

CVC Biodiversity Monitoring 2022

Chain Valley Colliery

Prepared for Delta Coal

February 2023

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Delta Coal

E221082 RP1

February 2023

Version	Date	Prepared by	Approved by	Comments
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03 February 2023

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1 Introduction

1.1 Rehabilitation monitoring plan requirements

Chain Valley Colliery (CVC) and Mannering Colliery (MC) are underground coal mines located at the southern extent of Lake Macquarie, approximately 60 km south of Newcastle. Both sites are operated by Great Southern Energy Pty T/a Delta Coal (Delta Coal) and produce thermal coal for the domestic and export markets.

CVC and MC operate in accordance with Development Consent SSD-5465 and Project Approval MP06_0311 respectively. SSD-5465 required the preparation of Chain Valley Colliery Biodiversity Management Plan (BMP, EMGA 2012). The original BMP prepared in 2013 has since had multiple revisions. The monitoring surveys conducted within this monitoring period and referenced throughout the report are in accordance with the revised 2019 BMP (EMM 2019).

The BMP (EMM 2019) includes an annual terrestrial biodiversity monitoring program comprising of:

- condition and composition of an area of Swamp Oak Forest;
- condition of vegetation adjacent to the ventilation shafts and fans;
- mapping the location and distribution of weeds; and
- abundance and distribution of feral animal use.

This report aims to detail the annual monitoring results which will be reviewed and assessed against trigger values and condition criteria identified in the BMP (EMM 2019).

2 Methods

2.1 Condition and composition of Swamp Oak Forest

The condition and composition of an area of Swamp Oak Forest adjacent to the sediment ponds in the pit top area (Figure 2.1) and downstream of the D10 discharge was monitored in line with the method set out in the BMP (EMGA 2016), including:

- completion of two biobanking plots as per Section 11.2 of the BMP (EMM 2019) and the proforma in Appendix 1 of the 2014 BMP (EMGA 2014); and
- a comparison of the collected plot data against the previous years' data, specifically to monitor dieback of Broad-leaved Paperbark (*Melaleuca quinquenervia*) observed in Plot 1 during the 2017 monitoring (EMM 2017), as well as to determine the total weighted scores for both plots to assess any other change in condition and against the trigger value identified within the BMP (EMM 2019).

2.2 Condition of vegetation adjacent to the ventilation shafts and fans

Condition monitoring of vegetation surrounding the ventilation shaft area includes (Figure 2.2):

- observation of two Rough-barked Apple (*Angophora floribunda*) trees directly adjacent to the ventilation shaft, as shown in Figure 9 of the BMP (EMGA 2016), or assessment of condition and health due to their proximity to the ventilation shaft;
- the completion of four photo points, as per Figure 9 of the BMP (EMGA 2016) and assessment of any change in vegetation condition from 2017; and
- the recording of dominant species (canopy, mid-storey, understorey and ground layers) around the periphery of each side of the ventilation shaft area.

2.3 Location and distribution of weeds

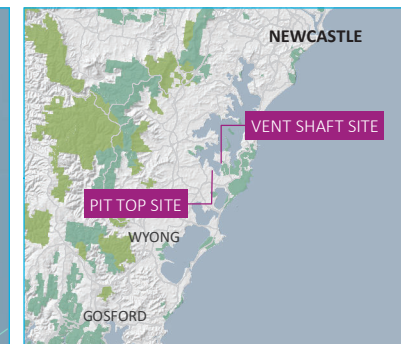
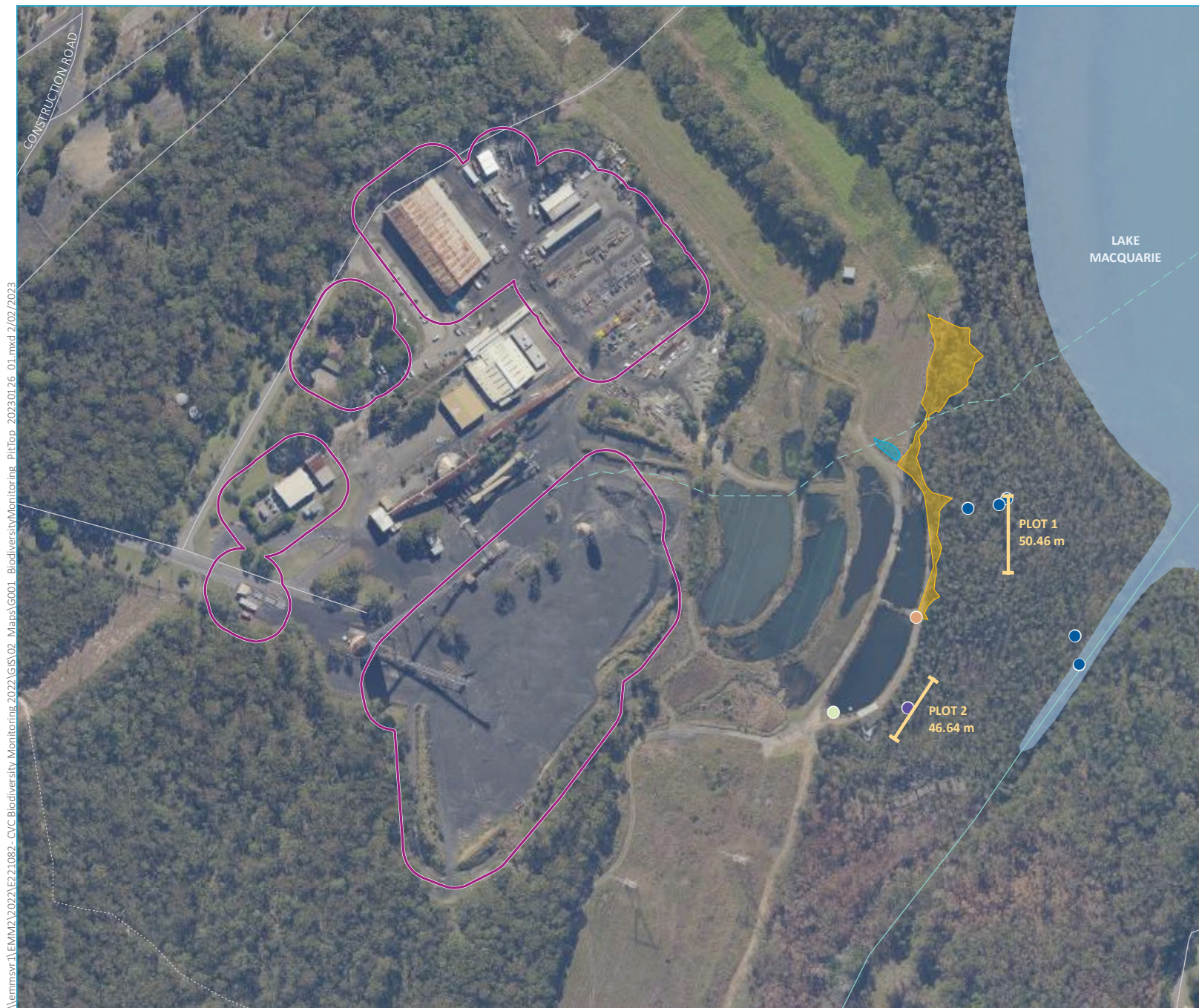
Weed monitoring targets existing locations and significant new weed occurrences in the eastern management zone (within the Swamp Oak Forest) as well as at the ventilation shaft area.

2.4 Abundance and distribution of feral animal use

The monitoring of feral animals is undertaken in conjunction with the weed monitoring and as per the proforma in Appendix 1 of the BMP (EMGA 2014) and includes recording of activity of feral species by searching for tracks, diggings, burrows and sighting of individuals.

2.5 Limitations

The surveys completed within this report were conducted on 6 January 2023. However, it should be noted these surveys were completed for the 2022 monitoring period. For the 2021 monitoring period, the survey was conducted in early January 2022 and therefore seasonal timing is similar to that of previous monitoring events.



- KEY**
- FDI100
 - Plot
 - Local road
 - Vehicular track
 - Named waterbody
- Weed monitoring**
- Asparagus Fern (*Asparagus aethiopicus*)
 - Pampas Grass (*Cortaderia selloana*) and Rhodes Grass (*Chloris gayana*)
 - Pampas Grass and Asparagus Fern
 - Sharp Rush (*Juncus acutus*)
 - Patch 1
 - Patch 2
- Strahler stream order**
- 1st order
 - 2nd order
- INSET KEY**
- Main road
 - NPWS reserve
 - State forest

Pit top monitoring eastern zone

Source: EMM (2023); DFSI (2017); DPI (2013); GA (2011); ASGC (2006)

0 50 100
m
GDA 1994 MGA Zone 56



- KEY**
- FDI100
 - Photo point
 - Vehicular track
 - Named waterbody
 - Weed monitoring**
 - Fishbone Fern (*Nephrolepis cordifolia*)
 - Lantana (*Lantana camara*)
 - Lantana and *Senna pendula*
 - Senna pendula*
 - Senna pendula*, Lantana (*Lantana camara*) and Bitou Bush (*Chrysanthemoides monilifera subsp. rotundata*)
 - Spanish Reed (*Arundo donax*), Lantana (*Lantana camara*) and *Senna pendula*
 - Whiskey Grass (*Andropogon virginicus*) and *Senna pendula*
 - Strahler stream order**
 - 1st order
 - 2nd order

Ventilation shaft monitoring

Chain Valley Colliery
Biodiversity monitoring 2022
Figure 2.2



Source: EMM (2023); DFSI (2017); DPI (2013)



3 Results

3.1 Condition and composition of Swamp Oak Forest

The detailed monitoring results are provided in Appendix A, with the location of monitoring plots provided in Appendix B, and detailed descriptions of the findings for each plot provided below. The weighted score for the combination of the two plots is 67.8%, which is a slight decrease to the score of 2021 (68.1%). No remedial actions are required as the score is above the minimum trigger of 60% (EMM 2019).

3.1.1 Plot 1

The condition and composition of the vegetation within Plot 1 was comparable with the monitoring results from the previous year (EMM 2022). The Swamp Oak has had a decrease in overstorey coverage from 21% to 18%. The native species richness remains unchanged at 9 species. One new species was observed (Creeping Brookweed (*Samolus repens*)), whilst a previously recorded species was absent (Samphire (*Sarcocornia quinqueflora*)). No new regeneration (less than 1 year old) was observed during the survey. The regenerating species observed within the 2021 monitoring period appeared to have increased in size. Two weed species, Asparagus Fern (*Asparagus aethiopicus*) and Pampas Grass (*Cortaderia selloana*) were identified within the plot. Asparagus Fern has previously been recorded (EMM 2022) and does not appear to be increasing in cover or abundance. The one individual Pampas Grass has not been recorded in the plot previously and appears to occur adjacent to the plot and associated access road to the west. The cover percentage of exotics within the plot remains consistent from the previous year. The community appears to have reached an equilibrium with the Swamp Oak Forest persisting in the same condition.

3.1.2 Plot 2

The condition and composition of the vegetation within Plot 2 was broadly comparable with the 2021 and 2020 monitoring (EMM 2022; 2021). The Swamp Oak has had a slight increase in coverage from 23% to 24.5%. No new species regeneration (less than 1 year old) was observed during the survey. The regenerating species observed within the 2021 monitoring period appeared to have increased in size and subsequently overstorey cover. There is a decrease in the native plant species richness of 7, where three previously recorded native species are absent (Samphire, Tall Saw-sedge (*Gahnia clarkei*) and Rusty Sedge (*Fimbristylis ferruginea*)). Despite the decrease in native species richness, ground cover remains unchanged at 98%. The presence of Asparagus Fern within Plot 2 reflects previous observations in 2021 (EMM 2022). Weeds were frequently recorded outside of the plot. These will require ongoing management, to prevent them increasing in prevalence at the expense of native species.

3.2 Condition of vegetation adjacent to the ventilation shafts and fans

A photolog of the photo monitoring points and tree monitoring points are provided in Appendix B, with a summary of observations provided in Table 3.1.

Vegetation around the ventilation shaft compound was cleared for an asset protection zone (APZ) prior to the 2017 monitoring. This did not affect any of the tree monitoring points, however, it has affected the photo point monitoring, with obvious clearance of shrubs and regenerating small trees close compound.

When clearance for the APZ is taken into account, vegetation condition was broadly similar to previous years. Tree point 2 appeared to have dieback, with a decrease in canopy cover compared to previous monitoring years. No evidence was observed as to the cause of the dieback. The dieback was not concentrated on any one side of the crown, rather being consistent throughout. Surrounding vegetation did not appear to be affected by dieback. Climatic conditions have been favourable for plant growth (BOM 2023). Dieback observed during 2019 (EMM 2020) was following two years of less than average rainfall.

The mid-storey appears to be primarily unchanged, with the exception of some weed encroachment (*Lantana* (*Lantana camara*) and *Senna pendula*) on the edges. Ground cover appeared to be regenerating well, with increased density of native species (*Gahnia clarkei*) during this monitoring period survey compared to the previous year (EMM 2022), despite increased weed encroachment primarily by exotic grasses.

Table 3.1 **Monitoring point observations**

Monitoring point	2022 monitoring observation
1	Vegetation appears healthy with persistent growth of canopy and midstorey species. No significant change observed
2	Some dieback is occurring to the canopy (see Tree 2 below). Encroachment of <i>Lantana</i> has increased from 2021 (EMM 2022).
3	No observable change has occurred to canopy and midstorey vegetation. Patches of dense Rhodes Grass occur on the edges of the adjacent treed area.
4	Vegetation appears healthy with no observable change in canopy or midstorey growth. Ground cover density appears to have increased from 2021 (EMM 2022), particularly <i>Gahnia clarkei</i> adjacent to the APZ.
Tree 1	Tree appears healthy with established growth observed, dense foliage within the crown and no dieback observed.
Tree 2	Tree appears to have some dieback. Crown coverage appears to have decreased since the 2021 monitoring survey (EMM 2022). The tree appears to have a percentage foliage cover similar to that of 2019 (EMM 2020).

3.3 Location and distribution of weeds

Weed prevalence has been documented in Appendix C, with a list of recommended control measures provided for each area. Locations of the weeds are provided in Appendix C.

3.4 Abundance and distribution of feral animal use

In the 2020 monitoring, four feral animal species were recorded using the presence of scats as indicators. Seven scats from the European Fox (*Vulpes vulpes*) and one scat from the Domestic Dog (*Canis lupus*) were recorded (Appendix D). The 2022 monitoring period recorded one scat from the European Fox (Appendix D), which is consistent with the 2021 monitoring period results (EMM 2022).

4 Summary

The 2022 biodiversity monitoring period established that the vegetation and habitat values within the pit top area was broadly similar to the 2021 monitoring. No remedial actions are required as the condition score remained above the trigger threshold as per the BMP (EMM 2019).

Observations and photo monitoring at the vent shaft area demonstrated sustained growth of native vegetation, whilst some weed species appear to be increasing in cover and abundance. The cause of potential tree dieback at tree point 2 at the vent shaft area is unknown, as weather conditions remain favourable for growth. There is no direct evidence that the vent shaft is causing the dieback due to the consistent dieback throughout the crown, and may be a systemic issue, perhaps disease. It is recommended that the tree is reviewed at the next monitoring event (2023).

Whilst evidence of weed control was observed in some areas, ongoing control is recommended to suppress those weeds still present and to prevent reestablishment in treated areas.

5 References

BOM 2023, *Climate Driver Update- La Niña anticipated to ease over summer*. Australian Government. Accessed 30 January 2023 via <http://www.bom.gov.au/climate/enso/index.shtml>

EMGA 2012, *Chain Valley Colliery Biodiversity Management Plan Environmental Management Plan*, prepared for Lake Coal Pty Ltd by EMGA Mitchell McLennan Pty Limited.

EMGA 2014, *Chain Valley Colliery Biodiversity Management Plan Environmental Management Plan*, prepared for Lake Coal Pty Ltd by EMGA Mitchell McLennan Pty Limited.

EMGA 2016, *Chain Valley Colliery Biodiversity Management Plan Environmental Management Plan*, prepared for Lake Coal Pty Ltd by EMGA Mitchell McLennan Pty Limited.

EMM 2017, *Biodiversity monitoring 2016 Chain Valley Colliery*, prepared for Delta Coal by EMM Consulting Pty Ltd.

EMM 2019, *Chain Valley Colliery Biodiversity Management Plan Environmental Management Plan*, prepared for Lake Coal Pty Ltd by EMM Consulting Pty Ltd.

EMM 2020, *Biodiversity monitoring 2019 Chain Valley Colliery*, prepared for Delta Coal by EMM Consulting Pty Ltd.

EMM 2021, *Biodiversity monitoring 2020 Chain Valley Colliery*, prepared for Delta Coal by EMM Consulting Pty Ltd.

EMM 2022, *Biodiversity Monitoring 2021 Chain Valley Colliery*, prepared for Delta Coal by EMM Consulting Pty Ltd.

Appendix A

Swamp Oak monitoring data

Plot 1

Swamp Oak Floodplain Forest

Photo no: Plot 1

Date: 6/01/2023

Data collectors:

Bianca Seal

Plot/transect: 1

Coordinates start transect

Easting: 365039.06
 Northing: 6329514.86

Coordinates finish transect

Easting: 365013.57
 Northing: 6329475.8

Native overstorey cover %
(every 5m)

1	10
2	15
3	15
4	30
5	20
6	10
7	10
8	20
9	30
10	20
AVG	18

Native plant species (#) (plot):

9

Regeneration (%) (plot):

0

No regeneration younger than 1 year

Trees with Hollows (#) (plot):

1

Stag with 5 cm hollows in branches

Total length of fallen logs (m) (plot)

6

Layer	Cover in 20x20m plot (%)
Native midstorey	0
Native ground (grasses)	5
Native ground (shrubs)	0
Native ground (other)	95
Exotics	1

Species	Common Name	Native
<i>Asparagus aethiopicus</i>	Ground asparagus	N
<i>Baumea juncea</i>	Twig-rush	Y
<i>Casuarina glauca</i>	Swamp Oak	Y
<i>Gahnia clarkei</i>	Tall Saw-sedge	Y
<i>Juncus krausii</i>	Sea Rush	Y
<i>Selliera radicans</i>	Swamp Weed	Y
<i>Sporobolus virginicus</i>	Marine Couch	Y
<i>Melaleuca quinquinervia</i>	Broad-leaved Paperbark	Y
<i>Fimbristylis ferruginea</i>	Rusty Sedge	Y
<i>Cortaderia selloana</i>	Pampas Grass	N
<i>Samolus repens</i>	Creeping Brookweed	Y

Weeds

Two occurrences of exotic species. 1 Pampas Grass and 1 Asparagus Fern. Does not appear to have increased since 2021 monitoring event.

Dieback of canopy

Lots of juveniles present averaging 4 metres in height. Leaf growth appears sparse.

Water

Site is extremely waterlogged. 40cm mud in some places (fine sediment). Plot crosses creekline

Comments

Good condition. A few standing dead trees. No new trees fallen (absence of green foliage).

Plot 2 Swamp Oak Floodplain Forest

Photo no: Plot 2

Date: 6/01/2023

Data collectors:
Bianca Seal

Plot/transect: 2

Coordinates start transect
Easting: 365085.13
Northing: 6329629.28

Coordinates finish transect
Easting: 365085.18
Northing: 6329578.82

Native overstorey cover % (every 5m)		
1	30	
2	30	
3	20	
4	35	
5	15	
6	15	
7	20	
8	30	
9	20	
10	30	
AVG	24.5	

Species	Common Name	Native
<i>Asparagus aethiopicus</i>	Ground asparagus	N
<i>Baumea juncea</i>	Twig-rush	Y
<i>Casuarina glauca</i>	Swamp Oak	Y
<i>Juncus kraussii</i>	Sea Rush	Y
<i>Selliera radicans</i>	Swamp Weed	Y
<i>Sporobolus virginicus</i>	Marine Couch	Y
<i>Melaleuca quinquinervia</i>	Broad-leaved Paperbark	Y
<i>Samolus repens</i>	Creeping Brookweed	Y

Native plant species (#) (plot): 7

Regeneration (%) (plot): 1

Trees with Hollows (#) (plot): 0

Total length of fallen logs (m) (plot): 8

Layer	Cover in 20x20m plot (%)
Native midstorey	0
Native ground (grasses)	3
Native ground (shrubs)	0
Native ground (other)	98
Exotics	1

Weeds
Very few weeds within plot. One occurrence of Asparagus Fern, dense groundcover of natives preventing weed growth.
Dieback of canopy
No apparent dieback of canopy. Some stems appear older- no recent dieback (green foliage on fallen logs/stems).
Water
Soils waterlogged throughout majority of area. Occasional areas of shallow pooled water
Comments
No new regeneration (less than 1 year old). Juvenile Swamp Oak present. No scats or animals observed.

Site attribute	Benchmark	Plot 1 data	Plot 1 score	Plot 2 data	Plot 2 score	Average	Weighting %	Calculation	Weighted score %
A	>6	9	4	7	4	4	25	25	25.0
B	5 to 18	18	3	24.5	3	3	10	7.5	7.5
C	36 to 48	0	1	0	1	1	10	2.5	2.5
D	3 to 21	5	4	3	4	4	2.5	2.5	2.5
E	0 to 0	0	4	0	4	4	2.5	2.5	2.5
F	1 to 13	95	1	98	1	1	2.5	0.625	0.6
G		1	4	1	4	4	5	5	5.0
H	> 0	1	4	0	1	2.5	20	12.5	12.5
I		0	1	1	2	1.5	12.5	4.6875	4.7
J	> 20	6	2	8	2	2	10	5	5.0
Total						27	100		67.8

trigger is <60%

Site attribute		Site attribute score				Weighting for site
		1	2	3	4	
A	Native plant species richness	0	0-<50% of benchmark	50-<100% of benchmark	≥ benchmark	25%
B	Native over-storey cover	0-10% or >200% of benchmark	10-<50% or >150-200% of benchmark	50-<100% or >100-150% of benchmark	Within benchmark	10%
C	Native mid-storey cover	0-10% or >200% of benchmark	0-<50% or >150-200% of benchmark	50-<100% or >100-150% of benchmark	Within benchmark	10%
D	Native ground-cover (grasses)	0-10% or >200% of benchmark	0-<50% or >150-200% of benchmark	50-<100% or >100-150% of benchmark	Within benchmark	2.50%
E	Native groundcover (shrubs)	0-10% or >200% of benchmark	0-<50% or >150-200% of benchmark	50-<100% or >100-150% of benchmark	Within benchmark	2.50%
F	Native groundcover (other)	0-10% or >200% of benchmark	0-<50% or >150-200% of benchmark	50-<100% or >100-150% of benchmark	Within benchmark	2.50%
G	Exotic plant cover (all strata)	>66%	>33-66%	>5-33%	0-5%	5%
H	Number of trees with hollows	0 (unless benchmark includes 0)	0-<50% of benchmark	50-<100% of benchmark	≥ benchmark	20%
I	Proportion of over-storey species occurring as regeneration	0	>0-<50%	50-<100%	100%	12.50%
J	Total length of fallen logs	0-10% of benchmark	>10-<50% of benchmark	50-<100% of benchmark	≥ benchmark	10%
Total weighted score						100%

Appendix B

Vent shaft monitoring

B.1 Vent shaft photolog



Photograph B.1 Photo point 1



Photograph B.2 **Photo point 2**



Photograph B.3 Photo point 3



Photograph B.4 Photo point 4



Photograph B.5 **Tree monitoring point 1**



Photograph B.6 **Tree monitoring point 2**

Appendix C

Weed monitoring results

Weed Monitoring Proforma

Date:	6/01/2023
Management zone:	Pit top.
Data collectors:	Bianca Seal

Location ID (see Figure 3.1)	Weed species	Location (MGA 94)		# plants	Area (m2)	Distance to native vegetation (m)	Recommended control measures
		Easting	Northing				
Waypoint 1; Waypoint 2	Asparagus Fern (<i>Asparagus aethiopicus</i>)	365129.6; 365126.84	6329523.1; 6329540.92	3 individuals per location	1	0	As per BMP
Waypoint 5; Waypoint 6	Asparagus Fern (<i>Asparagus aethiopicus</i>)	365084.52; 365079.54	6329626.39; 6329622.99	1 individual per location	0.5	0	As per BMP
Waypoint 7	Asparagus Fern (<i>Asparagus aethiopicus</i>)	365060.26	6329620.51	6	2	0	As per BMP
Waypoint 8	Sharp Rush (<i>Juncus acutus</i>)	365028.09	6329552.74	1	0.5	3	As per BMP
Waypoint 9	Pampas Grass (<i>Cortaderia selloana</i>), Rhodes Grass (<i>Chloris gayana</i>)	364976.4	6329493.37	2 Pampas Grass; 100 Rhodes Grass	1; 5	4	Meets edge of the access rack. As per BMP
Waypoint 13	Pampas Grass (<i>Cortaderia selloana</i>), Asparagus Fern (<i>Asparagus aethiopicus</i>)	365022.52	6329496.34	1 of each species	1	0	As per BMP
Patch 1	Sharp Rush (<i>Juncus acutus</i>)	See Figure 2.1				0	Mechanical removal most effective. Also see BMP
Patch 2	Asparagus Fern (<i>Asparagus aethiopicus</i>) prevelant, also Bitou Bush (<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i>), Lantana (<i>Lantana camara</i>), Crofton Weed (<i>Ageratina adenophora</i>), Rhodes Grass (<i>Chloris gayana</i>) and <i>Senna pendula</i>	See Figure 2.1				0	As per BMP

Comments:

It appears that a patch of mature Sharp Rush, adjacent to the access track has not increased in size, however a few isolated individuals were observed adjacent to the dam. Mechanical removal is likely to be most effective for Sharp Rush. Note that the superficially similar, and native Sea Rush (*Juncus kraussii*) is also present in the vicinity. There is also a large patch (Figure 2.1) where Asparagus Fern is widespread, along with several other weed species.

Weed Monitoring Proforma

Date:	6/1/23
Management zone:	Vent shaft - Sumerland point
Data collectors:	Bianca Seal

Location ID (see Figure 3.2)	Weed species	Location		# plants	Area (m2)	Distance to native	Recommended control measures
		Easting	Northing				
Waypoint 14	<i>Senna pendula</i> , Lantana (<i>Lantana camara</i>) regrowth, Bitou Bush (<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i>)	366608.72	6331044.63	Senna pendula- 9 Lantana- 1 Bitou Bush- 2	2	0	As per BMP
Waypoint 15	Lantana, Senna pendula	366613.69	6331035.16	Lantana- 2 Senna pendula- 3	1	0	As per BMP
Waypoint 16	<i>Senna pendula</i> - mostly seedlings	366631.29	6331017.99	20	25	0	As per BMP, hand pull if small enough
Waypoint 17	Whiskey grass (<i>Andropogon virginicus</i>) patch with <i>Senna pendula</i> seedlings	366642.45	6331013.05	Whiskey Grass- 1000 Senna pendula- 3	25	0	As per BMP, hand pull if small enough
Waypoint 18	Spanish Reed (<i>Arundo donax</i>), Lantana, Senna pendula	366673.78	6330966.23	Bamboo- 22 Lantana- 6 Senna- 3	6	0	As per BMP
Waypoint 19	Lantana	366673.83	6330982.87	4	9	0	As per BMP
Waypoint 20	Senna pendula	366675.72	6331002.42	20	4	0	As per BMP
Waypoint 21	Lantana, Senna pendula	366677.68	6331042.69	Lantana- 1 Senna- 1	1	0	As per BMP
Waypoint 22	Lantana	366661.73	6331056.12	4	9	0	As per BMP
Waypoint 23	Lantana, Senna pendula	366604.29	6331068.2	Lantana- 1 Senna- 3	4	0	As per BMP
Waypoints 24 to 26	Fishbone fern (<i>Nephrolepis cordifolia</i>)- linear patch along roadside	366606.66; 366595.66	6331085.53; 6331119.64	2000	10	0	As per BMP
Waypoint 25	Senna pendula	366607.32	6331099.07	1	1	0	As per BMP
Waypoint 27	Lantana- juvenile	366604.23	6331113.66	2	1	0	As per BMP

Comments:

The majority of the weeds are easily accessible and small to medium in size. Most could be controlled with spot herbicide spray or cut and paint methods. Many of the *Senna pendula* patches have few large plants and a large number of seedlings which are easily hand pulled. Care should be taken not to impact the native Coffee Bush (*Breynia oblongifolia*) which has superficially similar leaves, especially as a seedling. It appears that some patches of *Senna pendula* have been treated before, with some plants showing decreased or prohibited growth.

Appendix D

Feral animal monitoring results

Feral Animal Monitoring Proforma**Date:** 6/01/2023**Data collectors:**

Bianca Seal

Management zone: Eastern Zone

Feral animal species	Location (MGA 94)		Activity level	Recommended control measures
	Easting	Northing		
Fox (<i>Vulpes vulpes</i>)	364987.64	6329489.2	1 scat observed	

Record types: O - observed, S - scats, T - tracks, D - diggings, B - burrows

Australia

SYDNEY

Ground floor 20 Chandos Street
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE

Level 3 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE

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