Environmental Approval & Compliance Solutions

Sonoma Coal Mine
Coral Creek Riparian Zone Management Plan

Sonoma Mine Management Pty Ltd

Document Control Summary

NRA Environmental Consultants

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Report Summary	
Key Words	Coral Creek, Sonoma Coal Mine, Riparian Zone Management Plan, Weed, Fire, Flora, conservation, Black Ironbox, *Eucalyptus raveretiana.*
Abstract	This plan addresses the requirement for Sonoma Coal Mine to manage the sections of Coral Creek within its mining leases for environmental purposes. Primarily, the sections of Coral Creek are to be managed for the conservation of the Black Ironbox *Eucalyptus raveretiana*.

Quality Assurance					
Author	**Technical Review**	**Editor**	**Document Version**	**Approved for Issue by QA Manager**	
				Date	**Signature**
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Appendix A: Approval Document

1. Introduction

Sonoma Mine Management Pty Ltd (SMM) operates an open-cut coal mine (Sonoma Coal Mine) on Mining Leases (MLs) 10325, 10326 and 10327 which are approximately 6 km south of Collinsville, Queensland (**Figure 1**). On 30 December 2010, SMM submitted a proposal to expand the open-cut pit (Ref: EPBC 2011/5800) for assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act). This proposal included the diversion of a 1,280 m section of the ephemeral Coral Creek. Approval for this activity was received from the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) on 7 February 2013. This agency is now referred to as the Commonwealth Department of Environment (DoE). The approval was subject to 16 conditions (**Appendix A**) all of which relate to managing impacts on Black Ironbox *Eucalyptus raveretiana* – Vulnerable[1] (EPBC Act) – which occurs along the banks of Coral Creek. The following report has been prepared for SMM by NRA Environmental Consultants (NRA) to address **Condition 5** of the approval, which requires the preparation of a Riparian Zone Management Plan (RZMP) for the section of Coral Creek directly affected by the proposed action.

1.1 Scope

This report addresses **Condition 5** of the approval (DSEWPaC, dated 7 February 2013, Ref: 2011/5800), as described below.

"The person taking the action must prepare a Coral Creek Riparian Zone management plan, with the objective of indefinitely sustaining a healthy population of black ironbox within the zone in support of the VDec described in Condition 6. The plan must include a map and be accompanied by a shapefile and must address at least the following matters:

a) access, signage and fencing;
b) fire management;
c) browsing management;
d) weed management;
e) erosion control;
f) hydrology;
g) early establishment care of any seedlings or translocated plants;
*h) monitoring and reporting on the health of the **black ironbox** population including in particular, survival and recruitment; and*
i) performance measures and responses.

The plan must identify timing, funding and roles and responsibilities in relation to specific tasks as outlined above.

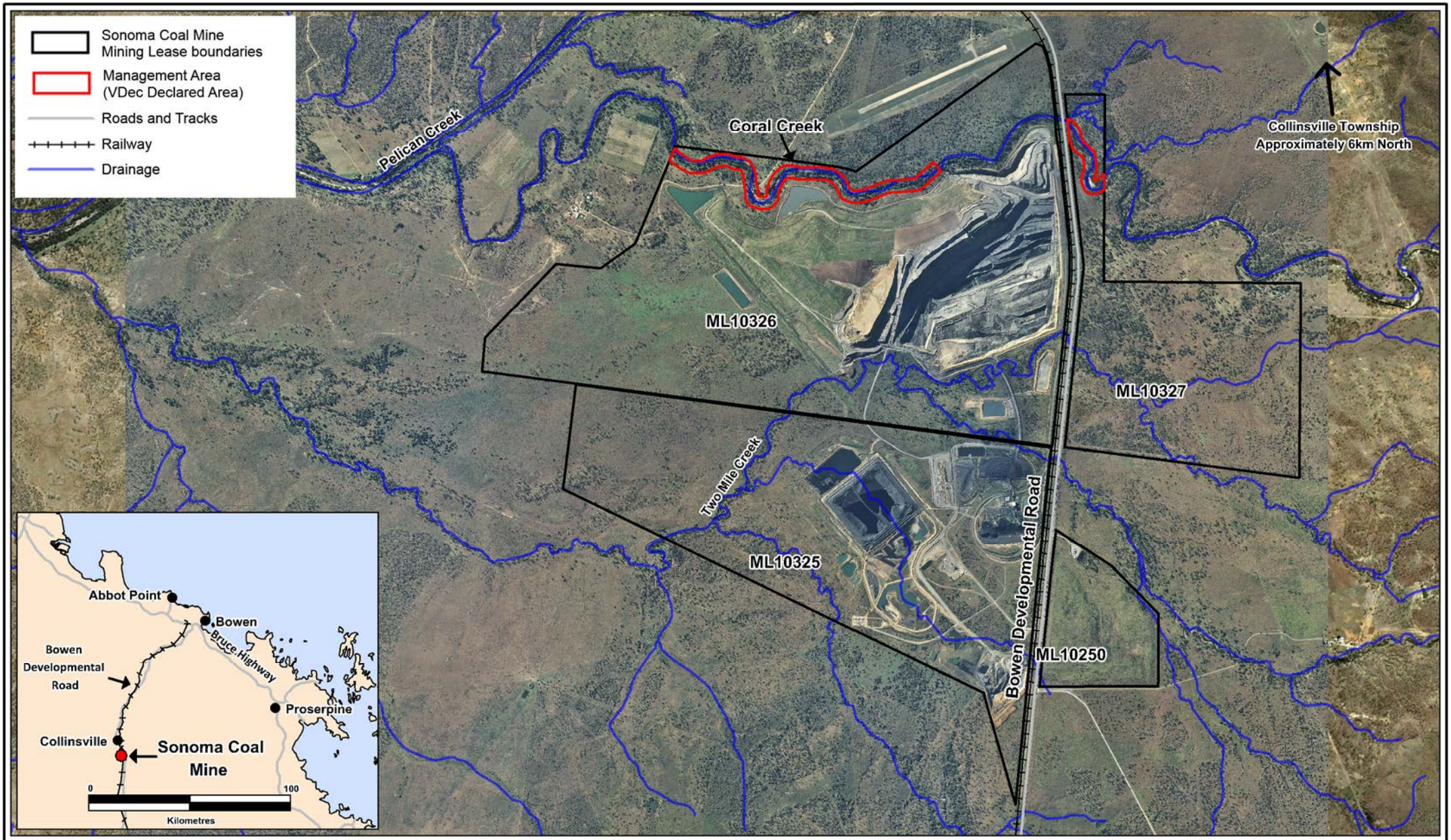
Within six (6) months of the date of this approval, the person taking the action must submit the plan to the minister for approval. When approved, the plan must be implemented."

Condition 3 of the approval defines the spatial extent of the Coral Creek riparian zone as being located within ML10326 and ML10327, covering an area of not less than 40 ha, and carrying no fewer than 400 naturally occurring Black Ironbox trees. A fenced buffer is also to be established at least 60 m from the high bank of Coral Creek to protect the 'true riparian zone'.

[1] The Black Ironbox is also listed as Vulnerable under the Queensland *Nature Conservation Act* 1992 though this status is irrelevant to the approval.

The Coral Creek riparian zone and the fenced buffer defined in **Condition 3** of the Approval are referred to in this document as the 'management area' and the '60 m protection buffer' respectively. The location of the management area is shown on **Figure 2,** and covers approximately 40 ha. The management area is located entirely within ML10326 and ML10327 and the background tenure, Lot 25 SP190745 (Sonoma Station).

As per **Condition 6** of the Approval, it is understood that the RZMP will also support an application by SMM for a voluntary declaration (VDec) under the Queensland *Vegetation Management Act* 1999 (VM Act) to protect the management area.



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PROJECT: Coral Creek Riparian Zone Management Plan
TITLE: Location map

JOB NO: 366507.02
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Figure 1

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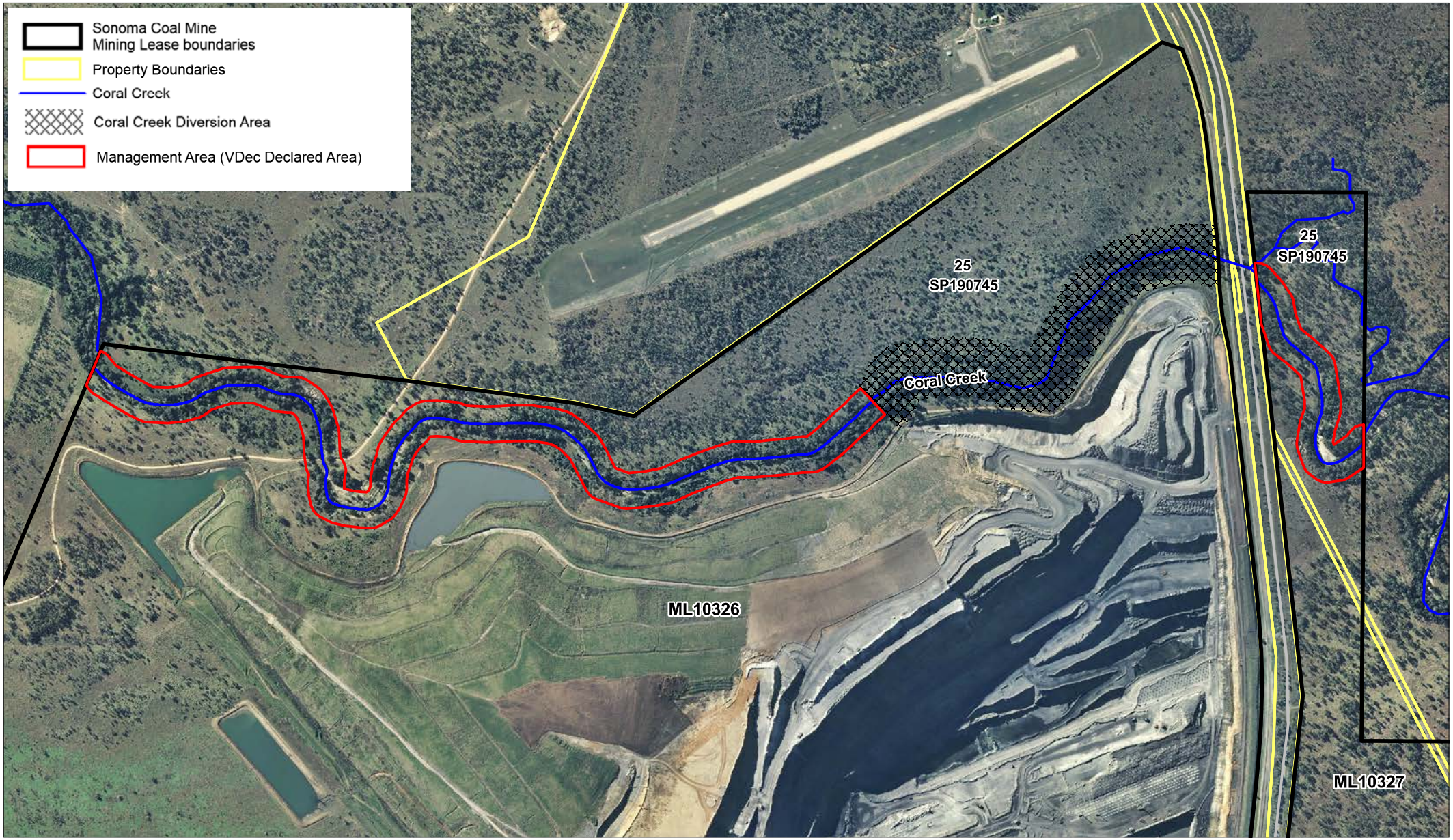

PROJECT: Coral Creek Riparian Zone Management Plan
TITLE: Coral Creek Riparian Zone - Management Area

JOB NO: 366507.02
DATE: July 2013

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Figure 2

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2. Context

2.1 Previous studies

In 2010 GHD conducted an ecological assessment of the vegetation fringing Coral Creek to provide information to support an application to protect suitable habitat for an offset for Black Ironbox. The project was referred to DoE in December 2010 and DoE issued an additional information request in February 2011. A supplementary report was prepared by GHD (2011) in response to the additional information request, and included details of a proposed offset strategy and management measures. The approval (with conditions) was granted by DoE on 7 February 2013. In April 2013 NRA undertook an assessment of the Coral Creek riparian zone, for the purpose of preparing the Coral Creek Weed Management Plan (NRA 2013).

2.2 Sonoma Coal Mine

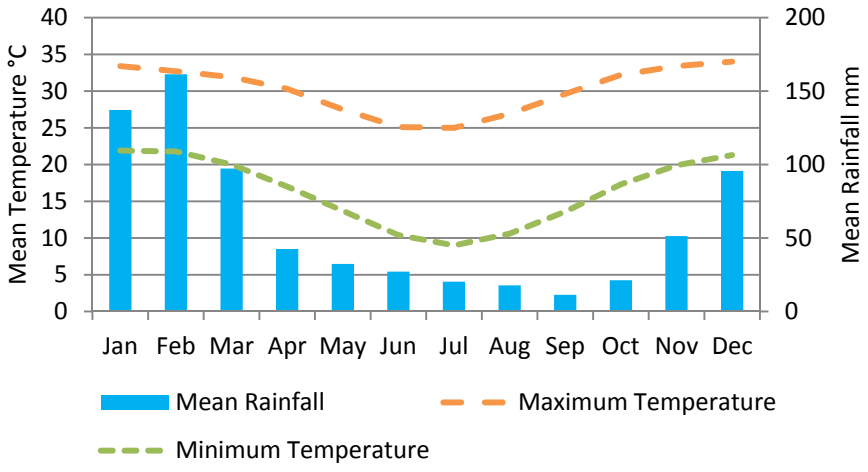
Sonoma Coal Mine (Sonoma) was established in September 2007 and began exporting coal in 2008. Sonoma produces approximately 4 million tonnes of coking and thermal coal products a year. The primary transport infrastructure servicing Sonoma is the Abbot Point Rail Line and the Bowen Developmental Road.

2.3 Climate and landscape

Sonoma is approximately 170 m above sea level and is located in a flat to undulating landscape between the Bowen River, which curves around to the south and west of the Collinsville region, and the northern sections of the Clarke Ranges to the east. Major waterways surrounding Sonoma include Pelican Creek, of which Coral Creek is a tributary, and the Bowen River.

The climate is monsoonal with predominantly north-easterly winds over summer swinging to south and south easterly winds over winter (BOM 2013). The mean temperature ranges from mean lows of 9°C in winter to mean highs of 34°C in summer (**Graph 1**). Most of the annual rainfall occurs through the summer months with a much reduced winter rainfall.

Graph 1: Mean rainfall and temperature for Collinsville post office (BOM 2013)



2.4 Land use

The dominant land uses in Collinsville are grazing and coal mining. Land use around Coral Creek within the Sonoma MLs comprises Sonoma infrastructure (overburden dumps and an open pit) near the south bank of Coral Creek, and grazing land and Collinsville Aerodrome north of the creek. The land upstream and downstream of Coral Creek at Sonoma is largely cleared; remnant vegetation communities become more prevalent approximately four kilometres upstream at the base of the Clarke Ranges and occur patchily downstream around the banks of Pelican Creek.

2.5 Coral Creek Riparian Zone

Within the Sonoma MLs the vegetation along the Coral Creek riparian zone is mapped by the Queensland Herbarium as Regional Ecosystem (RE) 11.3.25 (*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines) (Wormington *et al.* 2004, GHD 2010). Semi-evergreen vine thicket species occur as a distinct understory along sections of the riparian zone; the Queensland Herbarium has not mapped these occurrences as unique REs. The baseline study (Wormington *et al.* 2004) identified Coral Creek as providing habitat for conservation significant species such as the Black Ironbox which is listed as Vulnerable under the EPBC Act and Queensland *Nature Conservation Act* 1992 (NC Act).

Weeds were reportedly common along Coral Creek including small Rubber Vine (*Cryptostegia grandiflora*) plants (Wormington *et al.* 2004). There were anecdotal reports of increased sedimentation along Coral Creek but actual observed erosion from creek banks within the ML boundaries was low (Wormington *et al.* 2004).

2.6 Black Ironbox (*Eucalyptus raveretiana*)

Black Ironbox is a small to medium sized tree growing to 30 m, with fissured brown bark on half or most of the main trunk and with branches mostly smooth blue or grey (**Plate 1**). This eucalypt looks like the Forest Red Gum (*Eucalyptus tereticornis*) but is easily distinguished by its nuts which are the smallest of any eucalypt species at approximately 2 mm in length and width (Brooker & Kleinig 2004).

Plate 1: Black Ironbox tree observed in the Coral Creek riparian zone (18/4/13)

The Black Ironbox is endemic to Queensland and known from 23 scattered and disjunct locations (Halford 1997) in two main regions: from Townsville to Nebo and around Rockhampton, although there are likely to be many sub-populations (Queensland Herbarium 2009 in DSEWPaC 2013). Black Ironbox usually grows along watercourses, and sometimes on river flats or open woodland where it is usually associated with Forest Red Gum (*Eucalyptus tereticornis*), Moreton Bay Ash (*Corymbia tessellaris*), Weeping Paperbark (*Melaleuca leucadendra*), River She-Oak (*Casuarina cunninghamiana*) and semi-evergreen vine thicket species (Halford 1997, Lokkers *et al.* 2005, Melzer & Plumb 2007, TSSC 2008). It generally grows on alluvial sands, loams, light clays or cracking clays (Halford 1997). On the Sonoma MLs Black Ironbox occurs on the lower bank within 10 m of Coral Creek (GHD 2010).

Black Ironbox has been logged for timber and used as railway timbers and fencing material (Halford 1997). Several logged stumps of large individuals and large dead standing trees[2] are present along Coral Creek, these were reportedly poisoned when land clearing was an encouraged practice (*pers. comm.* Shane Watts, grazier, April 2013). Current threats to Black Ironbox are mainly associated with weed impacts, fire, stream bank erosion and accidental clearing (TSSC 2008 and DSEWPaC 2013). Rubber Vine is a noted threat capable of smothering and killing trees (including mature trees). Conservation advice for Black Ironbox (TSSC 2008) specifically states that Rubber Vine and other weed species that could become a threat to Black Ironbox require control. Although Black Ironbox seeds can germinate after fire, fire is thought to have a detrimental effect on seedlings and mature trees and will not be used for weed control. It is noted that increased fuel loads from weeds and introduced grasses represent a potential threat to be managed. Streambank erosion is also listed as a threatening factor. Actions that exacerbate erosion (such as clearing and uncontrolled stock access to creeklines) need to be managed.

[2] Although it is possible that the stumps and dead trees belonged to Forest Red Gums, the dominance of Black Ironbox in this section of Coral Creek suggests they are more likely to be Black Ironbox.

3. Issues and Management

Condition 5 of the approval (Ref: EPBC 2011/5800) requires that the RZMP address issues relating to the following.

a) Access, signage and fencing.
b) Fire management.
c) Browsing management.
d) Weed management.
e) Erosion control.
f) Hydrology.
g) Early establishment and care of any Black Ironbox seedlings or translocated plants.
h) Monitoring and reporting on the health of the Black Ironbox population including in particular, survival and recruitment.
i) Performance measures and responses.

The management area for the RZMP includes the 'true riparian zone' (*ie* the area between the high banks of Coral Creek where Black Ironbox occurs) and some land within the 60 m protection buffer (*ie* 60 m from the high bank of Coral Creek) (**Figure 2**). **Condition 3** of the approval requires at least 40 ha and no fewer than 400 naturally occurring Black Ironbox trees be included in the management area. The length of Coral Creek in the management area (approximately 3.8 km), allows 40 ha to be included in the management area.

3.1 Management intent

The purpose of this RZMP (and associated VDec application) is to provide enduring protection of the management area from future mining, agriculture[3] and other land clearing or development activities, and to conserve the high nature conservation value[4] of land within the management area. It is proposed that this be achieved through the provisions of a Property Map of Assessable Vegetation (PMAV) (under Division 5AA of the VM Act) to categorise the land within the management area (*ie* 'Declared Area') as 'Category A - land subject to a voluntary declaration'.

Consistent with Section 19J (a) of the VM Act, this RZMP will remain in effect until the performance measures outlined in **Table 2** have been achieved or the declaration ends under Section 19L of the VM Act.

3.2 Access, signage and fencing

Existing farm fencing crosses Coral Creek within the management area. Access to Coral Creek within this area currently requires approval from SMM as it is on the mining lease. Signage advising of restricted access to the area does not currently exist.

[3] It is understood that the definition of 'agricultural' activities under the VM Act does not include grazing.

[4] The criteria outlined in the VM Act for deciding the land is of 'high nature conservation value' was considered and the category found to be applicable includes 'another area that contributes to the conservation of the environment' (Section 19G (1b-vi) of the VM Act). This is due to the presence of riparian vegetation that provides habitat for conservation significant species such as the Black Ironbox which is listed as Vulnerable under the EPBC Act and NC Act.

Condition 3 of the approval requires a fenced buffer to be established at least 60 m from the high bank of Coral Creek, to protect the 'true riparian zone'. Existing fencing will be used by SMM where it is at least 60 m from the high bank of Coral Creek. Where the location of existing fencing is not suitable (*ie* where it is located within 60 m from the high bank) SMM have installed new fencing. Appropriate signage[5] will be installed to protect the management area (**Management action 1**).

Access to the management area will only be allowed if the purpose for the access is consistent with the management of the area for conservation purposes. Sonoma will inform site personnel and relevant stakeholders of the purpose and management of the Coral Creek riparian zone (**Management action 2**).

Fencing surrounding the management area, and signage, will be inspected annually (**Monitoring 1**) to ensure that fencing is intact and signage is in place (**Performance measure 1.**

3.3 Fire management

The North Australian Fire Information website (NAFI 2013) reports that there have been no mapped fire scars in the management area since 2000, although there was a fire to the south in 2010. The NAFI (2013) website also indicates that there were historical fire scars (pre 2000) over the lower parts of Coral Creek downstream of the proposed diversion.

The semi-evergreen vine thicket vegetation on the riparian slopes is a community sensitive to fire. Patches of semi-evergreen vine thickets do not show signs of having been burnt (*pers. obs.* Ing Toh, NRA, April 2013). Some of the large dead Black Ironbox trees along the riparian margin show signs of old fire scars.

There are no published reports on the specific response of Black Ironbox to fire. The EPBC species profile and threats (SPRAT) database (DSEWPaC 2013) recommends that fires be regarded as a threatening factor for Black Ironbox conservation. Regional Ecosystem Description Database (REDD) recommends that fire be managed so that burn intensity is kept low in the communities surrounding RE 11.3.25 (to manage fuel loads and prevent hot burns) (Queensland Herbarium 2013).

Fuel loads in the 60 m protection buffer adjacent to the riparian zone will be managed to prevent the occurrence of high intensity fires (**Management action 3**). Species to be managed include Guinea Grass (*Megathyrsus maximus*), Lantana (*Lantana camara*) and Buffel Grass (*Cenchrus ciliaris*). A firebreak will also be established (*eg* along the exclusion fencing) (**Management action 4**).

Semi-evergreen vine thicket can provide a fire barrier for the Black Ironbox trees. Degraded slope areas will be rehabilitated with semi-evergreen vine thicket species where possible, focusing on linking existing semi-evergreen vine thicket patches, to increase the fire barrier (**Management action 5**).

[5] Signage will explain the purpose of the management area and be installed on the fence line at the entry points to the management area and at other points where traffic may reasonably be expected to pass (*eg* where the fencing meets the Bowen Developmental Road or where it crosses existing tracks).

The 60m protection buffer will be inspected annually at the start of the dry season to ensure sufficient fire break exists, or fuel load is minimal (**Monitoring 2**). Fire breaks with a nominal width of 6 m will be maintained (**Performance measure 2**).

3.4 Browsing management

Some areas within the management area have not been grazed in recent years (*pers. comm.* Shane Watts, grazier, April 2013), whilst other areas are being grazed and there are cattle tracks leading into and across Coral Creek (*pers. obs.* Ing Toh, NRA, April 2013). Grazing intensity in the riparian zone appears to be relatively light with well-developed to dense ground cover of pasture species such as Buffel Grass in areas lacking dense tree or shrub cover (*pers. obs.* Ing Toh, NRA, April 2013). The area has also been the subject of a trial of camel grazing for management of prickly weed species such as Mimosa Bush (*Vachellia farnesiana*), Chinee Apple (*Ziziphus mauritiana*) and Harrisia Cactus (*Harrisia martinii*).

At the current rate of stocking, grazing was not observed to impact on the native semi-evergreen vine thicket or Black Ironbox vegetation (*pers. comm.* Ing Toh, NRA, April 2013).

Browsing by camels had a visible effect on Mimosa Bush (**Plates 2** and **3**) and Chinee Apple where the bushes were less than 3 m in height. Harrisia Cactus was uncommon in the area and mostly occurred in less accessible locations (*eg* cliff faces), supporting observations that it is a favoured browsing plant species for camels (*pers. comm.* Shane Watts, grazier, April 2013). Camels were also reported to browse on native trees and shrubs such as *Capparis lasiantha*, *Capparis arborea* and *Owenia acidula* (*pers. comm.* Shane Watts, grazier, April 2013) and may browse on other species.

Plate 2: Fenceline cleared of Mimosa Bush as far as the camels could reach (18/4/13)

Plate 3: Mimosa Bushes (in the foreground) torn down by camels (18/4/13)

Based on site observations (April 2013), light grazing by cattle may be considered an acceptable land use in the 60 m protection buffer beyond the high bank to reduce the density of grassy groundcover and manage fuel loads (**Management action 6**). Browsing by camels in the 60 m protection buffer beyond the high bank may be trialled to reduce infestations of prickly weeds (*eg* Mimosa Bush, Chinee Apple and Harrisia Cactus) (**Management action 7**). Notwithstanding cattle grazing and camel browsing in the 60 m protection buffer, access to the riparian zone by cattle and camels will be managed as required to protect the riparian zone, particularly areas where rehabilitation is being established (**Management action 8**).

For the first twelve months, the riparian zone will be inspected monthly to determine if cattle or camels are impacting on the riparian zone vegetation (**Monitoring 3**). Thereafter, annual monitoring of the management area will be undertaken at the end of the dry season to assess impacts from cattle grazing and camel browsing in the 60 m protection buffer and on the riparian vegetation and ensure cattle grazing and camel browsing do not impact on successful recruitment of native species into the understory and canopy of the riparian zone (**Performance measure 3**), and the grassed 60 m protection buffer maintains self-sustaining cover (>70% groundcover, with no site <50%) at the end of the dry season (**Performance measure 4**).

3.5 Weed management

A weed assessment for the Coral Creek riparian area was undertaken in April 2013 and showed that weed species are a major component of the plant species assemblage along Coral Creek (NRA 2013). Despite this, the report also indicates that the majority of the weed species are not currently ecologically damaging as their growth habits are sporadic and/or do not prevent the establishment of native species.

With the exception of the weedy vine species (in particular Rubber vine (*Cryptostegia grandiflora*) and Elephant Ear Vine (*Argyreia nervosa*)), the long-term sustainable management of most of the weed species in the riparian zone can be achieved through the rehabilitation of the semi-evergreen vine thicket vegetation (**Plate 4**). Rehabilitation of the riparian zone between the low bank and high bank will be undertaken in suitable locations (**Figure 3**) using local native semi-evergreen vine thicket species if available (as listed in **Table 1**) (**Management action 9**). Where possible, rehabilitation will always use seeds or

stock from Coral Creek or adjacent local creeks such as Pelican Creek (**Management action 10**).

Plate 4: Semi-evergreen vine thicket (18/4/13)

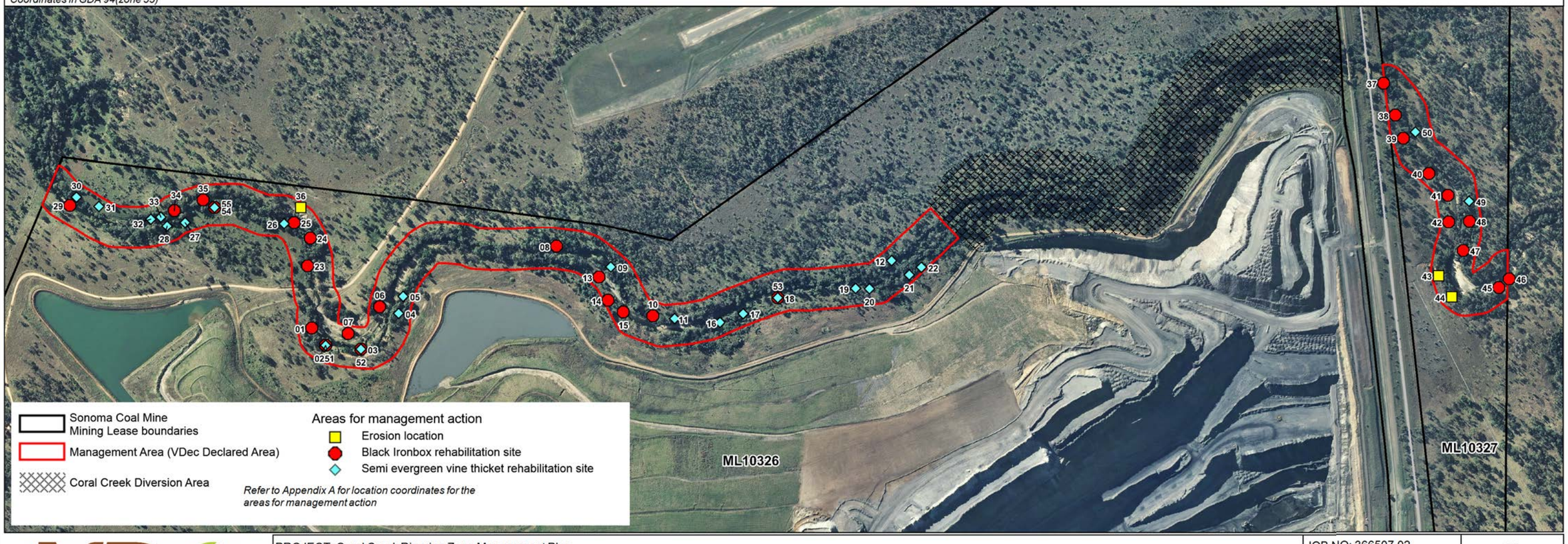
Table 1: Semi-evergreen vine thicket species encountered April 2013[1]

Structural layer	Species recommended for rehabilitation of semi-evergreen vine thicket	Other prominent semi-evergreen vine thicket species encountered (April 2013) which can be used for rehabilitation
Canopy (10 m to 15 m) and subcanopy (6 m to 10 m)	*Pleiogynium timorensis* *Lysiphyllum hookeri* *Brachychiton australis* *Melia azedarach* *Cassia brewsteri* *Ficus racemosa* *Acacia disparrima* *Geijera salicifolia* *Mallotus philippinensis* *Diospyros humilis* *Acacia salicina*	*Plumbago zeylanica* *Clerodendrum floribundum* *Terminalia oblongata* *Ampelocissus acetosa* *Cymbidium canaliculata* *Smilax australis* *Acalypha eremorum* *Ficus microcarpa* *Corymbia tessellaris* *Cupaniopsis* sp. *Pandorea pandorana* *Capparis sepiaria* *Capparis arborea*
Shrub (1 m to 6 m)	*Carissa ovata* *Ficus opposita* *Exocarpos latifolius* *Pittosporum spinescens* *Flueggea virosa*	*Abutilon* sp. *Alectryon diversifolius* *Breynia oblongifolia* *Eustrephus latifolius* *Tylophora* cf. *williamsii* *Hibiscus meraukensis* *Atalaya calcicola* *Ehretia membranifolia*

1 Semi-evergreen vine thicket species, other than the species listed in Table 1, which occur along Coral Creek, may be used for rehabilitation if considered suitable for collection and propagation.

Site	Easting	Northing	Management Action
01	587295	7720955	Black Ironbox rehabilitation site
02	587332	7720909	Black Ironbox rehabilitation site
03	587423	7720899	Black Ironbox rehabilitation site
04	587523	7720993	Semi evergreen vine thicket rehabilitation site
05	587534	7721037	Semi evergreen vine thicket rehabilitation site
06	587473	7721010	Black Ironbox rehabilitation site
07	587390	7720940	Black Ironbox rehabilitation site
08	587936	7721169	Black Ironbox rehabilitation site
09	588078	7721114	Semi evergreen vine thicket rehabilitation site
10	588188	7720987	Black Ironbox rehabilitation site
11	588245	7720979	Semi evergreen vine thicket rehabilitation site
12	588813	7721130	Semi evergreen vine thicket rehabilitation site
13	588047	7721088	Black Ironbox rehabilitation site
14	588071	7721027	Black Ironbox rehabilitation site
15	588111	7720996	Black Ironbox rehabilitation site
16	588364	7720969	Semi evergreen vine thicket rehabilitation site
17	588425	7720992	Semi evergreen vine thicket rehabilitation site
18	588515	7721033	Black Ironbox rehabilitation site
19	588719	7721058	Semi evergreen vine thicket rehabilitation site
20	588756	7721057	Semi evergreen vine thicket rehabilitation site
21	588859	7721093	Semi evergreen vine thicket rehabilitation site
22	588891	7721113	Semi evergreen vine thicket rehabilitation site
23	587284	7721117	Black Ironbox rehabilitation site
24	587292	7721190	Black Ironbox rehabilitation site
25	587249	7721230	Black Ironbox rehabilitation site
26	587223	7721227	Semi evergreen vine thicket rehabilitation site
27	586964	7721230	Semi evergreen vine thicket rehabilitation site
28	586916	7721221	Semi evergreen vine thicket rehabilitation site
29	586662	7721276	Black Ironbox rehabilitation site
30	586680	7721297	Semi evergreen vine thicket rehabilitation site
31	586738	7721272	Semi evergreen vine thicket rehabilitation site
32	586875	7721240	Semi evergreen vine thicket rehabilitation site
33	586900	7721245	Semi evergreen vine thicket rehabilitation site
34	586936	7721262	Black Ironbox rehabilitation site
35	587011	7721290	Black Ironbox rehabilitation site
36	587266	7721270	Erosion location
37	590101	7721596	Black Ironbox rehabilitation site
38	590133	7721512	Black Ironbox rehabilitation site
39	590153	7721452	Black Ironbox rehabilitation site
40	590220	7721359	Black Ironbox rehabilitation site
41	590270	7721302	Black Ironbox rehabilitation site
42	590272	7721232	Black Ironbox rehabilitation site
43	590246	7721091	Erosion location
44	590280	7721035	Erosion location
45	590403	7721060	Black Ironbox rehabilitation site
46	590430	7721083	Black Ironbox rehabilitation site
47	590310	7721157	Black Ironbox rehabilitation site
48	590326	7721234	Black Ironbox rehabilitation site
49	590325	7721286	Semi evergreen vine thicket rehabilitation site
50	590185	7721468	Semi evergreen vine thicket rehabilitation site
51	587332	7720909	Semi evergreen vine thicket rehabilitation site
52	587423	7720899	Semi evergreen vine thicket rehabilitation site
53	588515	7721033	Semi evergreen vine thicket rehabilitation site
54	587041	7721270	Black Ironbox rehabilitation site
55	587041	7721270	Semi evergreen vine thicket rehabilitation site

Coordinates in GDA 94(zone 55)



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PROJECT: Coral Creek Riparian Zone Management Plan
TITLE: Areas for management action

JOB NO: 366507.02
DATE: July 2013

N

SOURCE:
© State of Queensland (Department of Natural Resources and Mines) 2012.
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Sonoma Mine Management Pty Ltd
Google Earth
File Path: T:_AAA\366\WOR\366507_02\366507.02_RZMP Results_130607.wor

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Figure 3

Recommended print size: A3

Six species of weeds (Rubber Vine (*Cryptostegia grandiflora*), Elephant Ear Vine (*Argyreia nervosa*), Yellow Oleander (*Cascabela thevetia*), Chinee Apple (*Ziziphus mauritiana*), Guinea Grass (*Megathyrsus maximus*) and Lantana (*Lantana camara*)) were identified during the site visit (April 2013) as having the potential to, or are currently having a, significant impact on the native vegetation community including on Black Ironbox (NRA 2013). Of these species, Rubber Vine and Elephant Ear Vine are noted to pose the most significant threat to Black Ironbox by smothering and killing trees (including mature trees). Weed control measures will target Rubber Vine and Elephant Ear Vine, while other high priority weed species and introduced grasses in the management area need to be controlled to reduce fuel loads and minimise the threat of fire damage to the riparian zone (**Management action 11**). These species will be managed as recommended in the Coral Creek Weed Management Plan (NRA 2013) (**Management action 12**).

Suitable control methods for weeds are discussed in the weed management plan (NRA 2013) and associated weed information sheets. To ensure the correct plants are targeted, it is crucial that weed-control personnel are able to identify the weed species so that native plants are not accidently targeted. Weeds in the management area will be monitored annually following the wet season, to determine if control measures in place are effective (**Monitoring 4**). Effective management will be shown by the existing high priority weed species reducing in extent and no new high priority weed species present (**Performance measure 5**).

3.6 Erosion control

Erosion rills, gullies and scoured or slumped faces occur along the Coral Creek high and low banks in the management area. These appear to be the result of the natural hydrology and geomorphology of Coral Creek (**Plate 5**). Cattle tracks crossing Coral Creek are common and the observed tracks (April 2013) were largely stable or subject to minor rilling. This may be the result of low stocking density and could change if stocking rates were increased.

Plate 5: Flood eroded wall behind the low bank

One or two drainage gullies occur where overland flows join Coral Creek but these are largely formalised minor drainages in their own right with stabilised banks and sandy gravelly beds. Three areas of active erosion were encountered along the high banks of the management area (**Figure 3**) as shown in **Plate 6**.

Plate 6: Active gully erosion at the high bank

Erosion control measures, such as a diversion drain or bank need to be installed above the gully to prevent further erosion (**Management action 13**). Water from the diversion drain or bank could be diverted to a stabilised outlet, such as a level spreader or rock armoured chute. Existing active gullies (shown on **Figure 3**) need to be stabilised (**Management action 14**). The management area will be inspected annually, prior to the onset of the wet season, for areas of active or potential erosion (**Monitoring 5**). Where possible, erosion will be controlled and will not impact on the Black Ironbox community (**Performance measure 6**).

3.7 Hydrology

Coral Creek is an intermittent creek that flows in response to local rainfall events and may derive some baseflows from groundwater sources during years of high rainfall (QCoal 2006, Brisbane Stormwater Management 2011). Rainfall in the Collinsville region is highly seasonal, with a distinct wet season from December to March and a dry season from April to November (**Graph 1**).

The report *Design of Coral Creek Diversion* (Brisbane Stormwater Management 2011) outlines the design features of the Coral Creek diversion, including mitigation measures aimed at protecting the environmental values of the Pelican Creek catchment. The study concluded that the natural hydrologic and geomorphic processes in Coral Creek would not be adversely affected by the creek diversion.

Annual inspections of the zone management area will be undertaken following the wet season to assess potential impacts from the diversion (**Monitoring 6**). Significant alterations to the stream hydrology upstream or downstream of the proposed diversion will not be an acceptable outcome of the diversion works (**Performance measure 7**).

3.8 Early establishment care of any seedlings or translocated plants

Condition 4 of the approval requires 500 Black Ironbox plants to be established within the Coral Creek riparian zone by 7 February 2016. This date has been revised to 30 September 2016 following the request by DoE (email dated 6 June 2014). Black Ironbox plants for use in the rehabilitation areas can be sourced from local seeds propagated in the Sonoma nursery, or translocated from the proposed Coral Creek disturbance area. Where possible, semi-

evergreen vine thicket plants will also be used in rehabilitation areas to assist in natural control of weeds and provide a fire barrier for the Black Ironbox plants.

Preliminary plantings of Black Ironbox seedlings were undertaken early in 2013 at several locations as recommended in GHD (2010). The seed for the seedlings was collected along Coral Creek. The progress of these seedlings was observed during the Coral Creek riparian zone assessment (April 2013). Several of the seedlings were growing well and becoming established at some of the rehabilitation sites. Lack of water appeared to be the cause of seedling death at one site; however the primary constraint to survival and successful establishment was competition from grasses. At most of the sites Buffel Grass was a major competitor with almost all seedlings absent at some sites and up to half of the seedlings missing from more successful sites (**Plate 7**).

Plate 7: Black Ironbox rehabilitation (white stakes in the foreground and background) overgrown with Buffel Grass

Several of the seedlings were still alive but were entangled and dragged down by vines such as Siratro (*Macroptilium atropurpureum*) and Butterfly Pea (*Clitoria ternatea*) or smothered by Buffel Grass (**Plate 8**).

Plate 8: Black Ironbox seedling (green arrow) overgrown by Siratro (pink arrow) and Buffel Grass (dominant surrounding grass)

Based on the observed progress of the seedlings planted to date, the sites selected (GHD 2010) are generally suitable and Black Ironbox seedlings appear to be mostly adapting well from the nursery to field conditions. The most notable constraining factor is weedy grass competition. Several other sites suitable for Black Ironbox and semi-evergreen vine thicket rehabilitation are identified on **Figure 3**.

Black Ironbox will be planted on the low bank nearer the creek and semi-evergreen vine thicket species will be planted higher up. Black Ironbox and semi-evergreen vine thicket species can be planted together during rehabilitation as they naturally co-occur.

Rehabilitation is frequently affected by high mortality of seedlings and this may result from a variety of factors. Allowances will be made to replant areas where the majority of seedlings have failed to establish. If, after assessing the cause of failure, the site is still considered suitable for rehabilitation, replanting will be undertaken.

To assist in successful rehabilitation, the following is noted.

- Seed stock for Black Ironbox and semi-evergreen vine thicket will continue to be sourced from along Coral Creek where possible, with propagation and hardening occurring in the nursery, and planting in the rehabilitation areas during the wet season (**Management action 15**).
- Seedlings will be planted in grow tubes for protection from grasses and vines (**Management action 16**).
- The base of holes for seedlings or translocated plants area will intersect the damp subsurface soil to assist in successful revegetation (**Management action 17**).
- The area around each seedling or translocated plant will be mowed or cleared prior to planting. The mowed grass will be used as mulch around the seedlings or plants to suppress or delay weed ingress (**Management action 18**).
- Two to four rounds of watering of recently planted areas will be planned for. This may be reduced if four rainfall events spread out over the month following planting, and each event deposits sufficient water to penetrate to the root zone (**Management action 19**).
- Following the outcomes of **Monitoring 3**, cattle and camels may need to be excluded from rehabilitation areas (**Management action 20**).

Rehabilitation areas will be inspected monthly for the first 12 months after planting, and then quarterly thereafter (until the requirements of the DoE approval are met) to determine rehabilitation plant survival rate (**Monitoring 7**). By 30 September 2016[6] at least 500 Black Ironbox plants are to have established (*ie* plants established have a nominal height of at least 1.5 m[7] and no visible signs of stress) (**Performance measure 8**). Degraded areas of the riparian zone between the low and high bank will be planted with semi-evergreen vine thicket species where possible and these planted seedlings are healthy and growing (**Performance measure 9**).

[6] This date has been updated from the original date of 7 February 2016 following the request by DoE (email dated 6 June 2014).

[7] A nominal height of 1.5 m is recommended to minimise competition with the most common grass species in the management area (*ie* Buffel Grass).

3.9 Monitoring and reporting on the health of the Black Ironbox population including in particular, survival and recruitment

Baseline information on the Sonoma Coral Creek Black Ironbox population, comprising all individuals equal to or exceeding 10 cm in diameter (breast height) (DBH), was documented in 2010 (GHD 2010). To report on the health of the population and to more accurately determine positive and negative influences of the diversion, an assessment of the population will be undertaken immediately prior to the diversion (giving two pre-disturbance data sets) (**Monitoring 8**), and then again a minimum of one year after completion of the diversion (**Monitoring 9**). Monitoring will record all Black Ironbox individuals in the management area greater than 10 cm DBH (to allow comparison with baseline GHD 2010 data). Following the outcomes of this monitoring, the requirement for additional monitoring will be assessed.

Results from the baseline and post diversion monitoring will be reported and made available to DoE on request (**Reporting 1**). The Black Ironbox plants in the management area must not show discernible impacts associated with the diversion (**Performance measure 10**).

The 'standard and administrative conditions' of the approval (**Appendix A**) include conditions relevant to this RZMP and where necessary, will be addressed (**Reporting 2**). Relevant reporting requirements include:

- publishing the RZMP on the SMM website within 30 days of being approved by DoE
- as necessary, requesting approval from DoE to deviate from the approach described in this RZMP ahead of commencing the 'varied activity'
- maintaining records related to implementing this RZMP.

4. Implementation

Table 2 summarises the management actions, monitoring tasks and performance measures associated with the RZMP.

4.1 Monitoring and review of the Riparian Zone Management Plan

Once approved by DoE, the RZMP will be reviewed annually to ensure it is providing sufficient direction to meet the approval conditions. All changes will be documented and major changes will be integrated into an updated RZMP.

Table 2: Management actions, monitoring tasks and performance measures

Report section	Management action	Monitoring	Performance measure
3.2 – Access, signage and fencing	**Management action 1 –** Install appropriate signage[8] to protect the management area. **Management action 2 -** Access to the management area will only be allowed if the purpose for the access is consistent with the management of the area for conservation purposes. Sonoma will inform site personnel and relevant stakeholders of the purpose and management of the Coral Creek riparian zone.	**Monitoring 1 –** Annually inspect fencing and signage around the management area.	**Performance measure 1 -** Fencing is intact and signage is in place.
3.3 – Fire management	**Management action 3 -** Fuel loads in the 60 m protection buffer adjacent to the true riparian zone will be managed to prevent the occurrence of high intensity fires. Species to be managed include Guinea Grass (*Megathyrsus maximus*), Lantana (*Lantana camara*) and Buffel Grass (*Cenchrus ciliaris*).	**Monitoring 2 –** Annually, at the start of the dry season, inspect the 60 m protection buffer of the management area to ensure sufficient fire break exists, or fuel load is minimal.	**Performance measure 2 -** Fire breaks with a nominal width of 6 m maintained.
	Management action 4 – Establish a firebreak (*eg* along the fence-line).		
	Management action 5 – Rehabilitate degraded slope areas with semi-evergreen vine thicket species where possible, focusing on linking existing semi-evergreen vine thicket patches, to increase the fire barrier.		

[8] Signage will explain the purpose of the managed area and be installed on the fence line at the entry points to the management area and at other points where traffic may reasonably be expected to pass (*eg* where the fencing meets the Bowen Developmental Road or where it crosses existing tracks).

Report section	Management action	Monitoring	Performance measure
3.4 – Browsing management	**Management action 6 -** Light cattle grazing can occur in the 60 m protection buffer beyond the high bank to reduce the density of grassy groundcover and manage fuel loads.	**Monitoring 3 –** For the first 12 months, the riparian zone will be inspected monthly to determine if cattle or camels are impacting on the riparian zone vegetation. Following the first twelve months, undertake annual monitoring of the riparian zone at the end of the dry season to assess impacts from cattle grazing and camel browsing on the riparian vegetation.	**Performance measure 3 –** Cattle grazing and camel browsing do not impact on successful recruitment of native species into the understory and canopy of the riparian zone.
	Management action 7 - Browsing by camels in the 60 m protection buffer beyond the high bank may be trialled to reduce infestations of prickly weeds (*eg* Mimosa Bush, Chinee Apple and Harrisia Cactus).		**Performance measure 4 -** The grassed 60 m protection buffer maintains self-sustaining cover (>70% groundcover, with no site <50%) at the end of the dry season.
	Management action 8 - Notwithstanding cattle grazing and camel browsing in the 60 m protection buffer, access to the riparian zone by cattle and camels will be managed as required to protect the riparian zone, particularly areas where rehabilitation is being established.		
3.5 – Weed management	**Management action 9 -** Rehabilitate the riparian zone between the low bank and high bank in suitable locations (**Figure 3**) using local native semi-evergreen vine thicket species where possible (as listed in **Table 1**) to shade out weeds.	**Monitoring 4 -** Annually, following the wet season, monitor weeds in management area to determine if control measures in place are effective.	**Performance measure 5 –** Effective weed management will be shown by the existing high priority weed species reducing in extent and no new high priority weed species present in the management area.
	Management action 10 - Where possible, use seeds or plant stock from Coral Creek or adjacent local creeks such as Pelican Creek for rehabilitation of Black Ironbox and semi-evergreen vine thicket species.		

Report section	Management action	Monitoring	Performance measure
	Management action 11 - Weed control measures to target Rubber Vine and Elephant Ear Vine in the riparian zone. Other high priority weed species (Yellow Oleander, Chinee Apple, Guinea Grass and Lantana) and introduced grasses in the management area to be controlled to reduce fuel loads and minimise the threat of fire damage to the riparian zone.		
	Management action 12 – High priority weed species (Rubber Vine, Elephant Ear, Yellow Oleander, Chinee Apple, Guinea Grass and Lantana) will be managed as recommended in the Coral Creek Weed Management Plan (NRA 2013).		
3.6 – Erosion control	**Management action 13 -** Erosion control measures, such as a diversion drain or bank will be installed above eroded gullies to prevent further erosion. Water from the diversion drain or bank will be diverted to a stabilised outlet, such as a level spreader or rock armoured chute.	**Monitoring 5 -** Annually, prior to the onset of the wet season, inspect the management area for areas of active or potential erosion. Stabilise areas as required.	**Performance measure 6 -** Erosion is controlled and will not impact on the Black Ironbox community within the management area.
	Management action 14 - Existing active gullies (shown on **Figure 3**) will be stabilised.		
3.7 – Hydrology	-	**Monitoring 6 –** Annually, following the wet season, inspect the Coral Creek riparian zone management area to assess potential impacts from the diversion.	**Performance measure 7 -** No significant alterations to the stream hydrology upstream or downstream of the proposed diversion, within the management area.
3.8 – Early establishment and care of any seedlings or translocated plants	**Management action 15 –** Source seed stock from along Coral Creek, with propagation and hardening occurring in the nursery. Planting in rehabilitation areas to occur during the wet season.	**Monitoring 7 -** Rehabilitation areas to be inspected monthly for the first 12 months after planting, and then quarterly thereafter (until the requirements of the approval are met) to determine rehabilitation plant survival rate.	**Performance measure 8 -** By 30 September 2016 at least 500 Black Ironbox plants have established within the management area (*ie* plants established have a nominal height of at least 1.5 m[9] and no visible signs of stress).

[9] A nominal height of 1.5 m is recommended to minimise competition with the most common grass species in the management area (*ie* Buffel Grass).

Report section	Management action	Monitoring	Performance measure
	Management action 16 - Seedlings to be planted in grow tubes for protection from grasses and vines.		**Performance measure 9 -** Degraded areas of the riparian zone within the management area (between the low and high bank) have been planted with semi-evergreen vine thicket species and these planted seedlings are healthy and growing.
	Management action 17 - The base of holes for seedlings in the rehabilitation area will intersect the damp subsurface soil to assist in successful revegetation.		
	Management action 18 – Prior to planting, the area around each seedling or translocated plant will be mowed or cleared. The mowed grass is to be used as mulch around the seedlings or plants to suppress or delay weed ingress.		
	Management action 19 - Two to four rounds of watering of recently planted areas will be planned for. This may be reduced if four rainfall events spread out over the month following planting, and each event deposits sufficient water to penetrate the root zone.		
	Management action 20 – Following the outcomes of **Monitoring 3,** cattle and camels may need to be excluded from rehabilitation areas.		
3.9 – Monitoring and reporting on the health of the Black Ironbox population including in particular, survival and recruitment	**Reporting 1 -** Results from the baseline and post diversion monitoring will be reported and made available to DoE on request.	**Monitoring 8 –** Immediately prior to the diversion, assess the Black Ironbox population[10] in the management area (giving two pre-disturbance data sets).	**Performance measure 10 –** There are no discernible impacts on the Black Ironbox plants in the management area.

[10] Monitoring will record all Black Ironbox individuals in the management area greater than 10 cm DBH (to allow comparison with baseline GHD 2010 data).

Report section	Management action	Monitoring	Performance measure
	Reporting 2 – The 'standard and administrative conditions' of the approval (**Appendix A**) include conditions relevant to this RZMP and where necessary, will be addressed. Relevant reporting requirements include: • publishing the RZMP on the SMM website within 30 days of being approved by DoE • as necessary, requesting approval from DoE to deviate from the approach described in this RZMP ahead of commencing the 'varied activity' • maintaining records related to implementing this RZMP.	**Monitoring 9 -** A minimum of one year after completion of the diversion assess the Black Ironbox population[11] in the management area[12].	

[11] Monitoring will record all Black Ironbox individuals in the management area greater than 10 cm DBH (to allow comparison with baseline GHD 2010 data).

[12] Following the outcomes of this monitoring, the requirement for additional monitoring will be assessed.

4.2 Timing

There are specific time constraints imposed by the approval on the RZMP. These timeframes have been updated from the original dates to allow sufficient time for DoE to approve the RZMP (as requested by DoE in email dated 6 June 2014). **Table 3** summarises the updated timeframes for various management activities associated with RZMP.

Table 3: Riparian Zone Management Plan Action Timeline

Date	Action[a]
7 Feb 2013	Approval granted.
7 Aug 2013	Submission of the RZMP to the Department of Environment (DoE).
	Demonstrate riparian zone (management area) established.
30 Sept 2014	Submission of the Voluntary Declaration to be made to the Queensland Government under the *Vegetation Management Act*1999.
30 Nov (each year after commencement of the action)	Assess and report on compliance with approval conditions.
30 Sept 2016	Report to DoE confirming the establishment of, at a minimum, 500 Black Ironbark plants and managed in accordance with the RZMP.

[a] Mandatory completion dates for actions are requirements under the approval that must be met.

4.3 Funding

SMM will provide funding details for the required RZMP implementation in their annual environmental budget.

The budget will detail estimated costs and allocated budget to address the management recommendations to be implemented during the financial year.

4.4 Roles and responsibilities

Table 4 summarises the personnel responsible for ensuring that management area is managed as required under the Approval through actions documented in the RZMP.

Table 4: Roles and Responsibilities

Role	Responsibilities
Sonoma Mine Management Pty Ltd	• To provide adequate resources (budget, personnel, consumables) to enable targets to be met.
Senior Environmental Manager	• To ensure targets are met or are progressing.
Contractors	• Contractors are scheduled to undertake general works as required *eg* fencing, signage. • Competent contractors are engaged to undertake specific management tasks *eg* weed control, erosion control, nursery works and rehabilitation.

5. Consent

The terms of this RZMP including management measures and responsibilities, have been read, understood and accepted by the undersigned.

Sonoma Mine Management Pty Ltd

Name..DAVID TAYLOR.. Signature.....

Witness Name..Hayden Leary.. Signature.....

Date..29/07/2013..

Land owner(s)

Name..Shane Watts.. Signature.....

Witness Name..BRUCE McCARTHY.. Signature.....

Date..24/7/2013..

Name..... Signature.....

Witness Name..... Signature.....

Date.....

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Programme Centre for Environmental Management, Central Queensland University, Rockhampton.

Appendix A:
Approval Document

Australian Government

Department of Sustainability, Environment, Water, Population and Communities

Approval

Sonoma Coal Mine expansion – Coral Creek diversion, near Collinsville, Queensland (EPBC 2011/5800)

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

proposed action

person to whom the approval is granted	Sonoma Mine Management Pty Ltd
proponent's ACN	124 677 443
proposed action	to extend the northern reach of the open-cut pit of the Sonoma Coal Mine, including the diversion of Coral Creek, 6 kilometres south of Collinsville, Queensland (see referral EPBC 2011/5800)

approval decision

controlling provision	decision
listed threatened species and communities (sections 18 & 18A)	approve

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 30 December 2032.

decision-maker

name and position	The Hon Tony Burke MP Minister for Sustainability, Environment, Water, Population and Communities
signature	Tony Burke
date of decision	7 February 2013

Conditions to which this approval is subject

Scope of proposal

1. For the protection of ***black ironbox***, ***the person taking the action*** must not clear more than 13 hectares or 160 individuals of ***black ironbox***.

Coral Creek diversion

2. The person taking the action must undertake the planned diversion of Coral Creek in accordance with statutory approvals issued under the *Environmental Protection Act 1994* (Qld) and *Water Act 2000* (Qld).

Biodiversity offsets

3. The person taking the action must within six (6) months of the date of this approval, establish within ***ML10326*** and ***ML10327*** the "Coral Creek Riparian Zone", being an area of not less than 40 hectares and carrying no fewer than 400 naturally occurring ***black ironbox*** trees. Mining activity must be excluded from the Coral Creek Riparian Zone, including through the establishment of a fenced buffer to protect the true riparian zone to a distance of 60 metres from the high bank of Coral Creek.

4. ***The person taking the action*** must within three (3) years of the date of this approval establish no fewer than 500 ***black ironbox*** plants within the Coral Creek Riparian Zone, to be managed in accordance with the care, monitoring and reporting provisions of the management plan described in Conditon 5.

5. ***The person taking the action*** must prepare a Coral Creek Riparian Zone management plan, with the objective of indefinitely sustaining a healthy population of ***black ironbox*** within the zone in support of the VDec described in Condition 6. The plan must include a map and be accompanied by a ***shapefile*** and must address at least the following matters:

   a) access, signage and fencing;
   b) fire management;
   c) browsing management;
   d) weed management;
   e) erosion control;
   f) hydrology;
   g) early establishment care of any seedlings or translocated plants;
   h) monitoring and reporting on the health of the ***black ironbox*** population including in particular, survival and recruitment; and
   i) performance measures and responses.

   The plan must identify timing, funding and roles and responsibilities in relation to specific tasks as outlined above.

   Within six (6) months of the date of this approval, ***the person taking the action*** must submit the plan to ***the minister*** for approval. When approved, the plan must be implemented.

6. To secure the Coral Creek Riparian Zone, ***the person taking the action*** must, within twelve (12) months of the date of this approval, make application for a voluntary declaration (VDec) under the *Vegetation Management Act 1999* (Qld) to provide enduring protection for the Coral Creek Riparian Zone from future mining, agriculture and other land clearing or

development activities. The management plan required as part of a VDec application must be the management plan approved under Condition 5, or a similar management plan approved by ***the minister*** prior to the application.

7. If for any reason a VDec cannot be established in relation to the Coral Creek Riparian Zone, ***the person taking the action*** must cease the approved action until alternative legal protection has been agreed to the satisfaction of ***the minister***.

Standard and administrative conditions

8. Within thirty (30) days after the ***commencement*** of the action, the person taking the action must advise the department in writing of the actual date of ***commencement***.

9. If, at any time after five (5) years from the date of this approval, ***the person taking the action*** has not ***substantially commenced*** the action, then ***the person taking the action*** must not substantially commence the action without the written agreement of ***the minister***.

10. Unless otherwise agreed to in writing by ***the minister***, ***the person taking the action*** must publish all ***management documents*** referred to in the conditions of this approval on their website, within thirty (30) days of being approved. A ***management document*** must be published in a specified location or format and / or with specified accompanying text, if requested by ***the minister***.

11. If ***the person taking the action*** wishes to carry out any activity otherwise than in accordance with a ***management document*** as specified in the conditions of this approval, ***the person taking the action*** must submit to ***the department*** for ***the minister***'s written approval a revised version of that ***management document***. The varied activity shall not commence until ***the minister*** has approved the varied ***management document*** in writing. ***The minister*** will not approve a varied ***management document*** unless the revised ***management document*** would result in an equivalent or improved environmental outcome over time. If ***the minister*** approves the revised ***management document***, that ***management document*** must be implemented in place of the ***management document*** originally approved.

12. If ***the minister*** believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, ***the minister*** may request that ***the person taking the action*** make specified revisions to a ***management document*** specified in the conditions of this approval and submit the revised ***management document*** for ***the minister***'s written approval. ***The person taking the action*** must comply with any such request. The revised approved ***management document*** must be implemented. Unless ***the minister*** has approved the revised ***management document***, then ***the person taking the action*** must continue to implement the ***management document*** originally approved, as specified in the conditions of this approval.

13. ***The person taking the action*** must maintain accurate records substantiating all activities associated with or relevant to the conditions of this approval, including measures taken to implement ***management documents*** required by this approval, and make them available upon request to ***the department***. Such records may be subject to audit by ***the department*** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of this approval. Summaries of audits will be posted on ***the department***'s website. The results of audits may also be publicised through the general media.

the conditions of this approval or a ***management document***:

a) report the non-compliance to ***the department*** within five (5) business days;

b) discuss with ***the department*** how the matter may be brought into compliance within a reasonable timeframe; and

c) comply with any consequent written direction from ***the minister*** regarding the matter.

15. By 30 November of each year after the ***commencement*** of the action, ***the person taking the action*** must publish a report on their website addressing compliance (including any non-compliance) with the conditions of this approval, including implementation of any ***management documents***, since the previous compliance report.

16. Upon the direction of ***the minister***, ***the person taking the action*** must ensure that an independent audit of compliance with the conditions of this approval is conducted (at the expense of ***the person taking the action***) and a report submitted to ***the department***. The independent auditor and audit criteria must be approved by ***the minister*** prior to the ***commencement*** of the audit. The audit report must address the criteria to the satisfaction of ***the minister***.

Definitions applying to the conditions

Black ironbox is the tree species, *Eucalyptus raveretiana* F.Muell.

Clearance of native vegetation means the complete or partial removal, by any means, of plants native to the site of the action. Note that native vegetation can include grasslands.

Commencement and ***substantial commencement*** of the action both include any mining activity within the footprint of the approved extension and / or the construction of any infrastructure associated with the proposed action, excluding signage, fencing, and the construction of unsealed roads not requiring ***clearance of native vegetation***.

The ***EPBC Act*** is the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Management documents are any plans, strategies, reports or other documents required by the conditions of this approval that direct or report on management arrangements for the proposal. To avoid any doubt, multiple ***management documents*** (including those required under a state approval) may be combined, provided that ***the person taking the action***, when submitting the documents, explains how they have been arranged.

Matters of national environmental significance are as defined in the EPBC Act, and include ***listed threatened species and communities***.

ML10326 and ***ML10327*** are mining leases issued by the Queensland Government and known by those names.

Offset means "compensate for", and is interpreted in light of the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, October 2012.

A ***shapefile*** is an ESRI Shapefile, containing .shp, .shx and .dbf files and other files capturing attributes including at least the EPBC reference number of the proposaland matters of national environmental significance present at the relevant site Attributes should also be captured in .xls format.

The minister is the Australian Government minister administering the ***EPBC Act*** and includes delegates of ***the minister*** as established by a relevant legal instrument.

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