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FINAL AND TEMPORARY REHABILITATION PRINCIPLES

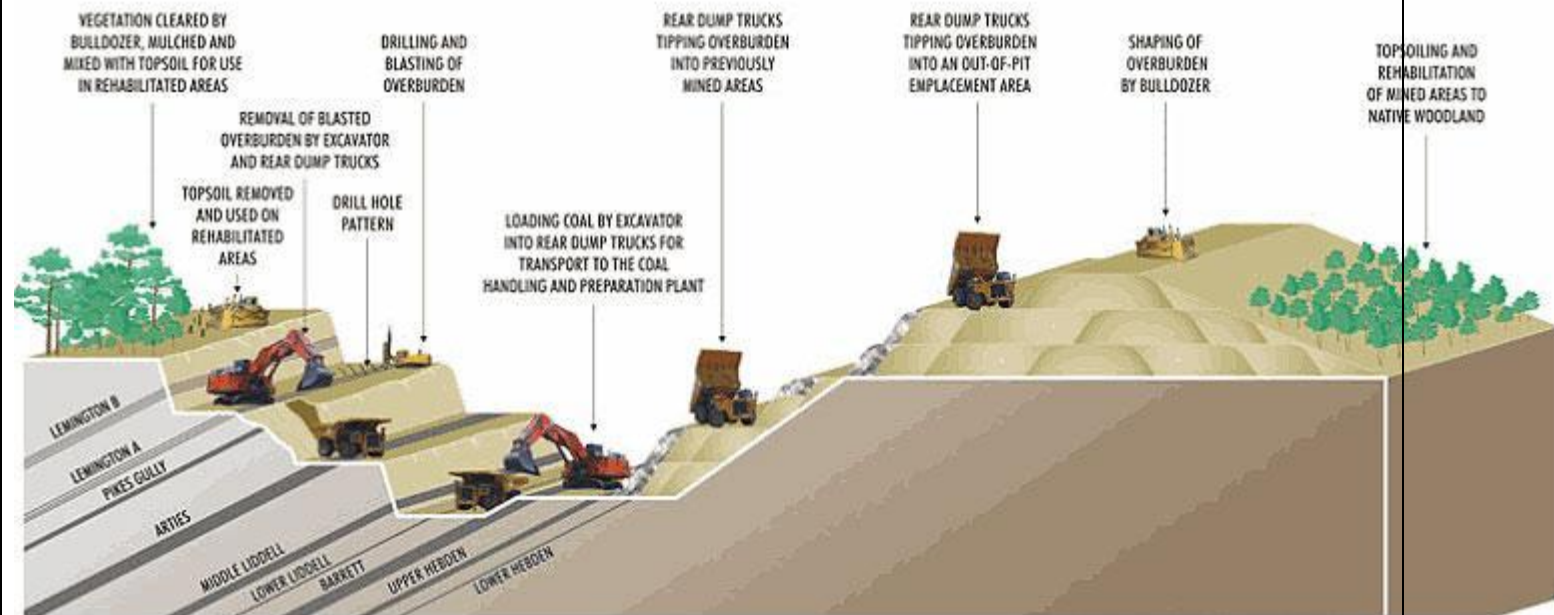
BLOOMFIELD GROUP REPORT 2013 – Rix's Creek

Principle	Reporting
<p><i>Principle 1 – Include rehabilitation planning in mine planning</i></p> <p><i>Planning for rehabilitation should be integrated into the mine planning process and should include allocating adequate and dedicated resources to achieve the planned rehabilitation outcomes.</i></p>	<p>This has been undertaken in line with current MOP (commenced 15/3/2013), however, lower production rates than those in the MOP have affected the rehabilitation process. Lower production rates means the extraction of 11.5 million tonnes of waste rock rather than the sites limit of 15 million (76% of site target). This 24% less waste rock moved across site meant less area's were shaped to final landform design levels reducing rehabilitation land available. Internal equipment / operators as well as contracting companies are dedicated to rehabilitation of final shaped land. Rehabilitation has been focussed on area's closest to the Singleton community and those in view for visual amenity purposes (See Figure 1). During 2012 and 2013 rehabilitation has continued to progress in area's visible to the public with priority on the West Pit Dump. This eastern face seen from Maison Dieu is a priority area of rehabilitation with progress limited by coal reserves at the 'toe' of in-pit overburden dump batters ("free-fall" waste rock which has come to rest at the base of the pit near the coal reserve to be mined, once the coal is mined this 'toe' will progress westward, essentially bringing the top of the dump and rehabilitation with it).</p>

Principle 2 – Undertake progressive rehabilitation

Companies should undertake rehabilitation progressively, with the objective of ensuring that rehabilitation is as close as possible to active mining.

During 2013 rehabilitation was carried out to any area's shaped to final landform design – this ensured rehabilitation is as close as possible to the active mining areas. This will continue during 2014 (See Figure 2). A bench-style sequence of stripping/mining/dumping/shaping/rehabilitation maintains this.



<p>Principle 3 – Minimise time that disturbed areas are left without vegetation</p>	<p>Employment of a full-time rehabilitation contractor ensures rehabilitation is commenced within 12 months of land becoming available. In fact rehabilitation is usually commenced well within 12 months of land becoming available.</p>
<p>Companies should actively seek to minimise the time that land is left without cover during mining. This should include:</p> <ul style="list-style-type: none"> ▪ Taking steps to ensure that rehabilitation is commenced within 12 months of land becoming available for rehabilitation ▪ Utilising methods of temporary rehabilitation¹, such as aerial seeding of over burden and other disturbed areas where permanent rehabilitation has not commenced. 	<div data-bbox="604 326 1843 1019" data-label="Image"> </div> <p>Area shaped in February 2013 and rehabilitated April 2013. Area downslope (right) is previous rehab and haul road upslope (left) is an active haul road used for the next dump 'lift' of material and subsequent rehabilitation stage.</p>

¹ Temporary rehabilitation describes reshaping, revegetation and other rehabilitation techniques that are used for purposes other than final rehabilitation. This includes such initiatives as seeding overburden emplacement areas to reduce erosion, which are only temporary.

Rix's Creek undertook the following temporary rehabilitation in the reporting period:

- 100 ha of aerial seeding took place on overburden batters (visual and dust minimisation) during 2012. These area's can be easily seen by motorists passing on the New England Highway.





1 tonne bulk bags of fertiliser and pasture seed being loaded into light plane for aerial dispersal.



Light plane aerial seeding out of pit overburden batters.



Aerial seeding on South Pit dump batters (3 months)



Aerial seeding on North Pit dump batters and spoil heaps (3 months)

- Hydromulching of steep batters such as the ROM Pad noise bund.



- Hand seeding of area's disturbed and inaccessible by conventional means along the New England Highway and infrastructure areas (temporary and permanent).

Temporary / permanent habitat:

- Installation of stag tree's / nest boxes on new rehab to provide wildlife habitat prior to tree's / tree hollows becoming available. This also includes rock / wood piles for ground-dwelling creatures.



Man-made nest box in an Ironbark tree which was cleared ahead of the mining operation – 'beneficial reuse'



'Stag' trees as roosting perches for birds / birds of prey and piles of natural material for ground-dwelling creatures.

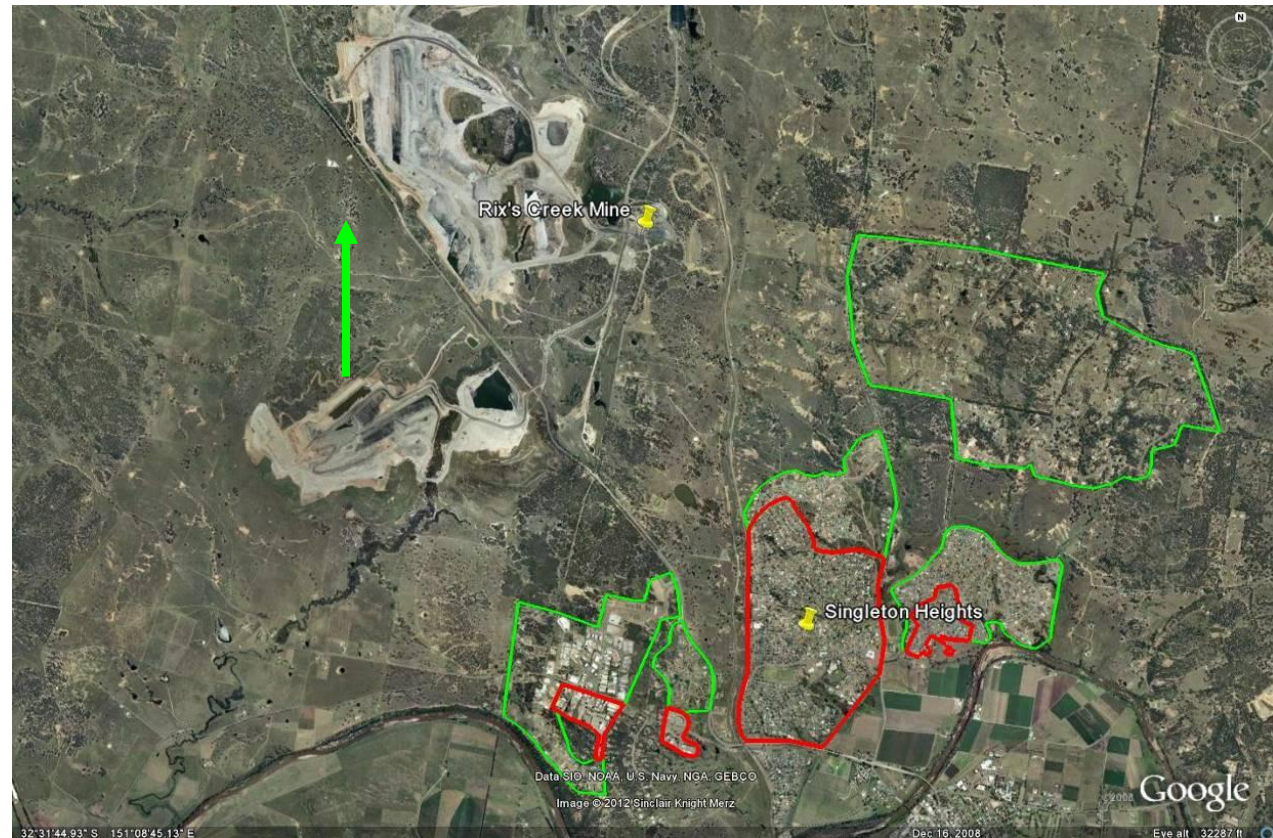
Principle 4 – Prioritise areas of rehabilitation and temporary cover to reduce impacts

Companies should prioritise rehabilitation and temporary cover in those areas where leaving land exposed will have the most impact. The following areas should be considered to have priority:

- Areas that have the greatest impact on visual amenity, such as areas that face townships, residences, or the highway
- Areas that have the potential to generate dust leaving the site
- Areas that are important for biodiversity, such as rehabilitation adjoining or providing connectivity to remnant vegetation.

Rehabilitation and temporary cover is given the highest priority where the area is seen by the public everyday. This includes tree screens/ bunds, strategic planting of overstorey species in areas to fit in with the existing landscape and habitat corridors (remnant or rehabilitation), overburden batters facing New England Highway/ main roads, overburden dumps that are designed to tie in with unmined surrounding landscapes as well as minimise offsite impacts such as noise/dust/water/etc.

Rehabilitation has been designed from nearest residences / townships and to move away aligned to production rates as discussed in Principle 1 – area's of priority are those closest to Singleton Heights / Retreat / Maison Dieu Industrial Estate and to move onto other area's as they progress away from the population.



Red = 1989 Population area. Green = 2013 Population area.



Image taken from Llanrian Drive, Maison Dieu looking NW at Rix's Creek West Pit dump.

<p><i>Principle 5 – Meet target for rehabilitation progress identified in the Mining Operations Plan</i></p>	<p>Rix's Creek 2013 Mining Operations Plan target was to undertake 12.2 hectares of rehabilitation. The target was exceeded with 36.1 hectares being rehabilitated.</p>
<p><i>Each company should meet the annual target for rehabilitation quantity (area) set in the Mining Operations Plans for each of its mines.</i></p>	<p>These MOP targets are set around maximum production levels with Rix's Creek working below these levels so rehabilitation expectations are far greater than planned. The capping of Tailing's Dam # 2 made a larger area available – this capping had taken place over the last several years.</p>

<p>Principle 6 – Set quality targets for rehabilitation in the Mining Operations Plan and implement a monitoring program to measure performance</p>	<p>Rehabilitation areas are reviewed frequently after sowing for any maintenance required (regarding land stability/ nutrients/ weed and pest presence) with Landscape Function Analysis (LFA) rehabilitation monitoring carried out on a biannual basis. This includes commencing more monitoring sites as new rehabilitation sites are available. The species utilised and monitored from establishment through to total (sustainable) rehabilitation is aligned to Rix’s Creek MOP.</p>
<p><i>Each company should include quality targets for the various types of rehabilitation in the Mining Operations Plan for each of its mines. A monitoring program to measure the performance of rehabilitation areas against the quality targets should be implemented at each of its mines.</i></p>	<p>LFA Monitoring Methodology Example</p> <p>Site Establishment Each site will consist of a 50m transect, positioned along the contour of the slope, and permanently marked using steel pickets, or similar.</p> <p>Photo and General Rehabilitation Condition</p> <ul style="list-style-type: none"> • GPS co-ordinates will be recorded for the 0m picket. • Direction of the transect (to nearest cardinal point – N, SW, etc) from the 0m picket will be noted. • A photo will be taken from the 0m marker of the general condition of rehabilitation in the vicinity of the transect. • A brief word picture describing general condition (i.e. “rhodes dominated pasture grass with scattered shrubs and trees”) and any stand-out issues (evidence of fire, bare patches, weed infestations, tree die back or erosion) will be provided. • A sketch will be made of the transect location in relation to prominent nearby landmarks. • Landform gradient in the vicinity of the transect will be noted. <p>Weeds Note presence of declared noxious weeds in vicinity of transects, or substantial infestations of weeds that may out compete or otherwise hinder rehabilitation establishment.</p> <p>Fauna Note evidence of fauna re-colonisation in rehabilitation along transect, including insects and birds.</p> <p>Vegetation The following measurements will be recorded to assess vegetation establishment:</p> <ul style="list-style-type: none"> • Five x 1m² quadrats will be established (at the 0m, 10m, 20m, 30m & 40m marks). Groundcover estimate (%), number of groundcover species and dominant groundcover species (top 2 spp.) to be recorded for each quadrat.

- If trees or shrubs are present, one 20m x 10m plot, located 5m either side of the transect centreline will be established. Number of trees and shrubs taller than 1.2m will be recorded by species (if not known, allocate a number and record by genus – Acacia 1, Euc 2, etc). Stems/ha (total and for dominant spp/genus) should be calculated by multiplying plot results by 50.
- Evidence of recruitment (seedlings and small saplings) along transect should be noted. If possible, note species/genus and distance to nearest mature tree of that species/genus.
- Record general condition of tree health along transect. Specifically recording evidence of senescence, drought stress, nutrient deficiencies, disease or severe insect attack. If applicable, note if specific species/genus are impacted.

Nutrient Recycling

- Record the percent coverage and average depth of litter layer in each quadrat.
- Note the degree of litter layer composition.
 - 0 = Nil: Litter lying loose on surface with little indication of decomposition or incorporation;
 - 1 = Minor: Litter broken down into smaller fragments in contact with soil surface or slightly incorporated.
 - 2 = Moderate or greater: Litter has started to form layers, with lower layers demonstrating evidence of decomposition activity.
- Record the presence of cryptogams (algae, fungi, mosses, lichens, etc):
 - 0 = Nil evidence;
 - 1 = Minor: <10% cover.
 - 2 = Moderate or greater: >10% cover.

Soils/surface condition

For the characterisation of soil properties, the following actions should be taken along each transect:

- Note significant soil surface characteristics likely to influence rehabilitation development, including excessive surface rockiness, surface cracking, surface precipitates (salts, gypsum, etc), surface hardsetting, etc.
- In each of the 5 vegetation plots, note surface rockiness (0=nil surface rock; 1= <10% coverage and/or rocks generally < 25mm diameter; 2 = >10% rock coverage or rocks largely > 25mm diameter), surface horizon soil field texture and surface roughness (0 = surface generally smooth with little capability of impeding surface flow; 1 = some minor cracking or undulations generally <2cm; 2 = dense surface cracking or undulations generally >2cm)
- Excavate a representative soil profile hole and record the surface horizon characteristics –

depth, colour, structure, rootzone depth, rock content and field texture.

- Collect surface soil samples for analysis, as required to meet operation-specific soil characterisation criteria. Soil analysis requirements will be outlined in individual operation Rehabilitation Plans.

Erosion and Stability

The following landform attributes should be noted to monitor for evidence erosion and stability:

- Note the presence and, if possible, the cause of scalds or bare patches $> 2\text{m}^2$ along the length of the 50m transect.
- Record the location and dimension of all erosion rills $> 30\text{cm}$ wide and/or 30cm deep, where they intersect the 50m transect. Note whether the rills are active or inactive (inactive rills are usually found in areas of well established ground-cover and are filled/partially filled with sediment and/or vegetation established within the rill). The number of active rills deeper or wider than 30cm will be converted to a density per 50m for comparison with subsequent monitoring data.
- Note any failed water management structures (contour banks, drop structures, sediment ponds, etc).

Rehabilitation Monitoring Transect

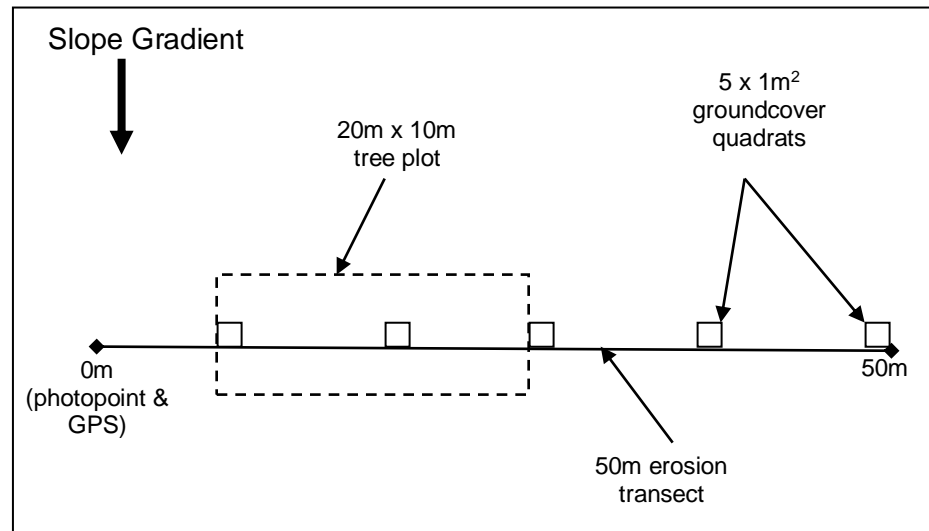


Figure 1 – 1990-2011 Rehab progress

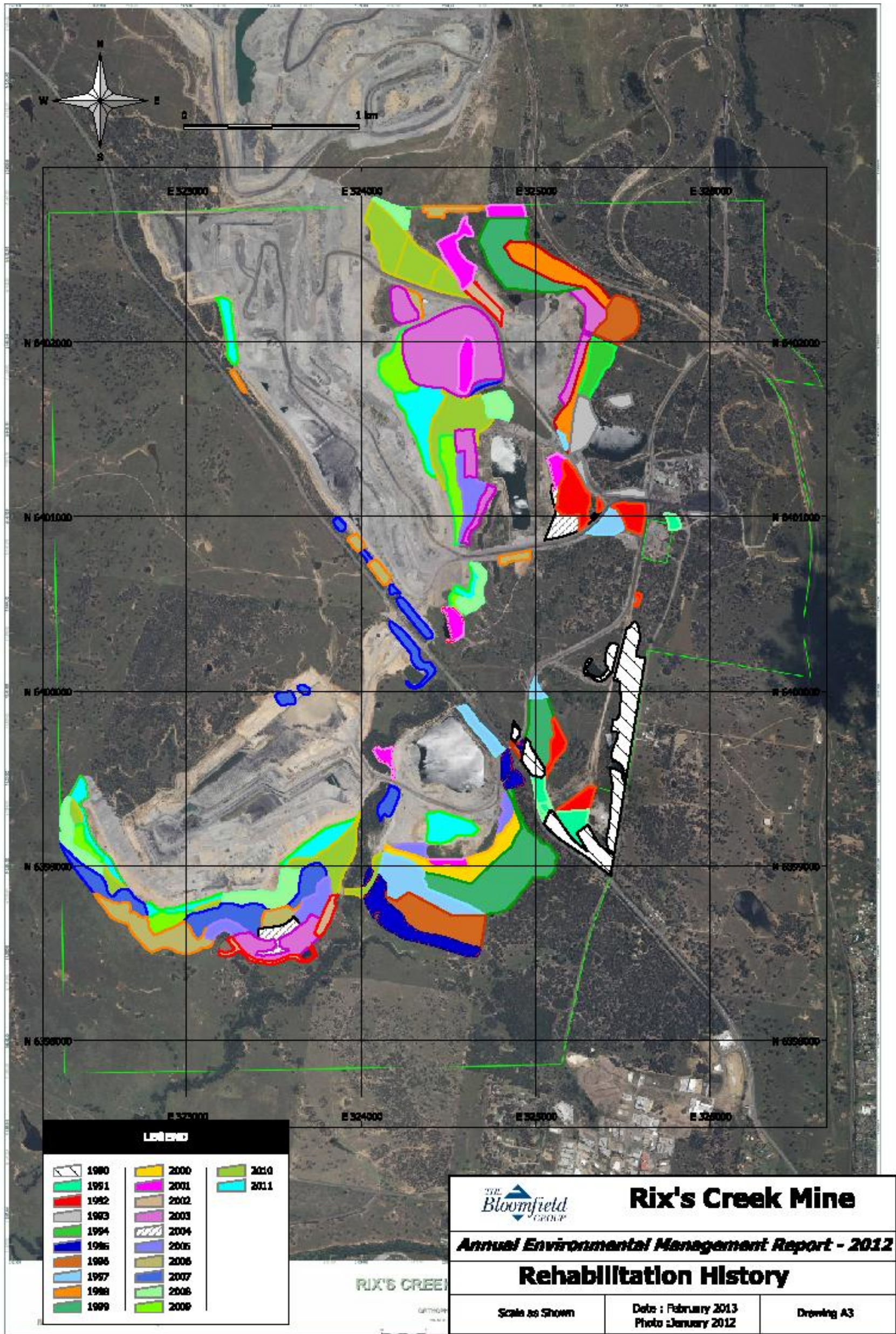


Figure 2 – 2012/2013 rehab and 2014 planned

