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TRANSCRIPT OF PROCEEDINGS

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INDEPENDENT PLANNING COMMISSION

MEETING WITH DEPARTMENT OF PLANNING AND ENVIRONMENT

RE: ULAN COAL MINE MOD 4

PANEL:	**GORDON KIRKBY** **PROF CHRIS FELL** **PROF BRETT WHELAN**
ASSISTING PANEL:	**JORGE VAN DEN BRANDE** **DAVID KOPPERS**
DEPARTMENT OF PLANNING AND ENVIRONMENT:	**STEVE O'DONAGHUE** **JESSIE EVANS**
LOCATION:	**IPC OFFICES** **LEVEL 3, 201 ELIZABETH STREET** **SYDNEY, NEW SOUTH WALES**
DATE:	**9.32 AM, WEDNESDAY, 12 JUNE 2019**

MR G. KIRKBY: Okay. Good morning and welcome. Before we begin, I would like to acknowledge the traditional owners of the land on which we meet, the Gadigal people, and pay my respects to their elders past and present. Welcome to this meeting on development application 080184 MOD 4 in relation to the Ulan Coal Mine project from Glencore Proprietary Limited, the proponent, who is seeking to change the layout of the Longwall panels in both Ulan no. 3 and Ulan West mining domains to recover additional coal. I am Gordon Kirkby, the chair of this IPC panel. Joining me are my fellow commissioners, Professor Brett Whelan and Professor Chris Fell AM. Other attendees of the meeting are Jorge Van Den Brande who is with the secretariat and Steve O'Donaghue and Jessie Evans from the Department of Planning and Environment still? Yes?

MR S. O'DONAGHUE: Yes, at this point. Yes.

MR KIRKBY: At this point. In the interests of openness and transparency and ensure the full capture of information, today's meeting is being recorded and a full transcript will be produced and made available on the Commission's website. This meeting is one part of the Commission's decision-making process. It is taking place at the preliminary stage of this process and will form one of several sources of information upon which the Commission will base its decision. It's important for the commissioners to ask questions of attendees and to clarify issues whenever we consider it appropriate. If you are asked a question and are not in a position to answer, please feel free to take the question on notice and provide additional information in writing which we will then put up on our website. We will now begin. So we might just start – if you could just give us a little bit of an overview – Steve or Jessie? Steve.

MR O'DONAGHUE: Yes.

MR KIRKBY: Just on the project and the key issues and then we may have a few points we want to raise.

MR O'DONAGHUE: Okay. Look, I will just – so Steve O'Donaghue, director resource and energy assessments for the department, just to introduce myself. So I thought I would just start off with just a bit of background and strategic context if that's okay.

MR KIRKBY: Sure.

MR O'DONAGHUE: So I will just table one of the figures from the report that sort of sets the area we're looking at.

MR KIRKBY: Yes.

MR O'DONAGHUE: I'm sure you're familiar with it anyway, but – from reading the report. So I guess the first thing is that Ulan Coal Mine has been operating since

the 1920s in one form or another. It is currently operated by Ulan Coal Mines which is part of the Glencore group, but also in conjunction with Mitsubishi Development as a joint venture. They have operated it since 2014 when they acquired the mine off Xstrata. It's located about 40 ks north of Mudgee in the Mid-Western Regional Council area. And it forms part of a broader mining precinct in the area with the Moolarben Coal and Wilpinjong Coal Mines.

If you look at the figure, it points where Moolarben is. It hasn't got the mining here, but it's pretty much adjoining the tenements of the Moolarben Coal Mine and Wilpinjong is located further to the east – the south-east – are the operations. And between them, they extract about 58 million tonnes of coal a year which is about 20 per cent of New South Wales production so it is a fairly significant coal mining basin in New South Wales. For the Moolarben coal complex, there's two mining areas. I will just pull out – this includes the - - -

MR KIRKBY: Ulan, you mean?

MR O'DONAGHUE: Yes, for Ulan. There's two coal mining areas which is the Ulan no. 3, or it's referred to in the report as UUG – Underground – Ulan Underground – which is the - - -

MR KIRKBY: Is the orange.

MR O'DONAGHUE: Yes, which is the orange, and predominantly the area they're working in is to the north and Ulan West complex which is these panels over here further to the west of the project. So they're the two key precincts. But there's also an approved open-cut mine which hasn't been – there's still approval for that but it hasn't been operating since about 2008, but there is an approval for some further extension of that.

MR KIRKBY: So is it in care and maintenance? Is that - - -

MR O'DONAGHUE: It's – yes. So the operations are approved till 2033 at this point. So from the complex it's approved to extract about 24 million tonnes a year until 2033. And it's approved for about – your total resource under the current approval is about 253 million tonnes. So it was 240 originally approved in 2010 and through a Land and Environment Court challenge as well, and then in MOD 3 there was an additional 13 million tonnes approved through MOD 3. Just some other information – so there about 900-odd people working there at the mine. There's 10 laden trains leave the site per day, just to give context to the rail movements. And the current configuration of the Longwall panels that they're mining is about 400 metres – 411 metre width, just to put that in the context. So just in its location, it straddles the Great Dividing Range. So half the operations – have I got a figure here that will help as well.

MR KIRKBY: So it's this red line on the map too.

MR O'DONAGHUE: Yes. So there's that one there. That sort of gives the catchment context. So just to show where the catchment vision is – so most of it goes into the Hunter River through the Goulburn River catchment, but the fair percentage of the Longwall mining area also drains to the Murray-Darling Basin by the Talbragar River system. So the key catchments being the Mona Creek that drains to the west and you've got the ..... Curra Creek catchment that drains to the east as well as setting that context. So I guess the area – there's – traditionally, there has been a lot of – there has been grazing more in the valleys.

If you look at the Mona Creek catchment, there's grazing activities and it's – there's also steep escarpments in the area on the ridgelines with native vegetation generally on the Triassic sandstone escarpments through – particularly further to the western side. I guess in terms of – just to give the context of land ownership, this is one of the maps out of the – that was updated for the recommended consent, so I will just take this one. So in terms of the – there's only a few private landowners that are currently within the mining area. One of them – as you would have read in the report, one of the properties, Billir, was acquired through the assessment process. There's one – in the modification area there's one private property, Woodbury – property 254 - - -

MR KIRKBY: 25 - - -

MR O'DONAGHUE: Yes, on that map. But there are some – away from the modification area, there are some additional – to the south, there are some other private property landholders – not residences, but parts of private property within the Longwall – the approved Longwall mining areas already, but the 254 is the only residence that's privately owned.

MR KIRKBY: So is the residence – just for clarity, the residence =- is that - - -

MR O'DONAGHUE: The 254 one?

MR KIRKBY: Yes.

MR O'DONAGHUE: So the 57 – that's the Billir property. That has since been acquired.

MR KIRKBY: That's the one that has been bought. Where's the Woodbury residence?

MR O'DONAGHUE: That's two - - -

MR KIRKBY: It's under 254? Okay. That's the house.

MR O'DONAGHUE: So that's – yes.

MR KIRKBY: Okay. Yes.

MR O'DONAGHUE: So that's – the house is to the south of where the modification is so it has already been approved.

MR KIRKBY: So it has already been approved to be undermined?

MR O'DONAGHUE: Yes, that's right. Yes.

MR KIRKBY: And it's an extension further on. Okay.

MR O'DONAGHUE: So a large area of the property has - - -

PROF WHELAN: But that's his property that goes out to there; is that right? Is that – that's the only bit I was trying to figure out in the report is the property boundaries.

MR O'DONAGHUE: That's right, yes. Yes. So that extends up. And I've got some other maps in terms of where the extension boundary goes into to show that perspective as well. But a fair percentage of the Woodbury property is already undermined under the existing approval. This will extend the area that is undermined under property. So that's just some other context. So Ulan Village is about 1.5 ks away from – to the south. Most of the properties are now owned by mining companies with those 114 houses there, public school and a couple of churches, but most of the village is owned by mining companies. Just in the – did you want any background to statutory context or are you happy with what's – you've got in the report?

MR KIRKBY: Yes, no, we're aware what ..... here. Yes, that's fine.

MR O'DONAGHUE: Yes. I think the only thing is it is a section 75W MOD. It's one of the remaining ones in Australia.

MR KIRKBY: Yes, so it predates the transitions. Yes.

MR O'DONAGHUE: So in terms of the modification, I guess the – I will just pull out the – I guess the first map I gave you shows you the location of the modification which is the extensions in yellow. So I guess the key – so there has been lengthening – if you look at it further to the east as part of Ulan 3 or UUG, they're – there's extension of four panels which are being lengthened from 155 to 1.14 kilometres and that extends into Durridgere State Conservation Area. If you have a look at the landowner map provided, it sort of shows – it shows where the panels would extend into the state conservation area. So in terms of land ownership, there's the private residence Woodbury but there's also the national park state where it did require land owner consent which the national parks also provided for the modification application.

MR KIRKBY: So it is – it's a state conservation area, yes, where the mining is .....

MR O'DONAGHUE: Yes, that's right. Yes. Also the – probably just to point out is that the Longwall panel 33 is also being widened to be consistent. That was a narrow Longwall panel but just top – just for efficiency to maintain the panel with the gear they've got, they've widened that by about 31 metres to bring it to that 411 with the bit for consistency. And so there is additional impacts associated – the extending the subsidence out further to the north on that one. One of the – some of the reasons for extending out there – there was thought to be a Spring Gully Fault extending up that eastern side. Further geological monitoring and modelling showed that it didn't extend as far - - -

MR KIRKBY: .....

MR O'DONAGHUE: So one of the reasons for efficient extraction – they're looking to extract more coal through there. Now, on the western side, it focuses in this area where two Longwall panels in Ulan 3 are being extended to the west.

MR KIRKBY: Yes.

MR O'DONAGHUE: And two panels in Ulan West are being extended to the north. And again, part of the reasons behind that is just looking at their ventilation controls and that they could get – for the Ulan West ones they can get better ventilation controls, extend that to the north. For the Ulan 3, they – just looking at the subsidence monitoring and their predictions that they could extend that further without impacting on the Mona Creek Aboriginal rock shelters, and we will come to that a bit later as well.

MR KIRKBY: Yes.

MR O'DONAGHUE: So I will just get a bit of water.

MR KIRKBY: Yes, sure.

MR O'DONAGHUE: So I guess looking at the modification extension, it's – the increase overall in the underground mining area is about 161 hectares which is about a 2 per cent increase overall on the approved mine. That's the sort of scale we're looking at in terms of extending the Longwall panels. The other thing to point out – there is additional surface infrastructure, apart from the extension of the panels. There is additional surface infrastructure and this is a detail of the Ulan 3 or UUG extension - - -

MR KIRKBY: Yes.

MR O'DONAGHUE: - - - which – this figure here shows in red where they're proposing to put the infrastructure corridors and additional structure and the ones in blue are the already approved infrastructure. So the intention is to – with the panel extension is to replace the blue cleared disturbance areas with the red disturbance areas. And that would be part of the approval. That could only – that can only clear

the new red bits, as shown in the figure. What that means is that there's about 22 hectares of approved clearing area they're going to relinquish.

MR KIRKBY: Yes.

MR O'DONAGHUE: Through the RTS process, they've reduced the infrastructure corridors as well. They originally proposed a 40-metre width for the infrastructure corridor, and they brought that down to 20 metres by putting electricity transmission underground rather than overland, and also looked at reducing the area of the drill well pads for the surface infrastructure as well. So they – they've reduced the amount of clearing to 23.47 hectares. So when you take off the approved clearing, there's a net increase of 1.42 hectares which is what they've considered in the biodiversity assessment in terms of - - -

MR KIRKBY: Yes.

MR O'DONAGHUE: With the vegetation communities – similar prospects, yes, and condition.

MR KIRKBY: Similar.

MR O'DONAGHUE: The other – apart from the efficiency of resource extraction, I guess the 6 million – 6.2 million tonnes or 4 million tonnes that they're proposing to extract is an additional royalty of about $40 million that would go to the New South Wales Government from an economic point of view. So that's the context of the MOD. One of the agenda items was about previous modifications. Were you interested in that or just the – just really about this MOD?

MR KIRKBY: Only if they feed in and relate to - - -

MR O'DONAGHUE: They're fairly different. I mean, the MOD 3 which is probably the most significant MOD was further to the south which was extending - - -

MR KIRKBY: I do actually have one question. I just – there was a comment in the report that a previous modification required – it might have been MOD 3 – required them to basically – there was reference to a condition requiring additional research studies in their statement of commitments to discharge into the Talbragar River.

MR O'DONAGHUE: Yes, yes.

MR KIRKBY: And I just had a question as to have they been done and - - -

MR O'DONAGHUE: No, they haven't. No

MR KIRKBY: Right.

MR O'DONAGHUE: So I guess the issue – before they – at this stage, they're not – you know, they haven't progressed – discharge the Talbragar.

MR KIRKBY: Yes.

MR O'DONAGHUE: So that's still something they would need to do - - -

MR KIRKBY: Okay.

MR O'DONAGHUE: - - - before they progress that option. So at this point, the – you know, the only discharge is, you know - - -

PROF C. FELL: East to the Goulburn.

MR O'DONAGHUE: - - - east to the Goulburn River catchment.

MR KIRKBY: So when are they – so you're saying that they're not actually yet discharging - - -

MR O'DONAGHUE: Yes.

MR KIRKBY: - - - into the Talbragar River. Is there a likely horizon – a timeframe on that or - - -

MR O'DONAGHUE: They just – they haven't – I mean, they – well, they haven't needed to, I guess, in terms of their water balance.

MR KIRKBY: So this was for an additional seventeen and a-half megalitres.

MR O'DONAGHUE: Yes.

MR KIRKBY: So yes, they had a proven and they've yet to actually increase their discharge - - -

MR O'DONAGHUE: That's right, yes.

MR KIRKBY: - - - to take on - - -

MR O'DONAGHUE: Yes, yes, yes.

MR KIRKBY: Okay. That clarifies that.

MR O'DONAGHUE: So I think it would be monitoring the peak – you know, the peak inflows and - - -

MR KIRKBY: Yes.

MR O'DONAGHUE: - - - looking at the water balance to see what the timing of ..... that. And it's probably something you can ask the company more about.

MR KIRKBY: Yes. Sure.

MR O'DONAGHUE: About likely, you know, interaction with that and when that – that's – may occur or whether that has changed with the – you know, the new water balance - - -

MR KIRKBY: Yes.

MR O'DONAGHUE: - - - and how that – how they're operating the mine – the sequence. So, I guess, in – so I guess the key with the MOD is that, I guess, it's not – we're not looking at a – it's a – not a huge increase, I guess, compared to what's approved, which were about, you know, that two per cent increase in subsidence area and, you know, only a small incremental increase in surface disturbance if you look at the relinquished areas as well from that context. So in terms of – so we exhibited for two weeks. So we got six – six agencies provided advice, and we had 14 special interest groups objecting to the modification, including Lock the Gate. Saw the list on the report.

MR KIRKBY: Yes.

MR O'DONAGHUE: Natural Parks Association, Wollar Progress Association are some – as the sort of more local special interest group. There were 67 public submissions, mainly by way of objection on the project, with a majority of them, I guess, distant from the project, not – some local, but 46 of the 67, you know, came from more than 50 ks away, associated – from the project myself. I guess the key concerns that were raised in submissions were around groundwater in particular, and the cumulative impacts associated with the other mines in the area, the Moolarben Coal Mine. Also, potential impacts on the drip, which is a feature in the area which has had a lot of background and monitoring and modelling associated with it from all the mine developments in the area, so it's a significant issue for the local community and more broadly and ensuring that that's protected within the national park estate.

There's also ..... groundwater as well as the – there's potential impact on changes in base flow – came up as an issue. Another concern was discharges to surface waters, continuing discharges and salt load to the Goulburn River. That's currently occurring. And as we will discuss later, there's – I guess the predictions are that there's very minor negligible changes to what's – the approved operation versus the modification. And again, with the salt loads, you know, there was request to look at lower EC, you know, limits and discharges, for example, which was – which came up in the – you know, the recent Moolarben one, which, you know, it has been looked at by the IPC. In that instance, you know, because there was significant increases in the flow, you know, the EPA required, you know, a look at the - - -

MR KIRKBY: 685, I think, yes.

MR O'DONAGHUE: - - - reverse osmosis and yes, reduce EC limits.

MR KIRKBY: Yes.

MR O'DONAGHUE: So the situations here is different in that there's really – there's no change in volumes. There's no requirement to vary the EPL in this case. We can talk a bit more about that. You know, other issues raised in the submissions related to biodiversity and doing further clearing in the state conservation area and potential impacts on, you know, threatened fauna in particular, and potential subsidence impacts, particularly on the Mona Creek rock shelter, which is a protected sort of area under the consent in terms of nil impacts. And I might just show – I know you've got a figure, but I might just hand out this figure which sort of shows – I will just tell you where the – so this was of concern to – in some submissions and, you know, was raised by the owner of Woodbury as well. There's part – part of this – a large chunk of the Mona Creek sites are on the private land on the - - -

MR KIRKBY: Yes.

MR O'DONAGHUE: On the Woodbury property, so the orange line defines the Woodbury property. So this gives a good – this depicts well where the extension areas are on the Woodbury property but also shows where the protected Mona Creek sites are, MC23 to MC30, which is, yes, this sort of area through here.

MR KIRKBY: What, here.

MR O'DONAGHUE: Yes. So it was – raised concern, and then I guess more generally, like, similar for most, you know, coal mining projects, greenhouse gas emissions and, you know, impacts on climate change were sort of broadly the key issues raised. Is there any more that you want me to go through on that side before I get into just, I guess, key issues and how we've addressed them?

MR KIRKBY: Yes, I think – well, you will deal with the creek sites in the key issues, will you?

MR O'DONAGHUE: Yes, yes, yes.

MR KIRKBY: Okay.

MR O'DONAGHUE: So I guess the key – you know, if – in our report, I guess we went through the key issues being subsidence, you know, groundwater, surface water, biodiversity and heritage, but that's sort of the key – and in terms of extension of the subsidence area and also, you know, the direct impact from the surface infrastructure. So, I guess, in subsidence, there – you know, there was an expert report done by Ken Mills from SCT Operations. He has had a lot of involvement at the mine and I guess there's a lot of – been a lot of underground mining at the site, so

there's a lot of observations and monitoring done to inform the subsidence predictions.

You know, there has been – he has relied on the results from 40 Longwall panels that have already been mined of varying width, including the more recent wider panels. So he has re-looked at – so SCT has re-looked at the modelling and it has been informed that by those observations, so there's a fairly high level of confidence in the predictions, you know, in terms of what the subsidence effects and impacts are associated with that. I guess the analysis is showing that in terms of the sort of primary – the primary subsidence parameters like vertical subsidence, tilt and the strains, it's – the predictions are – they're pretty consistent with what has already been there. So for the - - -

MR KIRKBY: Where are they – just ..... where are they currently at?

PROF B. WHELAN: Yes. It says here they're at 5.

MR KIRKBY: What's the active panel at the moment?

MR O'DONAGHUE: Yes. Yes.

PROF WHELAN: They're at the two 5s, it says, but - - -

MR O'DONAGHUE: So they're currently – yes. So currently mining in 5.

MR KIRKBY: 5. Okay.

MR O'DONAGHUE: Yes. And I think LW5 as well.

MR KIRKBY: Okay.

PROF WHELAN: 5. Yes.

MR KIRKBY: 5 and 5. Yes .....

PROF WHELAN: So which of the 40s they – which of the 40 they've mined, do we know?

MR O'DONAGHUE: Which – well, all - - -

PROF WHELAN: It says they've mined 40.

MR O'DONAGHUE: All down – well, through – there has been, sort of – through here and all the ones – all the previous ones down from here.

MS J. EVANS: And Ulan was Ulan Underground 1 - - -

MR O'DONAGHUE: Yes.

MS EVANS: - - - as well. That's a more of a historical one.

MR KIRKBY: Okay. There's - - -

MR O'DONAGHUE: Yes, so - - -

PROF WHELAN: Right. Because if they - - -

MR KIRKBY: There's more work in this underground .....

PROF WHELAN: They can't have been over - - -

MR KIRKBY: Yes.

PROF WHELAN: - - - this side of the range, otherwise they would have been discharging to the - - -

MR O'DONAGHUE: Well, they had – no, they have started mining on this side of the range, but they – the - - -

PROF WHELAN: No, no, the other side.

MR O'DONAGHUE: The water goes back to the mine infrastructure area, so - - -

PROF WHELAN: Does it?

MR O'DONAGHUE: So at this stage there's no discharges to the west.

PROF FELL: West.

PROF WHELAN: Right.

MR O'DONAGHUE: So all the – so in terms of mine underground dewatering, it all comes back to the mine water system.

MR KIRKBY: So MOD 3 opened up the ability to discharge the 17.5 megalitres to the west.

MR O'DONAGHUE: That's right, in terms of – yes, yes.

MR KIRKBY: Okay, but they – they're not doing that yet.

MR O'DONAGHUE: As an option - - -

MR KIRKBY: Okay, yes.

MR O'DONAGHUE: - - - based on, you know, doing those further studies, but - - -

PROF WHELAN: Right.

MR O'DONAGHUE: At this point all – they have – you know, they have commenced the – you know, in Longwall 5.

MR KIRKBY: Yes.

MR O'DONAGHUE: But the water is coming back to the surface infrastructure.

PROF WHELAN: Yes, that makes sense because it – the ridges run that away anyway.

MR KIRKBY: Yes, they're still on that side of the range, yes.

MR O'DONAGHUE: Yes. Yes.

PROF WHELAN: Yes, but – so we've done a lot of the Longwalls here, have we?

MR O'DONAGHUE: Yes, that has all been historical – yes. Historically mined all – that has all - - -

PROF WHELAN: Right.

MR KIRKBY: Okay.

MR O'DONAGHUE: - - - been mined up through here. Yes.

MR KIRKBY: Thanks.

MR O'DONAGHUE: So I get – in terms of vertical subsidence – if you look at the Longwall panel extension – is further to the west – so that's the four panel – that's – they've got a shallower depth of cover. So I think about one - - -

PROF FELL: That's just – that declares subsidence – yes.

MR O'DONAGHUE: Yes, so 160 to 170 metres. Whereas the ones in the – that are being extended under Durridgere State Conservation we have a – have 320 and 330 – need a depth of cover. I guess in terms of – that drives the sort of impacts at the surface with the higher depth of cover. So for the Longwalls to the west there's, you know, 1.7 metre vertical subsidence compared with about 1.6 for the ones under the Durridgere State Conversation area. And again, there's higher tilting strains predicted for the ones in the west because of the shallower cover. I guess the key predictions are that even with the extensions, the – it's predicting that – you know, the motor correct site – all the protected sites would still need the current performance objectives of real impact at those sites. The – in terms of looking at the

area to the west, there are some cliff lines and Aboriginal heritage sites. So if you have a look at this map here – MC236 - - -

MR KIRKBY: Yes.

MR O'DONAGHUE: So they're two Aboriginal sites that would be impacted to some degree by the extensions. But they're – in the archaeological assessment they were considered of low significance or didn't add – you know, compared to the other sites with rock shelters and the broken back, sort of, conservation area – it wasn't adding much to the, I guess, archaeological record of the area and considered of a, sort of, lower significance.

PROF FELL: So no risk to the creek bed of Mona Creek?

MR O'DONAGHUE: Well, that – no, there would be – I mean, there's going to be subsidence over there.

PROF FELL: Subsidence. But factoring - - -

MR O'DONAGHUE: And some cracking. There would be, you know, like surface cracking on the surface.

PROF FELL: But no risk of major flow to a lesser aquifer. No risk of flow from the creek to an aquifer.

MR O'DONAGHUE: Well, there are predictions of depressurisation up through the whole – the whole system. So that, you know, there are predictions of – you know, there would be – you know, there would be some water. They're ephemeral streams so they're not – they're – it's not flowing except in – in bigger storm events.

PROF FELL: Thank you.

MR KIRKBY: Presumably, it's the very top of the catchment.

MR O'DONAGHUE: It is – yes – yes.

MR KIRKBY: That's the - - -

MR O'DONAGHUE: Yes, but – on both sides are at the - - -

MR KIRKBY: Yes.

MR O'DONAGHUE: - - - very top end of the catchment. So in terms of the performance measures that are set in the approval already – you know, we're predicting that they can comply with those performance measures for natural and built features. What – while, I guess, the key impact would be – as it just all impacts on the two site – Aboriginal sites – and put it out. What 1MC236 is outside the – just

outside the subsidence area. What – are predicting about 10 per cent potential for rock fall at that site – at that rock shelter. But for MC22, they're predicting about a 20 per cent chance of rock fall which is consistent with predictions for cliff lines in – throughout the rest of the system. One thing to point out, though, is – I guess, in terms of – that's their prediction – I guess the monitoring – looking at the annual reviews that they've done – the actual monitoring is showing they're getting about 8 per cent impact, you know, in terms of rock falls along cliff lines which is below that, sort of, 20 per cent which is what they predicted. So again, it gives a measure of the conservativeness of the assessment. So again, the subsidence area would, you know, extend – again, it's extending into the private property.

MR KIRKBY: Yes.

MR O'DONAGHUE: So there's an additional 30 hectares of subsidence on there which covers about 85 per cent of the property in total with the improved – and that project. That's probably the management of the subsidence. Are there any, like, questions on - - -

MR J. VAN DEN BRANDE: Quick questions, Mr O'Donaghue.

MR O'DONAGHUE: Yes.

MR VAN DEN BRANDE: Maybe I missed it in your report but did you say that the subsidence document was reviewed by Ken Mills?

MR O'DONAGHUE: What's that – sorry?

MR VAN DEN BRANDE: The subsidence output was reviewed by Ken Mills – subsidence provisions?

MR O'DONAGHUE: Yes – yes.

MR VAN DEN BRANDE: For this modification?

MR O'DONAGHUE: Yes.

MR VAN DEN BRANDE: Is there anywhere in your report that states that?

MR O'DONAGHUE: Well, it's not in the report but he – in the SCT report – he's the author.

MR VAN DEN BRANDE: Okay.

MR O'DONAGHUE: Yes. So he's – he's - - -

MR VAN DEN BRANDE: But there – but the report is on your website?

MR O'DONAGHUE: Yes – yes, it's at – one of the appendices in the - - -

MR VAN DEN BRANDE: Okay.

MR O'DONAGHUE: It's in the – but also supplementary report he did for – looking at – because one of the issues that came up with – let – the Woodbury – was about – there was a cliff fall in that Mona Creek area.

MR VAN DEN BRANDE: Okay.

MR O'DONAGHUE: That was investigated by SCT.

MR VAN DEN BRANDE: Okay.

MR O'DONAGHUE: Concluding that it was natural causes behind that. It wasn't caused - - -

MR KIRKBY: So they're not really – the mining's not really anywhere near - - -

MR O'DONAGHUE: That's right.

MR KIRKBY: - - - that feature at the moment?

MR O'DONAGHUE: It's well - - -

MR KIRKBY: Or in that – at that time?

MR O'DONAGHUE: - - - away. So the – and that – I mean, that's one of the supporting bits of evidence. That it's well away – it was clearly natural causes for that rock fall. But I think the important thing there, and this was raised by the landowner, is that it shows importance of doing that monitoring, you know to – you know, prior to getting near there to – you know, look at the natural variability anyway of – if the natural rock falls – you know, getting that – you know, that needs to feed into the ongoing monitoring and assessment of impacts.

PROF WHELAN: So that's of – can I just ask – that is of the – of just the rock falls. So there is actually monitoring going on of the subsidence over – under the – over the panels?

MR O'DONAGHUE: There is – there is but - - -

PROF WHELAN: We don't see any of that.

MR O'DONAGHUE: Yes, there is but not in the – there's some monitoring lines – if you – in the EA report subsidence appendix there is a figure in there that shows the monitoring lines are currently doing. So there's about – there's four – there's four subsidence monitoring lines that they're doing further south in the western panels

and then they've got some north south running subsidence monitoring lines on the Ulan 3 as well. So part of it – in terms of developing extraction plans that – as the mine extends – would be looking at the – what – the extending the monitoring network, you know, in terms of its subsidence impacts and the best way to do that. One thing that SCT did point out in their report in terms of ongoing monitoring. They recommend – rather than physical monitoring you could look at Lidar, for example, on the private property so you weren't impacting on private property operations from there. So that's an option, apart from, you know, doing physical, sort of, measurements.

MR KIRKBY: Can I just clarify these two sites – MC236 - - -

MR O'DONAGHUE: Yes.

MR KIRKBY: - - - and MC22?

MR O'DONAGHUE: Yes.

MR KIRKBY: They're considered separate to the - - -

MR O'DONAGHUE: They are – yes.

MR KIRKBY: - - - for the purposes of the subsidence performance measures?

MR O'DONAGHUE: That's right – yes.

MR KIRKBY: So because it says nil impact for Mona Creek site.

MR O'DONAGHUE: But - - -

MR KIRKBY: So these aren't defined as Mona Creek?

MR O'DONAGHUE: They're not part of Mona Creek.

MR KIRKBY: They're separate sites?

MR O'DONAGHUE: Yes.

MR KIRKBY: Okay.

MR O'DONAGHUE: They're not part of the Mona Creek sites.

MR KIRKBY: So they're not - - -

MR O'DONAGHUE: Yes.

MR KIRKBY: Okay.

MR O'DONAGHUE: Yes.

MR KIRKBY: Okay.

MR O'DONAGHUE: So is there more questions – subsidence or I can move on to – just touch on groundwater?

MR KIRKBY: Chris? Brett?

PROF FELL: I've got a question on groundwater.

MR O'DONAGHUE: Yes.

PROF FELL: Now they have relatively few bores that they have to worry about.

MR O'DONAGHUE: Yes.

PROF FELL: I'm just concerned mainly about the bores.

MR O'DONAGHUE: Yes.

PROF FELL: But what's the history of make good by this group?

MR O'DONAGHUE: We've got – we will have to get back to you on that one. I don't have any, like, information on - - -

PROF FELL: You're not - - -

MR O'DONAGHUE: Yes – yes.

PROF FELL: - - - sensing in your community discussions concern?

MR O'DONAGHUE: The only – what – the only – I guess the biggest impacts – when you look at the Woodbury property there is a – I mean, they have – they do have an agreement - - -

PROF FELL: Right.

MR O'DONAGHUE: - - - in terms of how they would deal with it. So, clearly, like, for the Woodbury property there is predicted significant impacts on the – with the approved project. All right. So - - -

PROF FELL: And they have said they will make good.

MR O'DONAGHUE: That's right. And they've made – I guess, to all the affected bores – private bores – you know, there's our condition that requires - - -

PROF FELL: Of course.

MR O'DONAGHUE: - - - compensatory water to be provided. I guess, the key thing, here, is that they're not really – in terms of their predictions – there's no increase in the number of bores predicted to be – private bores predicted to be impacted.

MR KIRKBY: Impacted as a result of this mod.

MR O'DONAGHUE: Yes, but there's – like, there is incremental – like, for example, the Billir property that we just purchased. That was the most impacted bore. There would have been no increase on that because there was already significant depressurisation on that one. And there was really no change. But the quota – the most impacted one. For – there's a – for all the impacted bores which there are 14 – there's incremental draw down of the maximum of 0.64 metres predicted against – all those bores would have exceeded in some way – and I haven't got the total in front of me but they would have exceeded the 2 metre aquifer inference policy minimal impact consideration level.

PROF FELL: Thank you.

MR O'DONAGHUE: But in terms of groundwater – so AGE undertook the modelling. It was peer reviewed by Fras Kalf – Dr Fras Kalf. I guess, the key – there was submissions raised about the modelling which the company responded to in its response to submissions. There – particularly that ..... modelling. They have incorporated, you know, the Moolarben draw down in the modelling. Essentially, they were looking at the incremental against the MOD 3 and the, sort of, additional draw down associated with that and also the take of water. I guess, the key things that came out of it – like we just touched on the probe before – so the – in terms of increased impact – there's no – there's not a significant increase although there is a slight additional draw down.

Impacts on base flow. There's a – they predict a – you know, a further 2 per cent reduction against that was already approved – you know, across the different water sources. No impact on the drip which is what they had already – you know, this was already predicted from all the mining operations. And in terms of take of water, there was no particular increase in the peak take for the Goulburn River. And they predicted a reduction in the peak take for the Murray Darling because they were changing the mine sequence so that changed the, sort of, the timing of the peak take of water. I guess the other thing is during – through the assessment, they've been able to acquire all the required water entitlement to get them through the mine life. So that's something that – one thing that they bedded down through the assessment process. I will just – I did have that figure there – just on the predicted draw down. This is comparing – and this, sort of, ties into the impacts on the – you know, the private bores. So the red line is the – you know, is the already approved draw down.

MR KIRKBY: Yes.

MR O'DONAGHUE: The green line is the – you know, MOD 4. And again, this is just in the Triassic geology where most of the water bores – private bores are sourcing water from. So that just shows – and it – the figure, here, also shows the location of the drip. You know, I guess one thing to point out is that the MOD – there has been a lot of – you know, the Longwalls to the south – there has already been depressurisation to the Longwall panels in the south – so there has been a lot of extraction to the south. This MOD extension is further to the north and further away from the drip. At this stage, you know, there's no – the monitoring is showing there's no impact on the drip from the mining operations.

And, you know, while this is adding to depressurisation, it's not extending out a lot compared to the already approved impacts. Any further questions on groundwater? I'm – so just on surface water. There was concerns raised about, you know, discharge to the Goulburn River. I guess the key issue, here, is that the – you know, in doing the water balance for the project and the changes – given that, you know, the peak inflow in groundwater has not – you know, isn't changing or reducing in one instance – the water balance has shown that there's only a very minor increase in the water surplus that would need to be discharged to the river. I guess the EPA, in their submission, didn't raise any concerns with it and it could be, you know, dealt with under the current EPL.

So it's a different situation to Moolarben, I guess, in that, you know, there's really no change to the current situation. They've got a 100 per cent or 900 EC limit for the discharge. So there's really – in terms of salt loads – there's no significant – based on the flow increase, there's no significant increase in salt loads to the Goulburn River. And it's, sort of, you know, they can - - -

MR KIRKBY: That's within the currently approved - - -

MR O'DONAGHUE: It's in the current approved EPL.

MR KIRKBY: Yes.

MR O'DONAGHUE: And what they can do in the EPL. So I think, one of the – you know, and we've, sort of, flagged it in the report – that, you know, the EPA – from a cumulative impact point of view and how the EPA might want to deal with salt loads going into the river, there are options there for pollution reduction programs to drive change in the system. But, I guess, this modification isn't changing the situation radically from – or significantly from, you know, what's already approved for the mine. And what – there will be some additional – you know, from the subsidence, there will be some additional – as you pointed out earlier, Chris, that there will be additional ponding and also surface cracking, you know, through the river system. So that will change the – I guess, the catchment flows to some extent. But I guess, in the context of the, you know, 2 per cent increase in the subsidence area, it's not a major change to what's already approved in that as well.

PROF FELL: I'm conscious that in one or two curious instances the request for an extension of activity has been argued that, even though it's incremental – very small - - -

MR O'DONAGHUE: Yes.

PROF FELL: - - - that shouldn't be allowed, necessarily. I particularly raise the question of the salt to the river - - -

MR O'DONAGHUE: Yes.

PROF FELL: - - - on the basis that, basically, Ulan dominates the three mines. It's 30 megalitres whereas Moolarben 10 to 15 max and – sorry, the other one - - -

MR KIRKBY: Wilpinjong – yes.

MR O'DONAGHUE: Yes.

PROF FELL: Wilpinjong is, again, quite low. So there's an opportunity if EPA wished to do something, it's not in our purview to actually tighten - - -

MR O'DONAGHUE: I think given the nature of the – like, if it was – if the modelling had have shown a significant change to volume – you know, the volumes or loads as part of this modification, it would be reasonable, I guess – part of this – for the – and, you know, for the EPA to - - -

MR KIRKBY: And I take it - - -

MR O'DONAGHUE: - - - to drive that change, you know. Like I say, there's still opportunity, you know, from a – if looking at a load base – you know, you want to – you do have to look at all three mines in terms of the loads going in. But there is nothing to preclude EPA looking at that issue more broadly. But, like, in the context of the MOD and the small change here, it's probably not reasonable as part of this MOD. So just on biodiversity. I guess the – through the – originally, they had – the company had proposed just to do some compensatory tree planting of – you know, rather than do a more comprehensive assessment of the modification for clearing.

And that was on the basis of, you know, originally there was a three hectare increase before they looked at options to reduce the clearing on the basis that what they were putting up was a fairly minor increase in clearing. OEH requested that they needed to do, you know, a proper assessment of it which they did. On that – but focussing on that additional incremental clearing of, you know, 1.42 hectares – and it – when you take for that relinquished area. So I guess the - - -

MR KIRKBY: Was that – was that assessment under the EPBC or BCA? It would have been - - -

MR O'DONAGHUE: It was the – they used the FBA.

MR KIRKBY: FBA.

MR O'DONAGHUE: Yes.

MR KIRKBY: Okay.

MR O'DONAGHUE: So on the EPBC, it was referred to the feds and they concluded that it wouldn't be a controlled action. So there was - - -

MR KIRKBY: Sorry, I meant the Threatened Species Conservation - - -

MR O'DONAGHUE: Right. Yes.

MR KIRKBY: Sorry. Yes. Sorry. What I wanted to say was that under the old assessment at a state level or the new Biodiversity Conservation Act because it has got to transition so did they - - -

MS EVANS: I believe that's under the BC Act.

MR O'DONAGHUE: Yes, under the BC Act - - -

MR KIRKBY: Okay.

MR O'DONAGHUE: Yes, yes. So in terms of the – like, the credits that the – they calculated with the PCTs that were impacted that 61 ecosystem credits would be required for an offset which is with condition to include in there to retire that. The other issue raised with the OEH – also didn't require species credits to be calculated for koala, regent honeyeater and squirrel glider. There was complications in doing the assessment because there was – across two bioregions in the report.

MR KIRKBY: Okay.

MR O'DONAGHUE: So I just – it made it difficult to run the calculator. So they had to use a surrogate – one of the PCTs is a surrogate which didn't include species – credit species by using that surrogate. So we required that. There's a post-approval requirement that in consultation with the OEH that they calculate the species credits for those three species and ..... them through as part of the requirement. So if we look at our recommended condition, there's a reference there to retiring species – credit species as well in accordance with the BC Act.

I guess the other thing – if you're looking – in terms of avoidance of impacts in how they've oriented the new clearing. So they're following a fire – while there will be some clearing, they're following a disturbed fire trial along that edge of the state conservation area. So a lot of clearance associated with the laterals going off to the pads, and again, they reduced that area from 40 down to 20 metre width to further

reduce impacts from that. And it's only questions of biodiversity? So the heritage – Aboriginal heritage and heritage – we have – we covered that to some degree because it's sort of related to the subsidence impacts.

Again, there's – they've found additional sites within the subsidence area. Most of them are – there's nine artefact scatters and five isolated finds within the subsidence area. This is in the context that within the approved project area, there's already 1537 sites and everything – subsidence areas that are ready. So there a lot of background in terms of potential impacts on these sites. For artefact scatters and isolated finds, subsidence itself doesn't generally impact those sites with just the movement of ground but it – stay in situ. Generally the impacts are mainly associated with rock shelters where you might get those rock falls.

So coming back – I guess it comes back to ensuring that there's nil impact on the Mona Creek site which is the – which the subsidence is getting closer to which the subsidence monitoring – the subsidence predictions are showing that there would be no impact. And coming back to those two sites that we talked about earlier, there will be impact, but they are separate to the protected sites and consistent with other areas, some impact is – the department considers acceptable based on the assessment done by the archaeologist Peter Kuskie in that instance.

In terms of historic heritage, there's one homestead that the mining company owns which the Longwall panel 33 ..... moving to the north by 30 metre – it will take subsidence closer to that homestead but they're not particularly any – there are some impacts predicted already. It wouldn't be increasing the impacts. And they can be managed in terms of – just under the heritage considerations .....

MR VAN DEN BRANDE: They're within the predictions.

MR O'DONAGHUE: Sorry?

MR VAN DEN BRANDE: They're within the predictions – the impacts are within the - - -

MR O'DONAGHUE: Yes. So is there – they're the key - - -

MR KIRKBY: They're the key issues.

MR O'DONAGHUE: The worst of them are the – there was noise, air, greenhouse gas emissions, but visual which I've stepped through in the table at the back so unless you want to go through any of them - - -

MR KIRKBY: They pretty much are showing no significant change from - - -

MR O'DONAGHUE: Yes. And just some conditions – did you want to talk through any of the conditions or recommended conditions? There's probably not

that many changes. There's a lot of – there's a number of administrative changes we put through just to bring it consistent with some contemporary conditioning.

MR KIRKBY: Yes. One of the things, just going back to my comment on the performance measures, just – we might look at – it just refers to the Mona Creek rock shelter sites.

MR O'DONAGHUE: Yes..

MR KIRKBY: And obviously you've clarified that it doesn't include 236 and 22, it's just they are referred to as MC – whatever.

MR O'DONAGHUE: Yes, yes.

MR KIRKBY: So just maybe we might look around if they're not part of that group for the purpose of - - -

MR O'DONAGHUE: Yes. Okay.

MR KIRKBY: - - - to actually clarifying that somehow. Maybe putting a definition as to which sites are the Mona Creek ..... sites because - - -

MR O'DONAGHUE: Yes, yes.

MR KIRKBY: - - - I had a bit of confusion because they're titled MC, it would imply they are.

MR O'DONAGHUE: Yes, yes, no, I understand.

MR KIRKBY: So yes. Any further comments? Chris? Brett? Do you want to – okay. Thank you for your time. That was very thorough.

RECORDING CONCLUDED **[10.27 am]**

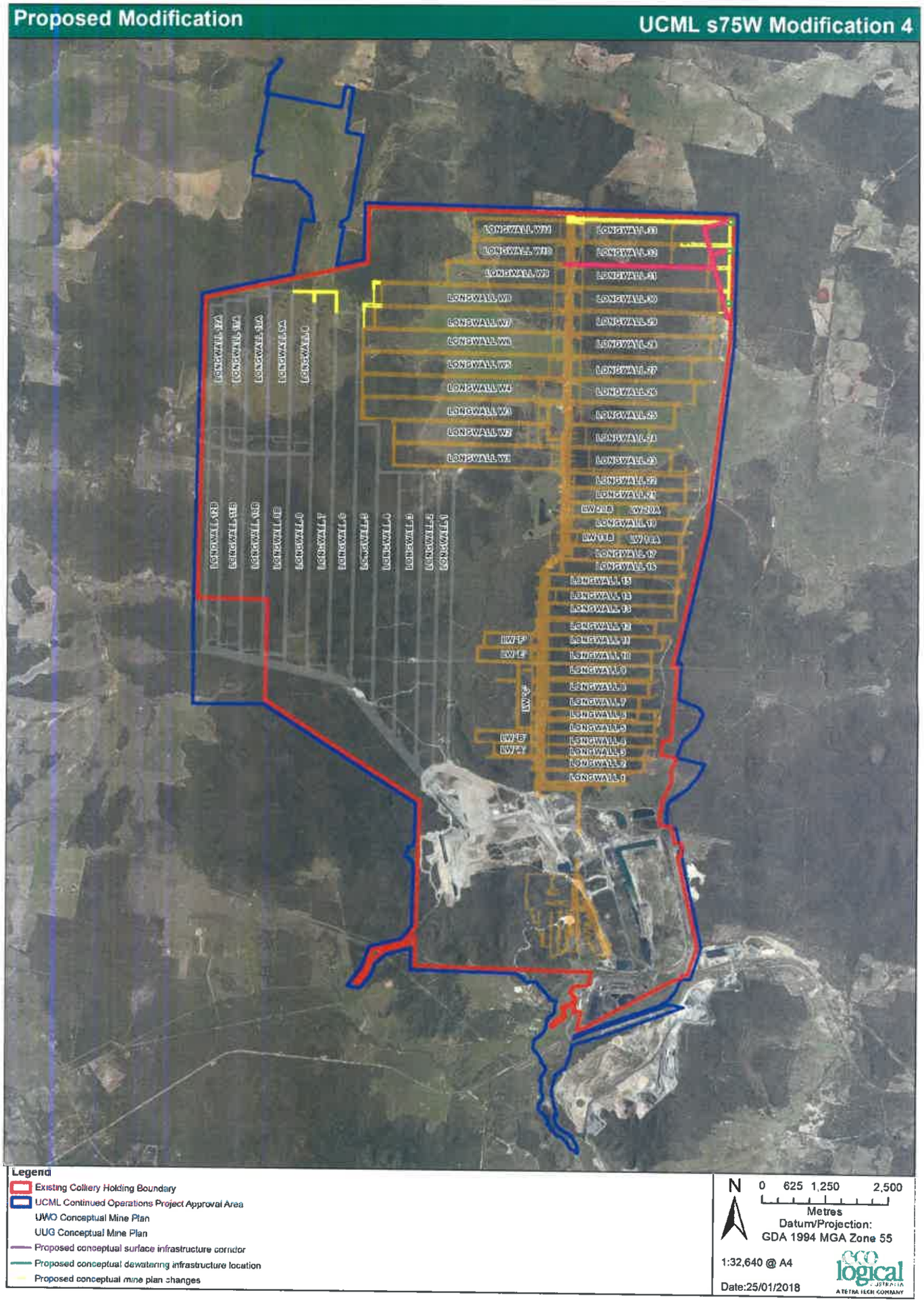
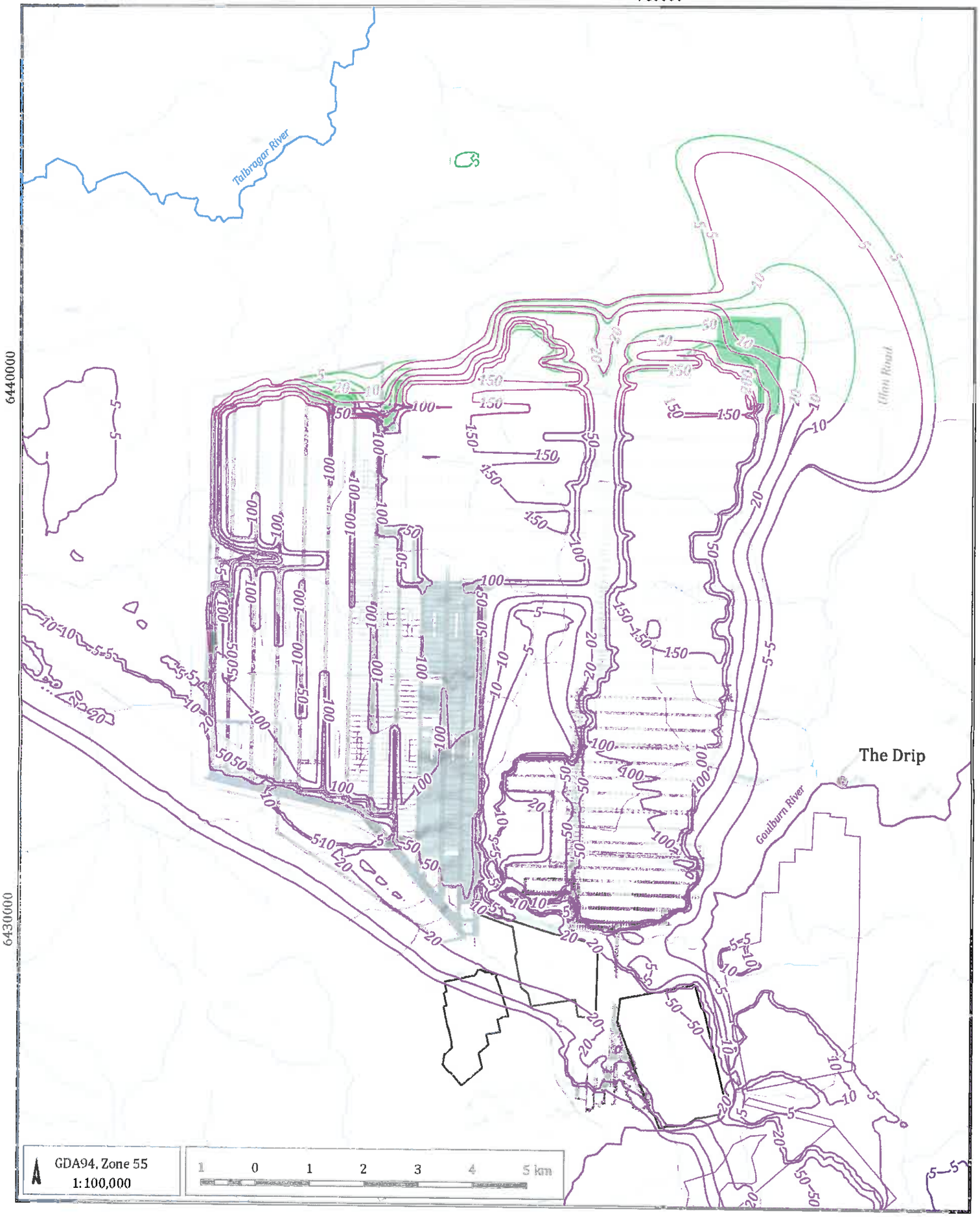


Figure 3: Proposed modification



LEGEND

- Approved drawdown impacts (MOD3)
- Predicted total Triassic (Layer 4) drawdown (MOD4)
- MOD4 proposed extensions
- The Drip
- Ulan - approved (MOD3) underground
- Ulan open cut
- Moolarben mine area

Ulan Mine
G1844L - GIA for s75W Modification (MOD4) - RTS

Predicted end of mining drawdown - Triassic - approved (MOD3) vs proposed (MOD4) mine plan

DATE: 22/06/2018

FIGURE No: **3.6**

Source: 1 second SRTM Derived DEM-S - © Commonwealth of Australia (Geoscience Australia) 2011.; GEODATA TOPO 250K Series 3 - © Commonwealth of Australia (Geoscience Australia) 2006.; © New South Wales Department of Mineral Resources 2002
G:/Projects/G1844H.Ulan MOD5/3_GIS/Workspaces/002_GIA_MOD5/2.1 2.2 RTS letter drawdowns.qgs

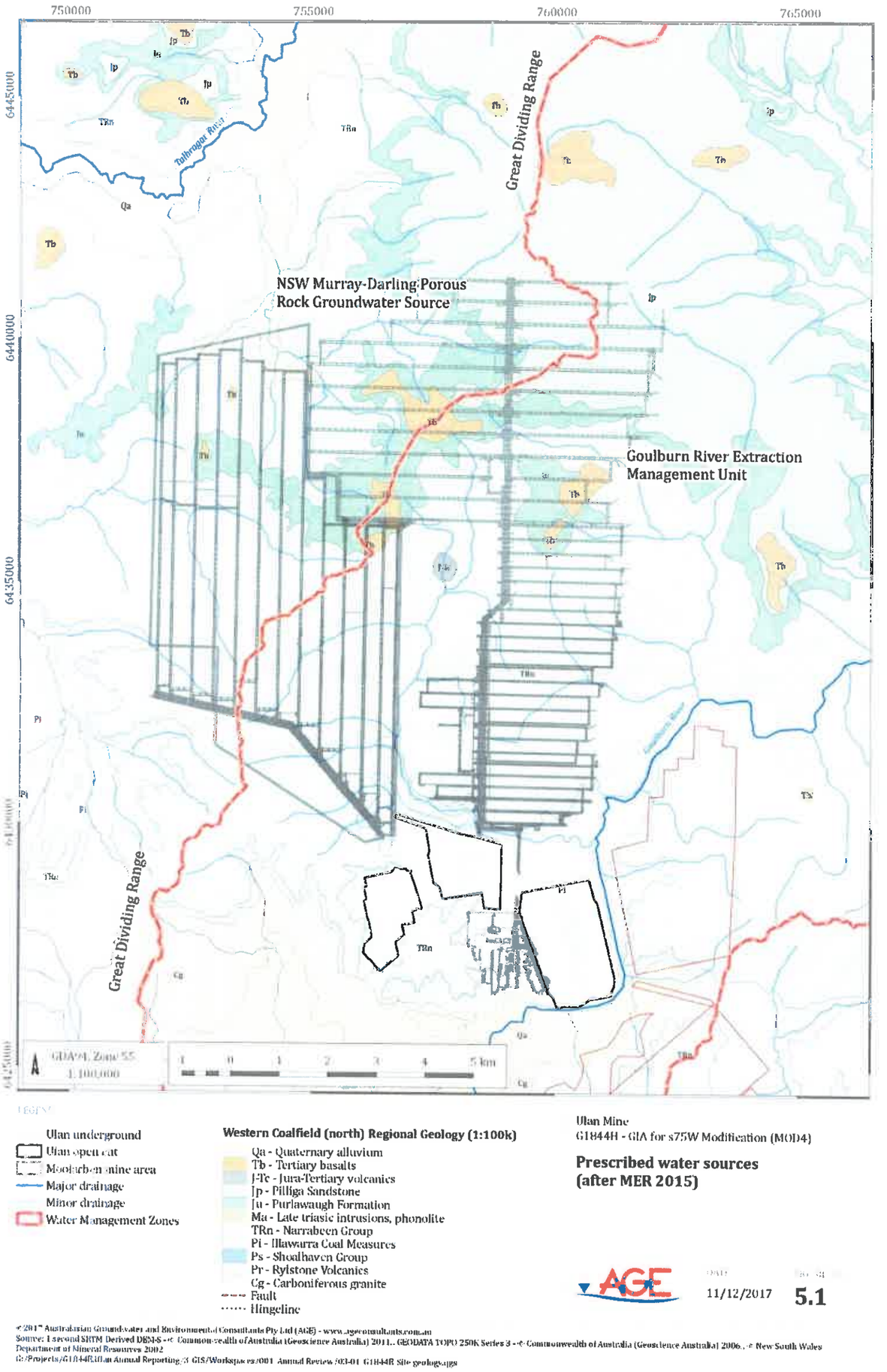


Figure 13: Prescribed water sources (AGE, 2017b, Appendix E)

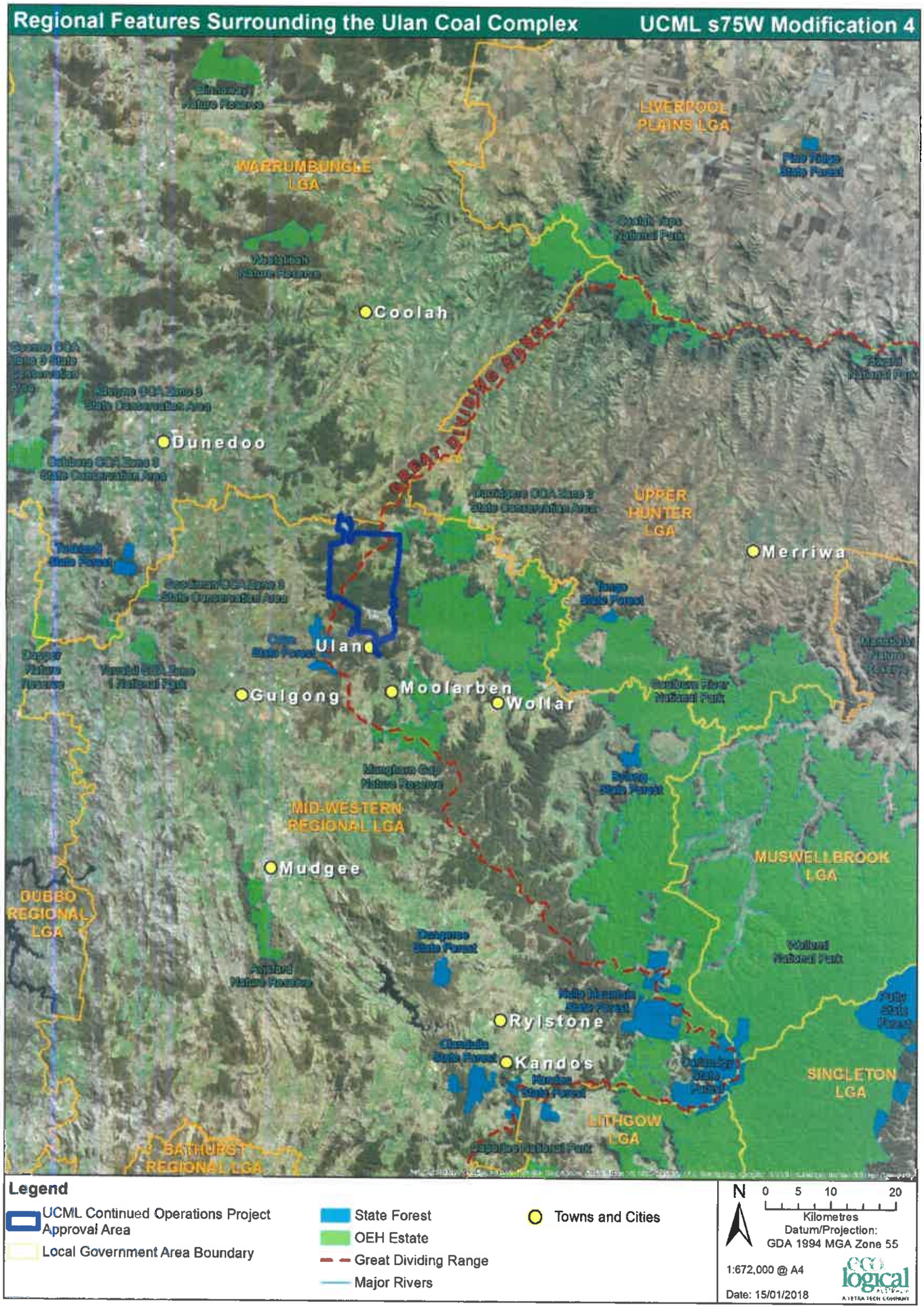


Figure 7: Regional features surrounding the Ulan Coal Complex

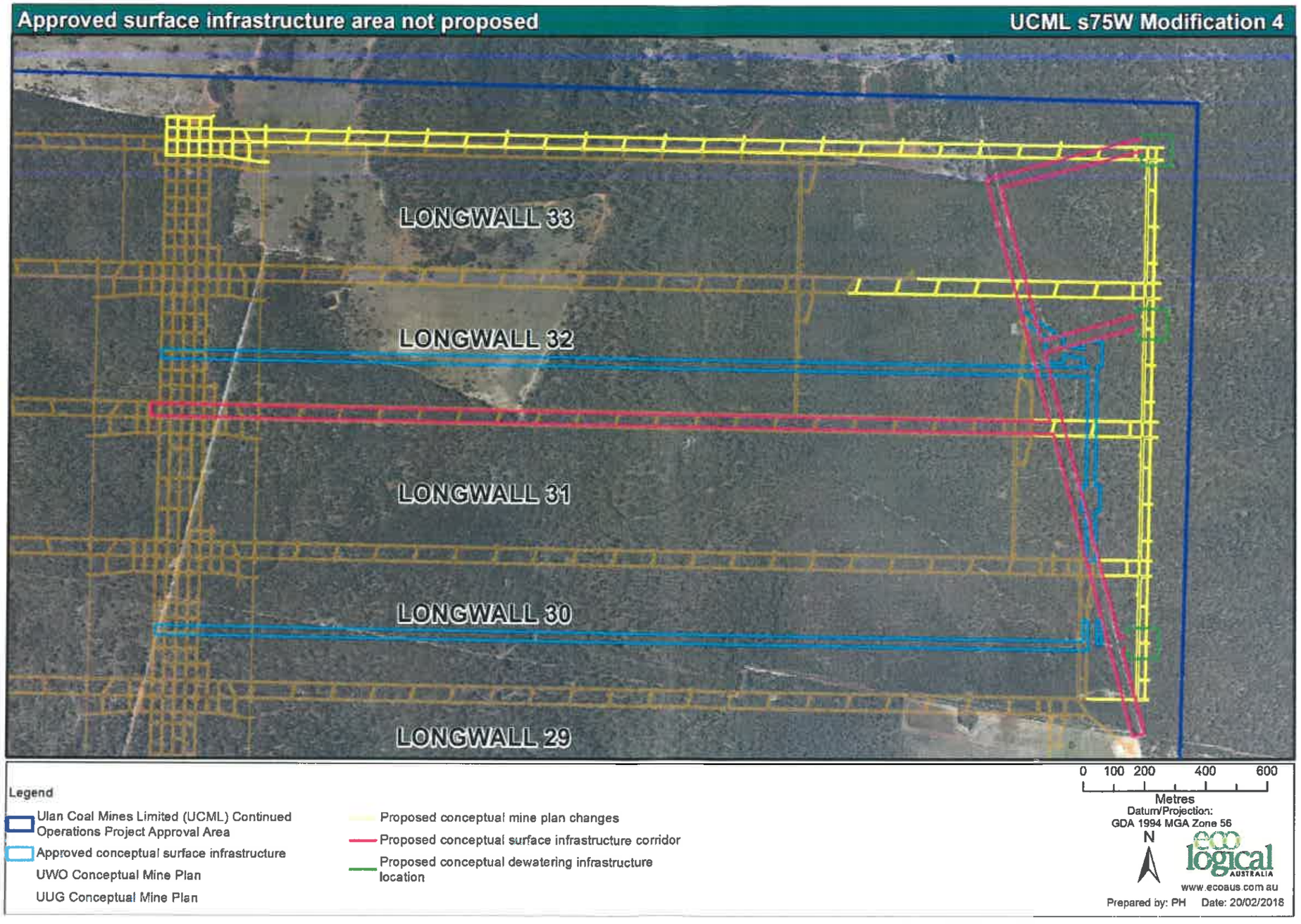


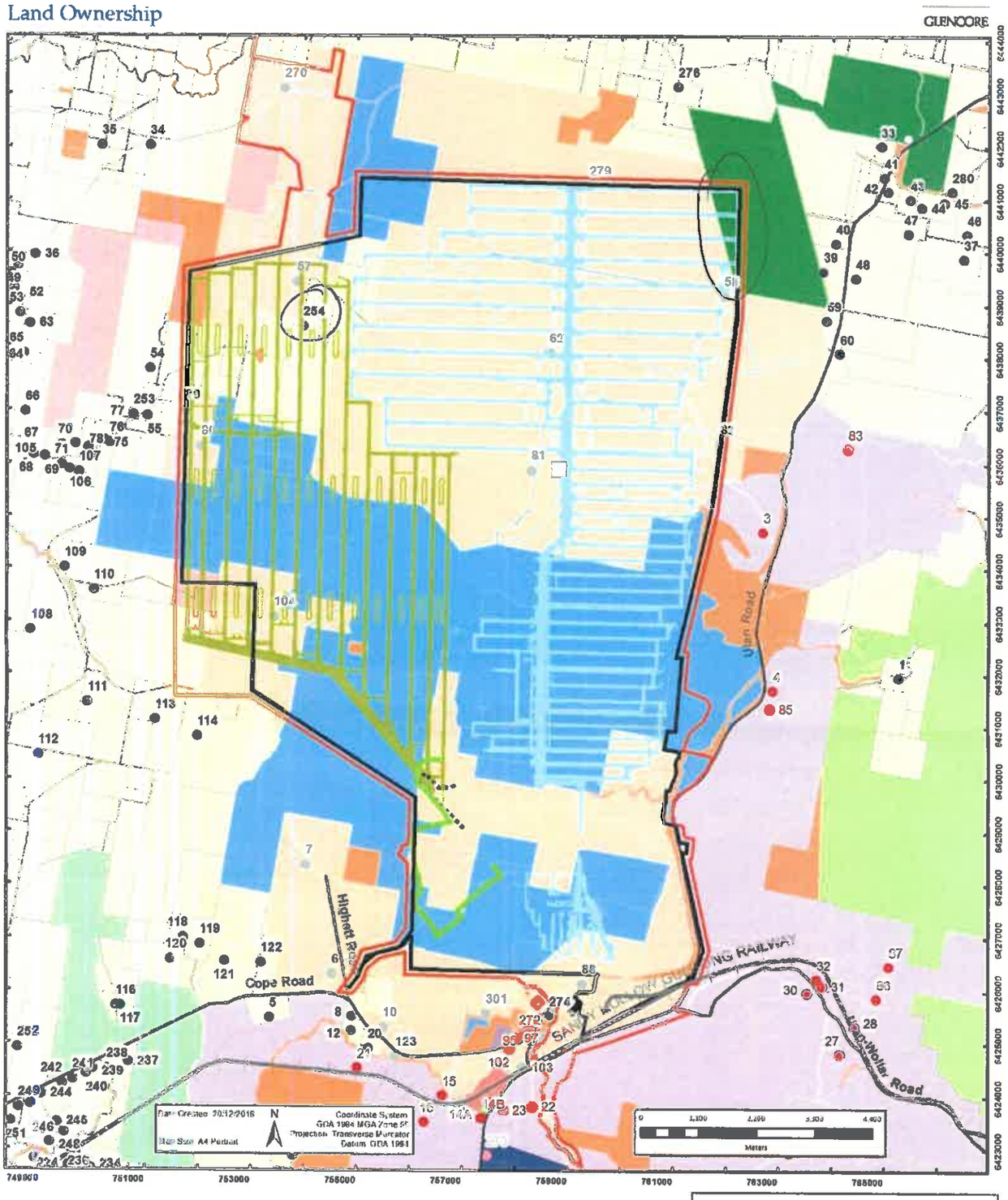
Figure 10: Approved corridor no longer proposed

APPENDIX 3
LAND OWNERSHIP PLANS

ULAN COAL MINES LIMITED

Land Ownership

ULAN COAL
GLENCORE



Legend

- Ulan Complex Colliery Holding Boundary
- Project Approval Boundary
- Open Cut Extension
- Concrete Batching Plant
- Box Cut
- Conceptual Ulan West Mine Plan
- Conceptual Ulan No.3 Underground Mine Plan
- Private Owned Residence
- Mine Owned Residences (UCML)
- Forty North Pty Ltd
- Mine Owned (Moolarben)
- ICI Australia
- Ulan Community House
- State Rail Authority of NSW
- Education and Training
- UCML Freehold Land
- Crown UCML Leasehold
- Crown Land Licence (Private)
- Private Landholder
- Essential Energy
- Forty North Pty Ltd
- ICI Australia
- Mid Western Regional Council
- N-E Wiradjuri Wilpinjong Community Fund Ltd
- Crown Land
- National Park
- State Conservation Area
- State Forest
- Mine Owned Land (Moolarben)

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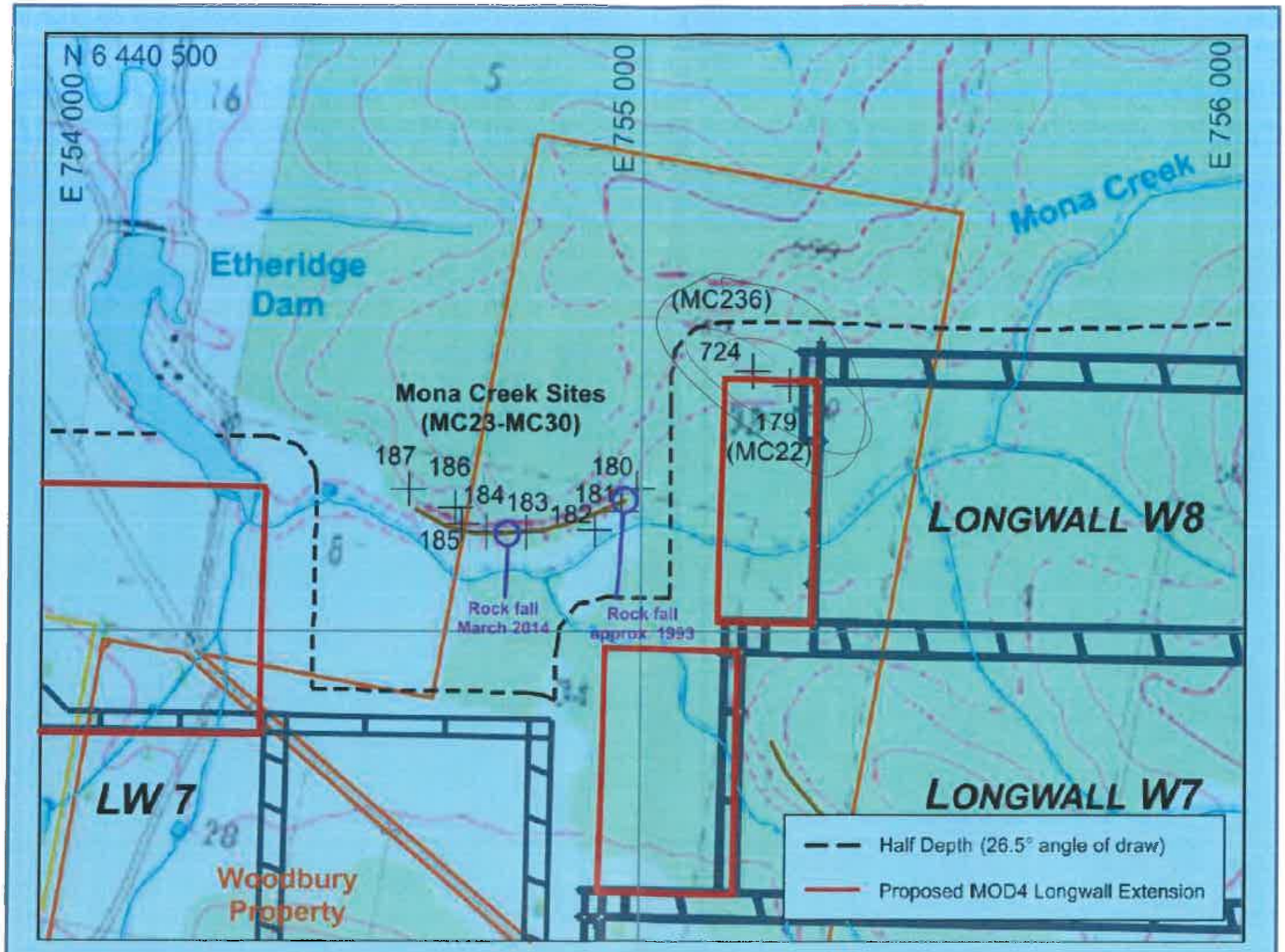

Figure 1: Site Plan