



# Planning & Environment

## ASSESSMENT REPORT

### ULAN COAL MINE Ulan West Mine Plan Modification (08\_0184 MOD 3)

#### 1. BACKGROUND

The Ulan Coal Mine is located near the village of Ulan, approximately 38 kilometres (km) north of Mudgee and 19 km northeast of Gulgong in the Mid-Western Regional Council local government area (see Figure 1). The mine is operated by Ulan Coal Mines Limited (UCML), a joint venture between Glencore Coal Assets Australia Pty Limited (Glencore) (90%) and Mitsubishi Development (10%).

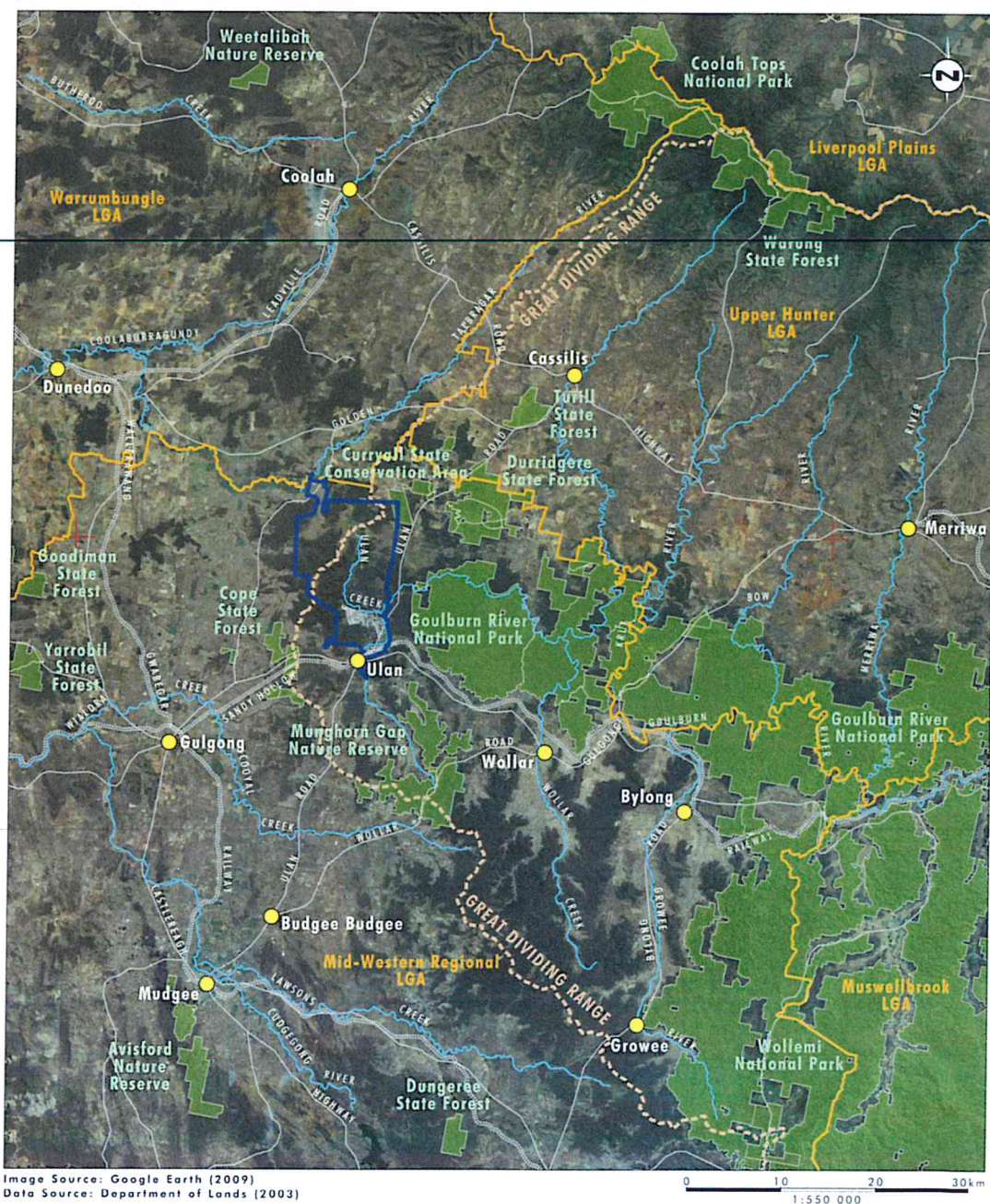
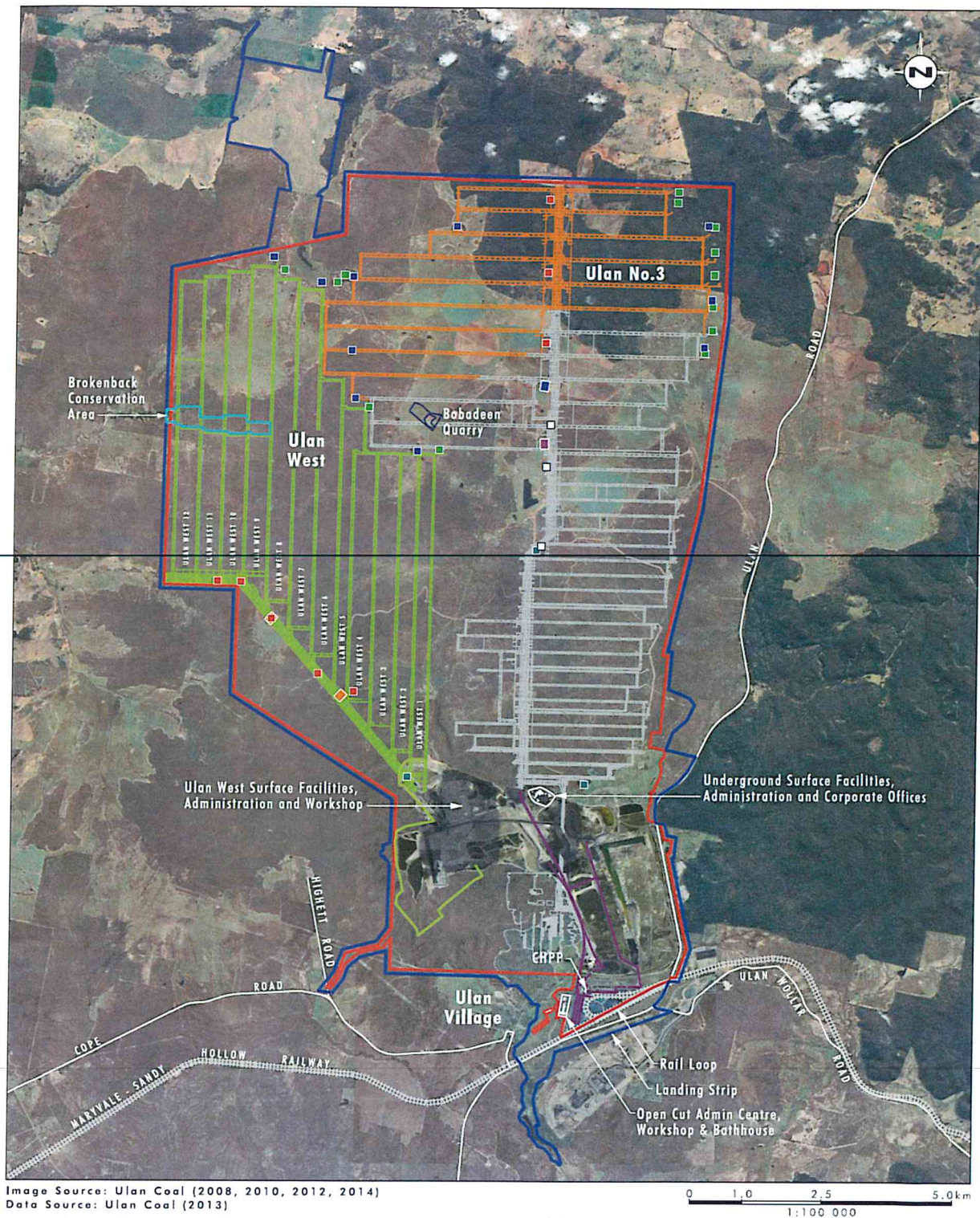


Figure 1: Regional Context



The mine includes 2 underground mining domains (Ulan No.3 and Ulan West), a small open-cut pit, a coal handling and preparation plant, stockpiling and rail loading facilities. The current mine layout is shown in Figure 2. Coal is transported by rail from the mine to the Port of Newcastle for export, and to domestic power generation markets.



#### Legend

- |   |   |
|---|---|
| <span style="border: 1px solid red; display: inline-block; width: 20px; height: 10px;"></span> Existing Colliery Holding Boundary               | <span style="border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span> Conveyors                           |
| <span style="border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span> UCML Continued Operations Project Approval Area | <span style="border: 1px solid orange; display: inline-block; width: 20px; height: 10px;"></span> Approved Upcast Ventilation Shaft |
| <span style="border: 1px solid green; display: inline-block; width: 20px; height: 10px;"></span> Approved Open Cut Extension                    | <span style="border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span> Approved Downcast Ventilation Shaft |
| <span style="border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span> Approved Brokenback Conservation Area           | <span style="border: 1px solid red; display: inline-block; width: 20px; height: 10px;"></span> Approved Service Borehole Facility   |
| <span style="border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span> Babadeen Quarry                                 | <span style="border: 1px solid red; display: inline-block; width: 20px; height: 10px;"></span> Approved Man Riding Shaft            |
| <span style="border: 1px solid green; display: inline-block; width: 20px; height: 10px;"></span> Approved Ulan West Mine Plan                   | <span style="border: 1px solid green; display: inline-block; width: 20px; height: 10px;"></span> Approved Dewatering Bore           |
| <span style="border: 1px solid orange; display: inline-block; width: 20px; height: 10px;"></span> Approved Ulan No.3 Underground Mine Plan      | <span style="border: 1px solid blue; display: inline-block; width: 20px; height: 10px;"></span> Existing Ventilation Shaft          |
| <span style="border: 1px solid grey; display: inline-block; width: 20px; height: 10px;"></span> Previous Underground Mining Operations          | <span style="border: 1px solid grey; display: inline-block; width: 20px; height: 10px;"></span> Existing Service Borehole           |

**Figure 2: Mine Layout**

**FIGURE 2.1**  
**Approved Ulan**  
**Complex Operations**



Mining has been undertaken at the site since the 1920's. Current activities are regulated under a project approval initially granted by the Minister for Planning in 2010 (08\_0184). The Minister's decision was subsequently appealed in the Land and Environment Court. In November 2011 the Court determined that approval should be granted for the project, and provided its Final Orders in 2012.

There have been 3 modifications to the approval since the Minister's initial approval (ie. MOD 1, the Final Court Orders and MOD 2). MOD 1 allowed changes to the approved underground mine plan and the operation of a concrete batching plant. This modification was assessed and approved prior to the Court making its Final Orders.

The Court's Final Orders were subsequently delivered in 2012, which had the effect of updating and replacing the Minister's 2010 approval.

MOD 2 was approved in May 2012. It modified the panel geometry of Ulan West longwalls LW 1-5, including reducing the panel lengths, and reducing the width of LW 1 from 400 metres to 250 metres, and the widths of LW 2-4 from 400 m to 305 metres.

A further amendment to the first workings for LW 3 and LW 4 to restore the panel widths to 400 m was approved in October 2013 in accordance with the existing conditions of approval<sup>1</sup>.

The modified approval allows UCML to:

- extract up to 24 Mt per annum (Mtpa) of run of mine (ROM) coal by underground and open cut methods, until 2031;
- upgrade and use supporting surface facilities, including coal processing, coal handling and transportation systems;
- transport product coal to export markets from the site by rail; and
- progressively rehabilitate the site.

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~~The mine currently operates 24 hours per day, 7 days per week, and employs over 900 people.~~

## 2. PROPOSED MODIFICATION

UCML is seeking further modifications to its project approval (See Appendix A). The proposal has two main components:

- revisions to the length and layout of the Ulan West longwall panels, to extract a further 13 million tonnes of coal; and
- minor changes to surface infrastructure to facilitate the revisions.

The changes to the mine plan include:

- extending the southern ends of Ulan West longwall panels LW 6-12 by between 900 m - 1300 m;
- repositioning of LW 5-12 to reflect the approved first workings amendment to LW 3 and 4;
- a reduction to the northern end of LW 5 by around 170 m; and
- minor extensions to the northern ends of LW 7-12.

The key change is the southern extension of longwall panels LW 6-12. This change reflects additional exploration work by UCML, which has found that a previously interpreted fault in this area (which defined the southern boundary of the longwalls) is located further to the south than originally thought.

The proposed changes to the surface infrastructure include:

- changing the locations of two upcast ventilation shafts and three downcast ventilation shafts;
- constructing a new ventilation shaft in the realigned main headings and a new downcast ventilation shaft at the northern end of LW 5; and
- minor changes to other infrastructure, including changing the location of three dewatering bores, realigning infrastructure corridors, access tracks and electricity transmission lines.

The changes to the mine plan would increase the mining area by 275 hectares and add 2 years to the life of the project. The proposal would not change any of the approved operating functions of the mine, including the production rate, processing functions and transportation systems.

The proposal is depicted in Figure 3, and is described in full in UCML's Environmental Assessment (EA) (see Appendix A).

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<sup>1</sup> Approved under condition 25 of schedule 3 of the project approval, which allows changes to first workings subject to the Secretary's written approval.



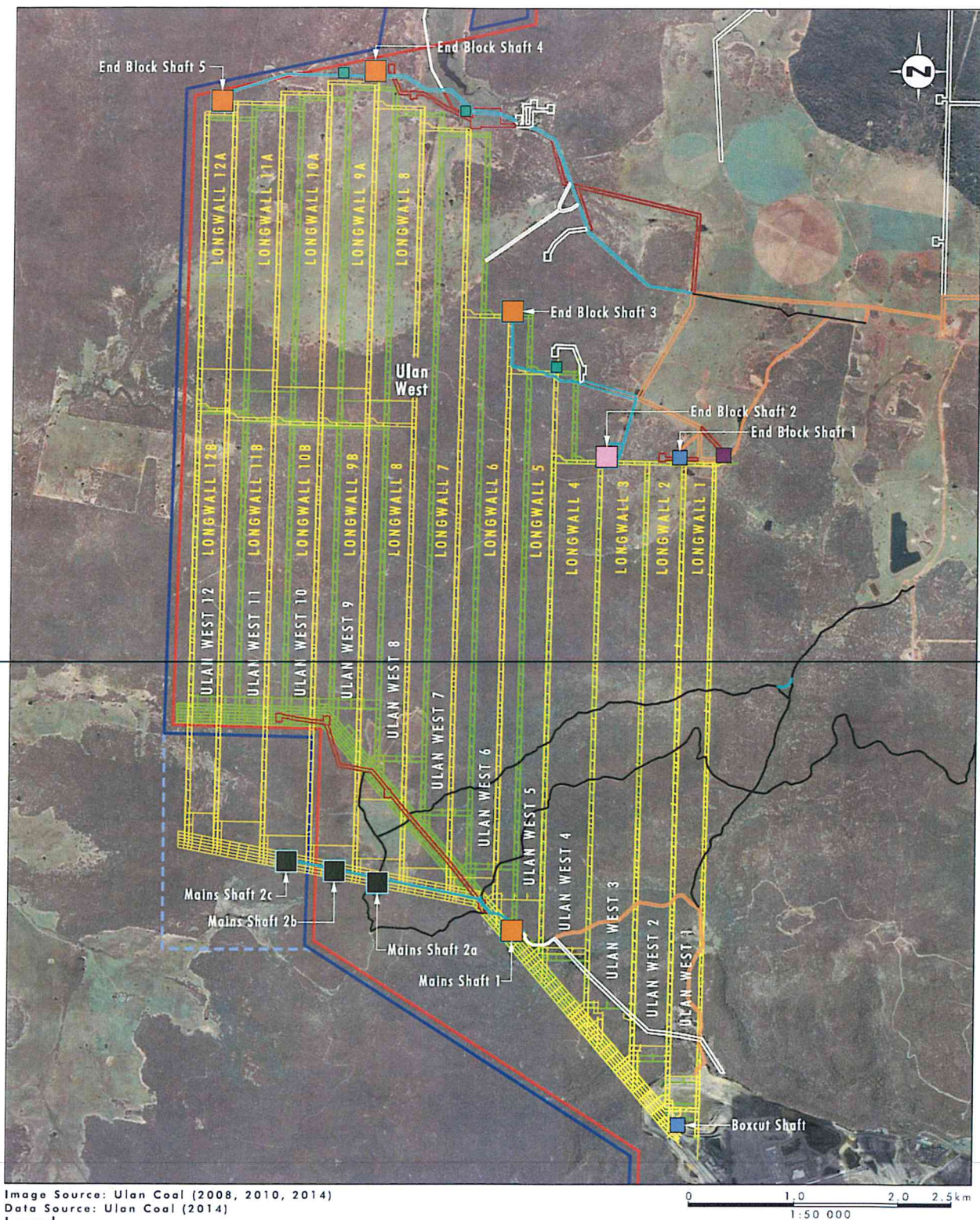


Figure 3: Proposed Modification

FIGURE 2.3  
 Proposed Ulan West  
 Modification



### 3. STATUTORY CONTEXT

#### 3.1 Section 75W Modification

The project is a “transitional Part 3A project” under Schedule 6A of the EP&A Act, and the modification application must therefore be assessed under Section 75W of the Act. The Department is satisfied that the proposed modification is within the scope of section 75W, as it:

- does not seek to change the approved mining methods, mining rate, the processing and transportation systems; and
- the resulting environmental impacts would not substantially increase over those approved for the original project.

#### 3.2 Approval Authority

The Minister for Planning is the approval authority for the application. However, under the Minister's delegation of 16 February 2015, the Executive Director Resource Assessments & Business Systems, may determine the application, as there were less than 10 public objections received during the public exhibition of the EA, Mid-Western Regional Council did not object, and UCML has not made reportable political donations.

### 4. CONSULTATION

The Department publicly exhibited the EA from 20 March 2015 until 17 April 2015 at:

- the Department's Information Centre;
- Mid-Western Regional Council's office in Mudgee; and
- Nature Conservation Council's office in Newtown.

The Department also made the relevant documents available on its website, and wrote to relevant public authorities, inviting them to comment on the proposal.

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In response to the exhibition the Department received advice from 5 from public authorities and 2 public submissions, including 1 from a special interest group (Wellington Valley Wiradjuri Aboriginal Corporation) and 1 from an owner of land within the subsidence affectation area for the modified mining area. The advices and submissions are attached in Appendix B, and a summary of the issues raised is provided below.

None of the public authorities objected to the proposed modification, however:

- **Office of Environment and Heritage (OEH)** commented on:
    - potential subsidence impacts at Aboriginal Cultural Heritage sites, the Talbragar Fish Fossil Reserve and to riparian vegetation; and
    - whether the proposed additional vegetation clearing should be offset;
  - **Environment Protection Authority (EPA)** recommended revisions to the approved noise management plan to detail construction noise mitigation strategies, and suggested measures to handle off-site water discharges;
  - **Department of Primary Industries – Water (DPI Water)** commented about potential additional surface water impacts, and requested clarification on the potential groundwater impacts and water licencing arrangements for the mine;
  - **Department of Industry, Division of Resources and Energy (DRE)** was generally satisfied that subsidence impacts would be similar to the approved mine; and
  - **Crown Lands** recommended the purchase of the Crown Roads located within the modified mining area.
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**Agriculture NSW, Fisheries NSW, Roads and Maritime Services (RMS) and Mid-Western Regional Council** did not raise any issues.

The **Wellington Valley Wiradjuri Aboriginal Corporation** supports the proposal subject to the implementation of agreed mitigation strategies for two highly significant rock shelters with artworks and potential deposits that would be affected (and potentially destroyed) by subsidence associated with the modified mine plan.

The private landowner objected to the proposed modification on a number of grounds, including:

- potential subsidence-related impacts including the potential for cliff/rock falls;
- existing surface and ground water impacts on his property and potential additional impacts associated with the proposed modification;



- access to his land for undertaking environmental studies and lack of consultation (the landowner denied UCML access but the landowner claims that UCML did not make reasonable efforts to come to an access agreement);
- biodiversity impacts on the land, including the presence of Koalas; and
- social and economic impacts, including the effect on the current and potential future uses of the land and the ability to sell the property (the landowner has requested that UCML acquire, or be required to acquire, his property).

UCML has provided responses to the issues raised in submissions (see Appendix C), which the Department subsequently made publicly available on its website. The Department has considered the advice and submissions, along with UCML's Response to Submissions, in its assessment of the proposal.

## 5. ASSESSMENT

### 5.1 Subsidence, Landforms and Land Use

The proposed modifications would result in limited change to the subsidence profile of the Ulan West mine as approved. The changes would be largely confined to minor amendments to the existing subsidence areas, along with some additional subsidence areas in the south-west and northern areas associated with the proposed extensions to longwall panels.

The predicted subsidence affectation area is shown on Figure 4, and a comparison of the key subsidence parameters between the approved mine and the proposed mine is outlined in the following table.

**Table 1: Ulan West Predicted Subsidence**

Parameter	Typical Subsidence			Maximum Subsidence		
	As	As	Change	As	As	Change
	Approved	Modified		Approved	Modified	
Vertical subsidence (m)	0.9-1.5	0.9-1.5	0	1.6	2.1	+0.5
Tilt (mm/m)	10-40	15-40	0	120	120	0
Horizontal movement (mm)	150-200	150-200	0	500	500	0
Strain (mm/m)	5-15	15-20	+5	50	50	0
Crack width (mm)	40-100	20-100	0	250	250	0
Goaf edge subsidence (mm)	130	130	0	130	130	0
Angle of draw (°)	10-30	20-30	0	41	45	+4

As indicated in the table, the proposed modification would result in little change to the typical subsidence parameters, although the range of maximum vertical subsidence would increase by up to 0.5 metres. The higher subsidence would occur towards the southern end of the longwall panels where there is a shallower depth of cover.

The revised subsidence profile would not result in any significant change to subsidence-related impacts within the as-approved subsidence affectation area, including no material changes to impacts on:

- cliffs and steep slopes;
- creeks and drainage lines (see Section 5.2);
- archaeological and heritage sites, including the Brokenback Conservation Area and the Talbragar Fish Fossil Reserve (see Sections 5.3 and 5.5);
- vegetation, threatened species and habitat (see Section 5.4);
- public infrastructure;
- privately-owned land and features, including dwellings and farm structures; and
- public safety.

Impacts within the new subsidence areas (ie. those outside the approved subsidence affectation area) would be similar to those within the as-approved area.

In this regard, there are a number of cliffs and steep slopes in the southern extension area, in the range of 3 to 15 metres high (see Figure 5). Experience at the existing mine and similar mines indicates that rock falls would be likely along 10 to 20 percent of the length of cliff formations above longwall panels, with perceptible cracking along 70 percent of the formation. These rock falls have the potential to impact Aboriginal sites and biodiversity/habitat, and affect public safety. These issues are considered below.



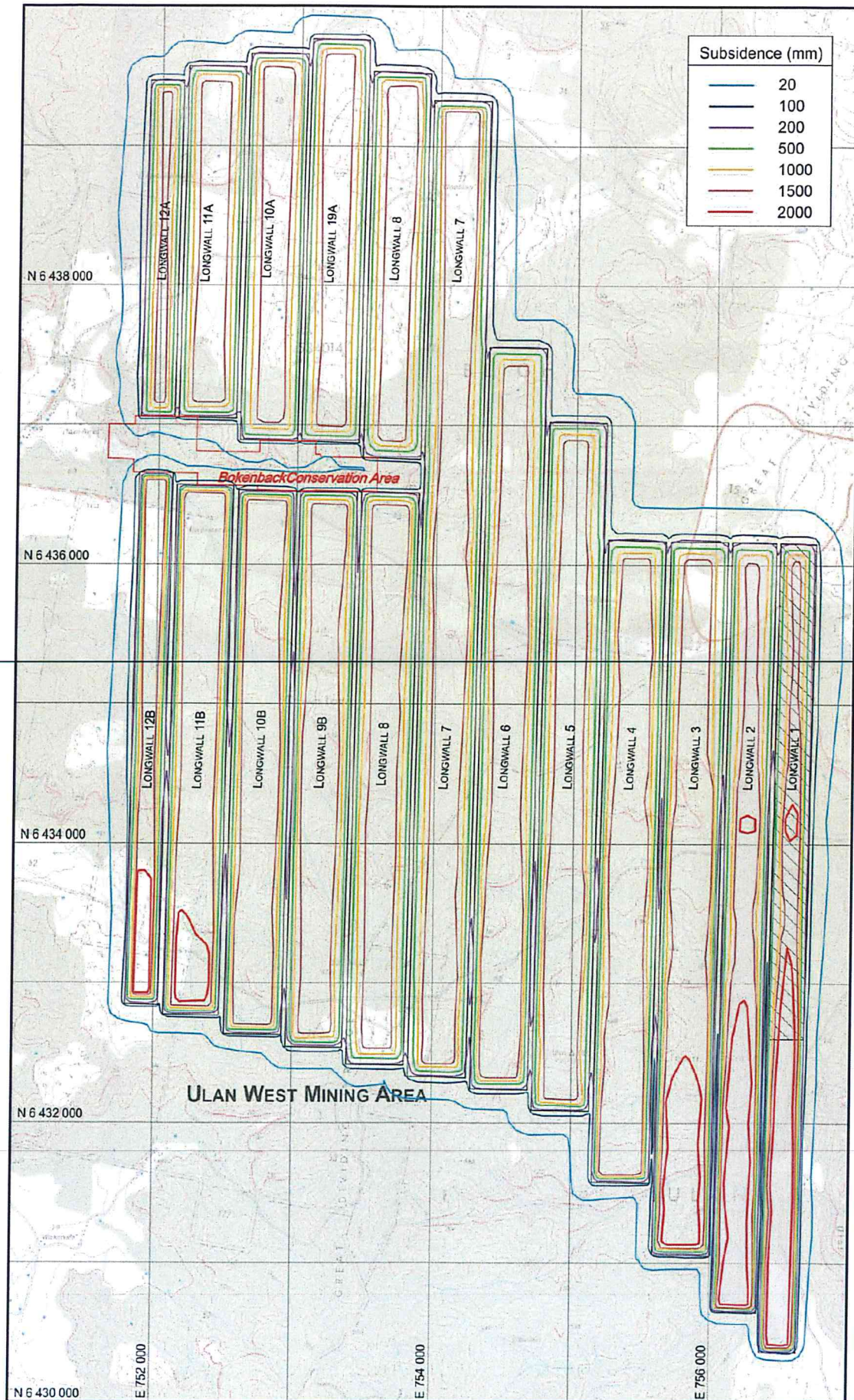


Figure 4: Subsidence profile



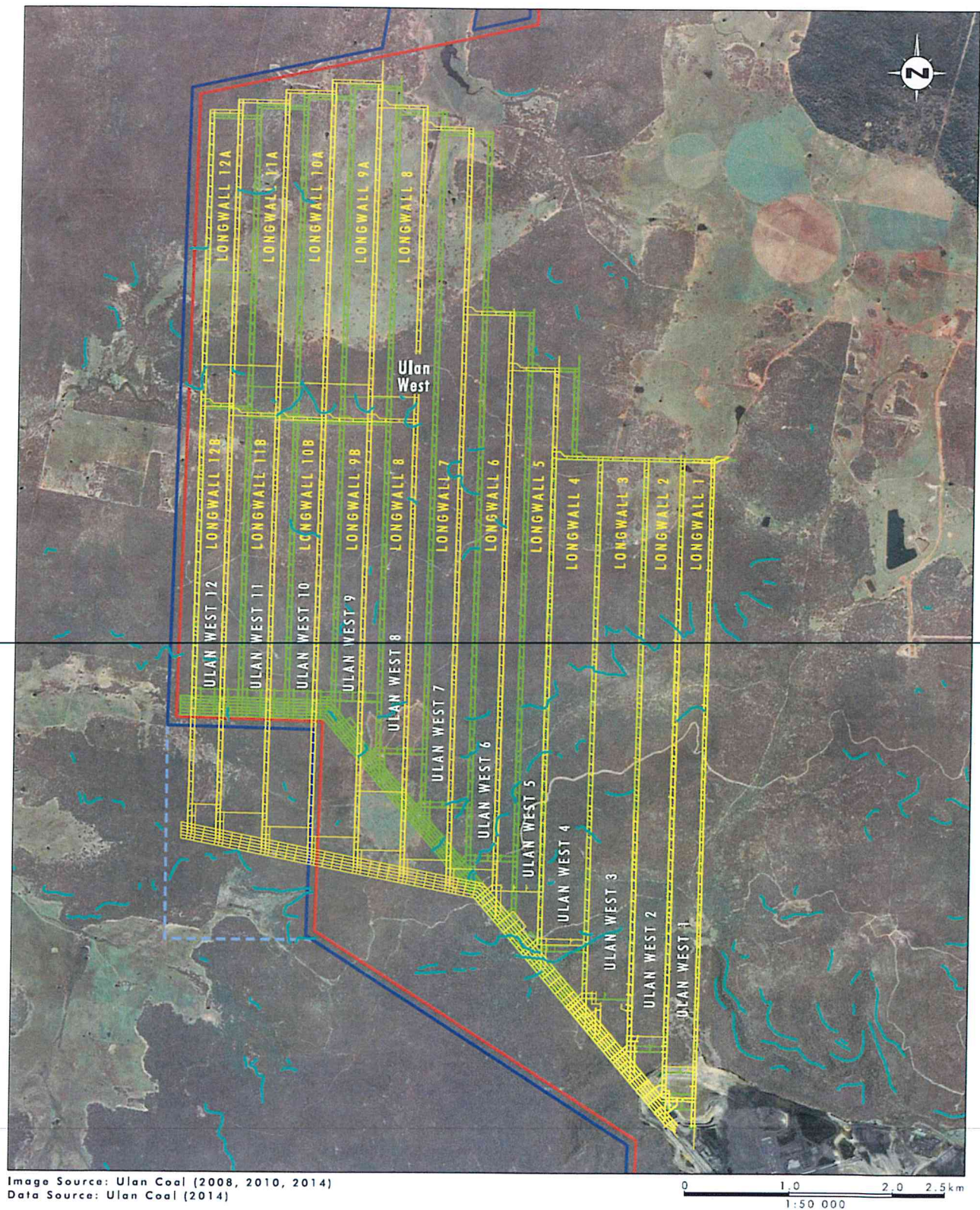


FIGURE 5.2  
Modelled Clifflines

Figure 5: Clifflines



An ephemeral tributary of Cockabutta Creek is located in the south-western area of the site, and would be affected by the revised subsidence profile in a similar manner as creeklines within the existing mining area. Water-related impacts are discussed in Section 5.2 below.

The south-western area contains a number of culturally significant Aboriginal archaeological sites (including rock shelters with art and artefacts), which are likely to be affected by the proposed modification. Impacts on these sites are discussed in Section 5.3 below.

No significant additional impacts on public infrastructure are predicted in the as-modified subsidence area, and there are no additional privately-owned dwellings or significant built structures in the extension area.

However, the south-western extension area does partly underlie privately-owned farm land (see Figure 6), and the owner of this property has raised concerns about the potential impacts on this land. The owner also notes that UCML's studies are not able to accurately predict the impacts on this property, as UCML did not gain access to the land to enable it to undertake detailed studies.

There appears to be some conjecture between the parties about how this access issue was progressed, however it is accepted that UCML did approach the landowner seeking access to the land, and that this access was denied by the landowner. The landowner contends that he sought a counter offer to the UCML's initial offer for financial compensation associated with the access agreement, while UCML claims that the owner returned the access request letter with a note stating that the landowner would not agree to access.

UCML notes that it did not seek to use the provisions of the *Mining Act 1992* to secure access for the environmental studies, as:

- only 28 hectares of the 334 hectare property would be potentially affected by subsidence;
- no surface facilities are proposed to be located on the property;
- adequate information was available to assess potential impacts on the property, including surveys undertaken on the property during the exploration phases; and
- ample time is available to facilitate the preparation of management plans for the property as it would be subject to subsidence late in the mine plan (ie. 2026).

The Department has considered the predicted subsidence-related impacts on this property, and is satisfied that the proposed modification is unlikely to result in any significant impact on the continued agricultural and other land uses of the property. Whilst the land would be subject to some subsidence-related impacts (eg. surface cracking), these impacts could be mitigated and/or remediated by UCML using standard best practice techniques.

Given the limited predicted impacts on the property, the Department is satisfied that access to the property is not required to enable a decision to be made on the proposed modification. The Department notes that the existing consent includes a number of conditions to minimise and manage impacts on this property and other land resources, including requirements for UCML to:

- comply with a number of subsidence performance measures, including ensuring all built features remain safe, serviceable and repairable, and ensuring public safety;
- prepare Extraction Plans in consultation with landowners, including a Built Features Management Plan, Public Safety Management Plan and Land Management Plan;
- validate and update the subsidence impact assessments over time to incorporate information gained from monitoring the impacts of actual mining; and
- manage and (if necessary) remediate any adverse impacts.

The Department is satisfied that these existing conditions remain appropriate for managing the subsidence impacts of the proposed modification.



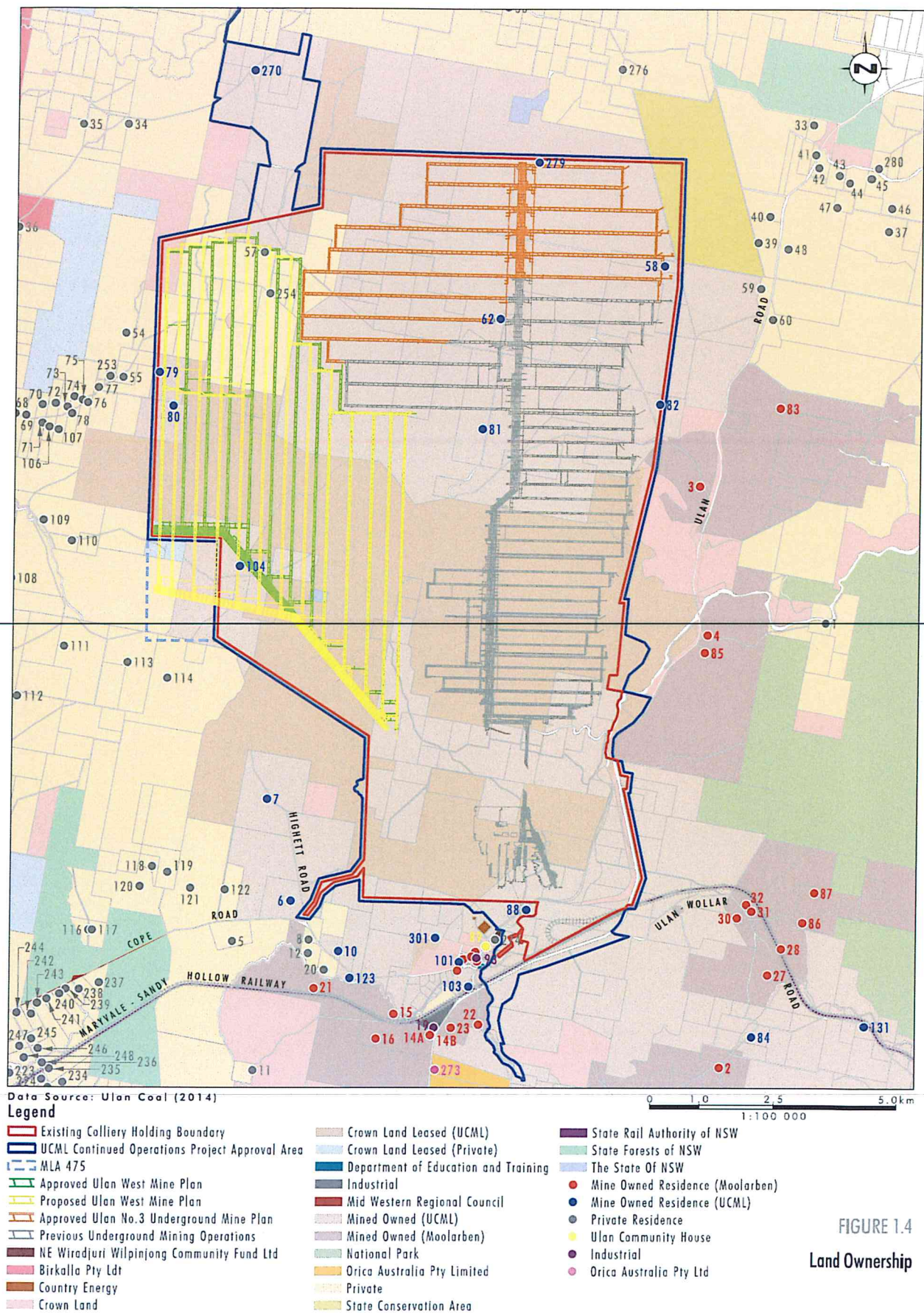


FIGURE 1.4  
Land Ownership



## 5.2 Water Impacts

### Groundwater

The EA includes a specialist groundwater assessment for the modified mine plan undertaken by Mackie and Associates. The assessment concluded that:

- there are no highly productive groundwater resources above the Ulan West mining domain;
- the mine as-modified would comply with the minimal harm criteria under the *Aquifer Interference Policy*;
- no privately-owned water bores would be affected by the underground mining operations; and
- surface water and groundwater take associated with the mine as-modified is able to be licenced under the existing water legislation.

The groundwater assessment was peer reviewed by Dr Frans Kalf, who concluded that the groundwater model was robust, and that the assumptions and findings reached in the assessment were satisfactory.

The groundwater assessment indicates that the additional drawdown within the Ulan Coal Seam or Permian aquifer would not materially affect local and regional groundwater resources, which have little productive value for other water users, and have already been extensively dewatered by other mines in the area (including the Moolarben and Wilpinjong mines).

Inflow rates to the underground mine workings are expected to increase by up to 1.2 ML/day (around 525 ML/year) in 2022, and would then steadily decline as the remaining Ulan West panels are extracted. This increase represents a minor 2 percent increase over the current levels requiring management.

Existing underground and surface storage systems have sufficient capacity to be able to cope with these additional inflows and would not require upgrading. Surplus water would continue to be treated by reverse-osmosis and discharged off-site under the existing conditions of the mine's Environment Protection Licence.

UCML acknowledges that it would require additional entitlements to account for the predicted maximum water take. It has committed to acquire the necessary entitlements, to ensure that its water take operations are appropriately licenced, as required under water legislation and in accordance with the existing approval conditions. The Department is satisfied that there is sufficient depth in the water market to meet these requirements, and notes that the existing conditions require UCML to obtain all necessary water licences for the mine.

Finally, UCML would install additional piezometers in the southern extensions of the panels to monitor any impacts to shallow groundwater resources. In the unlikely event that exceedances of performance measures are recorded, appropriate investigations and remediation actions would be implemented in accordance with the mine's approved Ground Water Response Plan.

The Department is satisfied that little additional impact to groundwater resources is likely to occur, and that the existing conditions of approval would effectively manage groundwater impacts.

### Surface Water

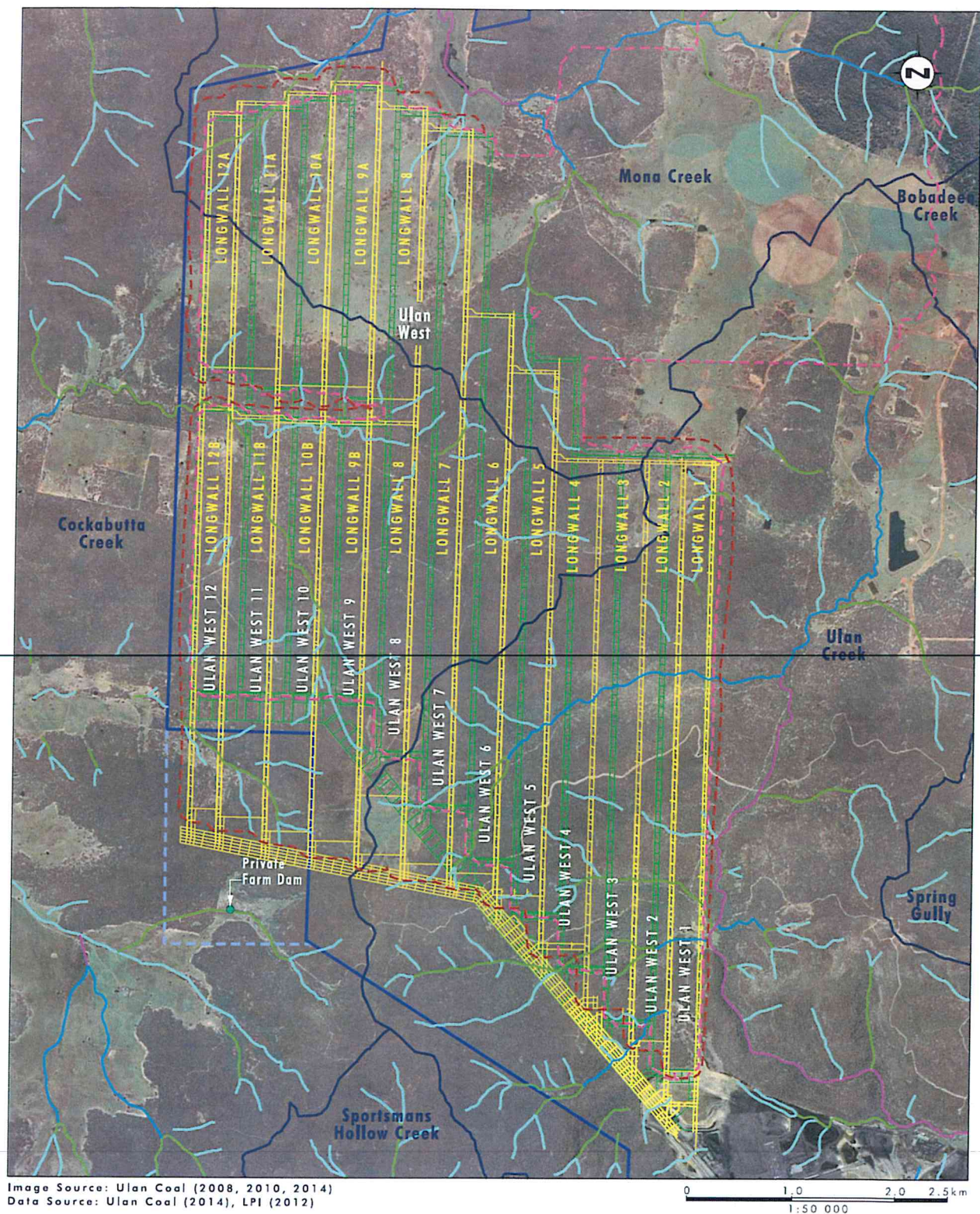
The Ulan West mining area is located within the catchments of Mona Creek, Cockabutta Creek and Ulan Creek, which in turn part of the larger Goulburn River or Talbragar River systems (see Figure 7). All of the watercourses and drainage lines within the approved and proposed mining areas are ephemeral (ie. flowing intermittently in response to rainfall), given that the site is located towards the top of the Great Dividing Range and therefore at the headwaters of the applicable creeks.

UCML's surface water assessment indicates that the surface water impacts of the proposed modification would be minor, principally because there are no major watercourses above the panel extension area.

The main impacts would be restricted to:

- a negligible additional loss of baseflow/leakage from the alluvial aquifer of the Goulburn River and Talbragar River systems as a result of the changes to the mine plan;
- a minor additional amount of water requiring management; and
- some minor surface disturbance for the ventilation shafts.





### Legend

- Existing Colliery Holding Boundary
- UCML Continued Operations Project Approval Area
- MLA 475
- Approved (November 2010) Ulan West Mine Plan
- Proposed Conceptual Ulan West Mine Plan
- Catchment Area
- Predicted 20 mm Subsidence Contour (Approved November 2010)
- Predicted 20 mm Subsidence Contour (Proposed)

- Stream Order:
- 1st Order
  - 2nd Order
  - 3rd Order
  - 4th Order

FIGURE 5.3

Catchments and Watercourses

Figure 7: Catchments and Watercourses



The modified mine plan would not result in any significant increase in ponding or changes to gradients, increased erosion or scouring levels, or changes to surface water quality and quantity compared to the as-approved project.

The mine plan changes would also have a negligible impact on the mine complex's site water balance and water management system, as:

- there is adequate storage on site for the additional water make, and excess water would continue to be treated and discharged under the existing limits in the Environment Protection Licence;
- the mine has the ability to export water to other mines in the region (such as Moolarben);
- appropriate erosion and sediment controls would be implemented to manage sediment for all the proposed surface works generated during the construction and operational phases; and
- the company has committed to holding appropriate water licences for any additional water take.

It is acknowledged that the southern extension of the longwall panels would affect one additional unnamed tributary of Cockabutta Creek that was outside the as-approved subsidence affectation area (see Figure 7). Impacts on this tributary would be similar to those for drainage lines within the existing subsidence affectation area, and are not expected to result in significant impacts on the Cockabutta Creek catchment.

In accordance with existing monitoring and management plans, UCML would be required to monitor impacts on this and other creeks, drainage lines and farm dams as mining progresses, and to remediate any impacts in order to maintain surface water flows and quality.

The existing conditions also require UCML to provide compensatory water supplies to any landowner whose supply entitlements are adversely affected by the project, in the unlikely event that this occurs.

With the implementation of these and other existing water and subsidence management conditions in the consent, the Department is satisfied that the impacts of the proposed modification on surface water resources can be managed to ensure an acceptable level of environmental performance.

### 5.3 Aboriginal Cultural Heritage

The project area and surrounds contains a rich history of Aboriginal occupation, with a large number of Aboriginal heritage sites having been identified in the area (see Figure 8).

Excluding artefact scatters and isolated finds (as subsidence associated with the project and the proposed modification would have no material impact on these site types), a total of 315 Aboriginal sites and potential archaeological deposits (PAD) have been identified within the Ulan West subsidence affectation area, both for the as-approved mine layout and the as-modified layout. Most of these (some 300 sites) comprise rock shelters, which also contain art (8 sites), artefacts (85 sites), grinding grooves (5 sites) and/or PAD (210 sites).

Other significant sites in the project area include an ochre quarry, grinding grooves, scarred trees and a stone arrangement.

Key areas of archaeological significance in the project area include the Brokenback Conservation Area which contains a large number of rock shelters with PAD, and the sites around the Cockabutta Creek tributary in the proposed southern extension area, which also contains some significant rock shelter sites (see Figure 9).

The proposed modification is not predicted to increase impacts around the Brokenback Conservation Area significantly, however the southern extension to the longwall panels would increase impacts on the Cockabutta Creek sites, the impacts on which were specifically proposed to be avoided under the approved project.

In total, the proposed modification to the subsidence affectation area is predicted to increase<sup>2</sup> subsidence-related impacts on 18 identified Aboriginal sites, including:

- 1 ochre quarry of high significance (Site ID 807);
- 3 rock shelters with art and/or artefacts of high significance (Site IDs 161, 162 & 284);
- 1 rock shelter with artefacts of moderate significance (Site ID CC28); and
- 13 rock shelters with artefacts and/or PAD of low significance.

<sup>2</sup> To above the 10% probability of perceptible impacts.





Image Source: Ulan Coal (2008, 2010, 2014)  
 Data Source: Ulan Coal (2014), Biodiversity Monitoring Services (2014),  
 Umwelt (2009), Hoye (2009-2014)

#### Legend

- Existing Colliery Holding Boundary
- UCML Continued Operations Project Approval Area
- MLA 475
- Approved Ulan West Mine Plan
- Proposed Conceptual Ulan West Mine Plan
- Proposed Surface Infrastructure Area
- Artefact Scatter
- Grinding Groove

- Isolated Find
- Ochre Quarry
- Rockshelter with Art
- Rockshelter with Art and Artefacts
- Rockshelter with Art and Grinding Grooves and Artefacts
- Rockshelter with Artefacts
- Rockshelter with Grinding Grooves
- Rockshelter with Grinding Grooves and Artefacts
- Rockshelter with PAD

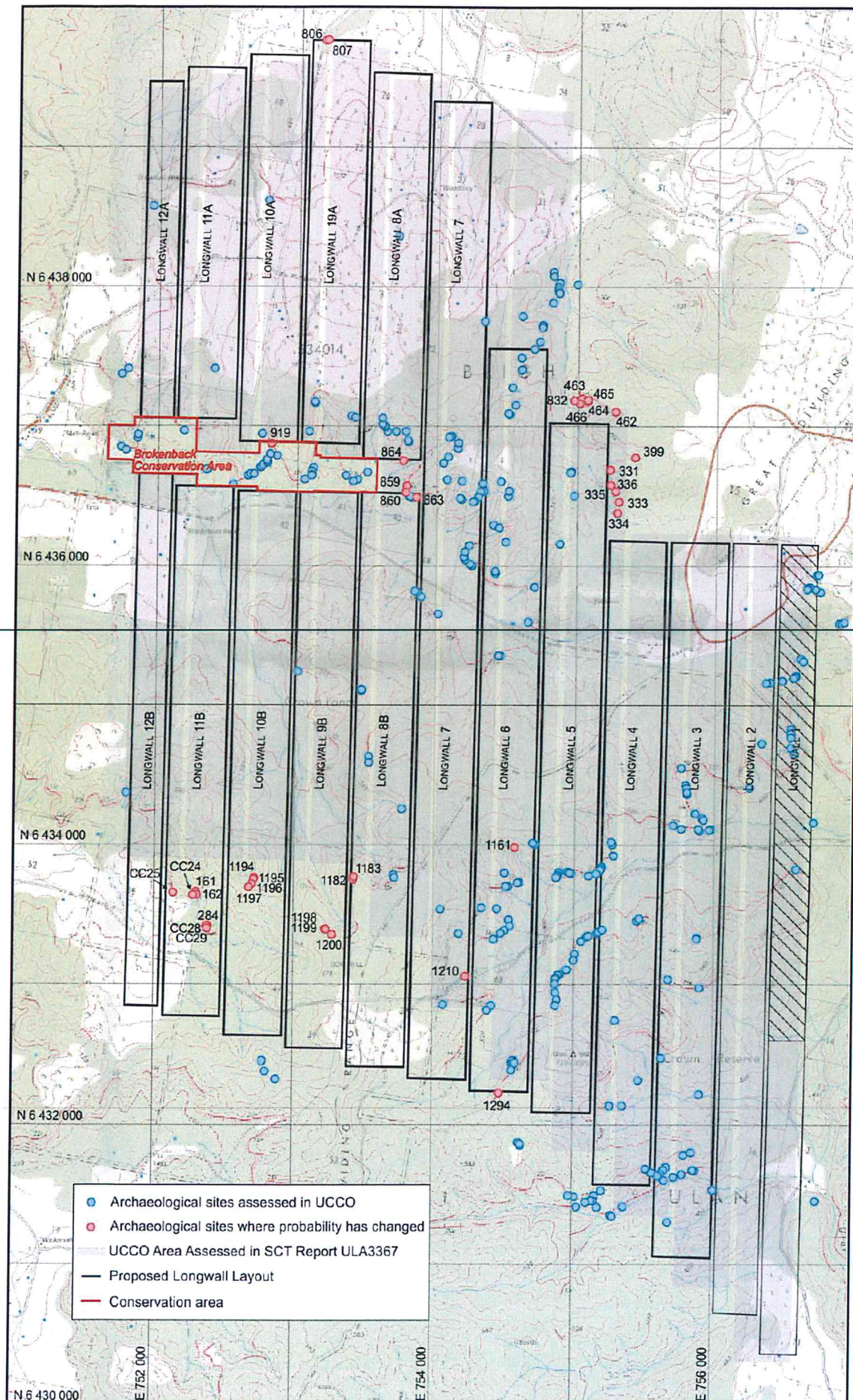
- Scarred Tree
- Scarred Tree and Artefact Scatter
- Stone Arrangement

FIGURE 5.7

#### Known Archaeological Sites

Figure 8: Aboriginal Sites





**Figure 9: Aboriginal Sites Impacts and Brokenback Conservation Area**

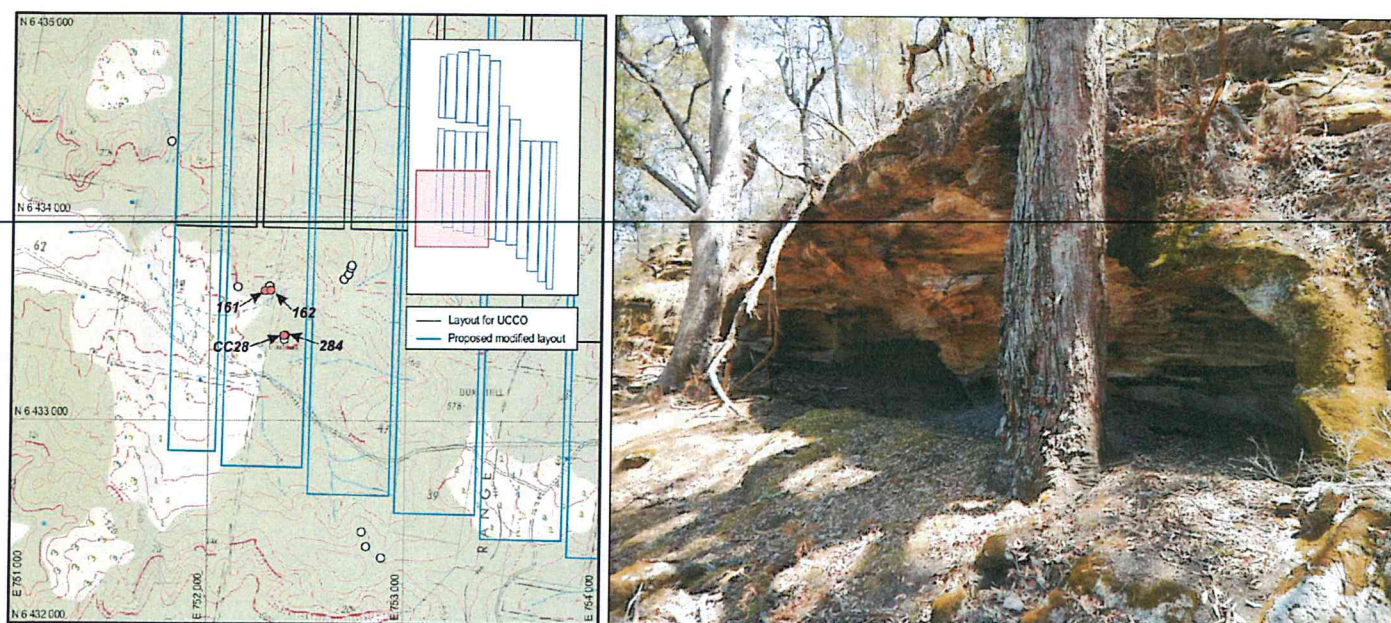


These sites are mostly located in the vicinity of Cockabutta Creek in the southern extension area, although the ochre quarry is located in the northern extension area (see Figure 9). A summary of the predicted impacts on the sites is provided in the following table. The Cockabutta Creek high and moderate significance rock shelters are shown on Figure 10.

**Table 2: Aboriginal Sites with increased probability of subsidence impacts**

Site ID	Site Type	Significance	Risk of Perceptible Subsidence Impacts
161, 162	Rock shelter with art and artefacts	High	70% - likely risk
284	Rock shelter with artefacts	High	70% - likely risk
807	Ochre quarry	High	10% - unlikely/possible risk
CC28	Rock shelter with artefacts	Moderate	70% - likely risk
919, 1182, 1183, 1194, 1195, 1196, 1197, 1198, 1199, 1200	Rock shelter with PAD	Low	50% - possible/likely risk
1574, CC29	Rock shelter with PAD	Low	70% - likely risk
1574	Rock shelter with artefacts	Low	70% - likely risk

For the high significance rock shelters, the subsidence assessment predicts that they would have a 70 percent risk of sustaining perceptible impacts (eg. cracking), and a 20 percent chance of rock falls.



**Figure 10: Cockabutta Creek Rockshelter Sites (left) and Site 161 (right)**

The proposed changes to the location of surface facilities associated with the proposed modification would increase potential impacts on 7 Aboriginal sites, but reduce potential impacts on 10 sites. The potentially impacted sites include rock shelters with PAD and/or grinding grooves (6 sites) and 1 isolated find, and are all of low to (possibly) moderate significance.

UCML has consulted with the local Aboriginal community in relation to the Aboriginal sites surveys and significance assessment, in accordance with OEH guidelines. Six Registered Aboriginal Parties (RAPs) have been involved in the studies, including:

- Warrabinga Native Title Claimants Aboriginal Corporation;
- North East Wiradjuri Company Ltd;
- Mudgee Local Aboriginal Land Council;
- Murong Gialinga Aboriginal and Torres Strait Islanders Corporation;
- Warranha Ngumbaay; and
- Wellington Valley Wiradjuri Aboriginal Corporation.



Together with the RAPs, UCML has developed a strategy to minimise, mitigate and/or offset the additional impacts, particularly on the Cockabutta Creek rock shelter sites. The strategy includes:

- additional test excavation in each of the rock shelter sites;
- detailed salvage excavations in each of the rock shelter sites;
- detailed recording of the rock shelter sites including photography, surveys and further sampling and analysis;
- monitoring and management of the ochre quarry site;
- continued consultation with the RAPs in relation to investigation and management of the sites;
- designing surface facilities to avoid all impacts on the moderate significance rock shelters, and avoid impacts on the low significance rock shelters where feasible;
- continued implementation of the existing Heritage Management Plan for the project, including conservation of significant areas such as the Brokenback Conservation Area and grinding groove sites; and
- additional supplementary measures should impacts occur to the high significance rock shelter sites.

OEH accepts the proposed mitigation measures, but would prefer that further research is undertaken as part of the salvage operations in consultation with the RAPs, given that a large amount of data is now available on Aboriginal sites in the area, and that this data would assist in the investigation and salvage works. The Department agrees, and has recommended conditions in this regard.

Four of the six RAPs provided responses noting that they agreed with the proposed mitigation and management strategy<sup>3</sup>, although Wellington Valley Wiradjuri Aboriginal Corporation also recommended:

- trial of mitigation techniques involving digging around high significance rock shelters to reduce the potential for subsidence impacts; and
- investigating other offsetting measures such as investing in various RAP projects and/or cultural and education programs.

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UCML has considered the potential to mitigate subsidence impacts on the rock shelter sites by digging trenches around the sites, and has determined that this is unlikely to have significant benefits in mitigating impacts, and would likely involve considerable safety risks and impacts given the rough terrain. The Department accepts this, but has nonetheless recommended conditions requiring UCML to investigate measures to minimise and mitigate potential impacts on the sites.

With regard to additional offsetting measures, UCML notes that through recent consultation with the RAPs a number of supplementary measures have now been agreed, including:

- 3D scanning of selected rock shelter sites for use in education and heritage awareness programs;
- collecting bush food plants in the project area for use in education and awareness programs;
- creation of a digital resource recording stories and sharing knowledge for education and heritage awareness; and
- improving access to the existing "Hands on Rock" site, including walking tracks, road access and signage.

The Department acknowledges the RAPs' agreement to UCML's mitigation and management strategy, and is satisfied that these measures, along with the implementation of the existing Heritage Management Plan for the mine, would appropriately minimise, manage or at least compensate for the potential Aboriginal heritage impacts of the proposed modification. The strategy would also provide for the continued involvement of the local Aboriginal community in the heritage management of the site.

#### **5.4 Biodiversity**

The proposed changes to surface facilities would result in a small net increase in vegetation disturbance of 2 hectares. However, UCML has selected the new surface infrastructure sites to avoid and/or minimise disturbance of high conservation value vegetation. This strategy would result in the approved impact to the White Box Woodland Endangered Ecological Community (EEC) decreasing from 22.9 hectares of disturbance to 8.5 hectares (ie. a reduction of 14.4 hectares).

Subsidence associated with the revised mine layout is not expected to result in any significant impacts to vegetation and threatened species in the as-modified subsidence affectation area, including impacts on the Koala (as raised in one public submission). The existing approval includes subsidence performance

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<sup>3</sup> Warrabingga Native Title Claimants Aboriginal Corporation and North East Wiradjuri Company Ltd did not provide feedback.



measures requiring UCML to ensure that subsidence impacts cause no greater than negligible impacts on threatened species. This protection would continue to apply to the modified project.

However, as discussed above the proposal would increase the area of cliff lines susceptible to rock falls, which does have some potential to impact minor amounts of vegetation and habitat, particularly for cave-dwelling bats and other cliff-reliant species such as the brush-tailed rock wallaby.

Since exhibition of the EA and in response to issues raised by OEH, UCML has proposed an increase to its existing biodiversity offset areas to compensate for the additional impact on vegetation and, in particular, the additional impact on cliff lines. The increased offsets also seek to address a discrepancy in the existing offsets, as recent surveys of the offset areas have found that the amounts of EEC in the offsets is less than previously estimated (by approximately 23 hectares).

The existing biodiversity (and cultural heritage) offsets for the mine are shown on Figure 11, and include the:

- Bobadeen Vegetation Offset Area – 992 hectares;
- Bobadeen Vegetation Offset Corridor – 138 hectares;
- Bobadeen East Vegetation Offset Area – 232 hectares;
- Brokenback Conservation Area – 58 hectares;
- Spring Gully Cliffline Offset Area – 211 hectares; and
- Hightett Road *Acacia ausfeldii* stand<sup>4</sup> – containing approximately 200 *A. ausfeldii* plants.

UCML's proposed extensions to the offset areas are also shown on Figure 11, and amount to some 73 hectares. They include the:

- Spring Gully Cliffline Offset Area Extension – 62 hectares. This area includes cliff lines to compensate primarily on the additional potential impacts to cliffs as a result of the proposed modification; and
- Bobadeen East Vegetation Offset Area – 11 hectares. The area comprises White Box Woodland EEC, to compensate for the 23 hectare decrease in surveyed EEC in the offset areas.

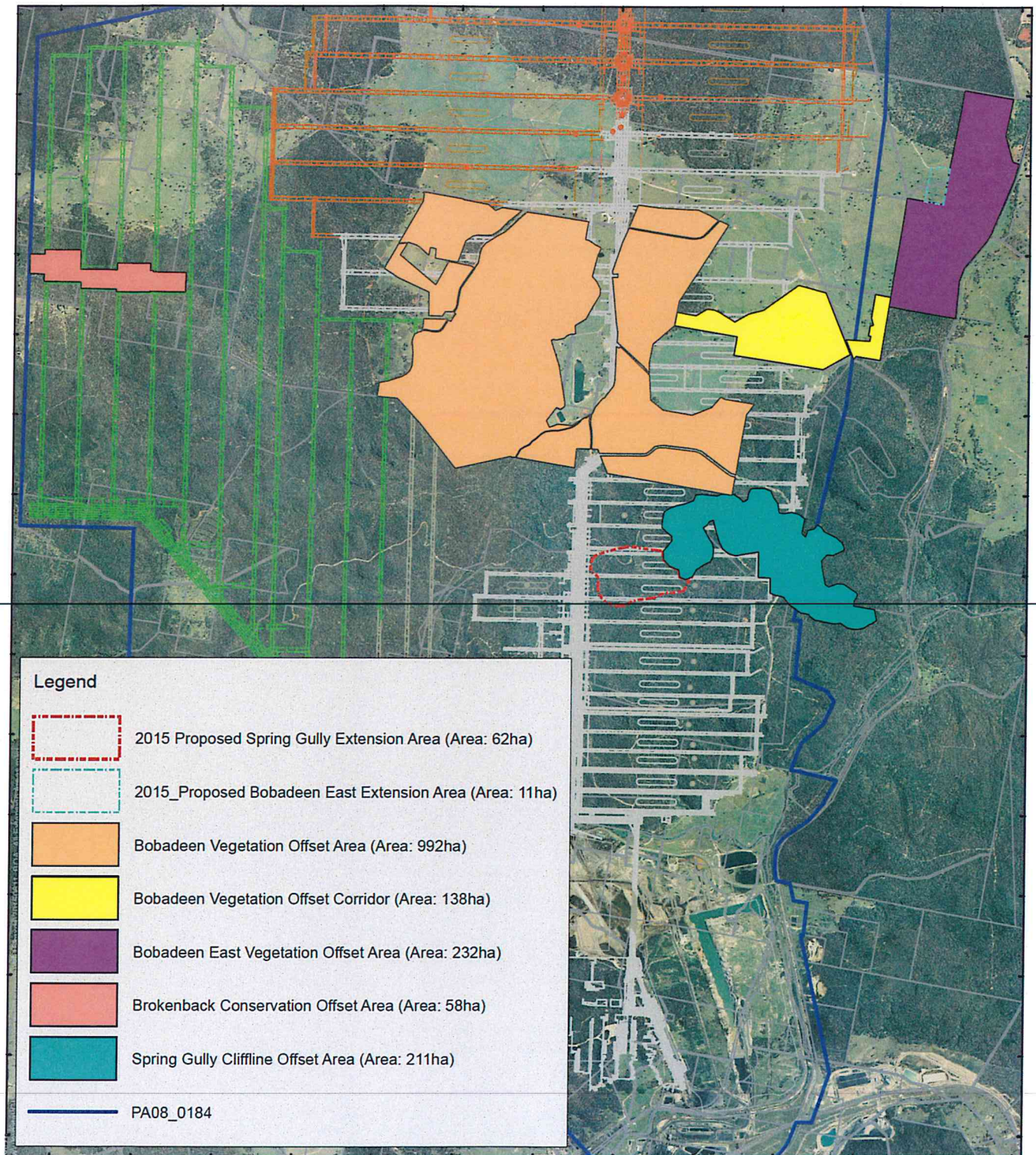
Whilst the revised offset strategy provides for a net decrease in White Box Woodland EEC (ie. 12 hectare decrease), the Department acknowledges that the proposed modification would result in a decrease of 14.4 hectares of this EEC in the disturbance area. Consequently, the Department is satisfied that the revised offsets for this EEC are reasonable and appropriate.

The Department is also satisfied that the revised biodiversity offset strategy would adequately compensate for the additional impacts associated with the proposed modification, and has recommended conditions requiring UCML to implement the revised strategy. The existing conditions require UCML to provide for the long term (in perpetuity) conservation of the offset areas, and to manage them as part of a detailed Biodiversity Management Plan.

Overall, the Department is satisfied that the biodiversity impacts of the proposed modification would not be significantly different to that already assessed and approved. The company's additional offsetting measures would provide appropriate protection of a significant amount of protected vegetation, and on balance would be likely to maintain and improve the biodiversity values of the region in the medium-long term.

<sup>4</sup> The Hightett Road *Acacia* stand is not shown on Figure 11. It is located in the southern area of the mine near the intersection of Hightett Road and Cope Road.





**Figure 11: Biodiversity Offset/Management Areas**



### 5.5 Other issues

The Department has considered other potential impacts of the proposed modification. These considerations are summarised in the following table.

**Table 3: Assessment of other issues**

<b>Issue</b>	<b>Consideration</b>	<b>Recommendation</b>
<i>Socio-Economic</i>	<ul style="list-style-type: none"> <li>A number of key socio-economic benefits would continue to accrue as a result of the project, including:               <ul style="list-style-type: none"> <li>average annual economic contribution of approximately \$214 million to the NSW economy;</li> <li>the continued employment of the mine's 930 workers for the extended mining period, with an estimated \$76.6 million annual employee spend in the region; and</li> <li>approximately \$11.5 million in additional royalties to the State.</li> </ul> </li> <li>UCML has committed to extending its current road maintenance contributions to Council to cover the additional 2 years of mine life.</li> <li>Overall, as current employee numbers at the mine would not change the proposed modification would not increase the current demand on public services in the local area.</li> <li>One landowner whose land overlies a small part of the subsidence affectation area raised concerns about potential social and economic impacts to his family and his land, and has requested that UCML be required to acquire the property. The Department has carefully considered the potential impacts on this property, and is satisfied that the proposed modification is unlikely to result in any significant impacts to the amenity or continued use of this land.</li> </ul>	<ul style="list-style-type: none"> <li>Comply with existing conditions</li> </ul>
<i>Noise</i>	<ul style="list-style-type: none"> <li>The approved operational noise impacts of the project would not change materially, as no increase in coal production, processing and transportation is proposed.</li> <li>The strict noise limits in the approval, and the approved Noise Management Plan for the project would continue to apply to the modified project.</li> <li>The new shaft locations are quite close to the approved shaft locations, and are therefore not expected to materially change the received operational noise levels at the two privately-owned residences already assessed and on which approved noise limits are based.</li> <li>Construction noise impacts at the 2 private residences would be temporary, and noise levels during construction would be comparable with approved operational noise limits, except during adverse meteorological conditions.</li> <li>Careful management of the noisiest activities during site establishment works, and close consultation with affected residents would effectively limit any associated risks.</li> <li>The raise bore method would be used to drill the shafts, and mobile noise barriers would be used to ensure noise impacts are minimised.</li> <li>The construction and operation of the southern shaft site at any of the proposed three locations is unlikely to change the approved noise impacts, given the substantial distances between the sites and the residences.</li> <li>The company would detail its construction noise mitigation strategies in an updated Noise Management Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Comply with existing noise conditions.</li> <li>Update noise receivers to reflect current ownership</li> </ul>
<i>Air Quality &amp; Greenhouse Gas (GHG) Emissions</i>	<ul style="list-style-type: none"> <li>The proposed modification would not increase the air quality impacts of the mine, or require any change to the existing approved air quality management regime. Short term air quality impacts during the drilling and establishment of the ventilation shafts would be managed so as to not affect any nearby residences.</li> <li>The additional Scope 1, 2 and 3 GHG emissions attributable to the proposed modification are negligible in the context of total NSW and Australian emissions.</li> <li>The approved Air Quality Management Plan would be updated in accordance with the existing conditions of approval.</li> </ul>	<ul style="list-style-type: none"> <li>Comply with existing air quality management conditions.</li> </ul>



<b>Issue</b>	<b>Consideration</b>	<b>Recommendation</b>
<i>Visual</i>	<ul style="list-style-type: none"> <li>Residence 57 (located 500m distant) and 254 (located 1 km distant), would have partial views of the relocated ventilation shaft at the northern end of LW4.</li> <li>The company would undertake shielding works on the shaft, including vegetation screen planting and sympathetic material colouring.</li> <li>The shaft sites would be decommissioned and progressively rehabilitated following the completion of the project.</li> <li>The Department is satisfied that the visual impacts of the proposed modification would not be significant, and would reduce over time as screening vegetation is established.</li> </ul>	<ul style="list-style-type: none"> <li>Comply with existing visual impact conditions.</li> </ul>
<i>Agriculture</i>	<ul style="list-style-type: none"> <li>The modified project would not have a significant impact on any existing or future agricultural activities within the modified project area.</li> <li>The proposed southern extension to the mining area is dominated by woodland vegetation, with no intensive agricultural activities occurring within the portion of the one additional private property proposed to be undermined.</li> </ul>	<ul style="list-style-type: none"> <li>Comply with existing conditions.</li> </ul>
<i>Historic Heritage</i>	<ul style="list-style-type: none"> <li>The Talbragar Fish Fossil Reserve would not be subject to any additional impacts, which would continue to be appropriately protected under a strict performance measure, which restricts impacts to negligible levels.</li> <li>All other recorded historic heritage sites within the modified mine plan area are unlikely to be subject to additional impacts, and impacts would continue to be effectively managed in accordance with the approved Heritage Management Plan for the project.</li> </ul>	<ul style="list-style-type: none"> <li>Comply with existing conditions.</li> </ul>
<i>Rehabilitation</i>	<ul style="list-style-type: none"> <li>The proposed modification would not alter the already established and approved rehabilitation strategies, however the Rehabilitation Management Plan would be revised to detail the proposed changes to surface infrastructure.</li> <li>The ventilation shafts and associated infrastructure would be progressively decommissioned and the disturbance footprint would be rehabilitated, to return the sites to natural bushland.</li> <li>Rehabilitation would be iteratively addressed with each Extraction Plan, and to the satisfaction of DRE.</li> </ul>	<ul style="list-style-type: none"> <li>Comply with existing conditions.</li> </ul>

## 6. RECOMMENDED CONDITIONS

The Department has drafted recommended conditions for the proposed modification (see Appendix E), along with a consolidated version of the project approval (see Appendix D). The company has viewed the draft conditions and has accepted them.

## 7. CONCLUSION

UCML is seeking to modify the project approval for the Ulan Continued Operations Project, involving modifying the mine plan for the Ulan West domain. It also involves minor changes to approved Ulan West ventilation and other infrastructure. The proposed modification would extend the life of the project by 2 years (to 2033), and would allow the efficient extraction of a further 13 Mt of ROM coal.

The Department considers that the proposal represents a logical extension of the existing approved Ulan West mining operations. Extracting this additional resource would result in increased economic and social benefits for the region and to NSW, while limiting any residual impacts to acceptable levels.

The Department has assessed the proposed modification application, EA, advice received from agencies, submissions from the Aboriginal community and a local landowner, and the RTS in accordance with the relevant requirements of the EP&A Act.

The Department's assessment has found that subsidence levels and resulting impacts would largely remain similar to those as approved.

Additional impacts to a small number of Aboriginal cultural heritage sites not previously anticipated would be closely managed and monitored, and a range of offsets and mitigation measures have been developed to minimise, mitigate and/or compensate any impacts in consultation with the Aboriginal community and OEH.



Water impacts are not expected to be significantly different to those already assessed and approved. Increased inflows as a result of the changes to the mine plan are minor on a regional level, and would be accommodated using existing storage, recycling and discharge systems.

Additional offsets to compensate for proposed additional vegetation clearing, as well as reductions in the amount of EEC to be disturbed would ensure that long-term local and regional biodiversity values are maintained and improved.

Overall the Department considers that in context, the proposed modification would not represent a substantial change in impacts from those already assessed and approved. It also considers that the existing conditions of approval would continue to provide a robust framework within which to avoid, minimise and mitigate the impacts of the modified project. The Department has recommended modified conditions where it considers additional controls are as required to manage the residual impacts of the proposed modification.

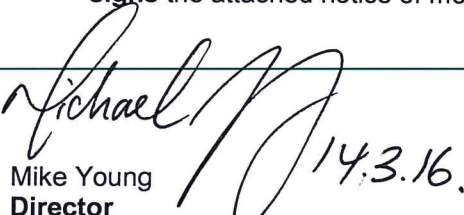
On balance, the Department considers that the proposed modification has merit, and in is the public interest. Consequently, the Department has recommended that the proposed modification is approved, subject to conditions.

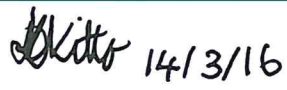
## 8. RECOMMENDATION

It is RECOMMENDED that the Executive Director, Resource Assessments & Business Systems:

- **considers** the findings and recommendations of this report;
- **determines** that the proposed modification is within the scope of section 75W of the EP&A Act;
- **approves** the proposed modification under section 75W of the EP&A Act; and
- **signs** the attached notice of modification (see Appendix E).

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Mike Young  
Director  
Resource Assessments

  
David Kitto  
Executive Director  
Resource Assessments & Business Systems