BLOOMFIELD

MINING OPERATIONS (RIX'S CREEK MINE)

Mine Closure Plan

V	Date	Description	By	Chk	App
1	22/01/12	Original Draft	JH	JD	GB

CONTENTS

INTRODUCTION

This Mine Closure Plan (MCP) has been prepared in response to Notice of Modification to Development Consent (DA 49/94 MOD 4) granted under Section 96(2) of the Environmental Planning and Assessment Act, 1979 (EP&A).

This MCP has been developed to assist Rix's Creek plan for the eventual decommissioning and rehabilitation of the Rix's Creek open cut mine site, so that at the completion of operations, the land can be returned to a stable and sustainable post mining land use. To facilitate this process, the MCP divides the mine site into a number of like units or "domains" that will enable better focus on the treatment of like areas.

The MCP takes into consideration the Environmental Impact Assessment for the Proposed Modification of Mining Operations – Rix's Creek Coal Mine (1995), Environmental Assessments for previous modifications in addition to the various conditions outlined in schedule 2 of the consolidated 1995 consent (as modified). In addition, commitments outlined in Bloomfield Group Environment Management Policy are also taken into account.

This MCP forms part of the Landscape Management Plan (LMP), as outlined in the section - *Relationship with other Plans*.

PURPOSE AND OBJECTIVES

The purpose of the MCP is to outline the proposed measures related to the decommissioning and rehabilitation of the Rix's Creek Mine and associated facilities at the completion of coal mining operations.

The objectives of the strategy include:

- Describe opencut mining operations and facilities;
- Outline the closure and rehabilitation planning process; and
- Summarise the actions required to decommission and rehabilitate the Rix's Creek Mine site and associated facilities.

SCOPE

This strategy applies to those areas and facilities associated with the Rix's Creek mining operation and associated facilities. It should be noted that although the scope of this plan specifically addresses the area covered by the Approval, the general approach and methodologies are also applied across the Bloomfield Group operations.

The Approval will expire in October 2016 and this plan has been prepared for the decommissioning and rehabilitation of the Rix's Creek mining operation as it has progressed at that point in time.

The MCP will also consider the scenario that the Rix's Creek mining operation does not cease operations in October 2016 when the current Approval expires, but another Approval is obtained to allow mining to continue to extract the remaining resource within the mining lease area.

RELATIONSHIP WITH OTHER PLANS

The Environmental Management System (EMS) establishes the overall environmental management strategy for mining and related activities on the site. The Landscape Management Plan (LMP) provides the framework for rehabilitation and mine closure related issues.

This document, the MCP addresses specific objectives and criteria for mine closure.

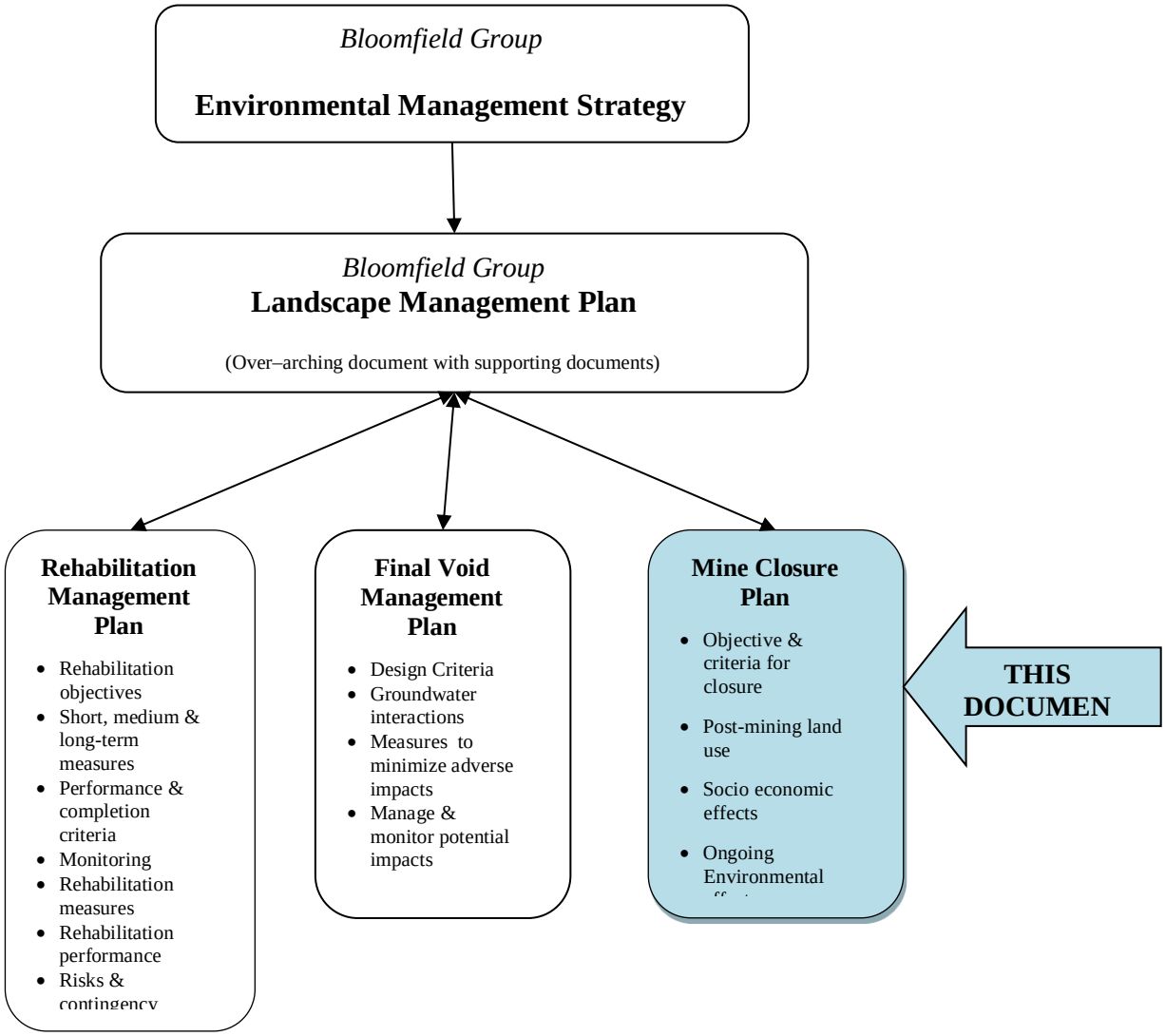

Figure 1 Relationship with Other Documents

HISTORY AND CURRENT OPERATIONS

Rix's Creek site is located in the Upper Hunter Valley, within the Singleton Council local government area, approximately 1.5 km northwest of Singleton on the New England Highway.

Development consent for the Rix's Creek Coal Mine was initially granted by the Minister for Planning on 19th October, 1989 and Coal Lease (CL) 352 was issued on 20th October 1989. Coal Lease 352 occupies an area of approximately 1,818 ha. The production rate under this consent was for 1.5 million tonnes per annum (mta) of run-of-mine (ROM) coal production.

A second Approval was granted on 19th October, 1995 removing the surface exclusion from 786 ha of CL 352 and to increase the production to a level that allowed for a total movement of materials in mining not exceeding 15 million bank cubic meters in any year.

Current operations

CL 352 is bisected by the New England Highway and the Rix's Creek mine operates two pits. Pit 1 on the northern side on the highway and pit 3, south of the highway and on the western side of Rix's Creek.

Annual clean coal production is around 1.5 million tonnes a year from the movement of approximately 12 million bank cubic meters of overburden. Coal extraction from pit 1 will be completed by the end of 2014 and all operations will then take place in pit 3. Currently an overburden removal operation is undertaken in each pit, with ROM being mined progressively from both pits.

A coal handling and processing plant (CHPP) and rail loading facility were commissioned on April 1993, with all product coal being transported by rail to the port of Newcastle. The stockpile and rail loading facility are located adjacent to and utilise the Camberwell Coal rail loop.

A bridge over the New England Highway was constructed to enable access to coal reserves in the southern area of the coal lease or Pit 2. Since the completion of the bridge in June 1994 mining operations concentrated in that area. The last coal was extracted from Pit 2 on 23rd June 2003. The emplacement of tailings into the pit 2 void commenced in July 2005 and is estimated to reach capacity late 2013. Trials are currently being undertaken at drying the tailings from the CHPP to allow co-disposal of tailings with coarse reject, thus eliminating the requirements for any additional tailings emplacements.

Proposed Operations

The Company will continue the mining operation as approved under the current Development Consent Approval until 2016. The lease is roughly bisected by the New England Highway in a north-west to south-east direction. Mining will continue on both sides of the New England Highway. Mining takes place in two pits, the North Pit 1 on the northern side of the Highway and West Pit 3 on the southern side of the Highway and western side of Rix's Creek. In the North Pit 1 mining will continue with the extraction of coal expected to be completed during 2015. The void remaining will then be partially filled with overburden from the West Pit 3. As coal extraction nears completion in the North Pit 1 mining operations will be concentrated in West Pit 3.

The Company is planning to prepare to apply for an Approval to continue the opencut mining operation after the current Approval lapses in October 2016. The proposal will continue the mining operation in pit 3 south of the Highway and western side of Rix's Creek. ROM coal will be hauled across the Highway back to the CHPP for beneficiation prior to railing to the port of Newcastle for export to overseas customers.

If this Approval is granted the closure of the Rix's Creek Mine at 2016 as being described in this MCP will be irreverent. Mine closure for the Rix's Creek operation will then take place approximately 15to 20 years into the future depending on the approved mine plan. A new MCP will be developed to accommodate the end of mining at that time and this document will become obsolete.

LEGAL AND OTHER REQUIREMENTS

This strategy has generally been developed to be consistent with the objectives of the regulations, policies and guidelines formulated by State and Federal Government agencies and industry councils. Consideration has also been given to the commitments made in internal policies and guidelines.

Development Consent

Approval was granted by the Minister for Planning on 27 August 2009 under Section 75J of the Environmental Planning and Assessment Act, 1979. A modification to the Development Consent (DA 49/94 MOD 4) was granted under Section 96(2) of the Environmental Planning and Assessment Act, 1979 (EP&A) for a Cut and Cover Tunnel second crossing of the New England Highway. The Notice of Modification includes a number of conditions including Condition 16A,C & D of Schedule 2 that states that:-

Landscape Management

16A. The Applicant shall prepare and implement a detailed Landscape Management Plan for the development to the satisfaction of the DII and the Director-General. This plan must:

(i) be prepared in consultation with DECCW, the Office of Water and Singleton Shire Council by suitably qualified expert/s whose appointment/s have been approved by the Director-General;

(ii) include a:

- *Rehabilitation Management Plan to be submitted for approval by the Director-General by 31 March 2010;*
- *Final Void Management Plan to be submitted for approval by the Director-General by 31 December 2011; and*
- *Mine Closure Plan to be submitted for approval by the Director-General by 31December 2011.*

Final Void Management

16C. The Final Void Management Plan must:

(i) incorporate design criteria and specifications for the final void based on verified groundwater modelling predictions and a re-assessment of post-mining groundwater equilibration;

(ii) assess the potential interactions between creeks on the site and the final void; and

(iii) describe what actions and measures would be implemented to:

- *minimise any potential adverse impacts associated with the final void; and*
- *manage and monitor the potential impacts of the final void.*

Mine Closure Plan

16D. The Mine Closure Plan must:

(i) define the objectives and criteria for mine closure;

(ii) investigate options for the future use of the site, including the final void/s;

(iii) investigate ways to minimise the adverse socio-economic effects associated with mine closure, including reduction in local employment levels;

(iv) describe the measures that would be implemented to minimise or manage the ongoing environmental effects of the development; and

(v) describe how the performance of these measures would be monitored over time.

Guidelines to the Mining, Rehabilitation and Environmental Management Process (MREMP)	This guideline produced by the NSW Department of Primary Industries (DPI) (2005) describes the mining, rehabilitation and environmental management process implemented to ensure the satisfactory environmental and rehabilitation performance of mines in New South Wales. The MREMP guidelines state that an operation must produce a rehabilitation and closure plan prior to Ministerial approval of suspension of mining. This plan should be prepared using the MOP format with additional information where needed for consistency with the "Strategic Framework for Mine Closure" published by the *Australian and New Zealand Minerals and Energy Council*, and the *Minerals Council of Australia.*
Environmental Protection Licence (EPL).	The Protection of the Environment Operations Act (1997) requires all extractive industries to hold an Environmental Protection Licence (EPL). Licences are issued by the Department of Environment and Climate Change (DECC) and are typically reviewed every three (3) years. The EPL contains specific conditions relating to the protection of the environment and, where applicable, these conditions have been integrated into this strategy.
Bloomfield Group Environment Policy	The Bloomfield Group Environment Policy is a statement of the commitment to managing environmental issues at group mining operations. Specifically, the Environment Policy contains reference to complying with all relevant environmental regulations, licences and legislation. This applies to closure requirements, as outlined in lease conditions and the DPI *MREMP*.
Strategic Framework for Mine Closure (ANZMEC & MCA, 2000)	The Strategic Framework for Mine Closure (2000) has evolved as a cooperative development between the Australian and New Zealand Minerals & Energy Council (ANZMEC) and the Australian Minerals Industry represented by the Minerals Council of Australia (MCA) that provides a framework of issues to be considered as part of a mine closure plan.

Legal & Other Requirements continued on next page…

continued from previous page…

CLOSURE PLANNING

This strategy describes the closure and rehabilitation design for the Rix's Creek open cut mining operation, CHPP, clean coal stockpile and rail loading facility, identifying the timing of the planning process, considering issues which relate to specific rehabilitation methods and economical and stakeholder interests.

The principal objectives of closure planning incorporated into this conceptual strategy include:

- To provide an overall framework for mine closure including rehabilitation and decommissioning strategies.
- To reduce or eliminate adverse environmental effects at the cessation of operations;
- To establish environmental conditions which meet regulatory requirements; and
- To ensure the closed mine does not pose an unacceptable risk to public health and safety.

Closure Scenarios

This strategy has been divided into two (2) parts. Each part is considered independently of the other closure scenario. The scenarios are:

- The lapse of the current Approval at October 2016 with the cessation of mining and closure of the operation. This being the major focus of the MCP; and
- Approval being granted to continue mining the remaining resource in pit 3 with closure occurring 15-21 years into the future.

Stakeholder Engagement

The ANZEC closure guidelines reinforce the need to identify and engage the relevant stakeholders during the development of a closure plan. As this strategy is conceptual in nature, not all relevant stakeholders have been consulted with to date. Given that the Company plans to continue mining past 2016, further stakeholder consultation will be undertaken in preparation for mine closure in the future.

Consultation with community, government and other stakeholder groups will ensure a wider acceptance of the proposed closure principles and strategies.

The following key stakeholders should be included in any future consultation relating to mine closure:

- Rix's Creek Community Consultative Committee were consulted at the May 2011 meeting regarding mine closure and the preparation of this MCP;
- Singleton Council consulted at the May 2011 meeting regarding mine closure and the preparation of this MCP;
- Department of Planning and Infrastructure (DoPI);
- Department Trade & Investment, Regional Infrastructure and Services (DTIRIS);
- Office of Environment and Heritage (OEH);
- Environmental Protection Authority (EPA);
- Department of Primary Industries NSW Office of Water (NOW);
- Hunter-Central Rivers Catchment Management Authority (HCRCMA); and
- Roads and Maritime Services (RMS).

Post Mining Land Use

Rix's Creek Lease comprising 1818 ha is located approximately 1.5 km northwest of Singleton in the Hunter Valley, NSW.

The existing landform within the lease is undulating with steeper grades (5 to 10 degrees) on the upper and middle slopes and flatter areas adjacent to Rix's Creek. The majority of the lease area is comprised of land capability class IV, V and VI. These lands are generally suitable for grazing with classes V and VI comprising the less productive grazing lands (Envirosciences 1994).

Coal had been mined from the lease area intermittently from the 1870s through until 1948 (Croft & Associates 1989). Other pre-mining landuses included cattle and sheep grazing as well as quarries used as a source of road gravel. The old mining activities, coupled with grazing had substantially degraded the land and disturbed the soils within some parts of the lease area.

The 1994 EIS (Envirosciences 1994) stated "*While it is the intention of the company to return the land to a condition suitable for a range of post mining landuses it is proposed in the short term to establish the area for grazing. This landuse would be in accordance with the existing Rural Land Capability Classification of IV and V.*"

The rehabilitation study undertaken for the original Environmental Impact statement (Croft & Associates 1989) looked at tree establishment as part of the rehabilitation process. "*The proposal to establish large areas of trees is believed to have valid short and long term benefits. The incorporation of extensive tree planting will assist in achieving the rehabilitation objectives, in restoring trees lost in clearing for mining and in helping conceal the operations and facilities while they are there and improve the appearance of the area."*

The original 1989 Environmental Impact Statement (Croft & Associates 1989) investigated alternate post mining landuse options. "*Growth in the Singleton Shire has been unprecedented, and although the earlier rate of development predicted on the basis of a rapid mining expansion has slowed, a steady population needs to be planned for.*" This can now be extended to cover the growth experienced in the last two decades.

These post-mining landuse options included:-

- Agriculture – cattle or horse grazing on hobby farms
- Open space – retention of areas as grassed and woodland open space
- Recreation – various activities
- Residential - subdivision of varying density for rural areas
- Other landuse options such as:- Industrial – heavy buildings and factories; Commercial – sections along the New England Highway; and Waste disposal – areas could be retained for waste disposal. May also be viable options surrounding land owned by the Company.

These options are reflected in the *Rix's Creek Rehabilitation Management Plan*, *Rehabilitation Aim* and *Rehabilitation Objectives* with specific conditions to achieve these reflected in the *Completion Criteria*. The rehabilitation areas will be monitored against the rehabilitation progress indicators and assessed for relinquishment against the completion criteria, as described in the *Rehabilitation Management Plan, Monitoring Methodology.*

Mine Closure Domains

In order to address the complexity of land use, the mine site was divided into a series of land management units or domains.

The domains being identified as:

- Primary domains being identified according to operational function;
- Secondary domains being identified according to post mining landuse; and
- Combined primary and secondary domains producing rehabilitation domains.

By addressing each like domain systemically, aspects specific to each domain were able to be considered in the context of closure. Such considerations included the location, degree of land disturbance and the specific environmental issues to be addressed.

Primary Domains

The primary domains adopted for the closure planning process are:

- *Domain 1: North Pit 1 Overburden emplacement* – Overburden dumps, pit1 - northern overburden emplacement, drainage infrastructure (drains and sediment dams);
- *Domain 2: Pit 2 Overburden emplacement* - Pit 2 overburden emplacement and pit 3- west pit overburden emplacement, drainage infrastructure (drains and sediment dams);
- *Domain 3: West Pit 3 Overburden emplacement* - overburden emplacement, west pit 3, drainage infrastructure (drains and sediment dams);
- *Domain 4: Unshaped Spoil* – West Pit 3will contain an area of unshaped spoil forming part of the active mining area. Pit 1 will also have an area of unshaped spoil as the infilling of the void continues with overburden from the west pit 3. There will also be an area surrounding the old north pit void.
- *Domain 5: Voids* – pit 1 – northern void, pit 3 - western void and old north pit void;
- *Domain 6: Haul Roads* – haul roads joining domains 1, 2, 3, and 4, hardstand areas, drainage infrastructure (drains and sediment dams);
- *Domain 7: Tailings Emplacement Areas* – pit 2 void, predicted to be to final level in 2013 requiring capping and rehabilitation, previous emplacement areas, north pit emplacement area which has been caped and rehabilitated. The original small emplacement area adjacent to Highway again has been rehabilitated and vegetated in 1999.
- *Domain 8: Infrastructure* – Office, bathhouse workshop, fuel farm, explosive storage, sewerage system and detention dam;
- *Domain 9: Coal Handling and Preparation Plant* - CHPP structure, workshops, stores, conveyors and gantries, hoppers and crushers, stockpile pads, water supply dams and local drainage infrastructure (drains and sediment dams);
- *Domain 10: Rail Loading Facility* – stockpile area, conveyor, rail loading structure, local drainage infrastructure and storage dams;
- *Domain 11*: *Heritage area* – Coke ovens heritage area.
- *Domain 12*: *Undisturbed Land* – Areas of undisturbed land remnant native vegetation located throughout the area. Minimal disturbance in the form of firebreaks and management trails

Secondary Domains

The secondary domain land management units are selected by post mining landuse and reflect vegetative outcomes and built environmental features or heritage items. Taking into consideration the post mining landuses discussed above the secondary domains are:

- *Sub domain A: Pasture* – These areas disturbed by mining activities have been reshaped to a similar fabric to the pre-mining landscape and revegetated with a pasture mix of species.
- *Sub domain B: Tree Areas* – These areas disturbed have been reshaped to a pre-mining landscape and sown with a native tree species mix.
- *Sub domain C: Plantation Forest Areas* – These areas have been reshaped to a final landform initially stabilized with a surface vegetation cover of pasture species to control erosion and sedimentation. The areas were then sown with plantation forest tree species.
- *Sub domain D: Stock water dams* - Water management structures retained in the post mining landscape as a water supply for grazing animals.
- *Sub domain E: Undisturbed Native Grassland* – Areas that have not been disturbed my mining activates but have been modified by previous grazing activities. Trees have been removed and areas may have suffered from erosion.

Post Mining Rehabilitation Objectives

The objectives for the rehabilitation of land within CL 352 affect by mining activities are as follows:

Landform

- Landform is to be safe and stable;
- Rehabilitated areas of greater than 10^{o} slopes will be minimised;
- No rehabilitated areas of greater than 18^{o} slopes
- Land capability similar to pre-disturbance (generally Classes IV, V and VI);
- Rehabilitation treatment is to include shaping, topdressing, fertilising and sowing with pasture and/or native vegetation;
- Rehabilitated to relevant DTIRIS standards;
- Biosolids to be applied in accordance with *Environmental Guidelines: Use and Disposal of Biosolids Product*s (NSW EPA, 1997);
- Final Voids to be stabilised to DTIRIS requirements, which will include cattle fencing and safety signage at a minimum, and may include the construction of structures that prevents third party access;
- Dams are not required to be removed or rehabilitated;
- Surface tailings emplacement areas will be capped with 2m of overburden and rehabilitated;
- Boreholes to subsurface tailings emplacement areas will be sealed or capped in accordance with DPI requirements;
- Other than the removal of extraneous materials such as car bodies, no works will be required in undisturbed parts of the site; and
- Erosion and sediment control measures will be constructed on disturbed areas to minimise impacts on adjoining lands.

Infrastructure

- All infrastructure, including roads, that have no the post mining use will be removed and rehabilitated;
- Footings are only required to be removed to the existing ground level only, covered with a minimum of 0.5 metres of fill and rehabilitated;
- Electricity supply infrastructure (overhead lines, poles, substations, etc) will be removed; and
- Tunnel structures will be filled and left buried.

Roads

- ❑ Primary roads will be left in a maintained condition to a minimum width of 6m;
- ❑ Secondary roads will be left as 4WD dry weather access only; and
- ❑ Existing unsealed roads will be left as unsealed roads.

SCENARIO 1: CLOSURE 2016

The following sections of the strategy outline the proposed commitments for each domain under the scenario of "Closure at the end of the current Consent 2016".

The plan attached as Figure 2 show the management domains identified as part of the closure strategy.

DOMAIN 1: NORTH PIT 1 OVERBURDEN EMPLACEMENT

This domain covers a total area of 307 ha. The domain includes the out of pit and input overburden emplacement area for Pit 1, north pit. This overburden dump extends from the existing ground level in the east raising with a 10 degree slope westward, reaching an elevation of around 140 - 150m AHD towards the west. At this elevation the dump flattens and extends west towards the New England Highway where it joins the unshaped spoil being backfilled into the void.

This domain also covers the original mined area adjacent to the New England Highway, bridge over the Highway and visual bunds along Rix's Creek lane.

Contained within the mines area of this domain are 2 tailings emplacement areas which have been capped and rehabilitated.

Associated with this domain are various water management structures including contour banks, drainage flow lines and sediment detention structures.

The areas contained within this domain have been rehabilitated or recently rehabilitated, as outlined in the *Rehabilitation Management Plan,* so only minor works will be required within this domain to meet closure requirements.

DOMAIN 2: PIT 2 OVERBURDEN EMPLACEMENT

This domain covers a 100 ha area that includes the out of pit and input overburden emplacement area for Pit 2. This overburden dump extends from the existing ground level in the south along Rix's Creek to the west, with a 10 degree slope northward to the New England Highway forming the northern boundary of the area. The pit 2 void was used as tailings emplacement which by 2016 will have been capped and rehabilitated as indicated on the plan in Figure 2.

One feature of this domain is the old Rix's Creek crossing which has been rehabilitated.

Associated with this domain are various water management structures including contour banks, drainage flow lines and sediment detention structures.

The areas contained within this domain have been rehabilitated or recently rehabilitated, as outlined in the *Rehabilitation Management Plan,* so only minor works will be required within this domain to meet closure requirements.

DOMAIN 3: WEST PIT 3 - OVERBURDEN EMPLACEMENT

This domain covers an 80ha area that includes the out of pit and input overburden emplacement area for West Pit 3. This overburden dump extends from the existing ground level in the south along Rix's Creek to the east.

Associated with this domain are various water management structures including contour banks, drainage flow lines and sediment detention structures.

The areas contained within this domain have been rehabilitated or recently rehabilitated, as outlined in the *Rehabilitation Management Plan,* so only minor works will be required within this domain to meet closure requirements.

DOMAIN 4: UNSHAPED SPOIL

This domain contains 2 areas:

1. A 104 ha area in the North Pit 1 where backfilling of the mining void has taking place. At 2016 this area will be backfilled to a level above the groundwater table. The area joins domain 1 overburden emplacement area of the north pit 1 to the east and the highwall adjacent to the New England Highway to the west.

2. A 58 ha area that includes what was the active overburden dump for the West Pit 3 mining operation, as scheduled at 2016. The area joins domain 3 overburden area of the west pit 3 in the south and runs into the West Pit 3 void to the north.

To meet closure requirements these areas will require shaping to final landform and rehabilitated as outlined in the *Rehabilitation Management Plan.* The final landforms may contain areas of slope in excess of 10^0 where the constructed landforms join the voids. These steeper slope areas will be minimised where possible.

DOMAIN 5: VOIDS

There will be 2 voids at 2016:

1. The old North Pit Void covers an area of 10 ha. This void is located to the southeast of domain 1. It was the void left when the mining operation changed the floor of the north pit from the lower Barrett seams to the higher Liddell seams. This came about due to restrictions being places on the height of the overburden emplacement for this pit. The old north pit void has been used as a mine water storage structure since.

2. West Pit 3 Void. This is the void associated with the scheduled mining operation at 2016 covering 91ha.

The voids will require highwalls to be benched to meet the requirements of DITRIS. This will involve drilling and blasting the highwalls to create the necessary benches.

See Final Voids Management Plan for groundwater modelling predictions.

DOMAIN 6: HAUL ROADS

This domain includes all the haul roadways around the operation and covers an area of 37 ha. Associated with this domain are various water management structures including, drainage channels and sediment detention structures. Associated with this domain is the bridge over the New England Highway from domain 1 to domain 2. The bridge over the main northern railway line linking domain 1 with domain 10 – rail loading facility. The other structure associated with the network of haul roads is the cut & cover tunnel under the Highway linking domain 1 and domain 3.

Haul roads will be shaped, ripped, topsoiled and rehabilitated. The two bridges will be demolished and removed. The tunnel under the highway will be partially backfilled and remain as a livestock and animal crossing under the Highway.

DOMAIN 7: TAILINGS EMPLACEMENT AREAS

This domain contains three tailings emplacement areas. These areas are no longer utilized as tailings emplacement areas, they have reached capacity and have been capped and rehabilitated.

The three emplacement areas are:

1. The first tailings emplacement area was a small 1 ha area adjacent to the haul road bridge over the New England Highway. This area was capped and rehabilitation completed back in 1999.
2. North Pit tailings emplacement coved a 15 ha area. This tailings emplacement was contained in a section of the old north pit prior to the floor being elevated to the Liddell seams. The tailings emplacement dewatered into the Old North Pit mine water storage area for recycling to the CHPP for reuse. This tailings emplacement reached capacity during 2005 and has been dewatered capped and rehabilitated since.
3. Pit 2 tailings emplacement covers 19 ha and is scheduled to reach capacity during 2013. It is planned to be dewatered, capped and rehabilitated by 2016.

It is not expected there will be any further tailings emplacements used after the pit 2 emplacement area reaches capacity as the operation is moving to drying tailing and using co-disposal with coarse washery reject being buried along with overburden.

DOMAIN 8: INFRASTRUCTURE

This domain includes:- office, bathhouse, car parks, workshop, hardstand areas, fuel farm, explosive storages, electrical services, sewerage system and detention dam. These areas cover 10 ha in total.

Buildings & Fixed Plant	All buildings: - office, bathhouse, car parks, workshop and fixed plant (including hardstand areas, fuel farm, explosive storages, electrical services, etc) will be demolished and removed from the site. Where appropriate the materials recovered in the demolition will be sold for re-use or recycled. All concrete footings will be broken up to ground level and buried with a minimum of 0.5 metres of clean fill and rehabilitated as outlined in the *Rehabilitation Management Plan.* The fuel farm diesel tanks will be removed from site and all associated infrastructure (bunding, above ground/underground pipes, etc) will be pulled up and removed from the site. Where hydrocarbon contamination may have occurred, any contaminated material found will be excavated and taken to an onsite bio-remediation (landfarm) facility established on the site. Where required, validation samples should be collected for further analysis. Explosive storage magazines will be removed and the area re-contoured prior to being rehabilitated as outlined in the *Rehabilitation Management Plan.*
DOMAIN 9: COAL HANDLING AND PREPARATION PLANT	This domain covers a total 17 ha that includes existing run-of-mine stockpile pad, Coal Handling & Preparation Plant (CHPP) facilities -conveyors, gantries, clean coal & reject bins, water supply dams (DWD 1 & CWD 4), as well as stores building and storage areas. The CHPP and facilities cover 8.5 ha and the water storages cover 8.5 ha.

Buildings & Fixed plant	All buildings and fixed plant (including conveyors, hoppers, transfer stations, thickener tank, etc) plant will be demolished and removed from the site. Where appropriate the materials recovered in the demolition will be sold for re-use or recycled. All concrete footings will be broken up to ground level and buried with a minimum of 0.5 metres of clean fill and rehabilitated as outlined in the *Rehabilitation Management Plan.*
Roadways	Any roadways, car parks and hardstand areas around the will be ripped up with the waste material being placed in the mine void and buried. The areas will be deep ripped, topdressed with biosolids and revegetated using a pasture grass mix to ensure the surface is stable.
Stockpile Pads	The carbonaceous material (coal) on the base of the stockpile pads will be stripped. Any batters will be regraded consistent with post mining rehabilitation objectives. The area will be capped with inert spoil, deep ripped, topdressed with biosolids and revegetated with pasture and trees as outlined in the *Rehabilitation Management Plan*.
Water Supply Dams and Open Drains	The mine water supply dam (DWD No 1) will be drained by pump or siphon and the walls of dam will then be pushed in to leave a shallow self draining depression. The area will be deep ripped, topdressed with biosolids and revegetated using a pasture grass mix to ensure the surface is stable. The second water supply dam to the CHPP (CWD 4) will remain as a water supply dam on Rix's Creek for grazing post mining landuse. The open water management drains and sediment ponds around the CHPP area will be pushed in and made safe. The flows previously flowing into the drains will be dispersed as sheet flow rather than concentrated flow, or may be diverted to other structures as required.
DOMAIN 10: RAIL LOADING FACILITY	This domain covers 7 ha and includes: the clean coal stockpile pad, conveyors, gantries, surge bin, control room and runoff storage dams.
Site Services	All services including power and water will be disconnected and terminated to make them safe. Overhead power lines will be removed and the materials (i.e. poles and wire) recovered and removed from site. Where appropriate the materials recovered in the demolition will be sold for re-use or recycled. Dams will be retained as stock water supply dams for the possible grazing post mining landuse. Clean water diversions will be removed allowing runoff from surrounding lands to feed the two dams.

Rail Load Out Bin and Stockpile Area	The rail load out infrastructure, (bins, control room, etc) conveyor to bin from the product stockpile, along with skyline stacker over the stockpile area and reclaim tunnel, will be demolished and removed from the site. Where appropriate the materials recovered in the demolition will be sold for re-use or recycled. All concrete footings and pads will be broken up to ground level and buried with a minimum of 0.5m clean fill. Stockpile area will have all remaining coal removed or and buried with a minimum of 0.5m clean fill then rehabilitated
Buildings & Fixed Plant	All buildings and fixed plant will be demolished and removed from the site. Where appropriate the materials recovered in the demolition will be sold for re-use or recycled. All concrete footings and pads will be broken up to ground level and buried with a minimum of 0.5m clean fill and rehabilitated as outlined in the *Rehabilitation Management Plan.*
DOMAIN 11: HERITAGE AREA	This domain covers the old historic coke ovens, an area of about 1.5 ha. The historic coke ovens are the only real visible remnants left from the mining operations that took place at Rix's Creek during the Nineteenth Century. This area has been protected and managed as per the *Rixs Creek Colliery Coke Ovens Conservation Plan. 1989.* And *Rixs Creek Colliery Coke Ovens Conservation Plan. 2007 Review.* This area will remain within the paddock that was fenced to exclude mining operations and covers an area of 8ha.
DOMAIN 12: UNDISTURBED LAND	This domain covers all the remaining land within the mining lease that has not been disturbed by the mining operation. These areas within the lease contain the New England Highway corridor, a section of the main northern railway line, Camberwell Coal rail loop and agricultural land undisturbed by the mining operation. These agricultural lands have been modified by the previous history of grazing landuse and are now covered by a modified native grass and woodlands plant community.

SUB DOMAIN A: PASTURE

These areas disturbed by mining activities have been reshaped to a similar fabric to the pre-mining landscape and revegetated with a pasture mix of species. This sub domain covers a total area of 756 ha spread across the domains. This pasture sub domain will form the basis of the rehabilitation of area disturbed by the mining operation to produce an outcome that is stable, sustainable and suitable for a number of post mining landuses as listed previously including: agriculture – grazing, open space, recreation and residential.

On the northern side of the New England Highway this pasture sub domain will cover some 590 ha. Including:- domain 1: north pit 1 overburden emplacement, domain 6: haul roads, domain 7: tailings emplacement areas, domain 8: infrastructure, domain 9: CHPP and domain 10: rail loading facility. South of the Highway on the eastern side of Rix's Creek , 50 ha covering domain 2: pit 2 overburden emplacement. The on the western side of Rix's Creek south of the Highway 118 ha contained in domain 3: west pit overburden emplacement.

These areas will comply with the P*ost Mining Rehabilitation Objectives* as described previously for landform, infrastructure and roads.

This process is outlined in the *Rehabilitation Management Plan* and describes the objectives, completion criteria and indicators that these areas must meet to achieve final rehabilitation sigh off.

SUB DOMAIN B: TREE AREAS

These areas disturbed have been reshaped to a pre-mining landscape and sown with a native tree species mix. The area will cover a total of 147 ha. This sub domain again will form part of the landscape compatible with the post mining landuses listed.

The tree areas will extend over domains: 1 north pit overburden emplacement, covering 94 ha; domain 2: pit 2 overburden emplacement covering 24 ha and domain 3: west pit overburden emplacement covering 23 ha.

These areas will comply with the P*ost Mining Rehabilitation Objectives* as described previously for landform, infrastructure and roads.

This process is outlined in the *Rehabilitation Management Plan* and describes the objectives, completion criteria and indicators that these areas must meet to achieve final rehabilitation sign off.

SUB DOMAIN C: PLANTATION FOREST AREAS

These areas disturbed have been initially stabilized as pasture areas prior to being prepared and sown with tube stock to establish plantation forest areas. The total plantation forest area covers 65 ha. This plantation forest sub domain is capable of being harvested for timber some time into the future. However it may just become part of the treed area complementing the post mining landuses outlined.

The plantation forest sub domain extends over domains: 1 north pit 1 overburden emplacement coving 33.5 ha and domain 2: pit 2 overburden emplacement with 27 ha. There is another 5 ha of plantation forest on visual bunds along either side of the New England Highway.

These areas will comply with the P*ost Mining Rehabilitation Objectives* as described previously for landform, infrastructure and roads.

This process is outlined in the *Rehabilitation Management Plan* and describes the objectives, completion criteria and indicators that these areas must meet to achieve final rehabilitation sigh off.

SUB DOMAIN D: UNDISTURBED NATIVE GRASSLAND

These areas have not been disturbed by the mining operation and comprise the remaining areas within the mining lease area and buffer land surrounding the mined areas. These areas have been modified by a history of past landuse of cattle grazing. The areas comprise modified native plant communities of native grass woodlands.

Some grazing activities have taken place on these area along with general land management practices associated with the landuse such as:- weed and feral animal control.

These areas are compatible with the post mining landuses as outlined.

COST ESTIMATES

Currently closure planning is in the conceptual stage and the only cost estimates made for decommissioning have been done for the calculation of the Rehabilitation Security Deposit held against the current mining operation. This calculation was undertaken in line with the '*Rehabilitation cost estimate guidelines'* issued by NSW Industry & Investment 2010. This calculation is undertaken based on covering the full costs in undertaking rehabilitation in the event of default by the operator.

The estimated cost to rehabilitate the site i.e. Decommission the mining operation was calculated on the maximum disturbance for the current Mining Operations Plan. The cost estimate was $11.2 million.

This cost was attributed as following:-

AREA	SECURITY DEPOSIT COST
Infrastructure	$1,654,966
Tailings & Rejects Emplacements	$2,102,925
Overburden & Waste Dumps	$2,291,371
Active Mine & Voids	$3,085,596
Sundry Items	$1,003,458
Contingency	$1,013,834
Total Security Deposit for Mining Project (exclusive of GST)	$11,152,150

This rehabilitation security deposit calculation of $11.2m is taken to be a reasonable estimation of the decommissioning cost of the site and mine closure at 2016 should the operation close at this time.

SCENARIO 2: MINING APPROVED TO CONTINUE PAST 2016

Development consent granted to continue the mining operation to extract the remainder of the coal resource identified in the original mining project back in mid 1980's.

The current development consent expires in 2016 i.e. end of the 21 year time frame of a development consent for an approved activity. At 2016 the mineable coal resource will not fully extracted with some 35 million tonne of coal resource remaining.

The Company plans to apply to continue the current mining operation to extract the remaining for coal resource. Where by mine closure will not occur at 2016 but sometime into the future. Mine Closure planning and the development of a Mine Closure Plan for the completion of this project will be a component of requirements of the development approval for the continuing operation and will be undertaken as a component of the continuing mining project as approved.

The mining operation at 2016 has been described in Scenario 1 with active mining taking place in the West Pit 3 and backfilling operations continuing in the North Pit 1.

Infrastructure including office, workshop, CHPP, rail loading facilities will remain and continue to be utilised as part of the ongoing operation.

A mine closure plan will then be developed for the closure of the approved operation to coincide with the end of that approval period when it is determined. At this stage

no mine plans are available for the operation past 2016. These plans will be developed as a component of the process of gaining development approval to continue the mining operations and will be used to form the basis of the new mine closure plan to be developed for the completion of mining at the end of the approval period.

ENVIRONMENTAL MANAGEMENT

Environmental management at Rix's Creek must comply with the *MinOp Environment Management System* (EMS). This EMS was developed and implemented to minimise environmental impacts from Rix's Creek mining operations and assist group mining operations to meet their environmental obligations. The Bloomfield Group EMS is consistent with the principles of the international standard for EMS, ISO 14001, and specifically seeks to provide a practical management tool for both site management and personnel. All applicable elements of the EMS will apply post-closure until successful tenement relinquishment can be achieved.

POST CLOSURE MONITORING

In accordance with the current Rix's Creek Consent and Rix's Creek EPL, an environmental monitoring network has been established. This current network includes monitoring for surface and groundwater, noise, air quality, blast and vibration, and flora and fauna management.

Of particular relevance to mine closure are surface and groundwater, noise and air quality. Following closure of the mining operation at Rix's Creek, these environmental monitoring programs will be maintained at a reduced scope and scale, until all decommissioning and rehabilitation works have been completed. The type and location of this monitoring will be determined during the decommissioning of the site.

The monitoring program will be continued until monitoring data demonstrates that the site is no longer contributing pollutants to the surrounding environment. Until the mining lease is relinquished, periodic field inspections should also be undertaken of all rehabilitated areas, particularly waterways and sediment control structures.

POST CLOSURE SOCIO-ECONOMIC IMPACT

One of the landuse options for post closure involved:- Industrial – heavy buildings and factories; Commercial – sections along the New England Highway; and Waste disposal – areas could be retained for waste disposal.

The industrial and commercial development of land adjacent to the New England Highway would create significant jobs and economic prosperity for the Singleton Local Government Area (LGA) post Rix's Creek mine operation. These developments would adequately compensate for the loss of employment at the Rix's Creek mining operation when it closes.

The potential for residential subdivision of buffer lands surrounding the mined areas will enhance the employment generation from the industrial and commercial landuse by providing potential local accommodation for these people.

The Company has already undertaken an industrial development on land it owned as part of the buffer area surrounding the mine. The industrial subdivision of McDougall's Hill Industrial Estate has provided significant industrial and commercial development for the Singleton LGA.

These already developed areas and the potential for future development post mining will more than adequately compensate for the cessation of employment and economic flow on to the Singleton LGA.

AUDIT AND REVIEW

This document will be reviewed in response to changes in operational planning, or in response to changes in regulatory requirements. Feedback from this and other reviews and audits, form the basis for System improvement and re-design.

Internal auditing of this document is carried out as per the *Group Management Systems Audit System*.

Ongoing review of this document is as per the *Group Systems Review Management System*.

General Conditions of Review

In general Management Systems are reviewed and up-dated conditional as follows:

- ❑ Every three years; or
- ❑ Whenever there is a significant change to relevant legislative or regulatory requirements; or
- ❑ Whenever there is a significant change to the operations; or
- ❑ If required (in writing) to do so by relevant government departments.

Revised systems are allocated a new three year review period.

DOCUMENT MANAGEMENT

Copies of this document are managed under the *MinOp Document Management, Management System*. This document and other relevant documents are kept on site and are available to all employees and contractors (as appropriate).

CONSULTATION

This document has been developed/ reviewed in consultation with relevant members of the workforce as appropriate to the impact and influence of the intent of the document as per the *MinOp Employee Consultation Management System*. The table below depicts a cross section of the workforce who have had input into the document either in its current form or at some stage in the document's history.

The Bloomfield Group		Rix's Creek Mine	
J Richards	Managing Director	L Murray	Mine Manager/Manager Mining Engineering
Reg Crick, Paul Taylor, Brett Lewis	Board of Directors	J Hindmarsh	Senior Environmental Officer
G Bailey	General Manager Mining	J Desmond	Environmental Officer

SUPPORT DOCUMENTS

- *Bloomfield Group Landscape Management Plan*
- *Rix's Creek Mine Rehabilitation Management Plan, Revision (2011)*
- *Rix's Creek Mine Mining Operations Plan (MOP) 2006*
- *Rix's Creek Mine – Final Void Management Plan (RPS Aquaterra 2012)*
- *Environmental Protection Licence 3391 (EPA)*
- *Strategic Framework for Mine Closure (ANZMEC & MCA, 2000)*
- *Guidelines to the Mining, Rehabilitation and Environmental Management Process (NSW Dept Primary Industries)*
- *Group Environmental Policy*
- *MinOp Environment Management System*

Appendix 1

Letter of Approval - DPE

NSW GOVERNMENT | Planning & Infrastructure

Contact: Scott Brooks
Phone: 6575 3402
Fax: 6575 3415
Email: scott.brooks@planning.nsw.gov.au
Our ref: DA 49/94

Mr John Hindmarsh
Environmental Officer
Rix's Creek Pty Limited
PO Box 4
EAST MAITLAND NSW 2323

Dear John

Rix's Ck – Approval of Management Plans

Thank you for forwarding a number of management plans for review as required by your mine Approval DA 49/94. We have reviewed the following management plans.

Traffic Management Plan (Condition 9, Schedule 2);
Water Management Plan (Condition 15, Schedule 2);
Erosion and Sediment Control Plan (Condition 15a, Schedule 2);
Landscape Management Plan (Condition 16, Schedule 2), this includes;
- Rehabilitation Management Plan (Condition 16b, Schedule 2);
- Final Void Management Plan (Condition 16c, Schedule 2);
- Mine Closure Plan (Condition 16d, Schedule 2).

The Department has reviewed the management plans identified above and can advise they have been approved by the Director General.

Accordingly, the Department requests that a copy of the management plans marked "final" are forwarded to the Singleton office, by the end of January 2014, as a soft copy for our records.

If you require further information please contact Ann Hagerthy on 6575 3403 or by email to ann.hagerthy@planning.nsw.gov.au.

Yours sincerely

Scott Brooks
Team Leader Compliance
2-1-2014
As nominee for the Director-General

Appendix 2

Evidence of Consultation

Mr Fergus Hancock
Major Projects, Mine Assessments & Planning Unit
NSW Office of Water
Dept Environment Climate Change & Water
PO Box 2213
DNAGAR NSW 2309

Wednesday, February 10, 2010

Dear Fergus,

DA49/94 – Bloomfield Collieries Pty Ltd, Rix's Creek Mine.
Landscape Management Plan – DECCW Consultation.

The modified conditions of consent issued in September 2009 relating top the Rix's Creek Mine, require consultation with Office of Water for the preparation of a Landscape Management Plan.

> ***Landscape Management***
> *16A. The Applicant shall prepare and implement a detailed Landscape Management Plan for the development to the satisfaction of the DII and the Director-General. This plan must:*
> *(i) be prepared in consultation with DECCW, the Office of Water and Singleton Shire Council by suitably qualified expert/s whose appointment/s have been approved by the Director-General;*
> *(ii) include a:*
> - *Rehabilitation Management Plan to be submitted for approval by the Director- General by 31 March 2010;*
> - *Final Void Management Plan to be submitted for approval by the Director- General by 31 December 2011; and*
> - *Mine Closure Plan to be submitted for approval by the Director-General by 31 December 2011.*

Please notify the Company of any recommendations you wish you make on matters to be included in the preparation of the Landscape Management Plan.

If you would you like to receive a draft of the Plan for comment prior to submission to the Dept of Planning also let us know.

If you require any further information please do not hesitate to contact me.

Yours faithfully

John Hindmarsh
Environmental Officer
Telephone:- 02 65788806
Mobile:- 0427 436285
E-mail:- jhindmarsh@rixs.com.au

General Manager
Singleton Council
PO Box 314
SINGLETON NSW 2330

Wednesday, February 10, 2010

Dear Sir,

DA49/94 – Bloomfield Collieries Pty Ltd, Rix's Creek Mine.
Landscape Management Plan – Singleton Shire Council Consultation.

The modified conditions of consent issued in September 2009 relating top the Rix's Creek Mine, require consultation with Singleton Shire Council for the preparation of a Landscape Management Plan.

> ***Landscape Management***
> *16A. The Applicant shall prepare and implement a detailed Landscape Management Plan for the development to the satisfaction of the DII and the Director-General. This plan must:*
> *(i) be prepared in consultation with DECCW, the Office of Water and Singleton Shire Council by suitably qualified expert/s whose appointment/s have been approved by the Director-General;*
> *(ii) include a:*
> - *Rehabilitation Management Plan to be submitted for approval by the Director- General by 31 March 2010;*
> - *Final Void Management Plan to be submitted for approval by the Director- General by 31 December 2011; and*
> - *Mine Closure Plan to be submitted for approval by the Director-General by 31 December 2011.*

Please notify the Company of any recommendations you wish you make on matters to be included in the preparation of the Landscape Management Plan.

If you would you like to receive a draft of the Plan for comment prior to submission to the Dept of Planning also let us know.

If you require any further information please do not hesitate to contact me.

Yours faithfully

John Hindmarsh
Environmental Officer
Telephone:- 02 65788806
Mobile:- 0427 436285
E-mail:- jhindmarsh@rixs.com.au

Mr Mitchell Bennett
Head Regional Operations Unit – Hunter Region
Dept Environment Climate Change & Water
PO Box 488G
NEWCASTLE NSW 2300

Wednesday, February 10, 2010

Dear Mitchell,

DA49/94 – Bloomfield Collieries Pty Ltd, Rix's Creek Mine.
Landscape Management Plan – DECCW Consultation.

The modified conditions of consent issued in September 2009 relating top the Rix's Creek Mine, require consultation with DECCE for the preparation of a Landscape Management Plan.

> ***Landscape Management***
> *16A. The Applicant shall prepare and implement a detailed Landscape Management Plan for the development to the satisfaction of the DII and the Director-General. This plan must:*
> *(i) be prepared in consultation with DECCW, the Office of Water and Singleton Shire Council by suitably qualified expert/s whose appointment/s have been approved by the Director-General;*
> *(ii) include a:*
> - *Rehabilitation Management Plan to be submitted for approval by the Director- General by 31 March 2010;*
> - *Final Void Management Plan to be submitted for approval by the Director- General by 31 December 2011; and*
> - *Mine Closure Plan to be submitted for approval by the Director-General by 31 December 2011.*

Please notify the Company of any recommendations you wish you make on matters to be included in the preparation of the Landscape Management Plan.

If you would you like to receive a draft of the Plan for comment prior to submission to the Dept of Planning also let us know.

If you require any further information please do not hesitate to contact me.

Yours faithfully

John Hindmarsh
Environmental Officer
Telephone:- 02 65788806
Mobile:- 0427 436285
E-mail:- jhindmarsh@rixs.com.au

NSW GOVERNMENT | Office of Water

John Hindmarsh
Rixs Creek Coal Mine
PO Box 4
East Maitland NSW 2323

Contact: Fergus Hancock
Phone: 02 4904 2532
Fax: 02 4904 2503
Email: Fergus.Hancock@dnr.nsw.gov.au

Our ref: NEW0003707-2
Your ref:

February 18 2010

Dear John

Subject: Rixs Creek Coal Mine Landscape Management Plan

I refer to your letter dated 10 February 2010, requesting input from the Department of Environment, Climate Change and Water (NSW Office of Water) (NOW) on the Landscape Management Plan (LMP) for Rixs Creek coal mine.

NOW is the State water management regulator, including statutory regulation regarding riverine corridor management, water access and aquifer interference, and management and protection of groundwater dependent ecosystems. Therefore, those elements of the LMP which involve reconstruction or remediation of riverine corridors, management or recovery programmes to groundwater dependent ecosystems or final void configuration and management require consideration of relevant State policies and the principles of the *Water Management Act 2000* (WMA).

Specific issues for inclusion in the LMP include:

- Identification of any groundwater dependent ecosystems which exist on the site or may be included in rehabilitation of the post-mining landscape, and;
- Justification for final void(s) in terms of groundwater salinity, displacement of groundwaters from account water(s) managed under Water Sharing Plans, and final landscape design, including minimising risk of dryland salinity
- Objectives for mine closure related to landscape design to manage saline/hypersaline groundwater, riparian land management to maximise ecosystem and post-mine life land use options

If you require any further information or clarification of information provided in this submission, please contact Fergus Hancock on (02) 4904 2532.

Yours sincerely

Per Mark Mignanelli
Manager, Major Projects Assessments
NSW Office of Water

Department of
Environment, Climate Change and Water NSW