

# **ATTACHMENT 1**

## **Environmental Assessment for Proposed Modifications to Rix's Creek DA 49/94 N90/00356 (Mod 8).**

### **Introduction**

Bloomfield Collieries Pty Limited (Bloomfield) has operated the Rix's Creek Open Cut Mine, 5km North of Singleton, since 1990. The mine currently operates under consent DA 49/94 N90/00356 granted on the 16/10/1995 and subsequent modifications.

In December 2015 Bloomfield completed the purchase of the adjoining Integra Open Cut Mine inclusive of the Coal Preparation Plant (CHPP) and Rail Loading facility. The Integra Open Cut sits on the northern boundary of the Rix's Creek Mine and had been placed in care and maintenance mode under the previous ownership of Vale. Integra Open Cut operates under consent 08\_0102, 2010 and subsequent modifications.

Bloomfield commenced Run of Mine (ROM) coal production activities, June 2016, in the Rixs Creek North (formerly Integra) Open Cut by integrating the operation into the Rix's Creek Mine. Rix's Creek Mine now manages the two open cut workings, the two CHPP's and the two Rail Loading facilities as one combined mine. Whilst the combined operation is Rix's Creek the working areas are referred to as Rix's Creek North and Rix's Creek South for clarity of development consent requirements and access arrangements.

The recommencement of production from Rix's Creek North has resulted in substantial employment opportunities to the local area. While planned production levels are well below past production rates, Rix's Creek North production has resulted in an additional 100 employees working on the combined site.

For operational efficiency opportunities Bloomfield sought (Rixs Creek Mod 7 and Integra Open Cut Mod 5) approval for modification of both mining area consent's to allow Run of Mine Coal (ROM) from Rix's Creek North (Integra) to be transported and processed at the Rix's Creek South (Rix's Creek) CHPP and or Rix's Creek South ROM to be transported to Rix's Creek North CHPP for processing. This modification was granted 26 February 2016.

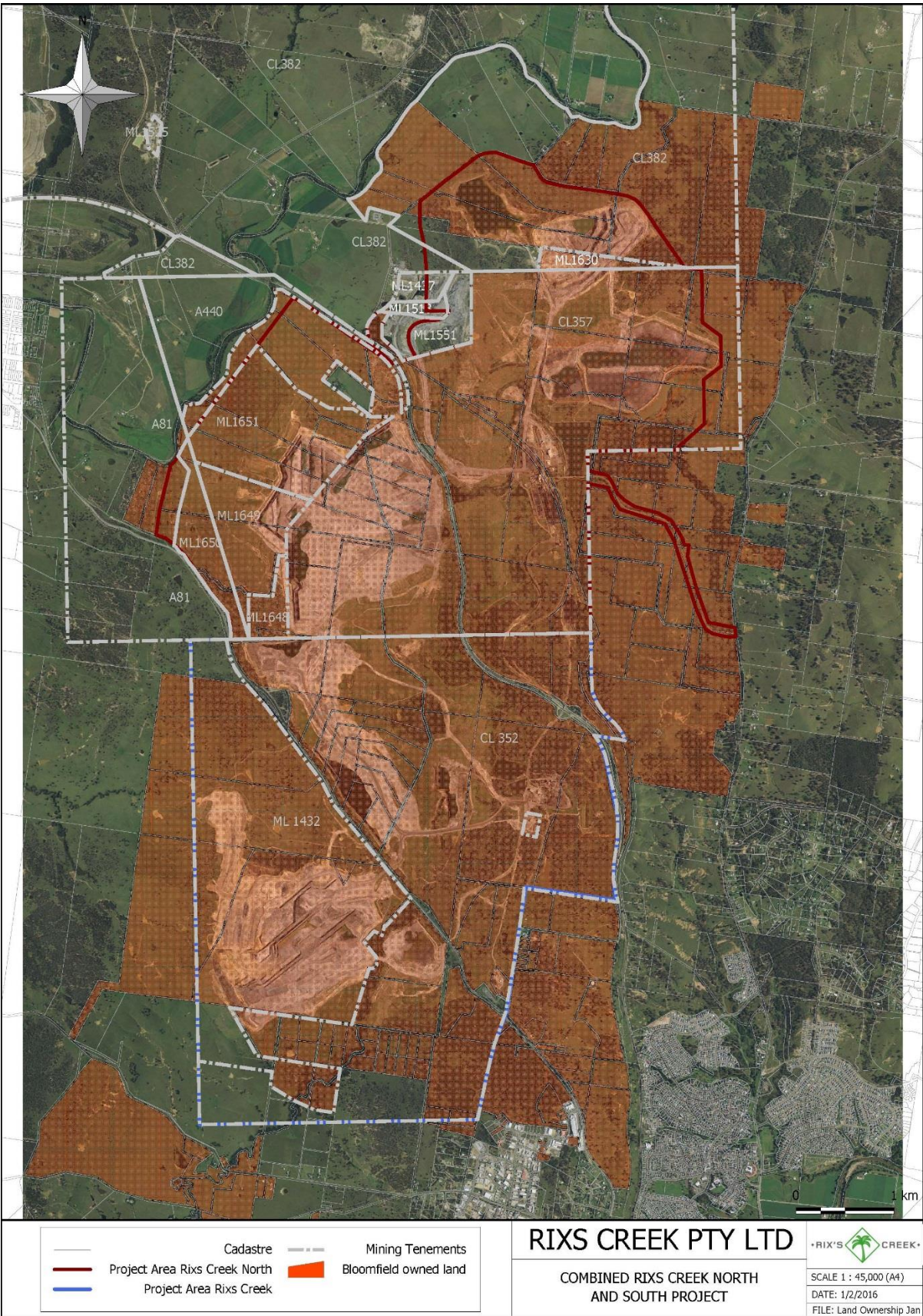
A greater than expected refurbishment task, to bring the Rixs Creek North CHPP out of care and maintenance mode, means all the sites ROM coal will need to be processed at the Rixs Creek South CHPP until mid 2017. To assist with controlling congestion on the Rixs Creek South CHPP ROM pad Mod 8 seeks approval to construct and utilise two small satellite ROM pads located near the confluence of the two ROM haul roads approximately 800 metres west of the existing ROM pad.

### **Site Location**

The combined Rix's Creek Mine sits 5 kilometres north of Singleton adjoining the New England Highway (NEH) and extends to 10 kilometres North West of Singleton along Bridgeman Road. Access to Rix's Creek South is via NEH and Rix's Creek lane while Rix's Creek North is accessed from Bridgeman Road. Figure 1 shows the site location, consent boundaries, mining tenements and land ownership. Bloomfield owns the mining tenements

for the combined site and the vast majority of the land within the consent areas. All current mining operations are contained within Bloomfield owned land.

Figure 1





## **Proposed Modification**

Bloomfield is seeking modification to DA 49/94 to allow for the construction and utilization of two small satellite ROM stockpile pads associated with the operation of the Rixs Creek South CHPP (see figures 2 and 3). While the Rixs Creek North CHPP is being brought out of care and maintenance mode (under the previous Vale ownership) all the ROM coal for the site is being processed at Rixs Creek South CHPP. This has resulted in some periods of high congestion at the existing CHPP ROM coal pad

Mod 8 will allow these periods of congestion to be better managed by the utilisation of two additional ROM pads constructed adjacent to the ROM coal haul roads. As the use of these additional ROM pads will increase the cost of ROM coal handling (double handling of this ROM coal) their use will be restricted to occasions when the actual ROM coal production levels mean the congestion of ROM haul trucks and front end loaders on the existing CHPP ROM pad needs to be managed for safety reasons. A primary cause of this congestion is the mines requirement to store all of the 38 different bands of ROM coal separately (for product coal quality control) prior to processing in the CHPP. In practice the mining blocks associated with steeply dipping coal seams, at Rixs Creek South, generate many small quantities of the different ROM coal seams across the mines production schedule. Storage of these stockpiles on the existing ROM pad leads to increased congestion levels and reduction of available stockpile volume.

In operation the two proposed ROM pads will be utilised to temporarily store these small quantities of different quality ROM coal that would ordinarily increase the congestion on the existing CHPP ROM coal pad. The mine haul trucks will dump the ROM coal onto the proposed stockpile pad leaving enough area for the mine water carts to be utilised to control any airbourne dust make. When the CHPP washing program allows a front end loader will re-load haul trucks for transportation to the CHPP recieval hopper. In all instances production levels will be managed to ensure the Rix's Creek development consent maximum production levels is not exceeded. This will ensure the environmental impact stays within the assessed impact levels of the consent's EIS.

## **The Proponent**

Bloomfield is a wholly Australian owed, Hunter Valley based, family company which operates Rix's Creek North and Rix's Creek South combined into one management structure and one work force. Bloomfield is the approved proponent of both DA 49/94, 08\_0102 consents and holder of Coal Leases 352, 357 and Mining Licenses 1432 and 1649 across the combined site.

## **Approval Pathway and Permissibility**

Bloomfield is seeking approval to modify DA 49/94 under Section 75W of the EP&A Act as a transitional Part 3A project.

## Existing Approvals

Development consent for mining operations at Rixs Creek was first issued in 1989.

The history of subsequent modifications and development consents for Rix's Creek mine is shown in Table 1.

**Table 1 – History of Development Consents for Rix's Creek Mine**

<b>Year</b>	<b>Project</b>	<b>Description</b>	<b>Approval Reference</b>
1989	Rix's Creek Mine	Construction and operation of a Surface coal mine, associated transport and coal loading facilities, including CHPP. Consent was granted to mine up to 1.5Mtpa of ROM coal. CL 352 was subsequently granted on 20 October 1989.	Minister for Local Government and Minister for Planning
1995	Rix's Creek Mine	Coal Mining within CL 352 and on land subject to Coal Lease Application No 17 Singleton, construction and operation of surface coal mine and infrastructure and equipment upgrades. Total mine production capped at 15 million bank cubic metres of material movement.	DA 49/94 – Minister for Urban Affairs and Planning
1999	Rix's Creek Mine	Modification to amend applicable potentially affected lands monitoring requirements.	DA 49/94 Modification 1 – Minister for Infrastructure and Planning
2003	Rix's Creek Mine	Modification to receive ROM coal from Glennies Creek underground mine, process the coal and transport by rail.	DA 49/94 Modification 2 – Minister for Infrastructure and Planning
2004	Rix's Creek Mine	Modification to receive process and transport bulk coal samples from the Bickham exploration project.	DA 49/94 Modification 3 – Minister assisting the Minister for Infrastructure and Planning
2009	Rix's Creek Mine	Modification to allow a cut and cover tunnel under the New England Highway.	DA 49/94 Modification 4 – Minister for Planning
2013	Rix's Creek Mine	Modification to enable the construction and operation of a rail loop and associated clean coal stockpile and rail loading facility on the Rix's Creek mine site.	DA 49/94 Modification 5 – Minister for Planning and Infrastructure
2014	Rix's Creek Mine	Modification of the total volume of material that can be moved annually from 15 million bank cubic metres to 16.1 million bank cubic metres.	DA 49/94 Modification 6 – Minister for Planning
2016	Rixs Creek Mine	Modification to allow ROM coal from Rixs Creek North (former Integra Open Cut) to be transported to the Rixs Creek CHPP for processing.	DA 49/94 Modification 7- Minister for Planning

***Mining tenements held by Bloomfield and shown in figure 1.***



Figure 2

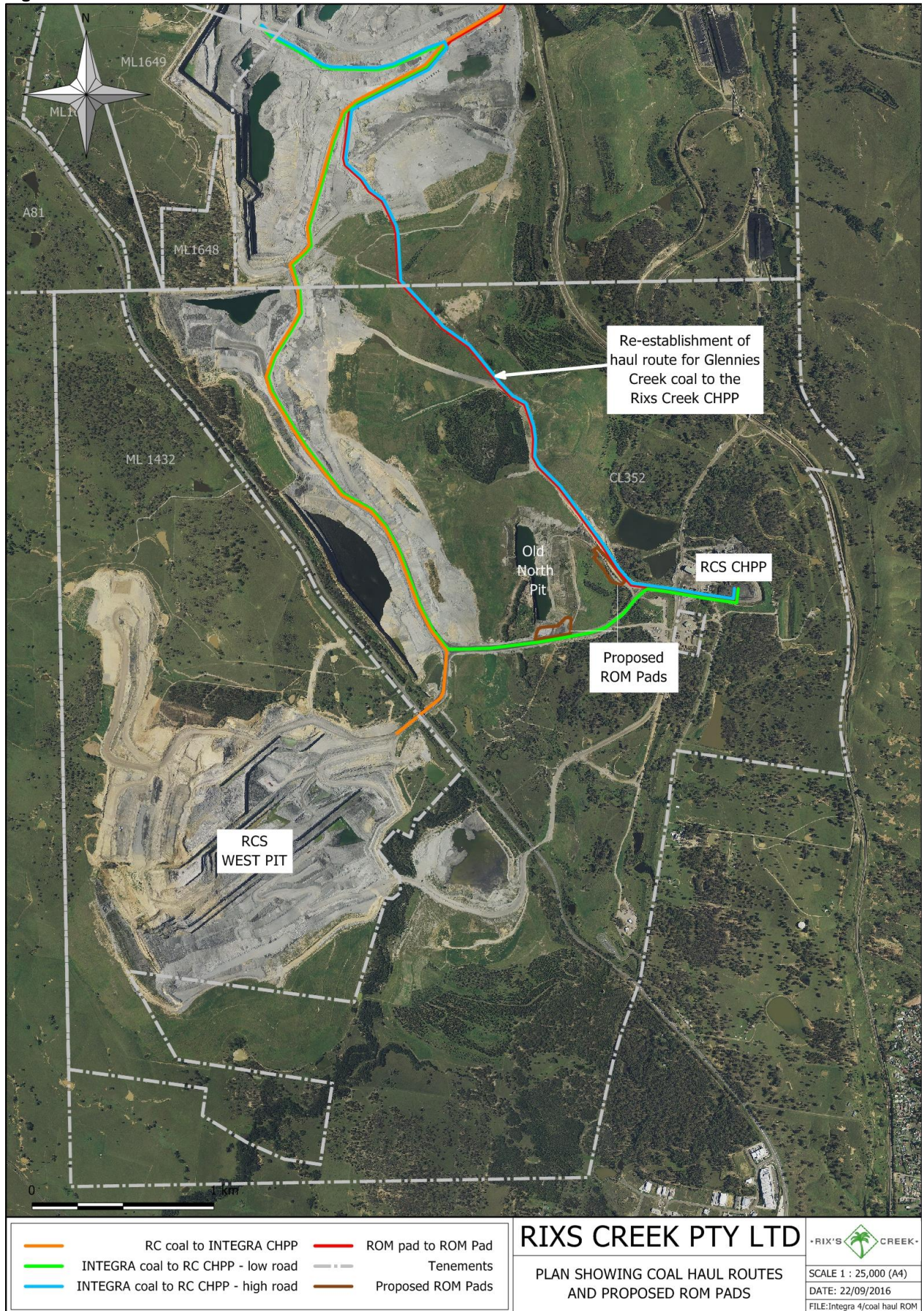
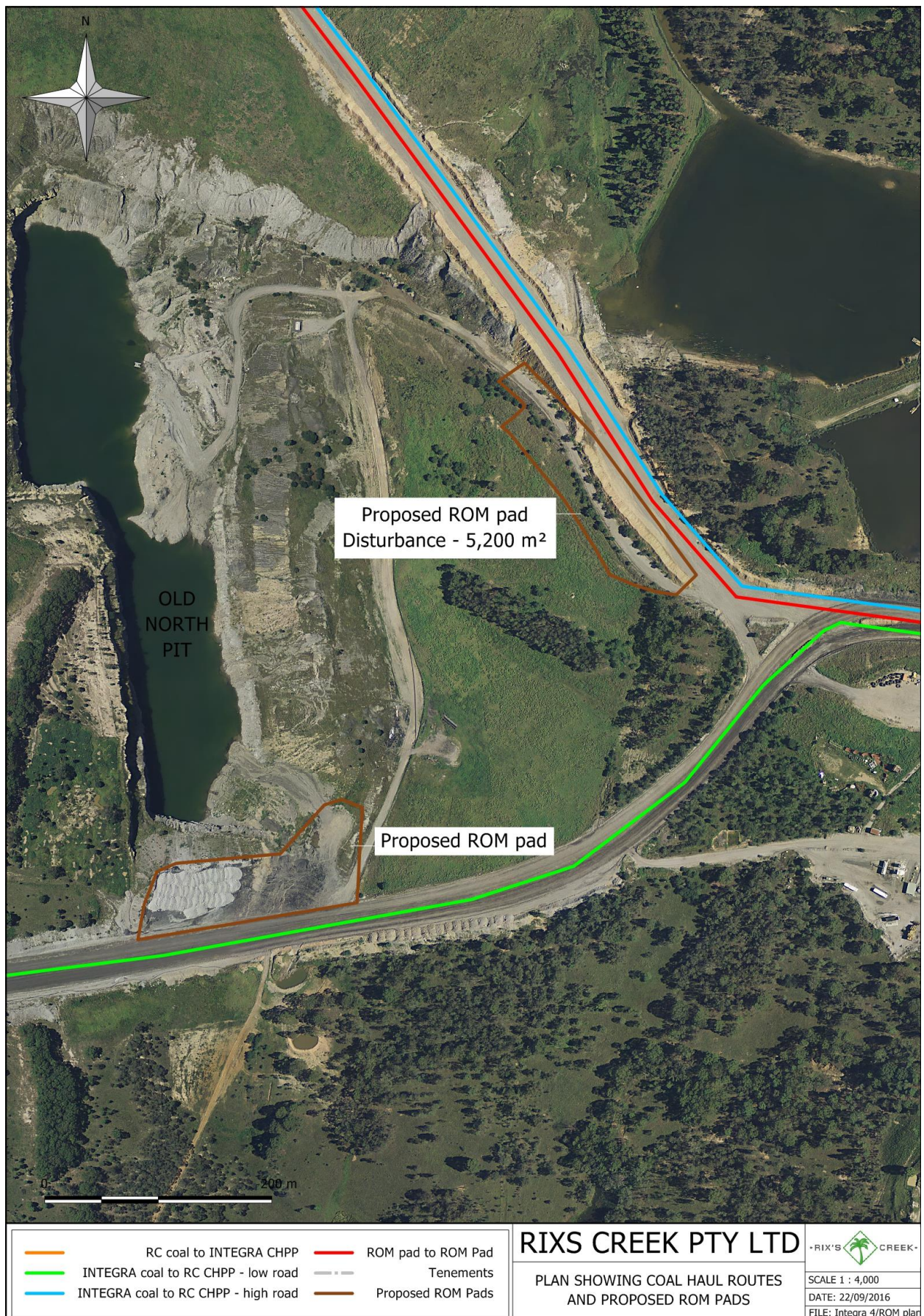




Figure 3





## **Existing onsite Coal Haulage**

Rix's Creek South utilises large Excavators and Front End loaders to load large Rear Dump Trucks (180T and 240T), for the mining of ROM coal. Rix's Creek North's existing open cut machine fleet was included in Bloomfield's purchase of the Vale mine. Its fleet of large Excavators, Front End Loaders and Rear Dump Trucks are utilised across the site to augment the existing Rix's Creek fleet. Both fleets are predominately of the same manufacture and class size, with the utilisation of the former Vale Rear Dump Trucks (fully noise attenuated) offering some improved environmental performance with this operation.

The operational haul roads have all been constructed using the same overburden rock types and are maintained by the same Caterpillar Road Graders and Water Carts.

## **Existing Coal Production**

Rix's Creek (South) currently has a maximum allowable movement of material onsite of 16.1m bank cubic metres (bcm) per annum total. Currently 1.9m bcm of ROM coal is produced from Rix's Creek South ensuring the ROM coal production from Rix's Creek North will not exceed the current Rix's Creek South maximum material consent limit. Rix's Creek North (Integra Open Cut) has recommenced production under an approved production Mining Operations Plan, from DRE, for a maximum production level of 1 million saleable tonnes of coal per annum (2 million ROM). The maximum consented levels of ROM production are 4.5 million per annum from the Western Extension Area and 1.5 million per annum from the North Open Cut.

## **Existing Employment**

Rix's Creek's employment level has increased to 220 with the re-commencement of production from Rix's Creek North.

## **The Proposal**

The proposal is to utilise the two satellite ROM stockpile pads as shown in figure 3;

- The pad adjacent to the green haul road is a section of the Old North Pit dump area that has been used to store selected overburden (gravel) for use as haul road top dressing material.
- The pad adjacent to the red haul road will be constructed on the access road to the Old North Pit pumping installation, requiring the disturbance of 0.52ha of rehabilitated (post 1992) overburden dump.

The Rix's Creek Mine resource includes coal seam bands ranging from Hebden band 5 to Lemington band 43. Each of the 38 different bands must be processed through the CHPP separately, to allow for quality control of the product coal. To allow for this each band is stored separately on the CHPP ROM stockpile prior to being fed into the CHPP.

A large proportion of the mines resource is situated in steeply dipping seams which require proportionally smaller ROM coaling areas (to control the exposed area of steeping dipping coal seam) compared to level coaling areas. The smaller coaling areas means at certain times in the mines production schedule a large number of smaller quantities of different coal seam bands are mined. During these times the requirement to have a large number of

different coal band stockpiles (on the existing ROM pad) greatly reduces the usable area of ROM coal stockpile space thus increasing traffic congestion on the existing ROM pad.

This proposal would allow the two proposed ROM pads to be utilised (when required by the production schedule) to temporarily store the smaller quantity ROM coal bands. When the mining production schedule contains a reduced number of different ROM coal types the ROM coal from the proposed ROM pads would be removed to the CHPP for processing.

The proposed ROM pads are constructed from selected mine overburden, level with sufficient cross fall to drain any surface water runoff into the Old North Pit mine water storage area. They will be maintained by the mines exiting fleet of mine graders and water carts.

### **Proposed Coal Haulage**

The ROM coal, in all instances will continue to be hauled by large Caterpillar Rear Dump Trucks (180T and 240T). The haul routes used will be the existing mine haul roads as shown in figure 2.

### **Proposed Coal Production**

Current budgeted coal production levels are;

- 2.9 million tonnes of ROM Coal p.a. from Rix's Creek South
- 1.1 million tonnes of ROM Coal p.a. from Rix's Creek North.

Rix's Creek (South) at current production levels has the ability to transport and process all of this year's Rix's Creek North ROM coal production and stay within current maximum consent production levels. Bloomfield currently has the Rix's Creek Extension Project undergoing major project assessment. This application is to increase mine production levels and extend the consent period to 2038, the full environmental impact of these increased production levels is being assessed by this project.

### **Proposed Employment**

With recommencement of production from Rix's Creek North the total number of Rix's Creek employees has increased to 220. The additional employees are all residents of the local area and include many of the former Integra and Drayton Open Cut employees.

### **Environmental Assessment of the Proposal**

The now combined Rix's Creek site manages its environmental impacts using the Rix's Creek Environmental Management Plans (EMP). The operational EMP's have been modified to ensure compliance with the environmental conditions of both consents, DA 49/94 and 08\_0102 (Rix's Creek North), as well as EPL 3391. These EMP's will be modified post the Rix's Creek Extension Project to ensure compliance with any modification to consent levels.



## **Air Quality**

The modification will have an insignificant air quality impact. The Air Quality Assessment Report, undertaken by Todoroski Air Sciences, indicates an approximate increase in total dust emissions of between 0.6% and 1.2%. Dust emissions arising from the project is minor and is unlikely to be discernible relative to the existing contribution to dust from Rixs Creek.

The report indicates this is especially the case as the activity is located in a relatively central position on the mine and is not close to any off-site receptor. Existing environmental monitoring sites and management techniques will control dust emissions. Existing consent criteria will apply to the project.

Appendix 2 contains the Todoroski Air Sciences Air Quality assessment Report.

## **Noise**

The modification will have an insignificant noise impact. Use of the temporary pads is not an additional activity. Trucks transporting coal to these alternative locations would otherwise be travelling to the existing pad. Therefore, it is the expectation that site noise emissions would be less during periods when the temporary ROM pads are in use.

Existing monitoring sites and management techniques will control noise emissions. Existing consent criteria will apply to the project.

Appendix 1 contains the Global Acoustics statement of noise impact.

## **Surface Water**

The proposed ROM pads will be formed to allow all surface water drainage to report to the mine water management system (Old North Pit storage). Rix's Creek is a nil water discharge site with no mine or contaminated water allowed to leave the site.

No changes will occur to the water balance as there will be no significant increase or decrease in site water requirements from the project. Existing site water monitoring will continue to gauge impacts under existing controls.

## **Ground Water**

The proposed modifications will have no impact on groundwater as the mine plans and mining extraction process will not be changed.

## **Visual Impacts and Night Lighting**

The stockpile on the green route sits 15.5m lower than the existing ROM coal pad but does have a slight exposure (tops on machines visible) to the New England Highway. No permanent lighting will be installed, during night time operation any mobile lighting plants will be orientated away from the highway. The red route stockpile is located in a depression 17.5m lower than the existing ROM coal pad with no visibility outside the mine lease area.

## Ecology

### **Old North Pit rehabilitation – proposed satellite ROM Pad**

The area to be disturbed is a portion of a previous overburden dump rehabilitated in 1992. The area has been shaped to an approximate slope of 10 degrees with overburden, topsoil spread approximately 100 mm thick and biosolids spread and incorporated prior to pasture species being sown. The area inspected during spring 2016 comprises of the following pasture species: Rhodes Grass, Tall Fescue, Wolly Pod vetch, Kikuyu, Couch and assorted clovers including Haifa White clover. The area also comprises of the following weed species: Scotch Thistle, Galenia, Cotton Bush and Purple top. An exotic tree species being Acacia Saligna (Western Australian golden wattle) commonly used in Hunter Valley rehabilitation practises during the 1990's also exists.

Disturbance would be via a Caterpillar D10/D11 pushing topsoil up the rehabilitation slope outside the area of disturbance. The topsoil would be stockpiled and seeded (with pasture species used in current seed mix approved by DRE) to eventually be re-spread during rehabilitation of this proposed satellite ROM Pad.

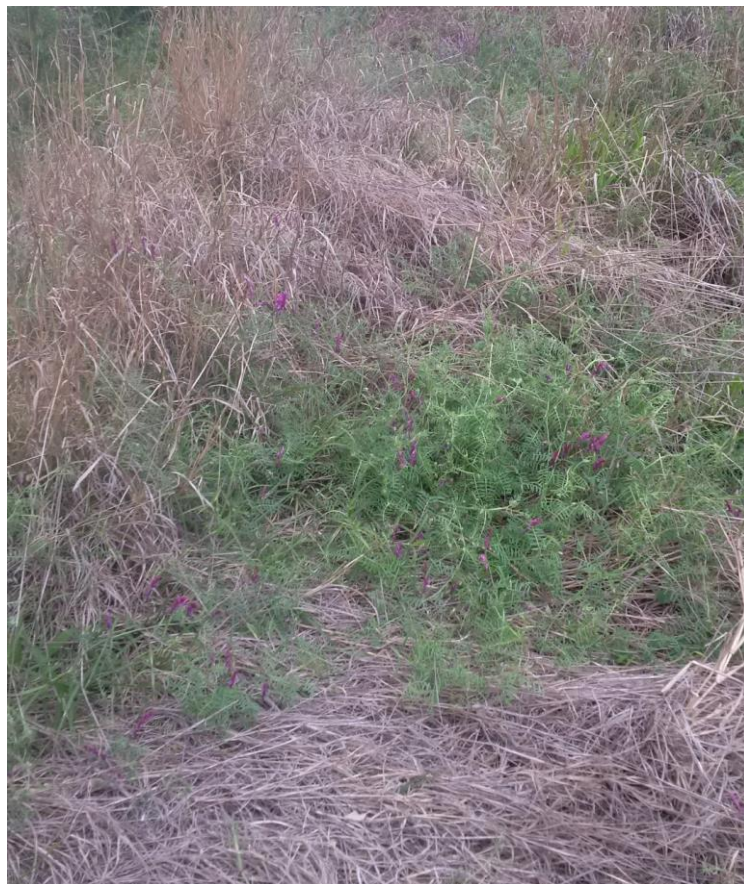


***Photo 1: Proposed area to be disturbed looking NW.  
Note: Acacia saligna dominant in right of picture.***





***Photo 2: Pasture representation within proposed area to be disturbed.  
Note: High presence of Rhodes grass.***

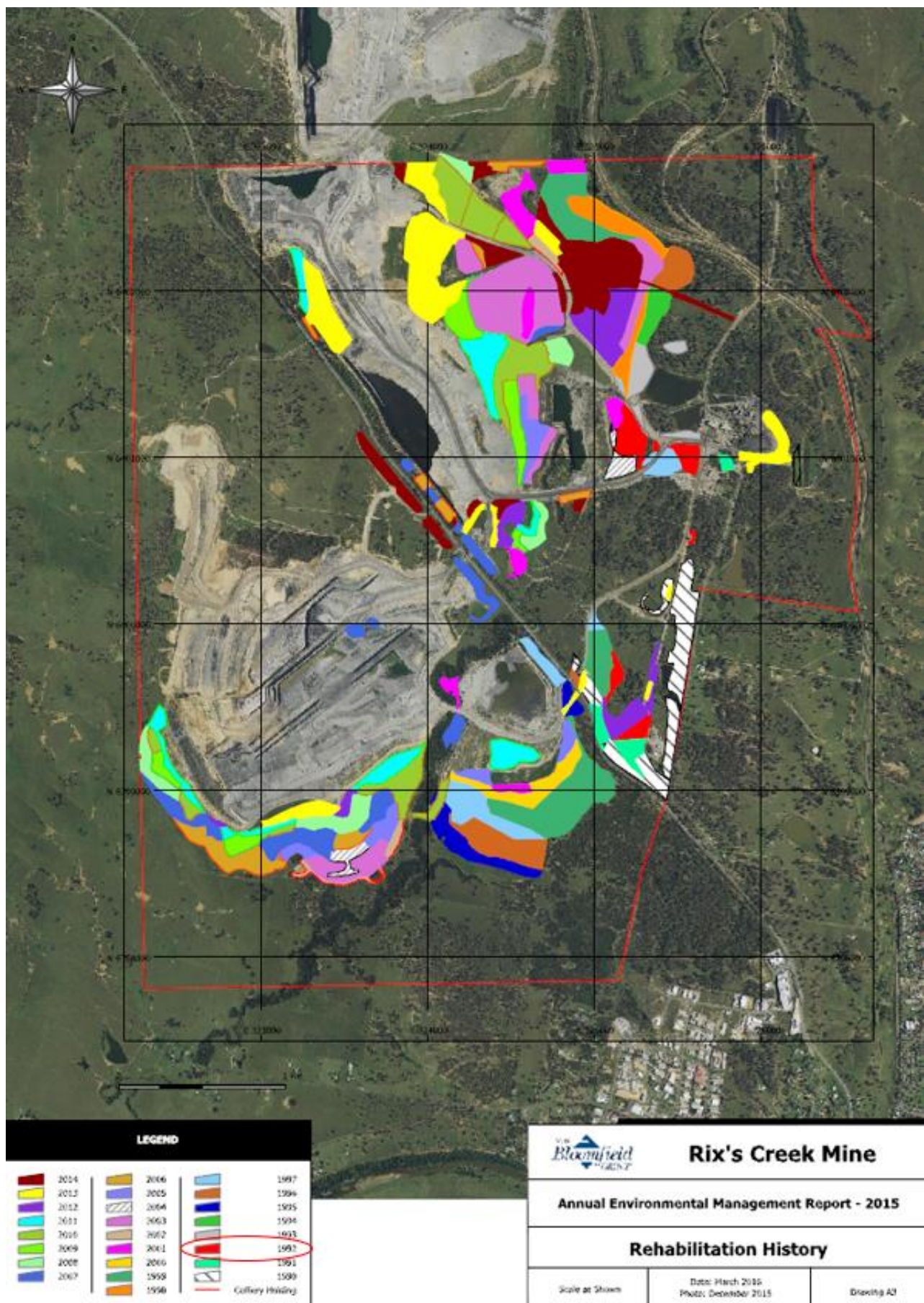


***Photo 3: Pasture representation within proposed area to be cleared.  
Note: Wolly Pod vetch in centre of picture.***



***Photo 4: High presence of Acacia saligna along windrows of current access roads and haul road on the eastern side of proposed area to be disturbed.***





## **Waste Management**

The existing consents, approvals and licences which currently cover reject and tailings emplacement on the site will not need to be modified.

## **Heritage**

The haul route is on areas that have been completely disturbed by open cut mining activities and entirely contained within the mining lease areas. These areas were surveyed for archaeological sites as part of the original approval processes. Consents to destroy were obtained for areas that would be impacted such as mined areas. No sites remain along the haul routes.

## **Social and Economic**

The modifications will deliver some operational efficiencies that will assist in the long term viability of Rix's Creek and its employment opportunities.

## **Traffic and Transport**

All product coal will continue to be transported from site utilising the Rix's Creek rail loop.

## **Greenhouse Gas**

The modifications will mean no changes to the total length of travel for the Rear Dump Trucks delivering the ROM coal. Additional Loader operation, in reloading the ROM coal, (from the proposed red and blue stockpiles) will not be materially different to the current loader operation that moves ROM coal from the current stockpile into the CHPP receival hopper. The impacts will continue to be managed under the Air Quality and Greenhouse Gas Management Plan.

## **Rehabilitation**

At completion of the useful life of the proposed stockpiles they will be rehabilitated to the rehabilitation standards for the site.

## **Conclusion**

Bloomfield proposes to modify development consent DA 49/94 pursuant to Section 75W of the EP&A Act to allow for the construction and utilisation of two small ROM coal stockpile areas located near the confluence of the mines two main ROM coal haul roads. The proposed modifications will allow for less congestion on the current ROM stockpile pad with a resulting safer operation.

All environmental impacts will remain within the limits currently assessed for Rix's Creek mining operations. Bloomfield will continue to actively manage the environmental impacts utilising the existing approved EMP's.



26 October 2016

Rix's Creek Mine  
PO Box 4  
East Maitland NSW 2323  
Attention: Garry Bailey

Dear Garry,

**Regarding:** Satellite ROM pads

This letter provides an opinion on the satellite ROM pads proposed by Rix's Creek mine (RCM).

It is understood that RCM have a need to temporarily store run of mine (ROM) coal at locations other than the existing ROM storage pad due to logistical issues arising from new seams being mined.

The proposal is to have two temporary storage pads located as shown in Figure 1. The locations shown are, in relation to the existing ROM pad:

- further from the nearest receptors; and
- at a lower elevation (the existing pad is on the top of a rise between the mine and the nearest receptors).

Both of these factors mean that operation of any plant on the temporary ROM pads should be quieter than if they were on the existing pad.

It should be noted that use of the temporary pads would not be an additional activity. Trucks transporting coal to these alternate locations would otherwise be travelling to the existing pad. Therefore, it is the expectation that site noise emissions would be less during periods when the temporary ROM pads are in use.

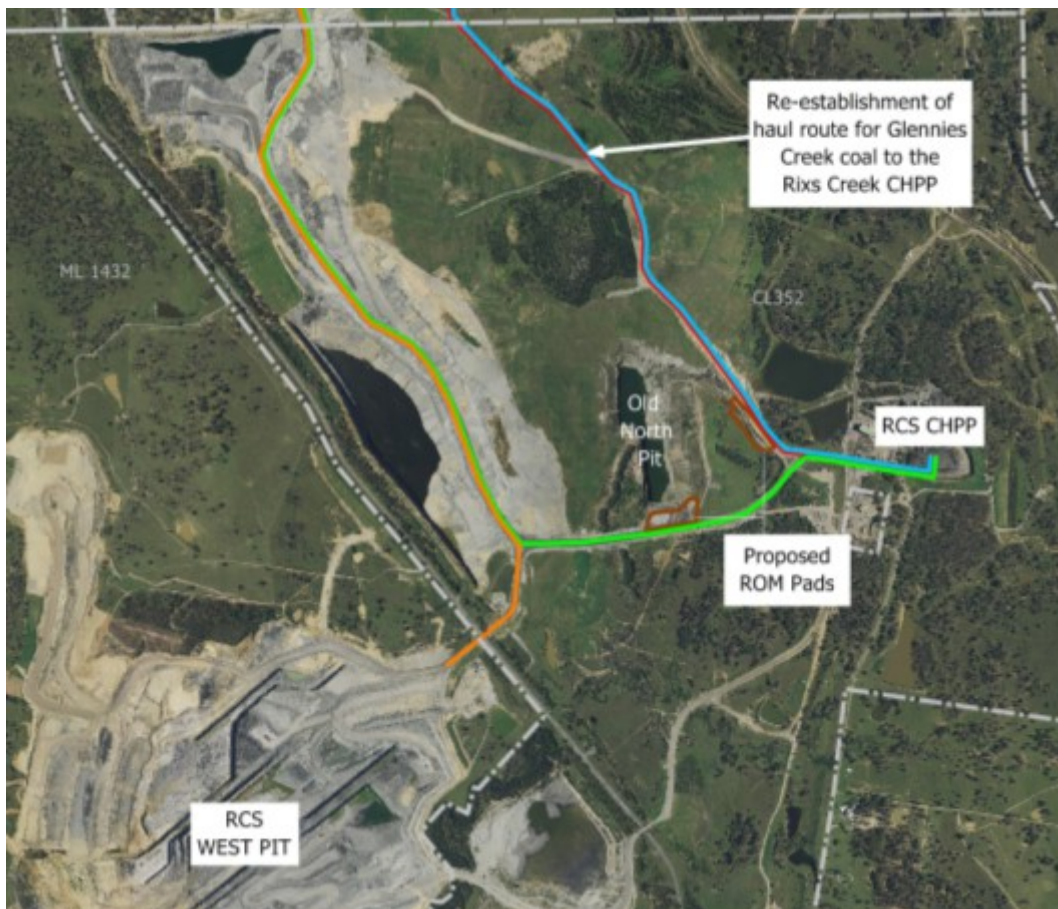


Figure 1: ROM pad locations

I trust this information meets your requirements. If you have any questions or need further details please contact me.

Prepared: Tony Welbourne  
Director

QA review: Jeremy Welbourne  
Civil Engineer (Acoustics)



10 November 2016

Garry Bailey  
General Manager of Mining Development  
The Bloomfield Group  
Via email: [gbailey@bloomcoll.com.au](mailto:gbailey@bloomcoll.com.au)

**RE: Air Quality Assessment for Rix's Creek and Rix's Creek North – Proposed satellite ROM pads**

Dear Garry,

Todoroski Air Sciences has assessed the potential for air quality impacts associated with the proposed development of two satellite Run-of-Mine (ROM) coal pads for the Rix's Creek and Rix's Creek North (RCN) mine (hereafter referred to as the Project). This report investigates the change in dust emissions associated with the Project relative to the approved operations.

**Overview**

Rix's Creek Mine of Rix's Creek Pty Limited, is owned and operated by Bloomfield Collieries Pty Limited (Bloomfield). It is an open cut coal mine approximately 5 kilometres (km) north-west of Singleton in the Hunter Valley Coalfields of New South Wales (NSW) and currently produces approximately 1.5 million tonnes per annum (Mtpa) of product coal from its existing operations.

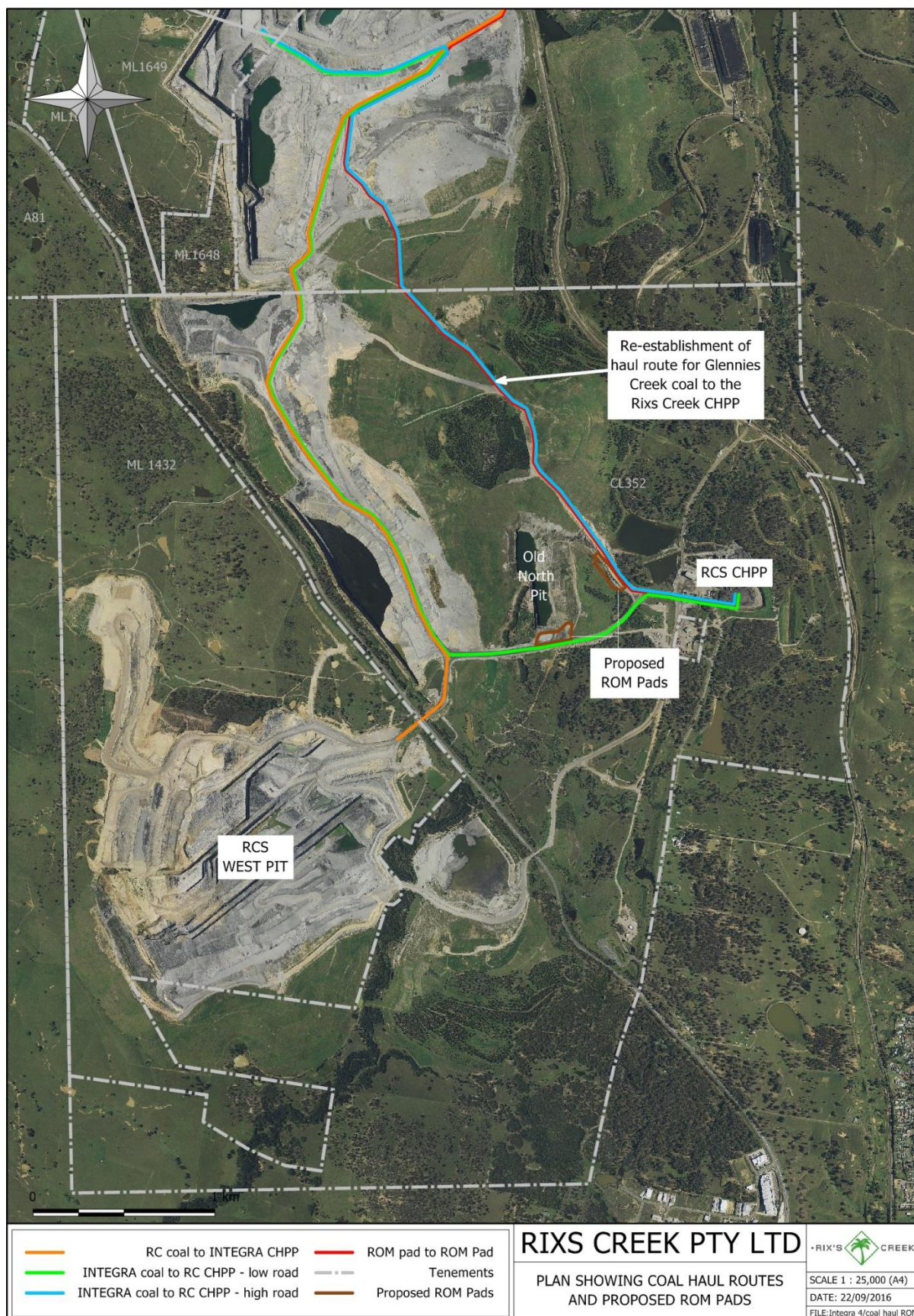
The Bloomfield Group recently purchased the Camberwell Open Cut Mine (re-named as Rix's Creek North, RCN) in 2015, located on the adjacent mining lease immediately to the north of the Rix's Creek Mine, and plans to fully integrate both operations. The current approval at RCN permits extraction of up to 1.5Mtpa of ROM coal from the northern mining area and 4.5Mtpa of ROM coal in the western mining area.

**Project description**

The RCN Coal Handling and Preparation Plant (CHPP) has been in care and maintenance for some time. It is currently not operating, and is undergoing repairs and maintenance to bring it back into operation. This is expected to take approximately six months to complete. As such, the ROM extracted from RCN is being transported to the Rix's Creek CHPP for processing under an existing approval condition.

Due to differences in the coal seam type, issues associated with scheduling and limited space on the existing ROM pad, Rix's Creek is seeking approval for the development of two additional satellite ROM pads along the approved haul routes from RCN to the Rix's Creek CHPP. An overview of the Project showing the location of the proposed satellite ROM pads is shown in **Figure 1**.





**Figure 1: Location of proposed satellite ROM pads and associated haul roads**



The proposed satellite ROM pads would be located to the west of the Rix's Creek CHPP as shown in **Figure 1** and would be used to temporarily store ROM coal extracted from RCN before being processed.

It is anticipated that the satellite ROM pads would be mainly utilised for a period of approximately six months until the recommencement of the RCN CHPP, with their use after this period being dependant on maintenance schedules for the two CHPP's and operational scheduling issues associated with the RCN CHPP processing ROM coal from the former Integra Underground Mine. Generally one satellite ROM pad would be used at a time depending on the scheduling of operations. The production schedule projected for the next six months indicates that up to 130,095 tonnes of ROM would be diverted to the satellite ROM pads during this six month period, with a maximum total storage capacity of approximately 46,812 tonnes in the two satellite pads.

Potential additional dust generating activity associated with the satellite ROM pads would essentially involve the unloading of the ROM material in single level dumps, rehandling of ROM at the satellite ROM pads to load it back into haul trucks for transport to the ROM hopper at the Rix's Creek CHPP. Wind erosion may also occur at the stockpiles and will be managed with water sprays (from water cart) as required.

### **Assessment of potential air quality impacts**

To investigate the potential effect that the Project may have on dust levels in the surrounding environment, a qualitative analysis is made of the proposed change in dust levels associated with the Project relative to the dust emission estimates for Rix's Creek in the most recent air quality assessment (**Todoroski Air Sciences, 2015**).

It is important to note that the ROM coal would already be transported along the haul routes, and there is no additional coal proposed. Thus the only additional activities that would add to dust generation are the unloading/ loading of ROM coal at the stockpile, some minor rehandling as loaders cannot pick up 100 per cent (%) of the material and some additional wind erosion that may arise from freshly disturbed material (vs. exposed and likely crusted material).

Thus the key factors that would influence the quantity of dust produced by the Project are:

- ✦ The amount of ROM material stored and handled at the satellite ROM pads; and,
- ✦ The surface area of the stockpiled ROM subjected to wind erosion.

The rate of dust emission has been calculated by analysing the various types of dust generating activities taking place at the Project and applying suitable emission factors. The emission factors applied are considered the most applicable and representative factors available for calculating the dust generation rates for the proposed activities.

A summary of the total dust emissions from all significant dust generating activities for the Project is presented in **Table 1**. A detailed dust emission inventory is presented in **Appendix A**.



**Table 1: Summary of estimated TSP emission rate for the Project**

ACTIVITY	TSP emission (kg/y)
Unloading ROM at Satellite ROM pad	6,724
Rehandle ROM at Satellite ROM pad	672
Loading ROM to Haul Truck	6,724
Wind erosion at Satellite ROM pads	4,139
<b>Total TSP emissions (kg/yr)</b>	<b>18,259</b>

kg/y = kilograms per year

The estimated total dust emissions for the Project has been compared against the total dust emission estimates for Rix's Creek in the most recent air quality assessment (**Todoroski Air Sciences, 2015**) and these are shown in **Table 2**.

The results indicate that the estimated total dust emissions from the Project would result in an approximate 0.6% to 1.2% increase in total dust emissions relative to the total dust emission estimates for Rix's Creek.

**Table 2: Comparison of estimated TSP emission rate for the Project**

Scenario	ROM (tonnes)	Total emissions (kg)	Percent change in total emissions
Satellite ROM pads <sup>(1)</sup>	130,095	18,259	-
Year 2017 <sup>(2)</sup>	2,384,707	1,772,038	1.0%
Year 2020 <sup>(2)</sup>	2,507,484	1,572,177	1.2%
Year 2023 <sup>(2)</sup>	4,127,857	2,956,910	0.6%
Year 2026 <sup>(2)</sup>	2,089,848	1,661,249	1.1%

<sup>(1)</sup> Based on the activity occurring in a 6 month period

<sup>(2)</sup> **Todoroski Air Sciences (2015)**

Overall, the estimated change in dust emissions arising from the Project is minor and is unlikely to be discernible relative to the existing contribution to dust from Rix's Creek.

This is especially the case as the activity is located in a relatively central position on the mine and is not close to any off-site receptor (i.e. there are existing large sources of mine dust much closer to any receptor), and also because of the temporary nature of the proposed ROM pads utilisation.

A review of the most impacted receptors near the satellite ROM pads, as assessed in the most recent air quality assessment (**Todoroski Air Sciences, 2015**) identified that the maximum off-site impact due to the mine is approximately 25 µg/m<sup>3</sup> as a worst case annual average PM<sub>10</sub> level and less than 50µg/m<sup>3</sup> as a worst case 24-hour average PM<sub>10</sub> level at the most impacted off-site receptor locations. Thus the change in the PM<sub>10</sub> contribution due to the mine would generally be less than 0.25µg/m<sup>3</sup> (annual) and 0.5µg/m<sup>3</sup> (24-hour average), which is within the accuracy of approved monitoring equipment.

However, on a 24-hour average basis it is relevant to note that decreases in the PM<sub>10</sub> impacts may potentially arise, as on any given day:

- ✦ When the ROM pads are receiving coal, the CHPP ROM pads would not be receiving the ROM coal, and on these days the emissions from the hauling, unloading and handling of any load of coal at the CHPP, which is nearest to receptors would be reduced;
- ✦ When the ROM pads are being unloaded (i.e. the material is transported to the CHPP from the ROM pads) there would not be hauling from the mine to the ROM pad and on these days the emissions from the hauling of any load of coal would be reduced;





- ✦ The haul distances would be shorter however when the ROM pads are in use, hence the rate of loading or unloading the ROM pads may be greater (relative to the hopper or pad at the CHPP). Any increased intensity of activity that may be possible over the day may off-set to some degree any decrease in hauling emissions per load.

Thus on a 24-hour basis the Project may produce a range of results, depending exactly on the rate of activity over the 24-hour period.

Overall, it is anticipated that the changes in emissions on a 24-hour basis would be within approximately +/- 1% of that approved at present, and impacts may vary by a similar fraction, depending on the proximity of the activity to receptors (and other factors such as the wind direction on that day).

Overall, it is considered that any change to the actual dust levels at any receptor would be too small to be noticed or reasonably measurable. Regardless, Rix's Creek will apply the most appropriate operational and physical dust mitigation measures to ensure dust levels are controlled.

### Summary and Conclusions

This assessment has examined the likely air quality effects resulting from the proposed satellite ROM pads at the Rix's Creek Mine.

The assessment estimates that the Project may add up to 1.2% more dust relative to the existing operation of the mine, and on some days may reduce 24-hour average PM<sub>10</sub> impacts by a similar fraction. These small potential changes in the contribution to ambient dust due to the mine are unlikely to be apparent or measurable at any off-site location, especially as the Project is centrally located on the mine, well away from receptors.

The Rix's Creek Mine would continue to operate with appropriate best practice controls and dust mitigation measures to ensure that dust levels are minimised where possible.

Therefore it is reasonable to conclude that the proposed satellite ROM pads are unlikely to cause any discernible effects at any surrounding sensitive receptor locations and the potential dust emissions could be easily managed with simple water sprays as needed.

Overall, the assessment indicates that no adverse impacts are expected to arise due to the Project.

Please feel free to contact us if you need to discuss (or require clarification on) any aspect of this report.

Yours faithfully,

Todoroski Air Sciences



Aleks Todoroski



Philip Henschke



## References

NSW DEC (2005)

"Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales",  
Department of Environment and Conservation (NSW), August 2005.

Todoroski Air Sciences (2015)

"Air Quality and Greenhouse Gas Assessment Rix's Creek Continuation of Mining Project", prepared  
for Rix's Creek Mine by Todoroski Air Sciences, August 2015.





## **Appendix A**

### ***Emission Inventory***



Table A-1: Emissions Inventory

ACTIVITY	TSP emission (kg/y)	Intensity	Units	Emission Factor	Units	Variable 1	Units	Variable 2	Units
Unloading ROM at Satellite ROM pad	6,724	130,095	tonnes/ye	0.052	kg/t	7.5	moisture content in %		
Rehandle ROM at Satellite ROM pad	672	13,010	tonnes/ye	0.052	kg/t	7.5	moisture content in %		
Loading ROM to Haul Truck	6,724	130,095	tonnes/ye	0.052	kg/t	7.5	moisture content in %		
Wind erosion at Satellite ROM pad	4,139	2.4	ha	3,504	kg/ha/year			50	% Control
<b>Total TSP emissions (kg/yr)</b>	<b>18,259</b>								