addition, the flight response of the

thoroughbred is highly tuned and they are prone to taking fright at sudden or unexpected stimuli, hence our ongoing sensitivity in this area.

We note that the Department of Planning has recommended similar blasting conditions to those that apply to open cuts like Mangoolar and Mount Arthur. These factors allied to basic issues with the methodology of the noise assessment do not give us any confidence to say that our operations will be unaffected. Our concerns in this regard we think are reasonable and justified by scientific evidence. They're not mere fears and perceptions. I refer to the expert evidence presented to you earlier today by Dr Tennent-Brown and by Dr Andrew McLean. They are eminent experts within their field of science and their evidence, we believe, is credible.

And finally on the subject of equine health I'd like also to draw your attention that the applicant provided no expert evidence at all as part of its application on the impacts of the proposed mine on equine health. Thirdly, subsidence. Our experts have detailed to you the uncertainties and the potential impacts of subsidence on surface water and on groundwater. Another acute concern is the potential impact of subsidence on Edderton Road. The importance to Coolmore of unencumbered free passage along the serviceable Edderton Road cannot be overstated. It's a critical link between us, the Equine CIC and, most importantly, the Scone Equine Hospital.

A journey to the Scone Equine Hospital via the Golden Highway adds an additional twenty one and a half kilometres to the journey of a – of a horse potentially requiring lifesaving emergency surgery. Experience shows us that the council will be understandably reluctant to allocate funds to adequately maintain that portion which will need to be realigned and the road will deteriorate in condition and serviceability in precisely the same way it did with the replaced Mount Arthur section, and it's unclear to us as to how this negative impact on our operations can be mitigated unless significant work and expense is incurred by the proponent prior to it commencing any operations.

And finally, those concerns around subsidence take me to my final point which is on rehabilitation. We're concerned by the fact that rehabilitation by the fact of the rehabilitation bond has already been set without fully understanding the scope of works the bond is specifically to fund and, moreover, the deadline has not been set for the works to be completed. Whilst rehabilitation objectives are listed in the draft conditions, the actual work to be done is not defined and the proponent is to prepare a rehabilitation strategy in the so-called post approval framework. The omission of an upfront consideration of and commitment to a rehabilitation strategy has caused great concern, particularly given that rehabilitation of the old Drayton mine, which has been closed for four years, remains incomplete.

A rehabilitation strategy for Maxwell we believe should stipulate timeframes for remediation of the Drayton mine within a reasonable timeframe of the commencement of mining at Maxwell. And clearly, perhaps our greater concern is the sum of the most severe environmental impacts of the mine will, by their very nature, be incapable of rehabilitation. Let me conclude by summarising Coolmore's

position for you. First, the importance and economic benefit of Coolmore and the entire Equine Cluster of the Hunter Valley both presently and for decades to come is undisputed and, indeed, has been emphasised by previous PACs.

Secondly, in the areas of water, land subsidence and equine health, both air quality and noise, there are real, rational and justified concerns held by Coolmore, held by many independent experts and by others presenting to this IPC that the risks associated with the proposed mine are not fully understood and/or they are materially understated. Thirdly, and without questioning the integrity or the capability of the operator, we cannot be satisfied that either in the first instance appropriate undertakings can be given to erase our concerns or that in the event that actual damage occurs, remediation can or will be possible. And then finally, given all of the above, it would be appropriate, we believe, for the IPC, like the previous Planning Assessment Commissions, to adopt a precautionary approach and reject this mining application.

In addition, we note that there are compelling economic and environmental arguments being put forward by others other than Coolmore, well qualified to do so, which would also, in our view, lead to a rejection of the proposal. Thank you again very much for your time and the opportunity to present to you today.

MR BEASLEY: Mr Maxsted, just before you go, can I just ask you one question and it – it may be that I'm – I'm getting the impression that perhaps Mr Borg is going to cover this but in the first half of your remarks when you were talking about the issue of water generally you raised matters such as drought, seven megs of flow in the Hunter, a 20 per cent entitlement on your water licences. Is it Coolmore's position that in relation to water impacts and water availability and water reliability that – that – that the certainty over the life of this mine of it getting hotter and drier hasn't been properly factored in?

MR MAXSTED: Yes, indeed; yes. So we – we – we say that – that a lot of the data which is given in their proposal and approved by the department is based on averages or medians and that – that they don't work. So the remedies in terms of, "Oh, well, Malabar will turn to its general security licence and replenish for us", it just won't be available. So that – that's exactly right.

MR BEASLEY: All right. Thank you for that. And I think that now brings us to John Borg who's also speaking on behalf of Coolmore Australia. Mr Borg.

MR J. BORG: Commissioners and Mr Beasley, my name is John Borg. Thank you for the opportunity to speak today. I've lived in the locality all of my life and worked for Coolmore for the past 22 years as agricultural manager. My job is to develop and maintain our pastures to a high standard. This gives our stock the best opportunity to grow to their full athletic potential. This task involves all aspects of pasture work and irrigation is particularly important. Coolmore is heavily reliant on water being available from the Hunter River for both irrigation and for stock water

purposes. Over the 22 years of working on this property I've experienced both flood and drought.

The drought periods experienced have definitely been the most testing of times. The Millennium drought was the benchmark for recent droughts. This has now been surpassed by the current drought we're experiencing. During these dry periods, water allocation restrictions are enforced. During the Millennium drought of 2001 to 2006 allocation was cut to eight per cent at one stage due to diminishing levels in glenbawn and glennies creek dams. Our current 12 month water allocation saw us start the year with a 20 per cent allocation. The Department of Planning assessment report talks about impacts on base flow in the Hunter River.

At one point a median flow rate of around 240 megalitres a day is mentioned, though this is not an accurate figure to measure against. It is not the median flows that concern us. It is the low flows experienced prolonged drought – during prolonged drought. Consideration of any potential impacts on water as a result of the proposed mine must be considered on a worst case scenario in the view of more frequent and ongoing droughts. Last summer we experienced intermittent flows in the Hunter River. The daily megalitre flow at Hunter River monitor at Saddlers Creek reduced to seven megs a day at times. That's a far cry from the 240 megs a day that the department refers to.

The river was being run so lean by Water New South Wales that on many occasions we were unable to start some of our pumps due to low river levels. During a water users meeting at Singleton on the 27th of February 2020 Water New South Wales discussed potential operational measures, including a block release system where the river is run for a week and then stopped for a week. Water users showed concern with this proposal as a recharge of the aquifer is known to take a considerable volume of water to recharge over time. This, however, could happen in the future if shortages became low and ultimately dry. My concern is that the recharge of the river system will be even further compromised by the effects of the proposal.

The Department of Planning report also discusses the impact of the proposal on the base flow and surface flow into and from Saddlers Creek. To say that Saddlers Creek is predominantly dry doesn't mean that it does not contribute to the availability of water users downstream. The proposed mine would degrade the flow into and the function of this creek. The water sharing plan allows for water take by users when – when restrictions are enacted. That is, water that has fallen below the dam catchment and made its way into the river system can be used to provide allocation despite restrictions on water from the dam. For example, when we started the water year on 20 per cent allocation the water sharing plan would allow us to access the restricted 80 per cent during catchment and localised runoff events.

Saddlers Creek disturbance would decrease the amount of water available during these periods. This mine proposal acknowledges impacts on the local surface water and groundwater systems and will increase the – and will increase the stress on a regulated system that's already at full capacity. The current system will be damaged

in a manner that cannot be repaired by the proponent. Our operation depends on our ability to have access to water which is why Coolmore established itself on this very property. Prolonged drought has been a fact of – a fact of life in New South Wales and is likely to be into the future. This mine proposal has acknowledged impacts will occur. It is for this reason I object to the proposed Maxwell coal mine. Thank you for your time today.

MR BEASLEY: If – if I understood you correctly, Mr Borg, your – your concern about how water has been addressed in part at least is that you think that impacts shouldn't be assessed by considering yearly averages of availability or 10 yearly averages or historical averages, but by the reality of having longer periods now and in the future where there's very low flows and – and very little entitlement; is that right?

MR BORG: 100 per cent. That's – that's the whole reason the farm is established in the area it is, is the reliability of water. The – the main time that we need water is when the drought periods are on, so exactly.

MR BEASLEY: All right. Thank you. That's all I wanted to ask.

PROF O'KANE: That's all from me, so we might - - -

MR BEASLEY: That's all. Yes. Thank you, Mr Borg.

PROF O'KANE: So I think we're at the end of the first day of this public hearing. Thank you to everyone who presented today for your thoughtful presentations. A transcript of the day's proceedings will be made available on our website within the next few days. So just a reminder that the Commission will accept written submissions on the Maxwell Underground Coal Mine Project until 5 pm on Friday, the 20th of November. It would be particularly helpful to us if you focused your submissions at this stage on the Department of Planning, Industry and Environment's assessment report for this project as well as its proposed draft conditions of consent.

You could submit your comments using the Have Your Say portal on our website or by email or by post. We'll be back on Friday morning at 9 am for day 2 of the public hearing proceedings. So from all of us here at the Commission, thank you again and good afternoon.

RECORDING CONCLUDED **[4.02 pm]**