Matters of National Environmental Significance Management Plan Annual Report – 2021/2022

Meteor Downs South Rail Loop Project

Sojitz Blue Pty Ltd

CO2 Australia

APPROVALS

Rev	Date	Description
0	24 June 2022	Draft issued for client review
1	30 June 2022	Final

	Name	Position	Date
ORIGINATORS	Meghan Farr	Environmental Scientist	24 June 2022
APPROVER	Jarrad Cousin	Head of Ecosystem Markets and Innovation	24 June 2022

CO2 Australia recognises the First Nations of Australia. We acknowledge the Traditional Custodians who have lived on and cared for Country, and their continuing connection to the land, and extend our respects to all First Nations Peoples.

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ABBREVIATIONS AND ACRONYMS

°C	Degrees Celsius
DAWE	Commonwealth Department of Agriculture, Water and the Environment
EA	Environmental Authority (EA0001828) for the Meteor Downs Rail Loop
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
g	Gram
ha	Hectare
kg	kilogram
km	Kilometre
MDS Project	Meteor Downs South Coal Project
MDS Rail Loop Project	Meteor Downs South Rail Loop Project
m	Metre
mg	Milligram
mm	Millimetre
MNES	Matters of National Environmental Significance
%	Percent
Rail Loop MNESMP	Matters of National Environmental Significance Management Plan for the MDS Rail Loop Project
RE	Regional Ecosystem
Sojitz Blue	Sojitz Blue Pty Ltd
TEC	Threatened Ecological Community
TSSC	Threatened Species Scientific Committee
U&D	U&D Mining Industry (Australia) Pty Ltd

1 INTRODUCTION

1.1 BACKGROUND

Sojitz Blue Pty Ltd (Sojitz Blue) operates the Meteor Downs South Coal Project (MDS Project) in central Queensland on behalf of its joint venture partner U&D Mining Industry (Australia) Pty Ltd (U&D). The MDS Project is a small open cut coal mining operation located between Rolleston and Springsure in the Central Highlands Regional Council local government area in Queensland.

In order to transport coal from the MDS Project, Sojitz Blue has constructed a rail loop off the existing Blackwater rail system (the MDS Rail Loop Project). The rail loop is located approximately 3 kilometres (km) from the MDS Project access road intersection with the Dawson Highway (Figure 1). A load-out facility, stockpile pad and buildings (office, crib room, control room and ablutions block) have also been constructed as part of the MDS Rail Loop Project.

The MDS Rail Loop Project was subject to a separate approval process to the MDS Project and was approved by the Commonwealth Department of the Environment and Energy (now the Department of Agriculture, Water and the Environment [DAWE]) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 19 December 2019 (EPBC 2019/8482). State Government environmental approval was granted by the Queensland Department of Environment and Science in June 2019 (Environmental Authority [EA] EA0001828).

A Matters of National Environmental Significance Management Plan (hereafter Rail Loop MNESMP) was developed by SLR Consulting Australia Pty Ltd (SLR 2019a) as part of the EPBC Act approval process. The Rail Loop MNESMP details how direct and indirect impacts to the following matters of national environmental significance (MNES) will be managed over the life of the project:

- Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin Threatened Ecological Community (Natural Grasslands TEC)
- King blue-grass (*Dichanthium queenslandicum*).

Condition 6 of the EPBC Act approval requires the implementation of the Rail Loop MNESMP.

1.2 PURPOSE AND SCOPE

The Rail Loop MNESMP requires the submission of an annual report to DAWE by 30 June each year, documenting the implementation of and adherence to the Rail Loop MNESMP.

This report has been prepared by CO2 Australia Limited (CO2 Australia) on behalf of Sojitz Blue for the reporting period from July 2021 to June 2022. The scope of this report includes:

- Current project details, including relevant contacts
- Climatic conditions during the reporting period
- Activities undertaken during the reporting period including:
  - Construction and operational activities
  - Mitigation and management measures
  - Monitoring activities
- An assessment of the adherence to the performance criteria set out in the Rail Loop MNESMP
- A description of the potential threats and risks to MNES
- Proposed amendments to be made to the Rail Loop MNESMP

- Details of any corrective actions required to be implemented
- A management, monitoring and reporting schedule for the next reporting period (i.e. July 2022 to June 2023).

2 PROJECT DETAILS

Relevant approval and contact details for the MDS Rail Loop Project are provided in Table 1.

Table 1: Project details

Meteor Downs South Rail Loop Project	
Lot Plan Locations	Lot 56 on DSN808
EPBC Act Reference No.	EPBC 2019/8482
Queensland Government EA	EA0001828
Project Contact	Kodi Warner-Magnussen Graduate Environmental Advisor Sojitz MDS Mining Pty Ltd kwarner-magnussen@sojitzblue.com.au

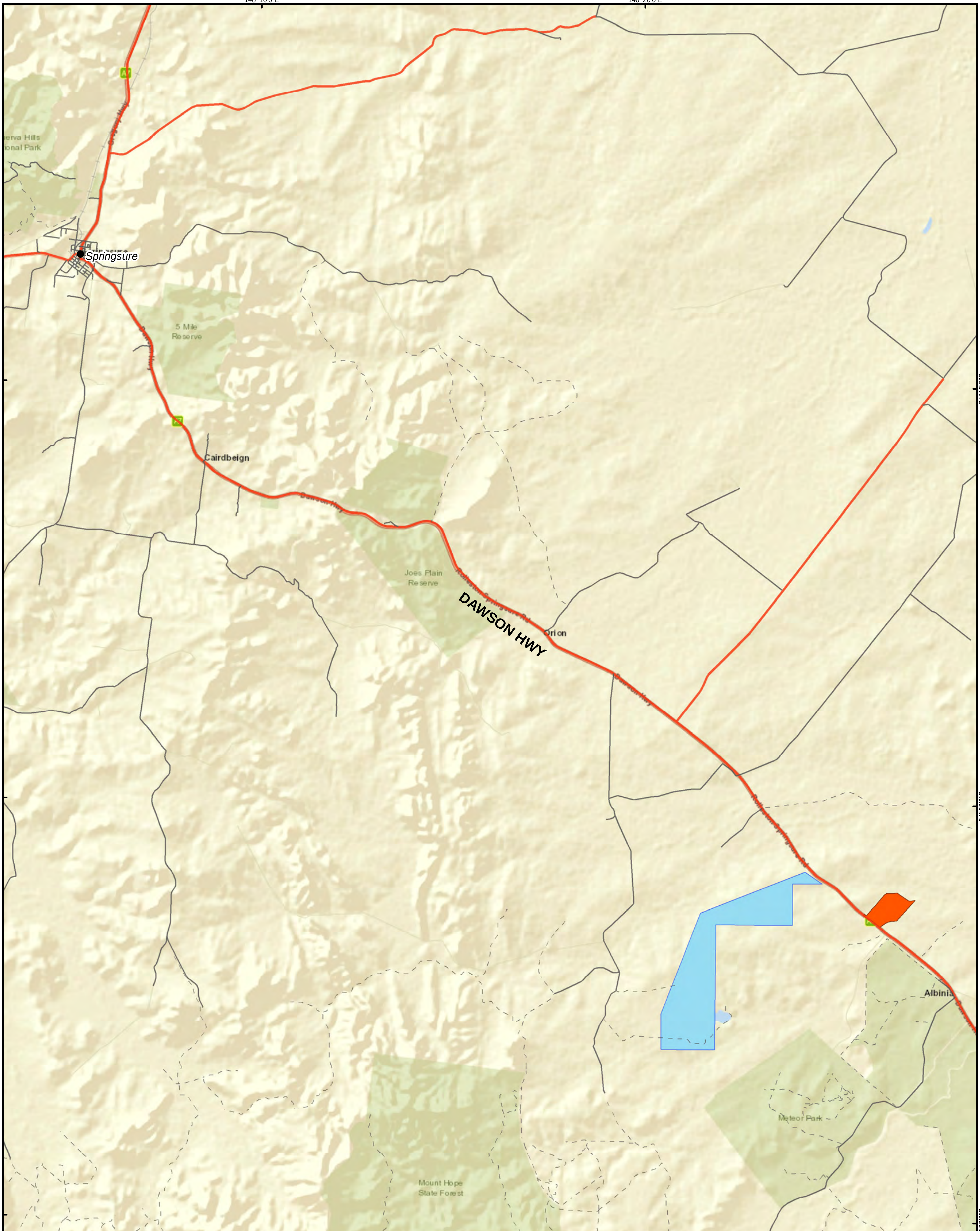

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Figure 1
MDS Rail Loop location

Population centres

Roads

State-controlled roads
Regional access
Local access

MDS Project (ML70452)
MDS Rail Loop

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Population centres
- Roads
- Mining Leases
Information provided by Sojitz
- MDS Rail Loop project area

0 1.5 3 4.5 6
Kilometres

N

CO2 Australia

Location diagram

Date: 6/16/2021 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:150,000@A3

Path: P:\GISData\Projects\Sojitz\925_20210614_Annual_report_figures\MNESMP_RAIL_LOOP_annual_report_Figure_1_Rail_Loop_Location.mxd

3 CURRENT CONDITIONS

During the 2021/22 management period, a total of 645.2 millimetres (mm) of rain was recorded at the nearest weather station (Comet Street, Springsure #35065, approximately 45 km north of the MDS Project) which was 99.7 percent (%) of the long-term annual average of 646.7 mm. Unusually, rainfall was well above average for the late 2021 dry season (October to December) and below average over the wet season (January to March) (Figure 2). The start of the 2022 dry season (April to May) has also been wetter than average.

The temperature data also followed a similar trend, with mean maximum and minimum temperatures generally above average over the dry season months and below average over the wet season months (Figure 3). Overall, the mean maximum and minimum temperatures during the management period were approximately 0.87 degrees Celsius (°C) and 0.85°C above the long-term average, respectively.

In summary, the climate conditions during the 2021/2022 management period could be characterised as being wetter and warmer than average over the dry season months and drier and cooler than average over the wet season months.

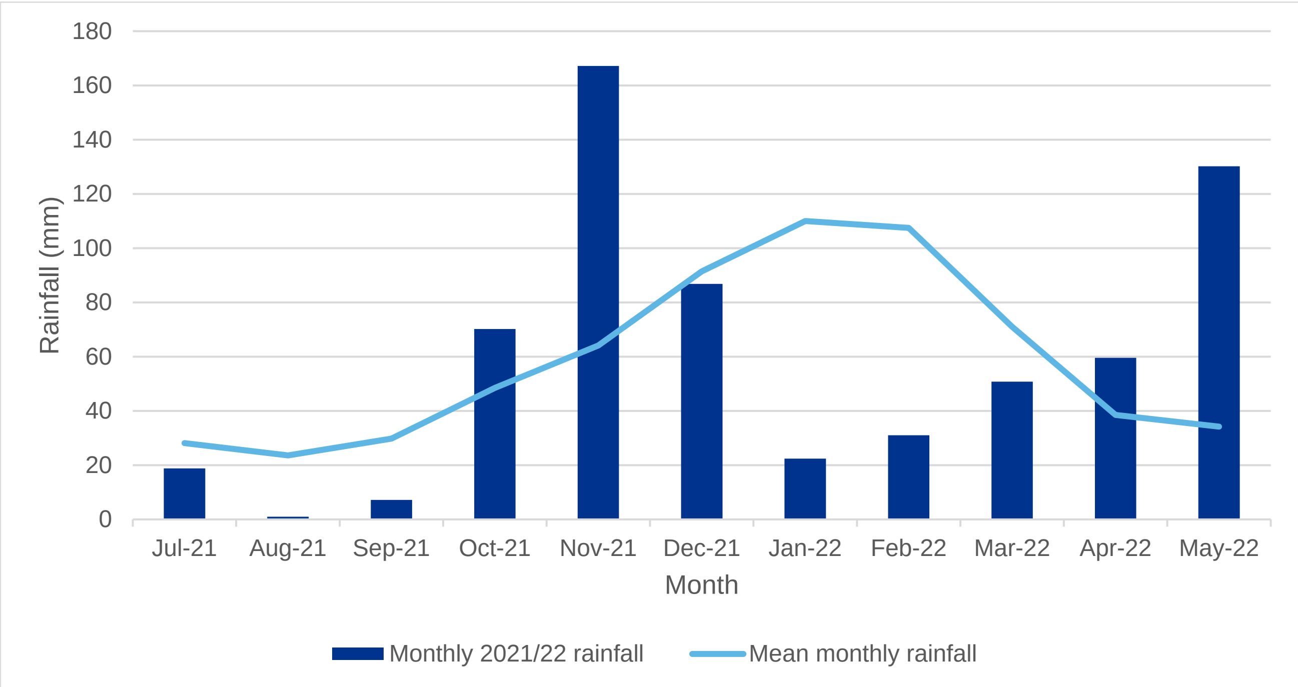

Figure 2: Rainfall recorded during the 2021/2022 management period[1]

[1] June 2022 rainfall data was not available at the time of writing.

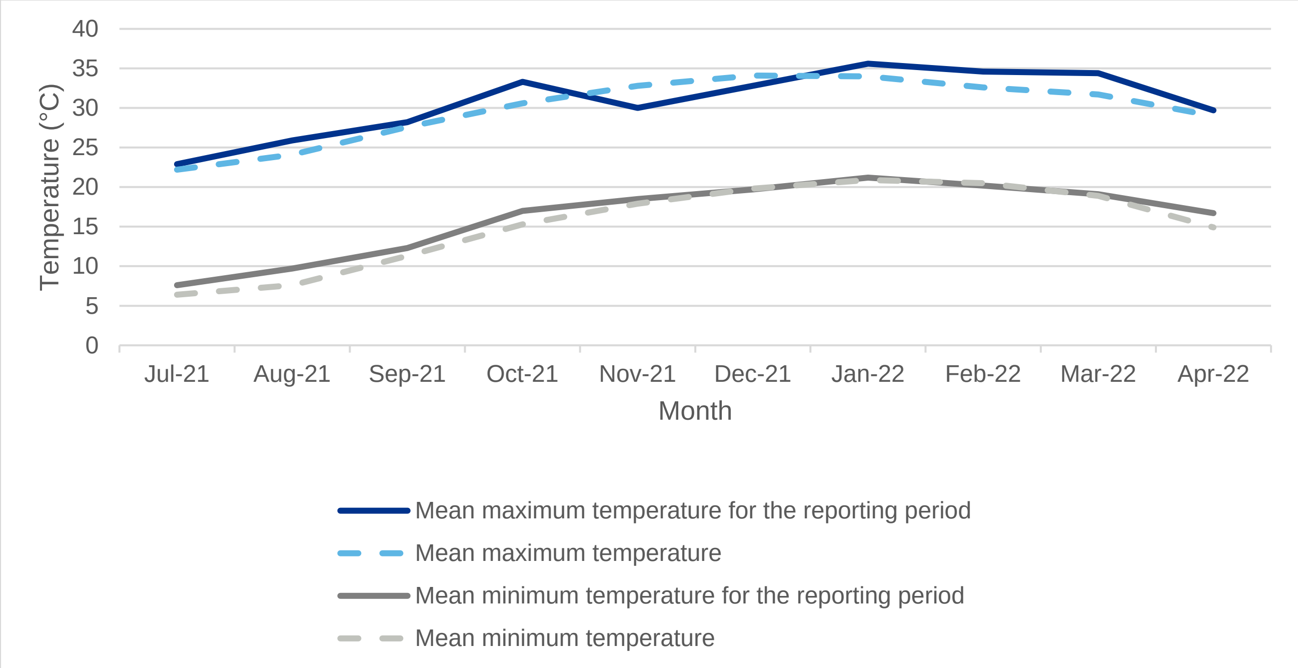

Figure 3: Temperature recorded during the 2021/2022 management period[2]

[2] May 2022 and June 2022 temperature data was not available at the time of writing.

4 REPORTING PERIOD ACTIVITIES

4.1 CONSTRUCTION AND OPERATION

All works involved in the construction of the MDS Rail Loop Project site, which commenced in February 2020, were completed at the end of July 2020. No further construction works occurred during the current 2021/2022 reporting period.

4.2 MITIGATION AND MANAGEMENT MEASURES

Sections 4.2.1 to 4.2.6 summarise the measures undertaken during the 2021/2022 reporting period to mitigate and manage impacts to MNES on the MDS Rail Loop Project site.

4.2.1 Vegetation clearing controls

As detailed in Section 4.1, construction works including clearing of vegetation, were completed in July 2020. Weighbridge construction for haulage trucks was completed in May 2021.

As discussed in Section 4.2.5, an emergency firebreak was required to be constructed to contain an uncontrolled fire. Given the emergency situation, the vegetation clearing controls specified in the Rail Loop MNESMP were not able to be implemented at the time.

4.2.2 Weed control

The MDS Project Weed and Pest Management Plan (Sojitz 2018) has been developed for the MDS Project site and will be applied at the MDS Rail Loop Project site. A weed washdown facility was constructed at the MDS site in April 2021 and is also used by vehicles accessing the MDS Rail Loop Project site.

No weed control activities were undertaken at the MDS Rail Loop Project site during the 2021/2022 management period.

Weed surveys were undertaken as part of the dry season surveys in December 2021 and the post-wet season surveys in March 2022, and the results are presented in Section 4.3.5.

4.2.3 Erosion and sediment control

Permanent erosion and sediment controls have been established around the fill and coal stockpiles to prevent the degradation of adjacent areas of MNES habitat.

4.2.4 Dust suppression

Vegetation clearing works have been limited to the MDS Rail Loop Project footprint, with all clearing completed as part of the construction. There were no issues attributable to dust observed in either the dry season survey (November 2021) or the post-wet season survey (May 2022) (Section 4.3.7).

4.2.5 Fire prevention and preparedness

A grass fire occurred on the MDS Rail Loop Project in mid-2021. Approximately 2.13 hectares (ha) of Natural Grasslands TEC and king blue-grass habitat was directly affected by the fire. An emergency firebreak was established to contain the fire which impacted on an additional 0.75 ha of Natural Grasslands TEC and king blue-grass habitat. The area impacted by the fire and the emergency firebreak is shown on Figure 4.

It is anticipated that the area impacted by the fire and firebreak will naturally rehabilitate. The area impacted by the fire was not evident during general site inspections undertaken in December 2021 and March 2022 (Section 4.3.2). Ongoing monitoring of the area impacted by the fire and firebreak will be undertaken in accordance with the Rail Loop MNESMP.

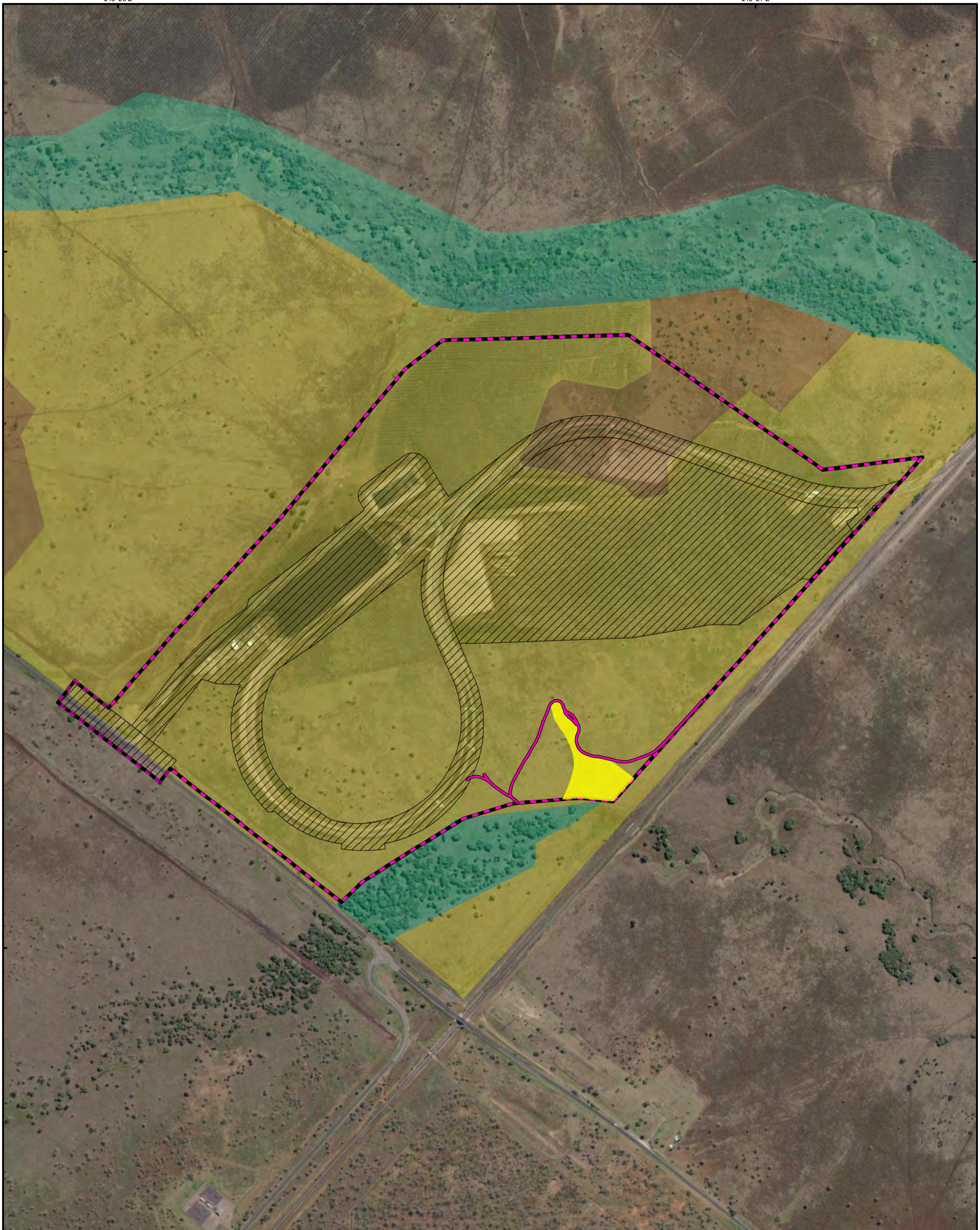

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Figure 4
Extent of grass fire mid-2021

Disturbance areas

MDS Rail Loop site

Mid-2021 grass fire

Extent of grass fire

Emergency firebreak

Ground-truthed REs

RE 11.8.11

RE 11.8.11/11.8.5

RE 11.3.3a

DATA SOURCE:
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed REs
- Emergency firebreak
- Extent of grass fire

0 100 200 300 400
Metres

N

CO2 Australia

Date: 6/18/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:9,000@A3

Location diagram

Path: P:\GISData\Projects\Sojitz\930_20220602_Annual_report_figures\MNESMP_RAIL_LOOP_annual_report_Figure_4_MDSRL_fire.mxd

4.2.6 Rehabilitation

No rehabilitation activities occurred during the 2021/2022 monitoring period. Now that all construction has been completed, rehabilitation of temporary areas will be scheduled.

4.3 MONITORING ACTIVITIES

Details and results of monitoring activities undertaken during the 2021/2022 reporting period are presented below in Sections 4.3.1 to 4.3.7. Table 2 describes the organisations that implemented each of the monitoring programs under the Rail Loop MNESMP.

Table 2: Persons undertaking monitoring

Monitoring Activity	Organisation
General site inspections	CO2 Australia
Vegetation clearing reconciliation	Sojitz Blue
Habitat condition assessments	CO2 Australia
Targeted flora surveys	CO2 Australia
Weed surveys	CO2 Australia
Biomass monitoring	CO2 Australia
Photo monitoring	CO2 Australia
Dust monitoring	Sojitz Blue

4.3.1 Monitoring of vegetation clearing

The maximum area of Natural Grasslands TEC and king blue-grass habitat permitted to be disturbed under the EPBC Act approval had been cleared to construct the MDS Rail Loop Project. The area cleared is shown in Figure 5.

As discussed in Section 4.2.5, an emergency firebreak was established to control the fire that occurred in mid-2021 (Section 4.2.5). This directly impacted on 0.75 ha of Natural Grasslands TEC and king blue-grass habitat. It is anticipated that this area will naturally rehabilitate over time. The firebreak intersects with an existing habitat condition transect and will be monitored in accordance with the Rail Loop MNESMP.

Table 3: Vegetation clearing impacts

MNES	Area cleared to June 2022 (ha)	Maximum disturbance limits (ha) – EPBC Act approval (EPBC 2019/8482)*	% of actual disturbance limit cleared
Natural Grasslands TEC	77	77	100
King blue-grass	19.5	19.5	100

* The Rail Loop MNESMP requires that clearing works do not exceed the disturbance limits specified in the EA. As no clearing limits are specified in the current EA (EA0001828), the maximum disturbance limits in the EPBC Act approval have been used for the purposes of this report.

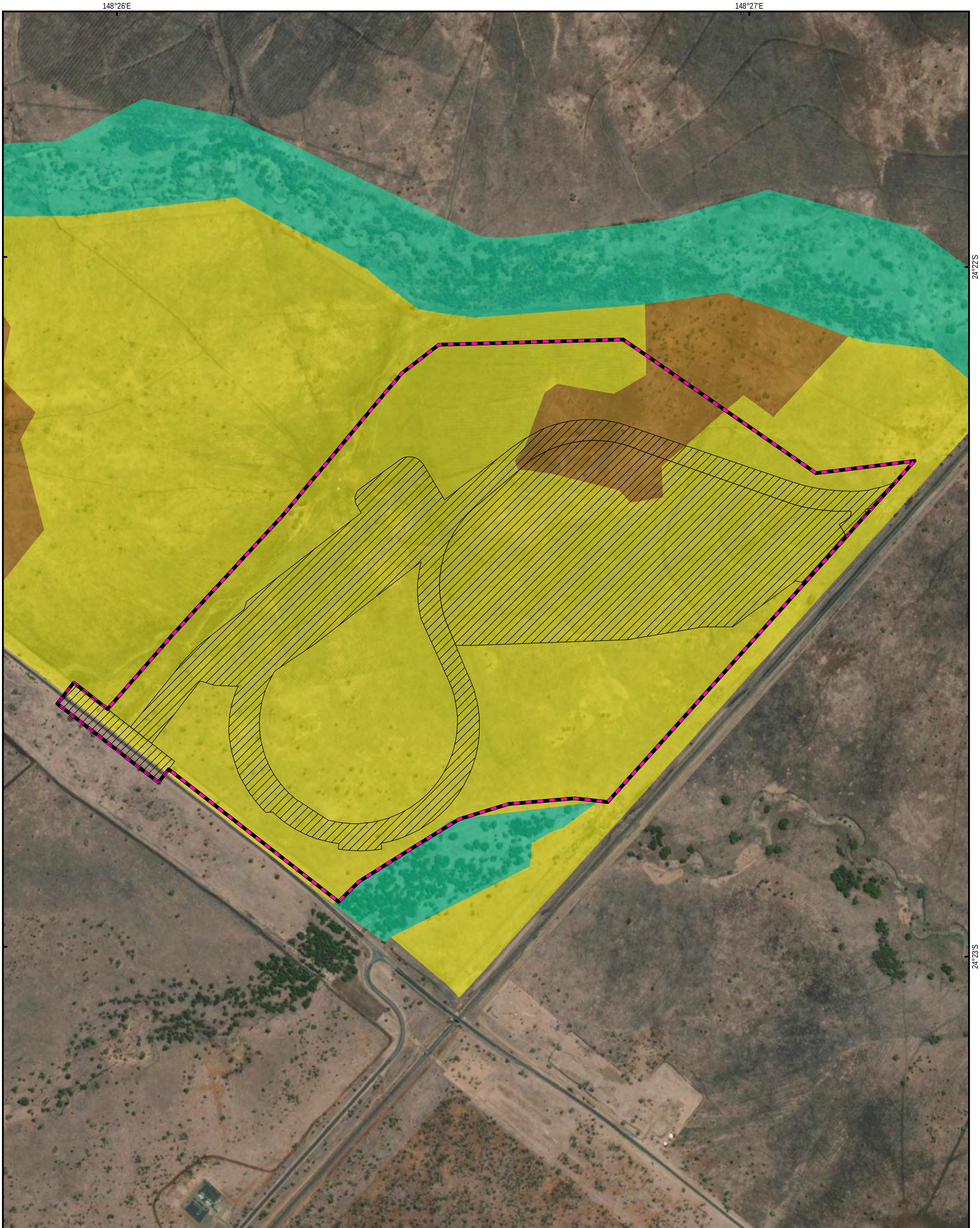

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Figure 5
Clearance Area

Disturbance areas
MDS Rail Loop site

Ground-truthed REs
RE 11.8.11
RE 11.8.11/11.8.5
RE 11.3.3a

DATA SOURCE:
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed REs

0 100 200 300 400
Metres

N

CO2 Australia

Location diagram

Date: 6/16/2021 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:9,000@A3

Path: P:\GISData\Projects\Sojitz\925_20210614_Annual_report_figures\MNESMP_RAIL_LOOP_annual_report_Figure_4_Clearance_Area.mxd

4.3.2 General site inspections

In accordance with the Rail Loop MNESMP, general site inspections were undertaken during both dry season and post-wet season site visits.

As previously discussed in Sections 4.2.5 and 4.3.1, an uncontrolled fire occurred in mid-2021. The area impacted was not evident during general site inspections.

No rubbish or other matters likely to impact on the monitoring area were observed. This included no evidence of dust or other particulate material on the vegetation within the MDS Rail Loop monitoring area.

4.3.3 Habitat monitoring

Habitat condition assessments

Habitat condition assessments were conducted in March 2022 at the four permanent monitoring sites. These surveys represent habitat condition assessments during the Year 3 management period at the MDS Rail Loop monitoring sites.

Site context was also assessed as part of the habitat condition assessments. Table 4 summarises the site condition and site context scores for each of the four monitoring sites. A detailed description of the habitat condition assessments is provided in the *Post-wet Season Monitoring Report (2021/2022)* (CO2 Australia 2022) in Appendix A.

The results of the habitat condition assessments were used in the calculation of habitat quality scores for each MNES.

Table 4: Site condition and site context scores at each habitat monitoring sites in March 2022

Site	RE	Site condition score (/10)	Site context score (/10)
MDSRL01	11.8.11	6.33	10.00
MDSRL02	11.8.11	7.00	8.85
MDSRL03	11.8.11	5.67	8.85
MDSRL04	11.8.11	4.67	8.85
Average score		**5.92**	**9.14**

RE = Regional Ecosystem.

MNES habitat quality scores

Habitat quality scores for each MNES were calculated using a combination of the site condition and site context scores from the habitat condition assessments. The calculation of a habitat quality score for king blue-grass also included species presence index which was informed by targeted surveys for the species.

Table 5 presents the habitat quality scores for the 2021/2022 reporting period for each MNES.

Based on the results of the site condition and assessments, habitat quality scores averaged 7.14 out of 10 for both Natural Grasslands TEC and king blue-grass (Table 5).

Table 5: Monitoring sites showing their habitat quality scores contributing to MNES

Site	RE	Natural Grasslands TEC	King blue-grass
MDSRL01	11.8.11	8.04	8.43
MDSRL 02	11.8.11	7.86	8.29
MDSRL 03	11.8.11	7.14	5.71
MDSRL 04	11.8.11	6.61	5.29
Average score		**7.14**	**7.41**

Figure 6 shows the change in the habitat quality scores for each MNES between 2020 and 2022.

The Natural Grasslands TEC habitat quality score did not change between the 2020/2021 and 2021/2022 monitoring period. This is most likely due to low rainfall between December 2021 and the March 2022 which left many of the grass specimens dry and lacking fertile material (which is key to their identification). As such, species richness may have been reduced compared to a typical post-wet season survey.

The king blue-grass habitat quality score however increased from 5.71 to 7.14 out of 10 (Figure 6). This is due to the identification of king blue-grass specimens at two of the monitoring sites (MDSRL01 and MDSRL02) which increased the habitat condition scores at these sites (Table 5).

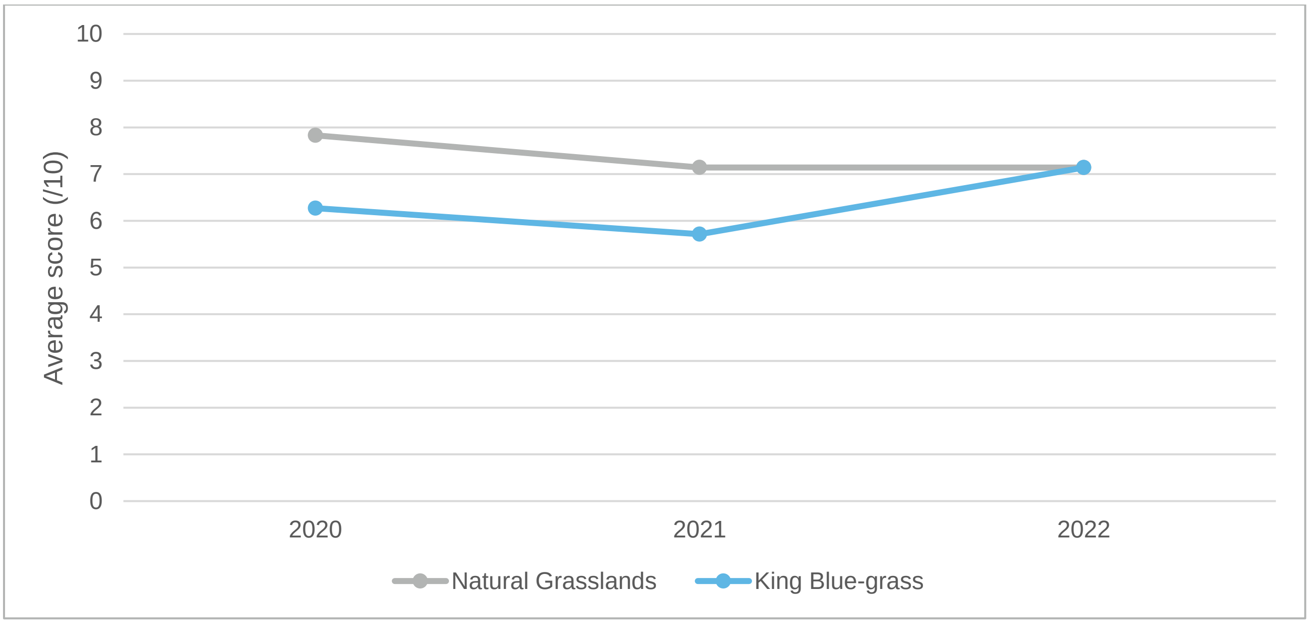

Figure 6: Changes in habitat quality scores for MNES between 2020 and 2022

Natural grassland quality assessments

Natural grassland quality assessments were conducted at each of the four habitat condition sites. This included an assessment of the species richness of Natural Grasslands TEC indicator species, density of grass tussocks, shrub cover and non-native plant cover as per the approved Commonwealth Listing Advice (Threatened Species Scientific Committee [TSSC] 2009). The results of this assessment (Table 6) indicated that only one of the condition sites (MDSRL02) was in 'good' condition, with the remaining three sites (MDSRL01, MDSRL03 and MDSRL04) being less than 'good' condition. According to the approved Commonwealth Listing Advice (TSSC 2009), MDSRL01, MDSRL03 and MDSRL04 d not meet the criteria for 'good' or 'best' condition class on account of the sites having weed cover >30%, and are therefore too degraded to be considered to comprise the Natural Grasslands TEC.

Table 6: Condition classes for the Natural Grasslands TEC

TEC quality criteria	MDSRL01 RE 11.8.11	MDSRL02 RE 11.8.11	MDSRL03 RE 11.8.11	MDSRL04 RE 11.8.11
Perennial indicator grass species	5	4	3	4
Number of native grass tussocks	>200	>200	>200	>200
Woody shrub canopy cover (%)	<5	<5	<5	<5
Perennial non-native plant cover (%)	40	22	47	74
Condition class	**Not TEC**	**Good**	**Not TEC**	**Not TEC**

Targeted surveys for king blue-grass

Targeted surveys were undertaken for king blue-grass during the 2022 post-wet season surveys. King blue-grass specimens were positively identified at two of the four habitat monitoring sites (Figure 7). Incidental observations of king blue-grass were also made within proximity to these two habitat monitoring sites as well as one of the weed monitoring plots. The targeted surveys were undertaken approximately a year after the grass fire occurred, with several of the king blue-grass specimens recorded in close proximity to the affected area.

4.3.4 Photo monitoring

Photo monitoring was undertaken as part of the post-wet season surveys in March 2022. Photos were taken at the habitat monitoring sites.

Photo monitoring of the MDS Rail Loop site showed consistently high levels of biomass, characterised by non-native grass cover, in particular *Setaria incrassata* (purple pigeon grass). This is likely a consequence of historical disturbance, with the current weedy condition an indication that the site is in a state of recovery.

The results from the photo monitoring are presented in the *Post-wet Season Monitoring Report (2021/2022)* (CO2 Australia 2021) in Appendix B.

4.3.5 Weed monitoring

Weed surveys were undertaken as part of the dry season surveys in December 2021 and the post-wet season surveys in March 2022 at five permanent weed monitoring plots. The full results of weed monitoring surveys are presented in the *Dry Season Monitoring Report (2021/2022)* (CO2 Australia 2021) and the *Post-wet Season Monitoring Report (2021/2022)* (CO2 Australia 2022) in Appendix A and Appendix B, respectively.

The average number of weed species recorded in the 2021 dry season and 2022 post-wet season surveys was lower than the 2020 baseline surveys levels. However, average weed cover in both the 2021 dry season and 2022 post-wet season surveys was significantly higher than the 2020 baseline survey levels. Table 7 provides a comparison of the weed survey results across the 2020 baseline, the 2021 dry season and the 2022 March post-wet season surveys.

The most commonly encountered weed was *Setaria incrassata* (purple pigeon grass), recorded in all five sites with an average cover of 22.2% during the dry season surveys and 28.5% during the post-wet season surveys.

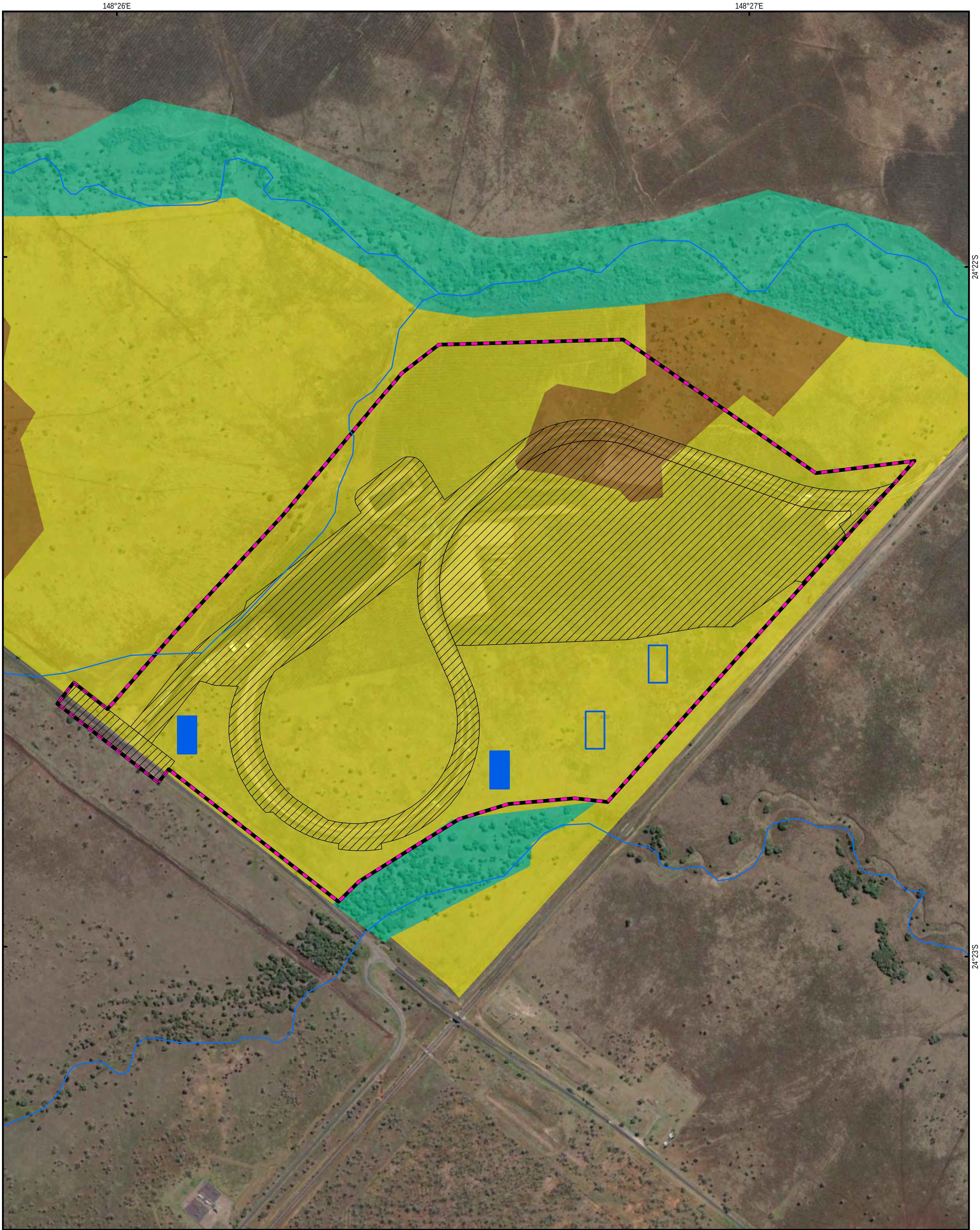

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Figure 7
Confirmed presence of king blue-grass from the MDS Rail Loop Project site

Disturbance areas
MDS Rail Loop site
Watercourse

Ground-truthed REs
RE 11.8.11
RE 11.8.11/11.8.5
RE 11.3.3a

Grass survey results
No King blue-grass
King blue-grass confirmed

0 100 200 300 400
Metres

N

DATA SOURCE:
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed REs

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:9,000@A3

Location diagram

Path: P:\GIS\Data\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\20220406 - Figure 20 - MDS RAIL LOOP KBG survey overview.mxd

Table 7: Comparison of weed survey results

Results	2020 baseline – November 2020	2021 dry season – December 2021	2022 post-wet season – March 2022
Total number of weed species	8	8	6
Average weed species per plot (range)	5.6 (4 – 7)	4.4 (1 – 6)	2.8 (1 – 6)
Average weed cover per plot (range)	8.29% (2.9% – 14%)	32.37% (16.8% – 50.1%)	36.85% (15.8% – 55.6%)

4.3.6 Biomass monitoring

Biomass monitoring at the MDS Rail Loop project site was undertaken during both the dry season and post-wet season surveys of the 2021/2022 management period. For all biomass monitoring points the Downs country photo standards (FutureBeef 2012) were used for monitoring all four sites comprising RE 11.8.11 (Table 8).

The results of biomass surveys are presented in Table 8 and represented graphically in Figure 8. Biomass levels have increased substantially since monitoring began in 2020. The latest monitoring undertaken in 2021/2022 monitoring period shows that there is very high biomass throughout the MDS Rail Loop Project area due to the exceedingly high rainfall from October to December 2021.

Table 8: Results of biomass monitoring on the MDS Project site using Brigalow Belt Future Beef pasture photo standards

Photo monitoring site*	RE type	Brigalow Belt Future Beef pasture photo standard type	2020 post-wet season biomass kg/ha	2020 dry season biomass kg/ha	2021 post-wet season biomass kg/ha	2021 dry season biomass kg/ha	2022 post-wet season biomass kg/ha
		Downs country					
MDSRL01	11.8.11	✓	3,015	2,578	3,850	4,445	5,040
MDSRL02	11.8.11	✓	2,578	2,140	3,015	4,445	5,040
MDSRL03	11.8.11	✓	2,140	2,140	3,015	5,040	5,040
MDSRL04	11.8.11	✓	3,015	2,578	4,445	5,040	5,040

* Taken from the 50 metre (m) point of the permanent habitat monitoring transect.

kg = kilogram.

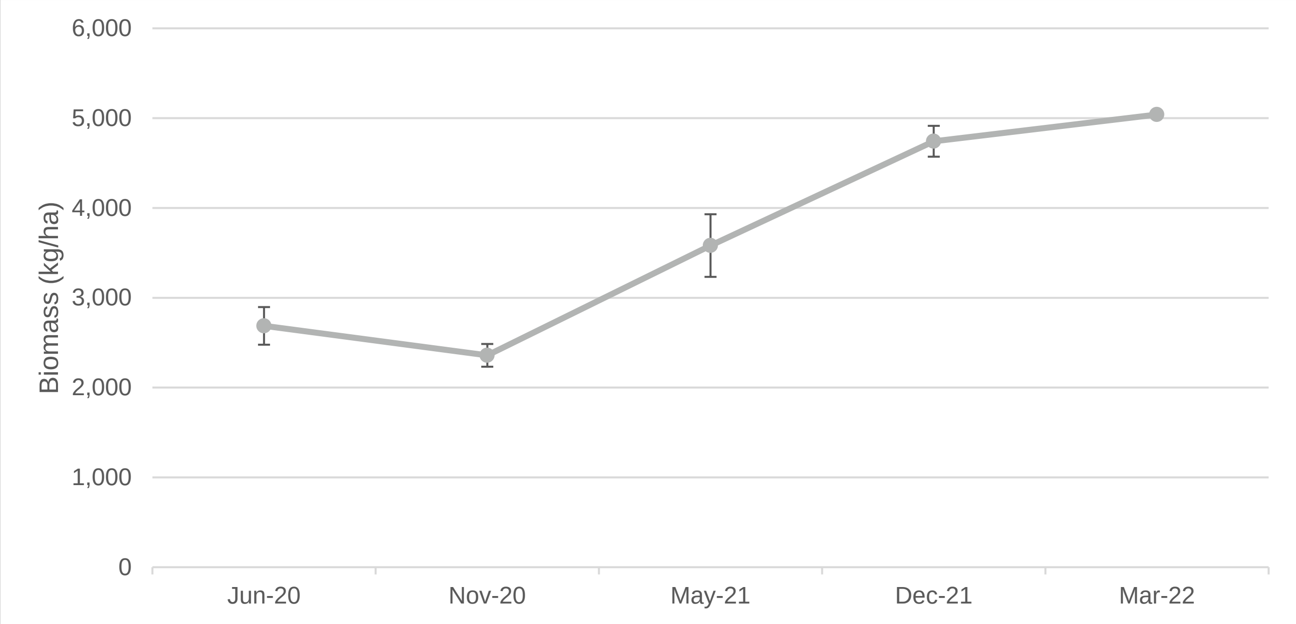

Figure 8: Graphical representation of the change in biomass at the MDS Rail Loop project site between June 2020 and March 2022

4.3.7 Dust Monitoring

As per the Rail Loop MNESMP, two dust monitoring gauges have been installed at the MDS Rail Loop site. Dust levels at the dust gauges have been monitored in accordance with the *Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited Matter – Gravimetric method*.

The results from the dust deposition monitoring at the two dust monitoring gauges for the reporting period are presented in Table 9.

The performance criteria relating to dust deposition in the Rail Loop MNESMP requires that dust deposition not exceed 120 milligrams (mg)/m^2/day (equivalent to 3.65 grams [g]/m^2/month), when measured at any sensitive or commercial place. Results of the dust monitoring from the 2021/2022 reporting period identified a number of the sites exceeding 120 mg/m^2/day (see bold figures in Table 9), however none of the dust monitoring sites are located at a sensitive receptor as defined under the Project's EA.

Additionally, no evidence of dust or other particulate material on the vegetation within the MDS Rail Loop Project site was observed during the general site inspections (Section 4.3.2).

Table 9: Results of dust monitoring during the 2020/21 reporting period

Site	MNES habitat represented by the site	Total Solids (g/m²/month)		
		23 July 2021 to 23 August 2021	21 October 2021 to 22 November 2021	28 February 2022 to 30 March 2022
DMS7	Natural Grasslands TEC and king blue-grass habitat	1.5	**4.9**	**4.7**
DMS8	Natural Grasslands TEC and king blue-grass habitat	0.6	**6.2**	2

5 ADHERENCE TO PERFORMANCE CRITERIA

Table 10 provides an assessment of the adherence to the performance criteria set out in the Rail Loop MNESMP. It also includes details of any corrective actions that have been undertaken, or will be undertaken, based on the monitoring results obtained during the reporting period.

Table 10: Adherence to performance criteria

Management objective	Success metric	Adherence to success metric	Corrective action
Avoid and minimise loss of natural grasslands on, and king blue-grass habitat around, the project site.	Grassland habitat outside the proposed disturbance footprint is maintained, with no clearing occurring as a result of the project.	As detailed in Section 4.3.1, the maximum area of Natural Grasslands TEC and king blue-grass habitat permitted to be disturbed under the EPBC Act approval had been cleared to construct the MDS Rail Loop Project. An emergency firebreak was established to control the fire that occurred in mid-2021 (Section 4.2.5). This directly impacted on 0.75 ha of Natural Grasslands TEC and king blue-grass habitat. It is anticipated that this area will rehabilitate naturally over time.	No corrective action required at this stage. The firebreak intersects with an existing habitat condition transect and will be monitored in accordance with the Rail Loop MNESMP.
Avoid and minimise loss of natural grasslands on, and king blue-grass habitat around, the project site.	Rehabilitation of disturbed areas in the project site no longer required for operation of the rail facility.	As detailed in Section 4.2.6, no rehabilitation activities have been undertaken within the MDS Rail Loop project area.	No corrective action required.
Prevent the decline of TEC and king blue-grass habitat quality in the project management area.	Habitat quality is maintained or increased according to diagnostic conditions for natural grasslands (TSSC 2009).	As detailed in Section 4.3.3, habitat quality assessments were completed as part of the 2022 post-wet season surveys. Results of the habitat quality assessments indicate that: • Habitat quality for king blue-grass has increased. King blue-grass specimens were positively identified at two of the four habitat monitoring sites as well as being incidentally being observed in the MDS Rail Loop Project area. • Habitat quality scores for Natural Grasslands TEC have been maintained since the previous 2021 post-wet season surveys. An assessment of the quality of the Natural Grasslands TEC as per the approved	**Corrective action required.** In accordance with the Rail Loop MNESMP, it is suggested that the frequency and intensity weed control measures is reviewed, as well as the type of measures to be implemented.

Management objective	Success metric	Adherence to success metric	Corrective action
		Commonwealth listing advice (TSSC 2009) however, indicates that only one of the sites assessed was in 'good' condition, with the remaining three sites being less than 'good' condition. These sites did not meet the criteria for 'good' or 'best' condition class on account of the sites having weed cover > 30%.	
Minimise the impacts of weeds on Natural Grasslands TEC and king blue-grass conditions.	No new weed species are established in the project area. No increase in extent or cover of existing weed infestations (particularly species declared under the *Biosecurity Act 2014*, or Leucaena, Mimosa, and perennial exotic grasses).	As detailed in Section 4.3.5, the average number of weed species recorded in the 2021 dry season and 2022 post-wet season surveys were lower than the baseline surveys levels. Average weed cover in both the 2021 dry season and 2022 post-wet season surveys however was significantly higher than the baseline survey levels. As previously discussed, the quality of Natural Grasslands TEC is being impacted by the increase in weed cover. Accordingly, it is suggested that the frequency and intensity of weed control measures is reviewed, as well as the type of measures to be implemented.	**Corrective action required.** In accordance with the Rail Loop MNESMP, it is suggested that the frequency and intensity weed control measures is reviewed, as well as the type of measures to be implemented.
Avoid and minimise the loss of king blue-grass within the management area of the project site.	Population size/density/ of king blue-grass is stable or increased.	As detailed in Section 4.3.3, king blue-grass specimens were positively identified at two of the four habitat monitoring sites. Incidental observations of king blue-grass were also made within the MDS Rail Loop Project area.	No corrective action required.
Minimise the impact of dust on surrounding natural grasslands and king blue-grass.	Population size/density of king blue-grass and natural grasslands is stable or increased.	There was no evidence to suggest dust was causing any issues to Natural Grasslands TEC or king blue-grass populations during the December 2021 or March 2022 survey events.	No corrective action required.
Avoid and minimise the negative impact of fire on the Natural Grasslands TEC and habitat for king blue-grass.	▶ No unplanned fires on the site. ▶ If required, planned controlled burns in Natural Grasslands TEC and king blue-grass habitat) occur: – in no more than 30% of the area;	As detailed in Section 4.2.5, a grass fire occurred on the MDS Rail Loop Project in mid-2021. Approximately 2.13 ha of Natural Grasslands TEC and king blue-grass habitat was directly affected by the fire. An emergency firebreak was established, and the fire was successfully contained.	No corrective action required at this stage. It is anticipated the area impacted by the fire and the firebreak will rehabilitate naturally. The area impacted was not evident during general site inspections. The firebreak

Management objective	Success metric	Adherence to success metric	Corrective action
	– at an interval greater than 5 years; and – at a time of year when soil moisture is high (late wet to early dry season or following good spring rains).		intersects with an existing habitat condition transect and will be monitored in accordance with the Rail Loop MNESMP.

6 POTENTIAL THREATS AND RISKS

Given construction works have ended at the MDS Rail Loop, the risk from vegetation clearing and heavy machinery is minimised. Instead weed introduction and spread and uncontrolled fires pose the greatest risk to MNES and their habitat in the MDS Rail Loop Project site. To mitigate this risk, the measures outlined in the Rail Loop MNESMP will be adhered to, including the implementation of contingency plans and corrective actions where required. Ongoing management and monitoring activities will provide an indication of the efficacy of management actions in achieving the performance criteria set out in the Rail Loop MNESMP.

It is imperative to ensure the exclusion of vehicles outside of formed access tracks to minimise the risk of weed introduction and spread and uncontrolled fires starting. Fuel loads also need to be maintained to reduce the risk of uncontrolled fire.

7 AMENDMENTS TO RAIL LOOP MNESMP

No amendments to the Rail Loop MNESMP are required at this point in time.

8 MANAGEMENT, MONITORING AND REPORTING SCHEDULE – 2022/2023

To guide management, monitoring and reporting activities for the 2022/2023 reporting period, Table 11 outlines a schedule of the management, monitoring and reporting activities to be undertaken as part of the Rail Loop MNESMP.

Table 11: Management, mitigation, monitoring and reporting activities for the 2022/2023 reporting period

Action	Timing	2022						2023					
		July	August	September	October	November	December	January	February	March	April	May	June
Management and mitigation measures													
Effectively manage site works and ongoing project activities so that clearing outside of the project footprint will not occur.	During construction and operations.	At all times											
▶ The extent of the project footprint will be clearly marked out prior to clearing.	Prior to vegetation clearing works.	At all times											
▶ All site clearing can only be undertaken in accordance with the authorised permit to disturb.	During construction and operations.	At all times											
▶ Environmental awareness training will be provided to all workers as part of site induction, including specific topics on MNES, risks and protective measures.	Prior to vegetation clearing works.	At all times											
Rehabilitation will establish self-sustaining natural grassland habitat.	After construction and clearing operations.	At all times											
Erect suitable fencing to exclude unauthorised vehicles or grazing stock from management area.	During construction and operations.	At all times											
Early installation of erosion & sediment controls (ESC) as works progress, and permanent ESC around fill and coal stockpiles.	During construction and operations.	At all times											

<table>
<tr><th rowspan="2">Action</th><th rowspan="2">Timing</th><th colspan="6">2022</th><th colspan="6">2023</th></tr>
<tr><th>July</th><th>August</th><th>September</th><th>October</th><th>November</th><th>December</th><th>January</th><th>February</th><th>March</th><th>April</th><th>May</th><th>June</th></tr>
<tr><td>Implementation of dust suppression techniques.</td><td>During construction and operations.</td><td colspan="12" rowspan="9">At all times</td></tr>
<tr><td>Manage fire regimes.</td><td>During construction and operations.</td></tr>
<tr><td>Manage weeds in accordance with the Meteor Downs South Weed and Pest Management Plan (Sojitz 2018).</td><td>During construction and operations.</td></tr>
<tr><td>Environmental awareness training will be provided to all workers as part of site induction, including weed hygiene and awareness.</td><td>Prior to construction and clearing operations.</td></tr>
<tr><td>Undertake targeted weed control measures in accordance with the weed management plan, using an integrated program including selective herbicides, fire management and stock exclusion to maintain competitive natural grasslands.</td><td>During construction and operations.</td></tr>
<tr><td>Water truck will be on site during construction for dust suppression.</td><td>During construction and operations.</td></tr>
<tr><td>Ground and vegetation disturbance to be limited to the necessary project footprint.</td><td>During construction and operations.</td></tr>
<tr><td>Stockpiles of topsoil, subsoil and parent material will be kept in a tidy condition and reused or stabilised as soon as practical.</td><td>During construction and operations.</td></tr>
<tr><td>Speed limits on internal roads will be limited to a maximum 40 km/hour.</td><td>During construction and operations.</td></tr>
</table>

Action	Timing	2022						2023					
		July	August	September	October	November	December	January	February	March	April	May	June
Build and maintain fire breaks for asset protection.		At all times											
Fire management of the site will consider: ▶ Protection and operation of the rail facility through risk assessment; ▶ appropriate fire management regimes (frequency, timing, extent) for the grasslands; and ▶ management impacts and implications (positive or negative) on weed management.	During construction and operations.												
Monitoring													
General site inspections	Biannually – once at the end of the wet season and once at the end of the dry season.					✓					✓		
Habitat quality assessments & photo monitoring	Annually, post-wet.										✓		
Targeted surveys for king blue-grass	Annually, post-wet.										✓		
Weed monitoring	Every two years (biennially) at the end of the wet season and dry season.												
Biomass monitoring	Biannually - at the end of each wet season and dry season.					✓					✓		
Dust deposition monitoring	Monthly during construction phase and quarterly during operational phase.			✓			✓			✓			✓

Action	Timing	2022						2023					
		July	August	September	October	November	December	January	February	March	April	May	June
Rehabilitation Monitoring	Annually, at the end of the wet season after rehabilitation works are finished.										✓		
Reporting													
Review of the Rail Loop MNESMP	Annually.	✓											
Annual report	Annually, required to be submitted to DAWE by the 30 June.												✓

9 REFERENCES

CO2 Australia Limited (CO2 Australia) (2021). *Dry Season Monitoring Report (2021/22)*. A report prepared for Sojitz Blue Pty Ltd. CO2 Australia Limited, Brisbane.

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APPENDIX A DRY SEASON MONITORING REPORT (2021/22) (CO2 AUSTRALIA 2021)

Dry Season Monitoring Report (2021/22)

Year 5

- *MDS Project site*
- *Lexington offset site*

Year 3

- *MDS Rail Loop site*
- *Lexington Rail Loop offset site*

Meteor Downs South Coal Mine Project

Sojitz Blue Pty Ltd

APPROVALS

Rev	Date	Description
0	3 February 2022	Draft report issued to client

	Name	Position	Date
ORIGINATORS	Dean Orrick Briana Clifton	Ecologist Environmental Scientist	3 February 2022
APPROVER	Dr Jarrad Cousin	Head of Ecosystem Markets and Innovation	3 February 2022

CONTENTS

TABLES

FIGURES

1 INTRODUCTION

U&D Mining Industry (Australia) Pty (U&D) has approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to develop and operate the Meteor Downs South (MDS) Coal Mine Project (the MDS Project) (Figure 1). U&D is in a joint venture with Sojitz Blue Pty Ltd (Sojitz Blue) to develop and operate the MDS Project.

1.1 MDS PROJECT AND CORRESPONDING OFFSETS

Under the Project EPBC Act approval (EPBC 2013/6779), the MDS Project has prepared the following documents:

- Matters of National Environmental Significance Management Plan (MNESMP)
  - to address EPBC 2013/6779 conditions 2, 3 and 4 with respect to the direct and indirect impacts of the MDS Project on matters of national environmental significance (MNES) at the MDS Project site
- Offset Management Plan (OMP)
  - to address EPBC 2013/6779 conditions 5 and 6 with respect to environmental offsets at the Lexington offset site (Figure 1) for significant residual impacts of the MDS Project on MNES and matters of state environmental significance (MSES)

The MNESMP and OMP outline annual biodiversity monitoring requirements at each site, as summarised in Table 1. The baseline (Year 1) management periods for the MDS Project site and the Lexington offset site are considered to be June 2017 – June 2018 (Project site) and October 2017 – October 2018 (Lexington offset site).

The current report incorporates the Year 5 (2021/2022) dry season monitoring report for both the MDS Project site and the Lexington offset site.

Table 1: Summary of MDS Project and offset site biodiversity monitoring requirements.

Site	Monitoring activity	Management plan	Frequency	Timing
MDS Project site	General site inspection	MNESMP Section 13.2	Biannually	End of the dry season and end of the wet season
	Habitat condition assessment	MNESMP Section 13.3	Annually	Dry season
	Photo monitoring	MNESMP Section 13.4	Annually	
	Targeted surveys for king blue-grass and bluegrass	MNESMP Section 13.5	Annually	End of the wet season and/or when most detectable
	Habitat availability assessment for Australian painted snipe	MNESMP Section 13.6	Every 2 years	Wet season or following inundation event
	Pest animal monitoring	MNESMP Section 13.7	Every 2 years	Dry season and post-wet season
	Weed monitoring	MNESMP Section 13.8	Every 2 years	
	Biomass monitoring	MNESMP Section 13.9	Biannually	Post wet and dry season

Site	Monitoring activity	Management plan	Frequency	Timing
Lexington offset site	General offset site monitoring	OMP Section 7.1	Annual	Post-wet season
	Habitat condition assessment and photo monitoring	OMP Section 7.2	Every 2 years for first 10 years and then every 5 years thereafter until 31 October 2037	Post-wet season
	Weed monitoring	OMP Section 7.4	Every 2 years	Dry season and post-wet season
	Pest animal monitoring	OMP Section 7.5	Every 2 years (dry season and post wet season surveys)	Dry season and post-wet season
	Biomass monitoring	OMP Section 7.6	Biannually	Post wet season prior to and during grazing events

1.2 MDS RAIL LOOP AND CORRESPONDING OFFSETS

In December 2019, Sojitz Blue received approval under the EPBC Act to develop and operate the Meteor Downs South Mine Rail Loop (MDS Rail Loop). Under the Project EPBC Act approval (EPBC 2019/8482), Sojitz Blue has prepared the following documents:

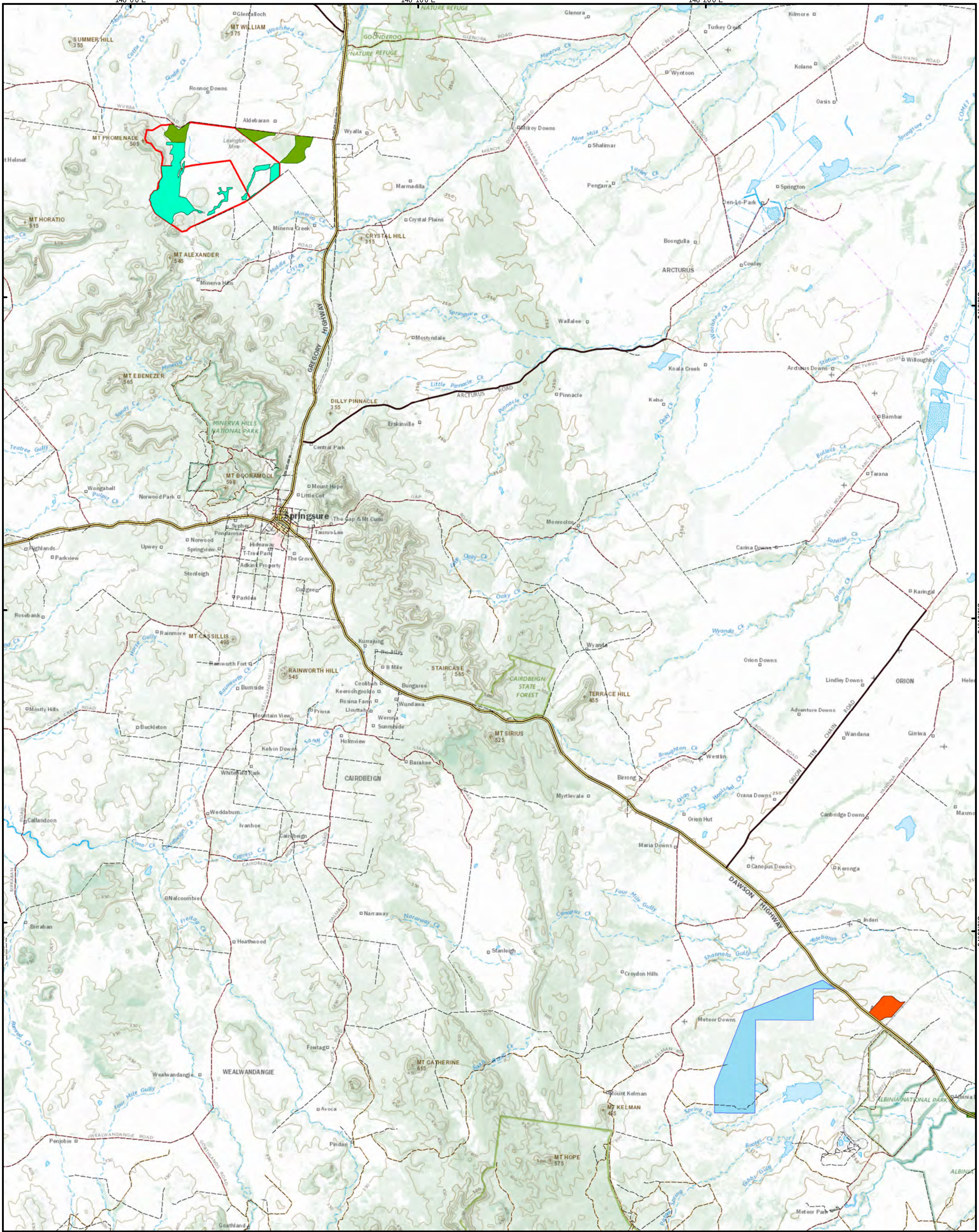
- Matters of National Environmental Significance Management Plan (Rail Loop MNESMP)
  - to address EPBC 2019/8482 condition 6 with respect to the direct and indirect impacts of the MDS Rail Loop project on matters of national environmental significance (MNES) at the MDS Rail Loop site
- Offset Management Plan (amendment to the OMP to incorporate the Rail Loop offsets)
  - to address EPBC 2019/8482 conditions 2, 3, 4 and 5 with respect to environmental offsets at the Lexington Rail Loop offset site (Figure 1) for significant residual impacts of the MDS Rail Loop on MNES.

The Rail Loop MNESMP and OMP outline annual biodiversity monitoring requirements at each site, as summarised in Table 2. The baseline management periods for the MDS Rail Loop site and the corresponding Lexington Rail Loop offset site are considered to be December 2019 - June 2020, with the current report incorporating the Year 3 (2021/2022) dry season monitoring report for both the MDS Rail Loop site and the Lexington Rail Loop offset site.

Table 2: Summary of MDS Rail Loop site and Lexington Rail Loop offset site biodiversity monitoring requirements.

Site	Monitoring activity	Management plan	Frequency	Timing
MDS Rail Loop site	General site inspection	Rail Loop MNESMP Section 7.2	Biannually	End of the dry season and end of the wet season
	Habitat quality assessments and photo monitoring	Rail Loop MNESMP Section 7.3	Annually	Post-wet season
	Targeted surveys for king blue-grass	Rail Loop MNESMP Section 7.4	Annually	

Site	Monitoring activity	Management plan	Frequency	Timing
	Weed monitoring	Rail Loop MNESMP Section 7.5	Biannually within habitat quality assessment plots Every 2 years at each of the weed monitoring plots	End of the dry season and post-wet season
	Biomass monitoring for fire management	Rail Loop MNESMP Section 7.6	Biannually	End of the dry season and end of the wet season
Lexington Rail Loop offset site	General offset site monitoring	OMP Section 7.1	Annually	Post-wet season
	Habitat condition assessment and photo monitoring	OMP Section 7.2	Every 2 years for first 10 years and then every 5 years thereafter until 31 October 2039	Post-wet season
	King blue-grass surveys	OMP Section 7.3	Every 5 years from baseline (2019)	End of the wet season and/or when most detectable
	Weed monitoring	OMP Section 7.4	Baseline in 2020 (Year 1), then every 2 years	Dry season and post-wet season
	Biomass monitoring	OMP Section 7.6	Biannually	Post wet season prior to and during grazing events



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Location diagram

Figure 1 Location of the MDS project, MDS Rail Loop and corresponding offsets

- Minerva lots (lot 10 & 11 DN40126)
- *Roads and tracks*
- State-controlled roads
- Regional access
- Local access
- MDS Project (ML70452)
- MDS Rail Loop
- Lexington offset
- Lexington Rail Loop offset

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Roads and tracks
- Mining Lease
Information provided by Sojitz
- Rail Loop project area
- Lexington Rail Loop offset

0 2.5 5 7.5 10
Kilometres

N

CO2 Australia

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:200,000@A3

Path: P:\GISData\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_20220202 - Figure 1 - Site context.mxd

2 METHODOLOGY

Field surveys were undertaken by two tertiary-qualified ecologists (Dean Orrick and Simon Danielsen) between 7 – 16 December 2021. Permanent monitoring sites were established at the MDS Project site and Lexington offset site as part of the baseline surveys carried out between December 2017 and April 2018, detailed in the following:

- *MNESMP Baseline Monitoring Report – Meteor Downs South Coal Mine Project.* A report prepared by CO2 Australia in 2017 (CO2 Australia 2017) – baseline monitoring sites established in December 2017
- *Lexington Offset Area Initial Baseline Monitoring Report – Meteor Downs South.* A report prepared by CO2 Australia in 2018 (CO2 Australia 2018) – baseline monitoring sites established in April 2018.

Permanent monitoring sites for the MDS Rail Loop site and the Lexington Rail Loop offset site were established as part of baseline surveys carried out during post-wet season field surveys in June/July 2020, and detailed in the following report:

- *Post-wet Season Monitoring Report – Year 3 (2019/20).* A report prepared by CO2 Australia in 2020 (CO2 Australia 2020) – baseline monitoring sites established in June/July 2020.

2.1 MONITORING LOCATIONS

2.1.1 MDS Project site

Dry season monitoring activities at the MDS Project site comprised:

- Habitat condition assessments
- Photo monitoring
- Pest animal monitoring
- Weed monitoring
- Biomass monitoring
- General site inspection

Table 3 shows activities at each monitoring location at the MDS Project site. A total of 43 permanent sites/plots were monitored across the balance of ML70452 outside of the MDS project site (refer to Figure 2 and Figure 3). Permanent monitoring sites comprised a mix of nested and non-nested sites (Table 3), according to the following:

- 10 x habitat monitoring sites (100 m x 50 m)
  - collocated with weed and rabbit monitoring plots (Sites 01 – 10)
- 30 x photo monitoring sites
  - established at 0 m and 50 m points along 100 m habitat monitoring transect (Sites 01 – 10) and at SW corner of weed monitoring plots (Sites 11 – 20)
- pest animal monitoring
  - 10 x rabbit monitoring plots (2 ha)
    - collocated with habitat monitoring sites and weed monitoring plots (Sites R01 – R10)
  - 8 x pig monitoring plots (15 ha) (Sites P01 – P08)

- 15 x pest animal fauna camera stations (Sites C01 – C15)
  - Located throughout the site adjacent to existing access tracks
  - Replaced the 20 x sand track stations employed previously
- 20 x weed monitoring plots (1 ha)
  - partly collocated with weed and rabbit monitoring plots (Sites 01 – 10), with remaining 10 sites (Sites 11 – 20) standalone weed monitoring plots
- 20 x biomass monitoring sites
  - Established at 0 m point along 100 m habitat monitoring transect (Sites 01 – 10) and at SW corner of weed monitoring plots (Sites 11 – 20)

At each of the 10 habitat monitoring sites (Sites 01 – 10), a 1.8 m capped galvanised star picket is installed at the start (0 m) and central (50 m) points of the 100 m transect. At each of the remaining 10 standalone weed monitoring plots (Sites 11 – 20), a single 1.8 m capped galvanised star picket is installed at the SW corner of the plot. GPS locations are recorded for each of the sites in GDA94, Zone 55 projection. GPS locations are recorded for each of the sites in GDA94, Zone 55 projection.

Refer to Table A-1 in Appendix A for detailed locations of each of the monitoring sites at the MDS Project site.

Table 3: Monitoring locations at the MDS Project site, surveyed as part of the 2021/22 dry season surveys.

Site	Photo monitoring	Biomass monitoring	Weed monitoring	Habitat monitoring						Pest animal monitoring		
				Brigalow TEC	Natural Grasslands TEC	King blue-grass	Bluegrass	Squatter pigeon	Australian painted snipe	Rabbit plot	Feral pig plot	Fauna camera
01	✓	✓	✓					✓		✓		
02	✓	✓	✓		✓	✓	✓			✓		
03	✓	✓	✓					✓		✓		
04	✓	✓	✓		✓	✓	✓			✓		
05	✓	✓	✓					✓		✓		
06	✓	✓	✓		✓	✓	✓			✓		
07	✓	✓	✓	✓						✓		
08	✓	✓	✓		✓	✓	✓			✓		
09	✓	✓	✓						✓	✓		
10	✓	✓	✓					✓		✓		
11 – 20	✓		✓									
P01 – P08											✓	
C01 – C15												✓

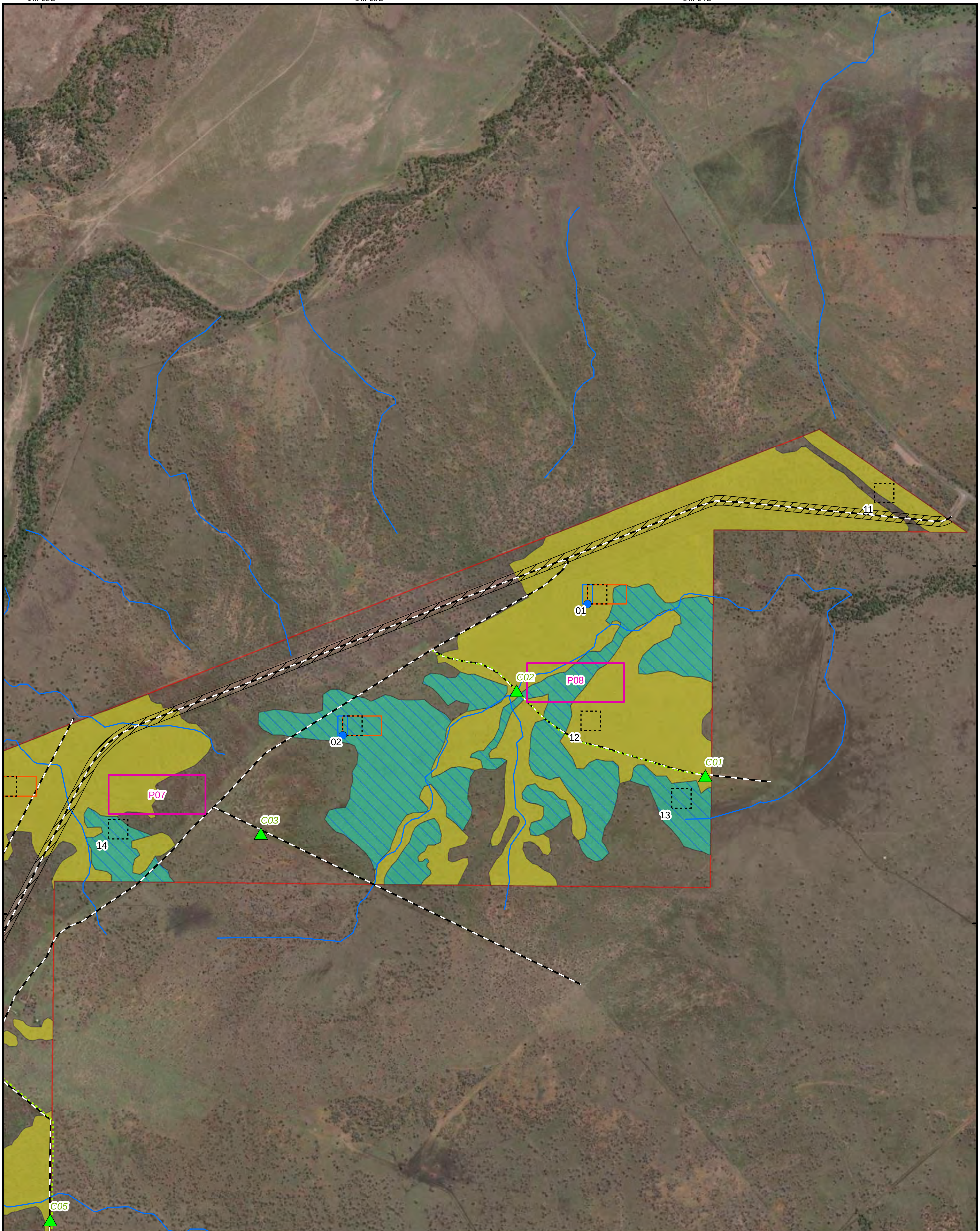

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Figure 2
MDS Project
monitoring sites - north

Mining Lease
Disturbance areas
Access tracks
Watercourse
Brigalow TEC
Natural Grassland TEC
Habitat for King blue-grass and bluegrass
Habitat for squatter pigeon
Habitat for Australian painted snipe
Habitat monitoring site
Habitat monitoring plots
Weed monitoring plots
Rabbit monitoring plots
Pig monitoring plots
Pest animal survey tracks
Pest animal camera sites

0 0.25 0.5 0.75 1
Kilometres

N

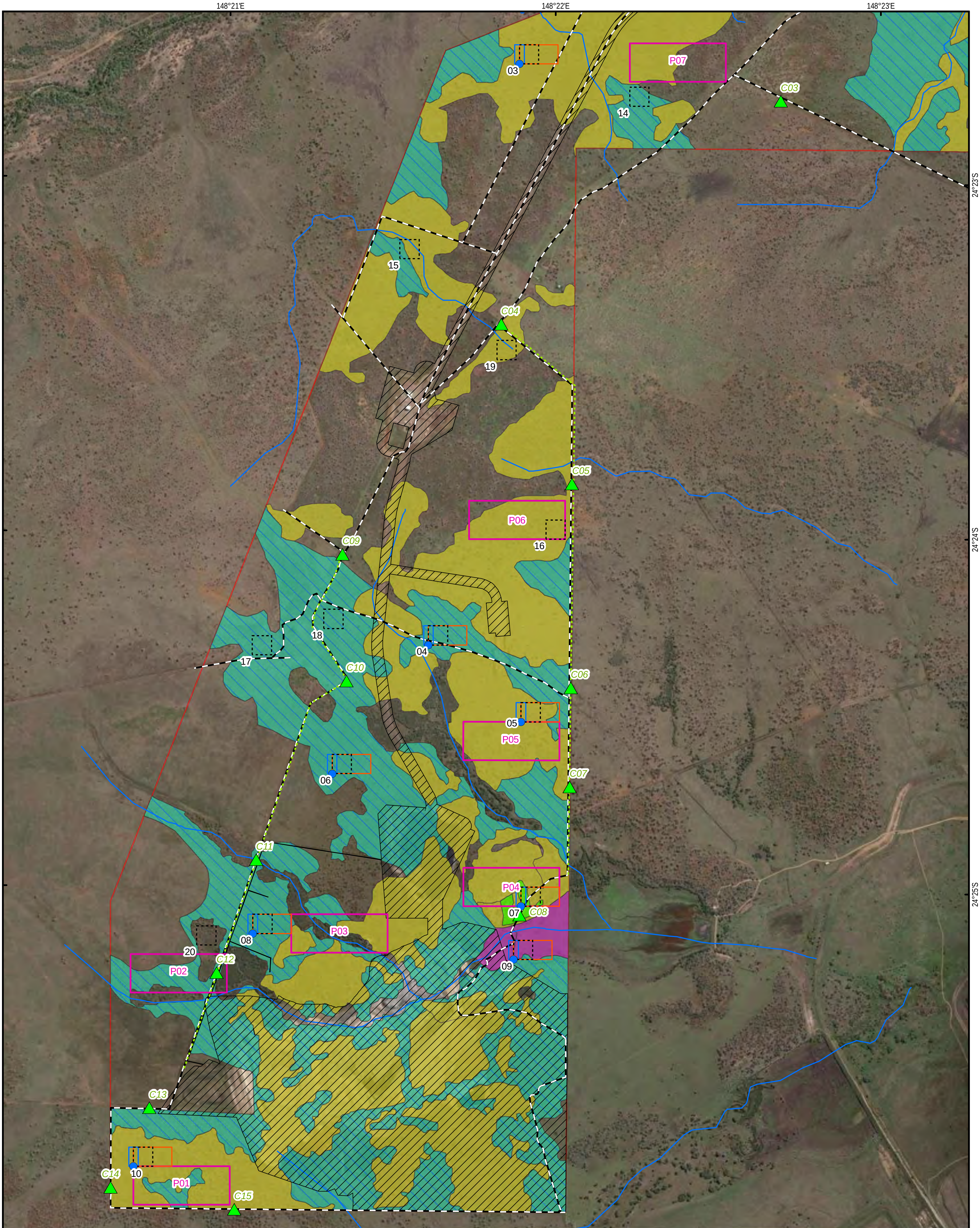
CO2 Australia

Location diagram

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:17,500@A3

Path: P:\GISData\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_22\220202 - Figure 2 - MDS monitoring sites north.mxd



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Location diagram

Figure 3
MDS Project
monitoring sites - south

- Mining Lease
- Disturbance areas
- Access tracks
- Watercourse
- Brigalow TEC
- Natural Grassland TEC
- Habitat for King blue-grass and bluegrass
- Habitat for squatter pigeon
- Habitat for Australian painted snipe
- Habitat monitoring site
- Habitat monitoring plots
- Weed monitoring plots
- Rabbit monitoring plots
- Pig monitoring plots
- Pest animal survey tracks
- Pest animal camera sites

0 0.25 0.5 0.75 1
Kilometres

N

CO2 Australia

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:17,500@A3

Path: P:\GISData\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_20220202 - Figure 3 - MDS monitoring sites south.mxd

2.1.2 MDS Rail Loop site

Dry season monitoring activities at the MDS Rail Loop site comprised:

- Weed monitoring
- Biomass monitoring
- General site inspection

Table 4 shows activities at each monitoring location established at the MDS Rail Loop site. A total of five permanent monitoring sites/plots were monitored (refer to Figure 4). While the Rail Loop MNESMP (SLR 2019) stipulated one of the weed monitoring plots to be established in the *Leucaena* plantation, consultation with Sojitz Blue indicated the safety issues related to monitoring sites within the centre of the rail loop requiring crossing of the rail line. Instead, all plots were established on the outside of the rail loop (refer to Figure 4). Permanent monitoring sites comprised a mix of nested and non-nested sites (Table 4), according to the following:

- 5 x weed monitoring plots (1 ha)
  - collocated with the habitat monitoring sites (Sites MDSRL01 – MDSRL04), with a single standalone weed monitoring plot (Site MDSRL05)
- 4 x biomass monitoring sites
  - assessed from the 50 m point of the habitat monitoring transect at each of the four habitat monitoring sites (Sites MDSRL01 – MDSRL04),

At each of the 4 biomass monitoring sites (Sites MDSRL01 – MDSRL04), a 1.8 m capped galvanised star picket is installed at the start (0 m) and central (50 m) points of the 100 m habitat monitoring transect. At the single standalone weed monitoring plot (Site MDSRL05), a single 1.8 m capped galvanised star picket is installed at the SW corner of the plot. GPS locations are recorded for each of the sites in GDA94, Zone 55 projection.

Refer to Table A-2 in Appendix A for detailed locations of each of the monitoring locations at the MDS Rail Loop site.

Table 4: Monitoring locations at the MDS Rail Loop site, surveyed as part of the 2021/22 dry season surveys.

Site	Weed monitoring	Biomass monitoring
MDSRL01 – MDSRL04	✓	✓
MDSRL05	✓	

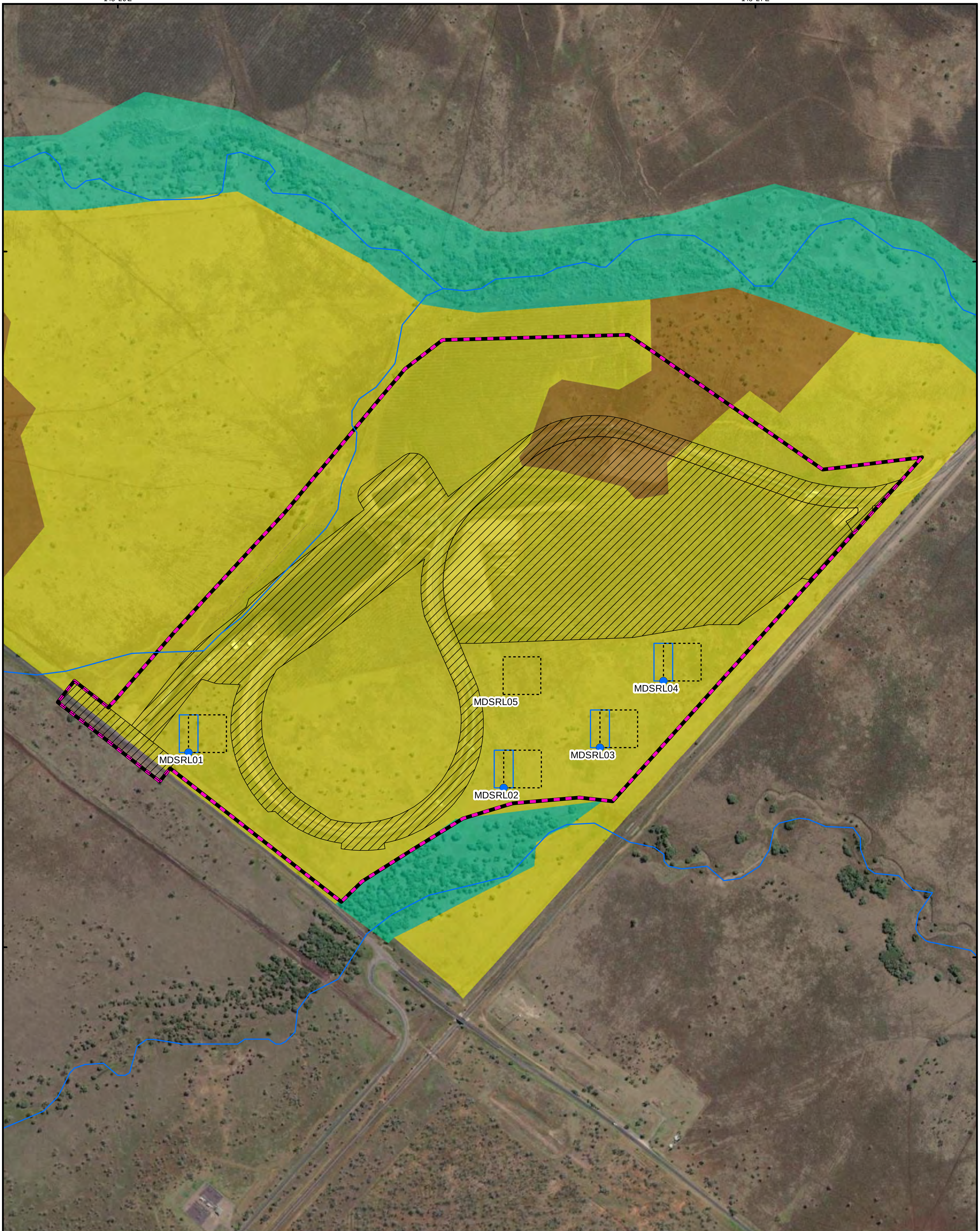

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Figure 4
MDS Rail Loop
- monitoring sites

Disturbance areas
MDS Rail Loop site
Watercourse

Ground-truthed REs
RE 11.8.11
RE 11.8.11/11.8.5
RE 11.3.3a

Habitat monitoring site
Habitat monitoring plots
Weed monitoring plots

Location diagram

DATA SOURCE:
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed REs

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:9,000@A3

0 100 200 300 400
Metres

N

CO2 Australia

Path: P:\GISData\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_22\220202 - Figure 4 - MDS RAIL LOOP monitoring sites.mxd

2.1.3 Lexington offset site

Dry season monitoring activities at the offset site comprised:

- Pest animal monitoring
- Weed monitoring
- Biomass monitoring
- General offset site monitoring

Table 5 shows activities at each monitoring location at the offset site. A total of 43 permanent monitoring sites/plots were monitored across the offset site. Permanent monitoring sites comprised a mix of nested and non-nested sites (Table 5, Figure 5 and Figure 6), according to the following:

- Pest animal monitoring
  - 10 x rabbit monitoring plots (2 ha)
    - collocated with 10 of the habitat monitoring sites (Sites 01-05, 07-08, 10-11 and 13) and weed monitoring plots
  - 8 x pig monitoring plots (15 ha) (Sites P01 – P08)
  - 15 x pest animal fauna camera stations (Sites C01 – C15)
    - fauna camera stations were established along pest animal survey tracks
- 20 x weed monitoring plots (1 ha)
  - 13 sites collocated at all habitat monitoring sites (Sites 01 – 13),
  - 7 sites (Sites 14 – 20) standalone weed monitoring plots
- 20 x biomass monitoring sites
  - 13 established at the 0 m point along the 100 m habitat monitoring transects (Sites 01 – 13)
  - 7 at SW corner of weed monitoring plots (Sites 14 – 20)

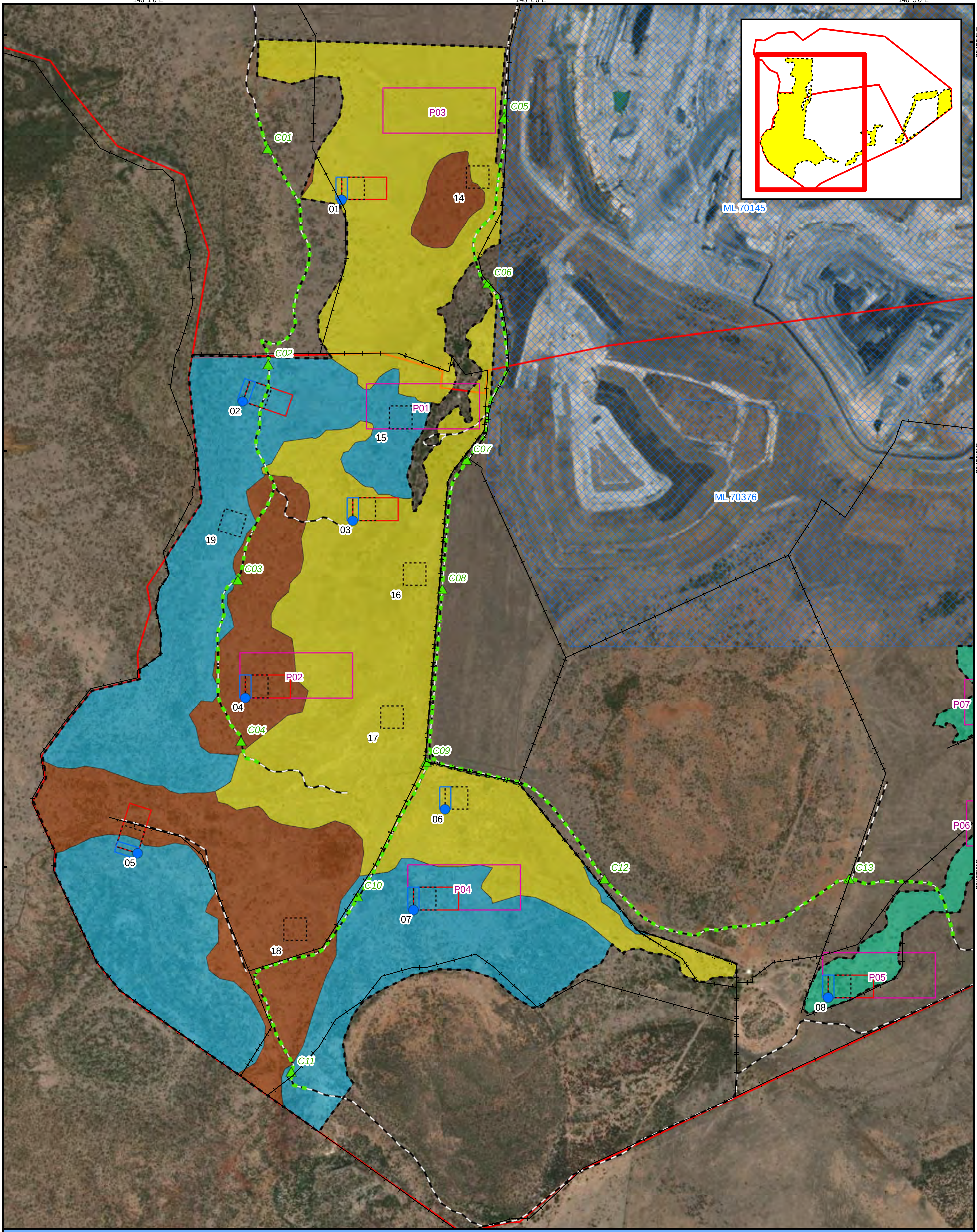
At each of the 13 habitat monitoring sites (Sites 01 – 13), a 1.8 m capped galvanised star picket is installed at the start (0 m) and central (50 m) points of the 100 m transect. At each of the standalone weed monitoring plots (Sites 14 – 20), a single 1.8 m capped galvanised star picket is installed at the SW corner of the plot. GPS locations are recorded for each of the sites in GDA94, Zone 55 projection.

Refer to Table A-3 in Appendix A for detailed locations of each of the monitoring sites at the Lexington offset site.

Table 5: Monitoring locations at the Lexington offset site, surveyed as part of the 2021/22 dry season surveys.

Site	Biomass monitoring	Weed monitoring	Pest animal monitoring		
			Rabbit plot	Feral pig plot	Fauna cameras
01 – 20	✓	✓	✓*		
P01 – P08				✓	
C01 – C15					✓

* includes Sites 01-05, 07-08, 10-11 and 13



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Location diagram

Figure 5
Lexington offset monitoring sites - west

Minerva lots (lot 10 & 11 DN40126)	*Regional ecosystem*	Pest animal camera site
Existing offset area (Category A area)	RE 11.8.11	Pest animal survey tracks
Mining leases (ML70376 and ML70145)	RE 11.8.11a	Habitat monitoring sites
Offset area	RE 11.8.4	Habitat monitoring plot
Access tracks	RE 11.8.5	Weed monitoring plots
Lexington existing fences		

Rabbit monitoring plots
Pig monitoring plots

0 0.25 0.5 0.75 1
Kilometres

N

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data
- Mining Lease
- Existing offset area

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:15,000@A3

CO2 Australia

Path: P:\GISData\Projects\Sojitz\67_20220202_dry_seas_monitor_report_2021_22\220202 - Figure 5 - Lexington monitoring sites west.mxd

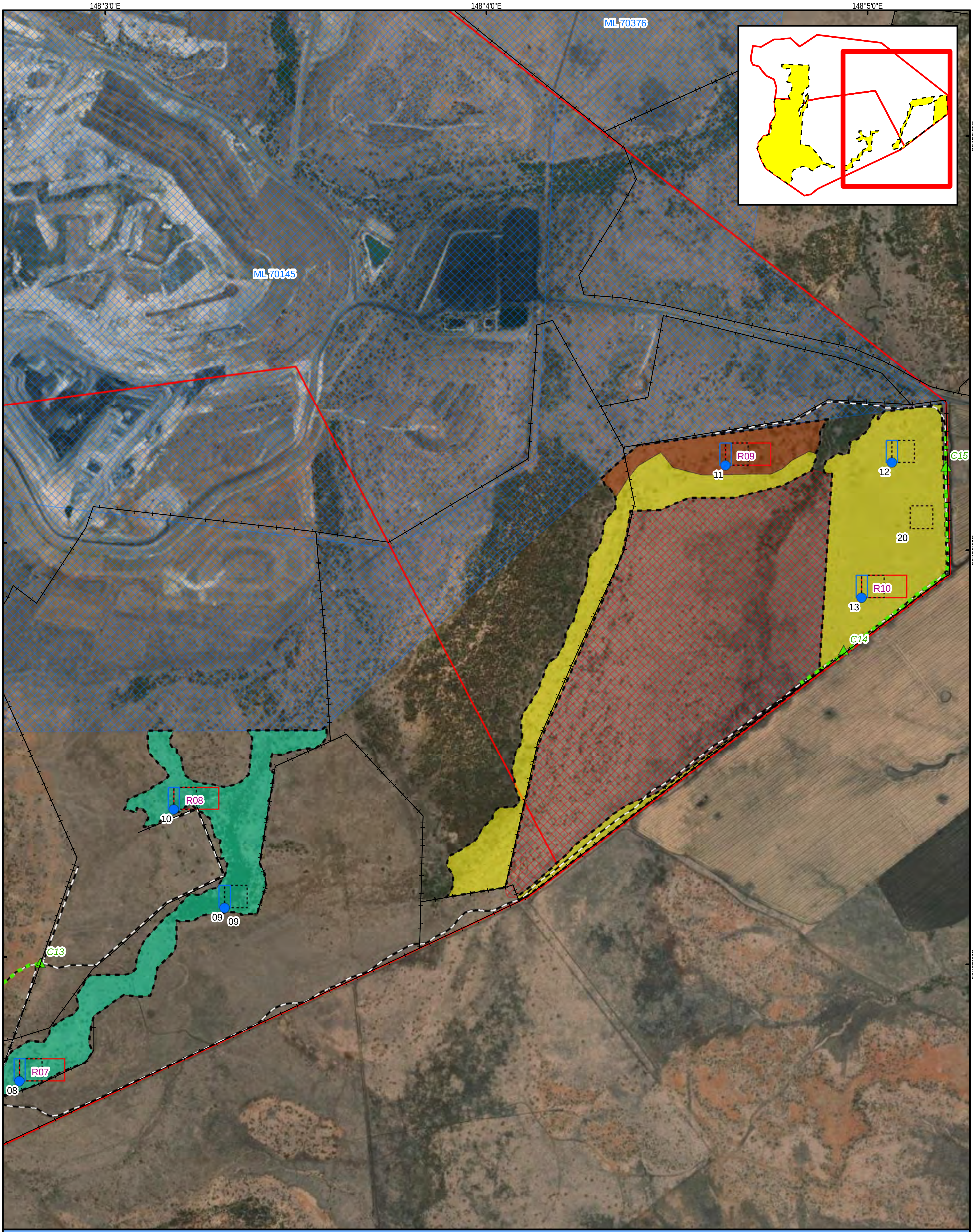

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Figure 6
Lexington offset monitoring sites - east

Minerva lots (lot 10 & 11 DN40126)
Existing offset area (Category A area)
Mining leases (ML70376 and ML70145)
Offset area
Access tracks
Lexington existing fences

Regional ecosystem
RE 11.8.11
RE 11.8.11a
RE 11.8.4
RE 11.8.5

Pest animal camera site
Pest animal survey tracks
Habitat monitoring sites
Habitat monitoring plot
Weed monitoring plots

Rabbit monitoring plots
Pig monitoring plots

0 0.25 0.5 0.75 1
Kilometres

N

Location diagram

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data
- Mining Lease
- Existing offset area

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:15,000@A3

2.1.4 Lexington Rail Loop offset site

Dry season monitoring activities at the Lexington Rail Loop offset site comprised monitoring of the following:

- General offset site monitoring
- Weed monitoring
- Biomass monitoring

Table 6 shows activities at each monitoring location established at the Lexington Rail Loop offset site; divided into three 'paddocks' across the north of Lexington – 'North Promenade', 'Harry's' and 'Contours'. A total of 12 permanent monitoring sites/plots are monitored across the three paddocks (refer to Figure 7 and Figure 8). Permanent monitoring sites comprised a mix of nested and non-nested sites (Table 6), according to the following:

- 12 x weed monitoring plots (1 ha)
  - collocated with the seven habitat monitoring sites (Sites LEXRL01 – LEXRL07)
  - five additional, standalone weed monitoring plots (Sites LEXRL08 – LEXRL12)
- 12 x biomass monitoring plots
  - seven established at the 0 m point along the 100 m habitat monitoring transects (Sites LEXRL01 – LEXRL07)
  - five at SW corner of standalone weed monitoring plots (Sites LEXRL08 – LEXRL12).

At each of the seven habitat monitoring sites (Sites LEXRL01 – LEXRL07), a 1.8 m capped galvanised star picket is installed at the start (0 m) and central (50 m) points of the 100 m transect. At each of the standalone weed monitoring plots (Sites LEXRL08 – LEXRL12), a single 1.8 m capped galvanised star picket is installed at the SW corner of the plot. GPS locations are recorded for each of the sites in GDA94, Zone 55 projection.

Refer to Table A-4 in Appendix A for detailed locations of each of the monitoring sites at the Lexington Rail Loop offset site.

Table 6: Monitoring locations at the Lexington Rail Loop offset site, surveyed as part of the 2021/22 dry season surveys.

Site	Weed monitoring	Biomass monitoring
North Promenade paddock		
LEXRL01 – LEXRL02	✓	✓
LEXRL08 – LEXRL09	✓	✓
Harry's paddock		
LEXRL03 – LEXRL04	✓	✓
LEXRL10	✓	✓
Contours paddock		
LEXRL05 – LEXRL07	✓	✓
LEXRL11 – LEXRL12	✓	✓

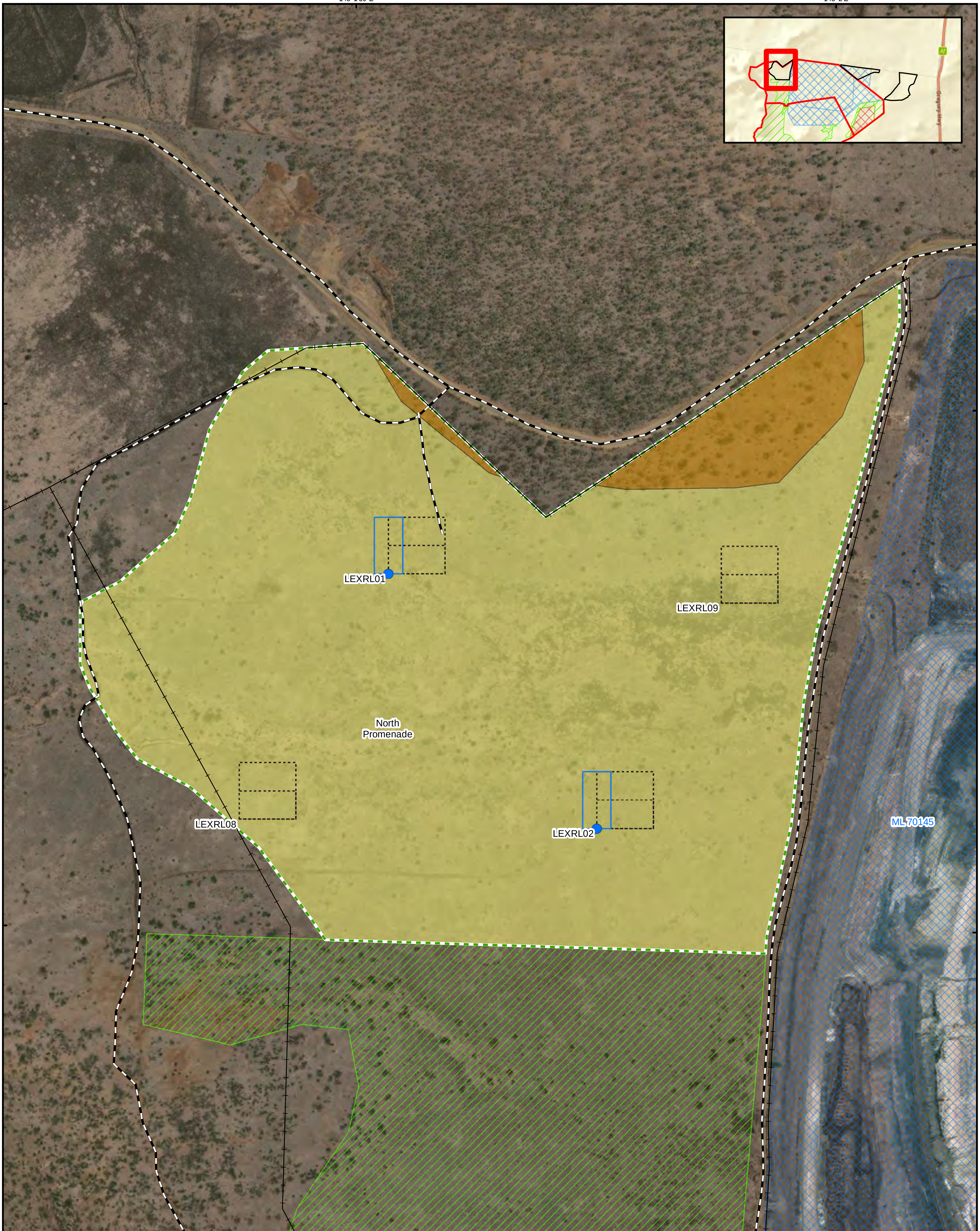

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Figure 7
Lexington Rail Loop offset monitoring sites - west

- Lexington existing fences
- Access tracks

Lexington Rail Loop offset

- North Promenade paddock

Observed vegetation

- RE 11.8.11
- RE 11.8.5
- Lexington offset area
- Existing offset area (Category A area)
- Mining leases (ML70376 and ML70145)
- Habitat monitoring sites
- Habitat monitoring plots
- Weed monitoring plots

DATA SOURCE:
The following datasets are © State of Qld:
- Mining leases
The following datasets provided by Sojitz
- Lexington Rail Loop offset areas

0 50 100 150 200
Metres

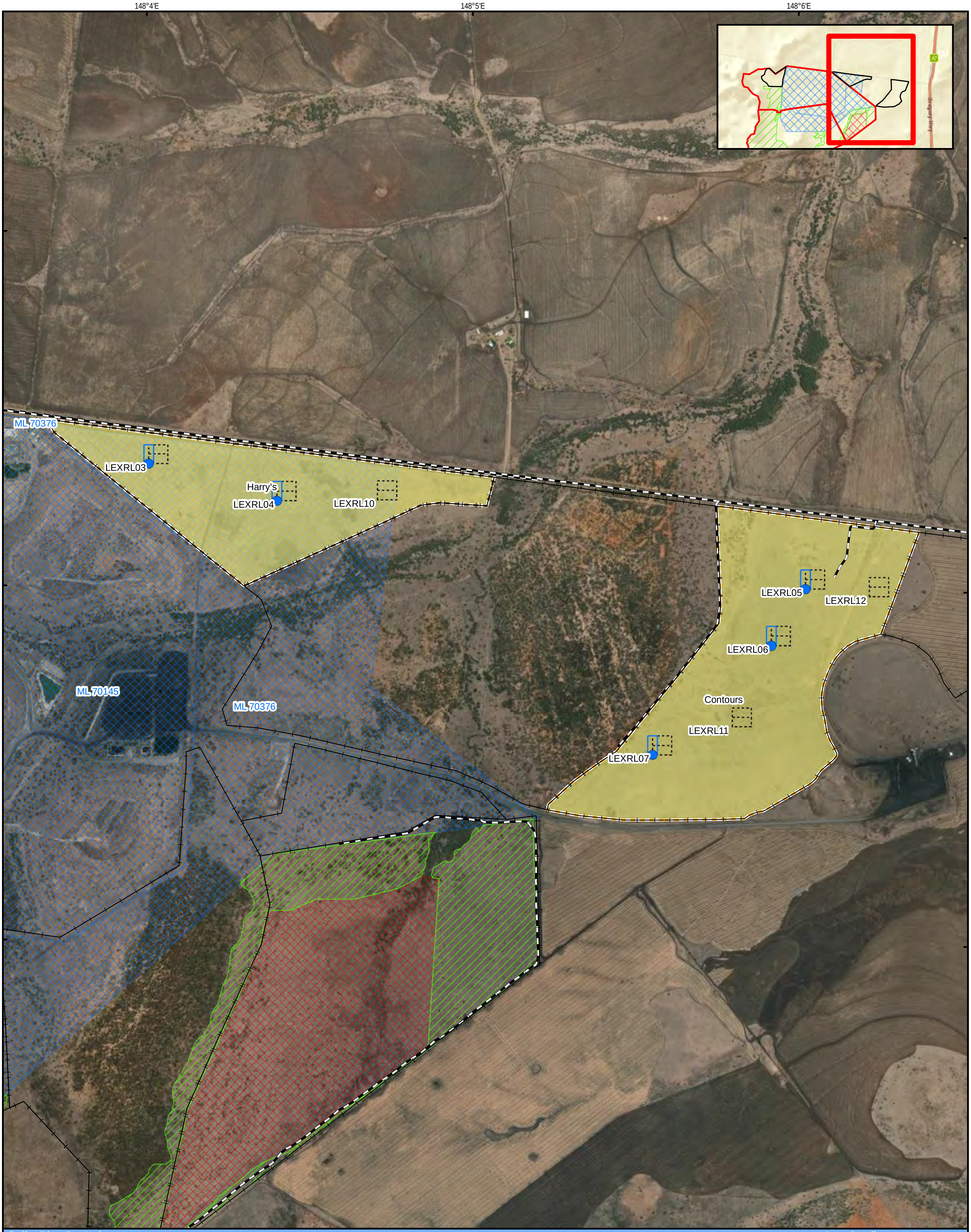
N

CO2 Australia

Location diagram

Brisbane

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:6,000@A3



Sojitz Blue Pty Ltd

Location diagram

Figure 8
Lexington Rail Loop offset monitoring sites - east

- Lexington existing fences
- Access tracks

Lexington Rail Loop offset

- Harry's paddock
- Contours paddock
- Lexington offset area
- Existing offset area (Category A area)
- Mining leases (ML70376 and ML70145)

Observed vegetation

- RE 11.8.11
- RE 11.8.5
- Habitat monitoring sites
- Habitat monitoring plots
- Weed monitoring plots

0 200 400 600 800
Metres

N

CO2 Australia

Brisbane

DATA SOURCE:
The following datasets are © State of Qld:
- Mining leases
The following datasets provided by Sojitz
- Lexington Rail Loop offset areas

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:17,500@A3

2.2 HABITAT CONDITION ASSESSMENT (MDS PROJECT SITE ONLY)

Habitat monitoring sites were established at the MDS Project site in December 2017 based on the requirements of the *Guide to determining terrestrial habitat quality* (Version 1.2; DEHP 2017). A total of 10 habitat monitoring sites (comprising N_S running 100 m x 50 m transect) were established (Sites 01 – 10), with the start and central points marked with a 1.8 m galvanised steel picket with plastic safety cap (refer to Figure 2 and Figure 3).

Habitat condition assessments for Brigalow TEC, Natural Grasslands TEC, bluegrass, king blue-grass, squatter pigeon and Australian painted snipe were undertaken at the habitat monitoring sites generally in accordance with the *Guide to determining terrestrial habitat quality* (DEHP 2017). Through the application of the guide, a habitat quality score was calculated for each MNES based on the following key indicators:

- site condition: a general condition assessment of vegetation compared to a benchmark
- site context: an analysis of the site in relation to the surrounding environment

In the absence of the *Guide to determining terrestrial habitat quality* (DEHP 2017) including a species habitat index for flora species, the habitat condition scores for the two MNES flora species (king blue-grass and bluegrass) included a species presence index out of three, whereby: 0 = absent/not confirmed, 2 = up to five tussocks confirmed, 2.5 = up to 20 tussocks confirmed, 3 = more than 20 tussocks confirmed. The habitat condition score for the two MNES flora species was then calculated as a combination of site condition and site context for the RE assessment unit (representing 80% of the score), with species stocking rate converted to a score out of 10 and contributing 20%.

2.3 PHOTO MONITORING (MDS PROJECT SITE ONLY)

Photo monitoring was undertaken at permanent sites established as part of baseline surveys on the MDS Project site, to give a representative indication of cover and species composition (including weeds) for the general area and enable visual assessment of habitat changes over time. Photo monitoring sites were established with a 1.8 m galvanised steel picket with plastic safety cap.

At each of the photo monitoring points, five photos were taken from 1.5 m height above ground level looking north, east, south and west with a ground photo taken looking down at an angle of 45° to the north-west of the star picket.

At the MDS Project site, photo monitoring was undertaken at 30 sites, including two at each of the 10 habitat condition assessment sites (0 m and 50 m points: Site 01 – 10), with single photo monitoring points at the SW corner of the remaining 10 weed monitoring plots (Site 11 – 20) identified in Table 3 and shown in Figure 2 and Figure 3.

A record of the photographs for the MDS Project site is shown in Appendix C. While not required to be collected as part of the 2021 dry season surveys, photo monitoring was also undertaken at the MDS Rail Loop site, Lexington offset site and Lexington Rail Loop offset site (Appendix D - Appendix F) primarily as reference material for the condition of each site across each year.

2.4 PEST ANIMAL MONITORING (MDS PROJECT SITE AND LEXINGTON OFFSET SITE)

For the purposes of this assessment, pest animals are defined as any species of fauna not native to Queensland, nor protected under the *Nature Conservation Act 1992* (Qld; NC Act).

Pest animal monitoring was undertaken through a combination of:

- plot based monitoring, searching for direct presence (e.g. visual confirmation) or indirect evidence (e.g. tracks, diggings, scats, rubbings etc)
- infra-red, motion-detector fauna cameras, representing opportunities to visually confirm the presence of pest animals.

2.4.1 Rabbits

An assessment of the presence and impact of rabbits was undertaken generally in accordance with Cooke *et al.* (1990). Rabbit monitoring plots were established at the same location as habitat monitoring sites and weed monitoring plots (refer to Figure 2 and Figure 3 for locations at project sites and Figure 5 and Figure 6 for locations at the offset site).

Each rabbit monitoring plot consisted of a 2 ha plot which was traversed for 15 to 20 minutes, assessing the following (refer to Cooke *et al.* 1990):

- Rabbit abundance – a measure of the presence and number of rabbit warrens and the abundance of any faecal pellets (including 'buck-heaps' or latrines) – measured on a scale of 0 – 5.
- Seedling abundance – a measure of the presence and abundance of native vegetation seedlings encountered during the 15-20-minute traverse – measured on a scale of 0 – 5.
- Rabbit damage – a measure of seedlings (< 0.5 m height) with evidence of rabbit damage, identified as 45˚ 'secateurs-like' cuts through smaller stems, defoliation and gnawing of bark – measured on a scale of 0 – 5.

From this assessment, a 'corrected regeneration score' was calculated from the seedling abundance and rabbit damage score in accordance with Table 7. This measure corrects for seedling regeneration as a function of observed rabbit damage and is subsequently used to calculate overall rabbit impact with the rabbit abundance score.

Table 7: Calculation of corrected regeneration score.

	Seedling abundance					
Rabbit damage	**0**	**1**	**2**	**3**	**4**	**5**
0	0.20	1.00	2.00	3.00	4.00	5.00
1	0.20	0.50	1.00	1.50	2.00	2.50
2	0.20	0.34	0.70	1.00	1.30	1.70
3	0.20	0.28	0.50	0.80	1.00	1.30
4	0.20	0.20	0.40	0.60	0.80	1.00
5	0.20	0.20	0.30	0.50	0.70	0.80

As illustrated in Figure 9, overall rabbit impact was assigned as one of three categories – 'acceptable', 'monitor closely' or 'unacceptable', as determined from a combination of the score for rabbit abundance and the corrected regeneration score. Note that it was assumed that any site with a rabbit abundance score of '0' was assumed to be 'acceptable', irrespective of corrected regeneration score. This is to avoid the situation where, with an absence of rabbits, and a corrected regeneration score of ≤2 (attributable to no rabbit damage and less than 20 seedlings), a given site may be identified as one to 'monitor closely' only by virtue of the fact that the few seedlings are attributable to the site being a grassland, rather than it reflecting rabbit grazing.

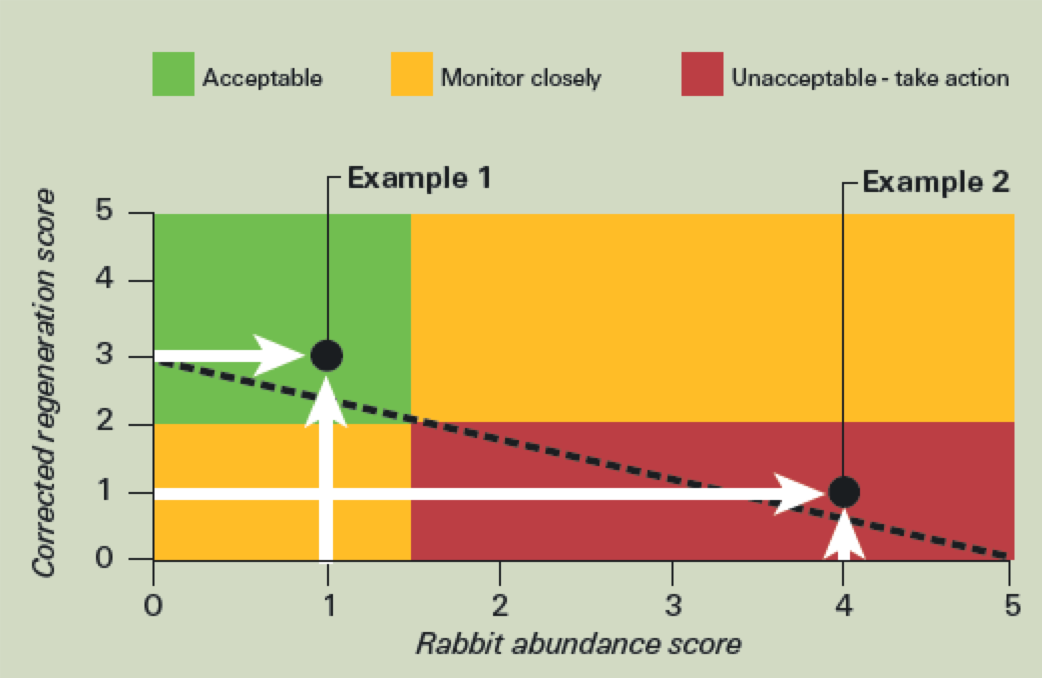


Figure 9: Calculation of overall rabbit impact based on rabbit abundance score and corrected regeneration score.

2.4.2 Fauna camera stations

An assessment of pest animal presence and activity was conducted using infra-red cameras. Infra-red fauna cameras were placed approximately 1.3 m above the ground at 15 fauna camera stations at the MDS Project site, and 15 fauna camera stations at the offset site. Once established, the fauna cameras were left unattended for 3 days/nights to be able to intercept any active fauna using trails in the survey area.

Cameras were represented by 12 Browning Dark Ops 940 HD 16 mega-pixel digital cameras (BTC-6HD-940), one Browning Dark Ops MAX HD 18 mega-pixel digital camera (BTC-6HD-MAX) and two LTL-6310 Acorn 12 mega-pixel digital cameras (LTL-6310M). All camera models were supported by 940nm infra-red night vision and motion sensor capabilities to allow for capture of fauna during the day and night.

The camera settings were set to capture a series of images in succession following a motion trigger. If motion continued after this series of images were captured, then the camera would continue to capture images (in sets of four), followed by at least a one-minute pause, after which any new the camera could be triggered again. Secure Digital (SD) memory cards of 32 gigabyte capacity were used in the cameras for storing captured images.

For each pest animal species, a measure of pest animal presence/activity (Catling Index value) was calculated for the site by summing the number of operable fauna camera stations with evidence of the targeted pest animal by the sum of all operable station days/nights (refer to Mitchell and Balogh 2007a).

Refer to Figure 2 and Figure 3 for locations at project sites and Figure 5 and Figure 6 for locations at the offset site.

2.4.3 Feral pigs

An assessment of the presence of feral pig signs (as a measure of feral pig presence or activity) was undertaken generally in accordance with (Mitchell & Balogh 2007b) and (Hone 1988).

Randomly stratified, 500 m x 300 m (15 ha) plots were established in environments that are more regularly impacted included plots within and traversing ephemeral watercourses. A total of eight pig monitoring plots were established at the project site (Figure 2 and Figure 3) including plots within the immediate vicinity of Naroo Dam in the east of the site. Eight pig monitoring plots were also established at the offset site (Figure 5 and Figure 6).

Each 15-ha plot comprised 3 x 500 m transects spaced 100 m apart. At each plot, the following method was used for each of the transects:

- traversing in an east-west direction, surveying for the presence of any feral pig signs (rooting, wallows, dung, footprints, travel pads, plant damage and tree rubs, as well as the physical presence of feral pigs) 1 m either side of the transect in 50 m sections
- calculating an abundance score for each transect as the percentage of ‘present’ feral pig signs from the 10 sections along the 500 m transect
- calculating the mean abundance score (and variance) across all transects.

2.5 WEED MONITORING (ALL SITES)

For the purposes of this assessment, weeds were taken as any species of plant not considered by the Queensland Herbarium as being native to Queensland (i.e. not listed as either least concern, special least concern, near threatened, vulnerable, endangered, critically endangered or presumed extinct in the wild under the *Nature Conservation Act 1992* (Qld); NC Act), as well as species of plant not considered locally endemic to the region.

Weed monitoring was undertaken at five permanent plots established at the MDS Rail Loop site and 12 permanent plots established at the Lexington Rail Loop offset site. Weed monitoring plots were located to incorporate natural variability such as aspect (e.g. a mix of north-, east-, south- and west-facing monitoring sites) and community type, while also targeting trafficable areas (e.g. entry gates, creek crossings, stock watering points) to monitor potential introduction and/or irruptions of prohibited and restricted weed species. At each weed monitoring plot, 3 x 100 m transects (traversing in an east-west direction) were traversed, keeping them parallel to one another, 50 m apart.

Figure 4 shows the MDS Rail Loop site weed monitoring plots and Figure 7 and Figure 8 shows the Lexington Rail Loop offset site weed monitoring plots.

At each of the permanent weed monitoring plots, monitoring of weeds was undertaken in accordance with the following method:

- At 10 m intervals along each of the three transects, a 2 m x 2 m plot frame was used to record the presence, species and cover of weeds
- Weed cover at each 2 m x 2 m survey site was recorded as one of five cover classes: 1 = 0%; 2 = 0-5%; 3 = 6-25%; 4 = 26-50%; 5 = 51-100% (Auld 2009)
- An average cover score for each weed species for each 1 ha site was calculated
- The average cover score was then calculated as the average percentage from the 30 plots surveyed from the three 100 m transects
- The mean cover score across all weed monitoring sites was then calculated.

For the purposes of the calculation of average percentage cover of weeds, each of the five weed cover classes (0 – 5) were converted to a quantitative weed cover value based on the average value of the range corresponding to that weed cover class, as outlined below:

- Weed cover class 1 (0%) retained a value of 0%
- Weed cover class 2 (0-5%) was converted to a value of 2.5%
- Weed cover class 3 (6-25%) was converted to a value of 15%
- Weed cover class 4 (26-50%) was converted to a value of 37.5%
- Weed cover class 5 (51-100%) was converted to a value of 75%.

In addition to permanent weed monitoring plots, where relevant, incidental observations were collated as part of general site monitoring, recording details of weeds (including location, species and extent) and areas of significant weed cover.

2.6 BIOMASS MONITORING FOR FIRE MANAGEMENT (ALL SITES)

Biomass monitoring for fire management is undertaken annually to determine the risk of fire and to inform fire management strategies. Biomass is at its greatest at the end of the wet season (around April) with fire risk greatest towards the end of the dry season (September/October). Biomass is monitored using appropriate photo standards[1] to determine dry matter yields and subsequently fuel loads. Biomass monitoring is undertaken at permanent habitat condition assessment sites and weed monitoring sites at the MDS Project site, MDS Rail Loop site, Lexington offset site and Lexington Rail Loop offset site. Photos used for biomass monitoring at all sites can be found in Appendix C – Appendix F.

2.7 GENERAL SITE INSPECTIONS (ALL SITES)

General site inspections across all project and offset sites was undertaken, to assess:

- Observations of fencing condition, including any repair/upgrades
- Access track conditions, including location of watercourse crossings, grids, erosion, etc
- Fire management, including assessment of existing firebreaks, access tracks and roads, fuel loads, and any recent burning activities
- Livestock management including assessment of signs of land degradation and over-grazing
- Erosion management, including assessment of the incidence of erosion, especially around permanent and semi-permanent water bodies or areas subject to inundation or waterlogging
- Incidental fauna observations, including presence, traces and/or abundance of pest animals
- Signs of dust deposition on vegetation located adjacent to the MDS Project and MDS Rail Loop footprints
- Locations of known king blue-grass and bluegrass specimens throughout all sites
- Any additional risks to fauna (i.e. evidence of vehicle strike)

[1] See https://futurebeef.com.au/knowledge-centre/pastures-forage-crops/pasture-photo-standards/

3 RESULTS: MDS PROJECT SITE

3.1 HABITAT CONDITION ASSESSMENT

Results of the habitat condition assessments identified an average site condition score of 8.00 out of 10 across all ten habitat monitoring sites, with scores ranging between 4.75 (Site 09) and 10 (Sites 02 and 08). Table B-1 and Table B-2 of Appendix B outline details of the site condition assessments, summarised below in Table 8.

Table 8: MDS Project site habitat monitoring sites: site condition and site context scores calculated in accordance with the *Guide to determining terrestrial habitat quality* (DEHP 2017).

Site	RE	Site condition score (/10)	Site context score (/10)
01	11.8.5	7.69	7.69
02	11.8.11	10.00	6.92
03	11.8.5	8.25	7.69
04	11.8.11	9.33	7.69
05	11.8.5	6.75	7.69
06	11.8.11	9.33	7.31
07	11.4.3	6.00	7.69
08	11.8.11	10.00	7.31
09	11.3.3a	4.75	7.69
10	11.8.5	7.94	7.69
Average score		**8.00**	**7.54**

MNES habitat condition assessments

Based on the results of the site condition, site context and relevant species habitat assessments, average habitat condition scores for the six MNES ranged between 4.74 (Australian painted snipe) and 8.57 (Natural Grasslands TEC) out of 10 (Table 9). The comparatively low score for Australian painted snipe habitat is in part attributable to the low site condition for RE 11.3.3a habitat (4.75), but also the low fauna species habitat index (3.2), reflecting an absence of appropriate foraging and shelter habitat for the species at the time of surveying. In contrast, Natural Grasslands TEC had the highest habitat condition score, attributable mostly to an unusually wet dry season contributing to lush vegetation resulting in high detectability of grass species combined with a low weed presence at each of the contributing RE 11.8.11 sites.

Refer to Table B-1 of Appendix B for site condition raw data contributing to site condition score in Table B-2.

Table 9: MDS Project site monitoring sites showing their habitat condition scores contributing to MNES.

Site	RE	Brigalow TEC	Natural Grasslands TEC	King blue-grass	Bluegrass	Squatter pigeon	Australian painted snipe
01	11.8.5					7.15	-
02	11.8.11		8.57	6.86	6.86		-

Site	RE	Brigalow TEC	Natural Grasslands TEC	King blue-grass	Bluegrass	Squatter pigeon	Australian painted snipe
03	11.8.5					7.76	-
04	11.8.11		8.57	6.86	6.86		-
05	11.8.5					6.67	-
06	11.8.11		8.39	6.71	6.71		-
07	11.4.3	6.420					-
08	11.8.11		8.75	7.00	7.00		-
09	11.3.3a						4.74
10	11.8.5					7.28	-
	Average score	6.420	8.57	6.86	6.86	7.22	4.74

Natural Grasslands, king blue-grass and bluegrass habitat

As discussed above, areas of Natural Grasslands TEC, represented by RE 11.8.11, were all in very good condition due to unusually high rainfall from October to December resulting from strong La Niña weather patterns. Habitat condition scores for the four assessment sites ranged between 8.39 and 8.75. The four assessment sites supported eight TEC indicator grass species (Table 10), ranging between six and eight species per site. This is more than is usually recorded during dry season surveys. Fewer TEC indicator species have been recorded during previous dry season surveys because some individuals could not be identified to species level due to a lack of fertile material.

Table 10: Natural Grasslands TEC indicator species.

Scientific name	Common name	Site			
		02	04	06	08
Aristida latifolia	Feather-top wiregrass	✓	✓	✓	
Aristida leptopoda	White speargrass	✓	✓	✓	✓
Astrebla elymoides	Hoop mitchell grass				
Astrebla lappacea	Curly mitchell grass				
Astrebla squarrosa	Bull mitchell grass				
Bothriochloa erianthoides	Satin-top grass	✓	✓	✓	✓
Dichanthium queenslandicum	King blue-grass				
Dichanthium sericeum	Queensland bluegrass	✓	✓	✓	✓
Eriochloa crebra	Cup grass				
Panicum decompositum	Native millet	✓	✓	✓	✓
Panicum queenslandicum	Yabila grass	✓	✓	✓	✓
Paspalidium globoideum	Shot grass	✓	✓	✓	✓
Thellungia advena	Coolibah grass			✓	
	TOTAL	7	7	8	6

Squatter pigeon

Incidental searches for the squatter pigeon were conducted opportunistically from over 92 km of driving during the four days of field surveys on the MDS project site, during which no squatter pigeons were recorded. Further targeted surveys will be undertaken during the post-wet season survey when birds are more likely to be actively foraging for grass seed.

Australian painted snipe

No surveying was undertaken for Australian painted snipe during the dry season survey monitoring. Surveys will be next be undertaken during the wet season (defined as between 1 November in one year to 31 May in the following year), following a significant inundation event during the Year 5 (2021/2022) monitoring period.

3.2 PHOTO MONITORING

Photo monitoring on the MDS Project site showed a variety of levels of cover ranging from dense understorey (Site 05: Photo C-50 in Appendix C) through to relatively open areas with evidence of grazing (Site 17: Photo C-135 in Appendix C). Overall, the condition of habitat at photo monitoring sites was good, with appreciable grass cover in most sites, likely due to higher than average rainfall in October and November. The results of the photo monitoring are presented in Appendix C.

3.3 PEST ANIMAL MONITORING

3.3.1 Rabbits

Results of rabbit monitoring confirmed the presence of rabbit/hare scats from five of the ten rabbit monitoring plots (R02, R07-10). Across these plots, pellet abundance ranged from isolated pellets and small clumps greater than 10 m apart, to clumps and small buck heaps less than 10 m apart. Brown hares (*Lepus europaeus*) and European rabbits (*Oryctolagus cuniculus*) were also visually confirmed by fauna camera stations (see Section 3.3.3).

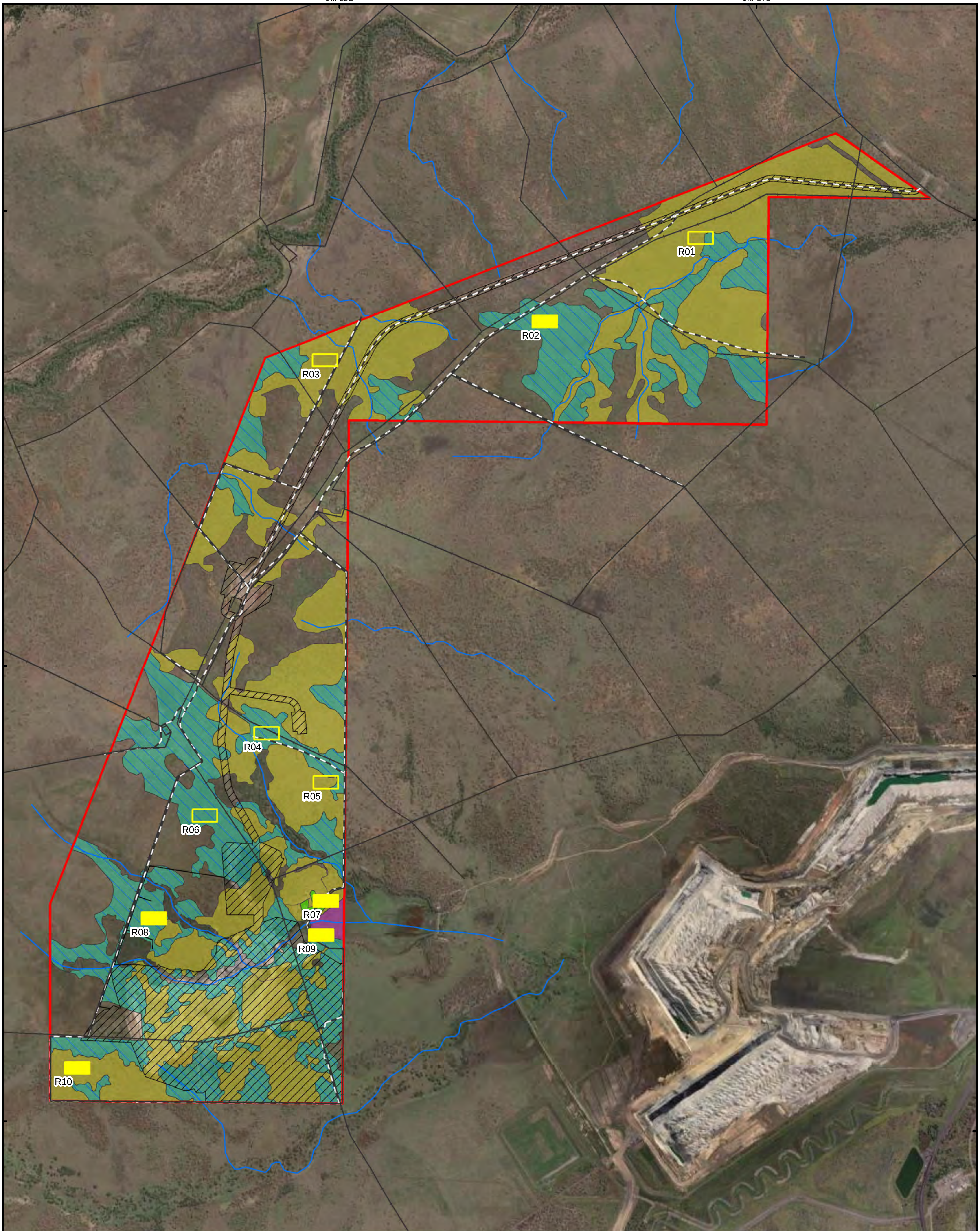
Table 11 shows the results of the assessment of overall rabbit impact. The results indicate that five sites displayed evidence of rabbit abundance. The assessment of overall rabbit impact was denoted as acceptable at sites R01 and R02 – R06, 'monitor closely' at site R02, R07 and R09 and 'unacceptable' at sites R02, R07 and R09 due to high rabbit abundance.

Table 11: Assessment of overall rabbit impact at the MDS Project site.

Site	Rabbit abundance score (0 – 5)	Seedling abundance score (0 – 5)	Rabbit damage score (0 – 5)	Corrected regeneration score (0 – 5)	Overall rabbit impact*
R01	0	1	0	1	Acceptable
R02	2	0	0	0.2	Unacceptable
R03	0	2	0	2	Acceptable
R04	0	0	0	0.2	Acceptable
R05	0	1	0	1	Acceptable
R06	0	0	0	0.2	Acceptable
R07	2	3	1	1.5	Unacceptable

Site	Rabbit abundance score (0 – 5)	Seedling abundance score (0 – 5)	Rabbit damage score (0 – 5)	Corrected regeneration score (0 – 5)	Overall rabbit impact*
R08	1	1	0	1	Monitor closely
R09	3	1	0	1	Unacceptable
R10	1	1	0	1	Monitor closely

* Sites with a rabbit abundance and damage score of 0 have been adjusted to be 'acceptable'.



Sojitz Blue Pty Ltd

Figure 10
MDS
Evidence of rabbits/hares

Disturbance areas
Mining Lease
Fences
Tracks
Watercourse

Brigalow TEC
Natural Grassland TEC
Habitat for King blue-grass and bluegrass
Habitat for squatter pigeon
Habitat for Australian painted snipe

Rabbit monitoring plots (R01 - R10)
No evidence for rabbits/hares
Evidence of rabbits/hares

Location diagram

DATA SOURCE:
The following datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

0 0.25 0.5 0.75 1
Kilometres

N

CO2 Australia

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:27,500@A3

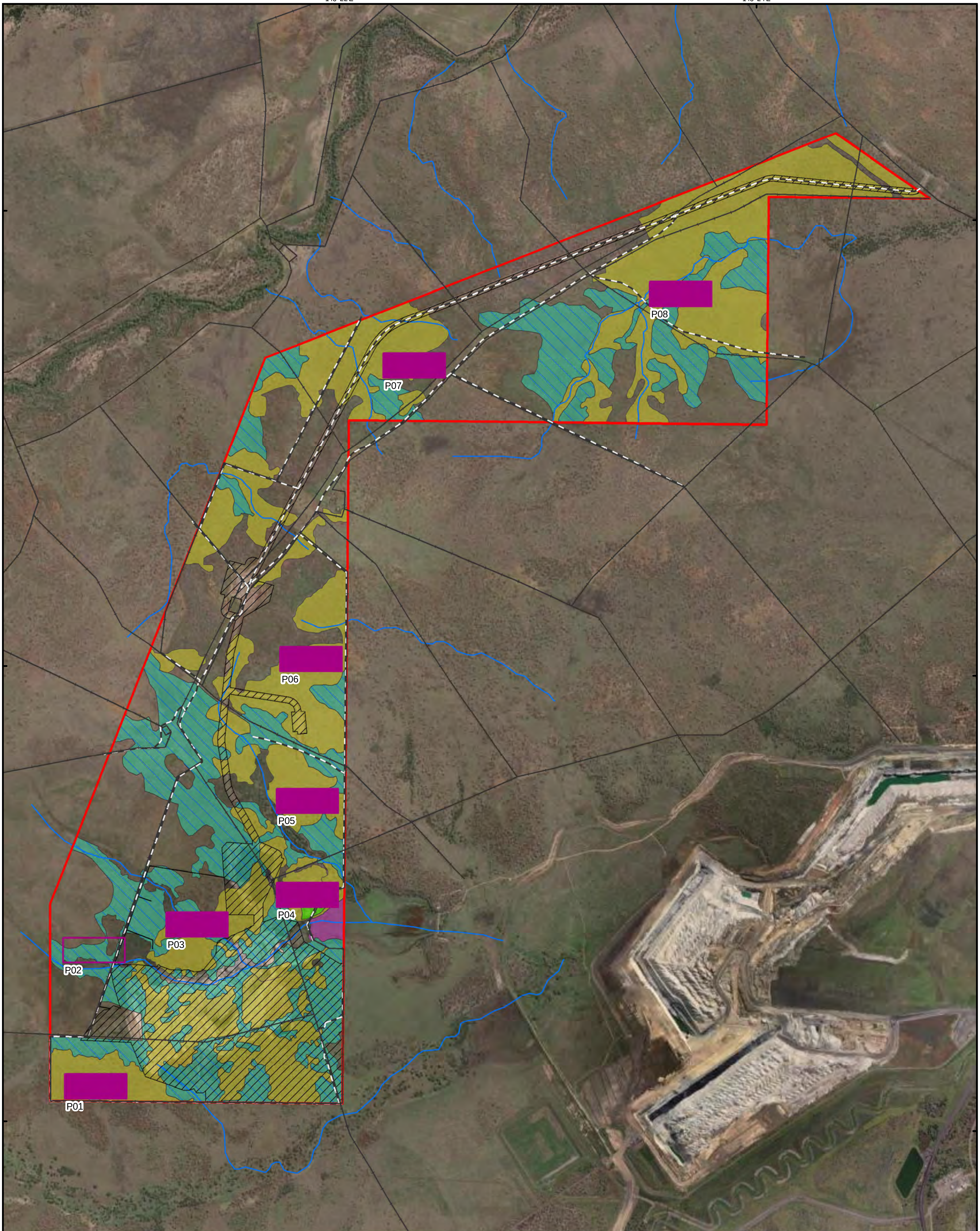
3.3.2 Feral pigs

Across all eight pig monitoring plots, represented by a total of 12 km of transects, there was confirmed evidence for the presence of feral pigs in seven plots (Figure 11). Evidence of feral pig presence within plots ranged from 0% (Site P02) to 47% (Site P01) and, on average, was observed across 13.75% of the available transect sections within each plot (Table 12). Furthermore, opportunistic surveying through ephemeral watercourses, including observation efforts during weed and rabbit monitoring, revealed additional evidence of feral pigs.

Table 12: Assessment of overall feral pig presence and activity at the MDS Project site*.

Plot	Transect	Monitoring plot survey section (50 m)										Cover (%)	Plot % (record/30)
		1	2	3	4	5	6	7	8	9	10		
P01	1	R	RT	R	R	TRP	R		R	RD	R	90%	47%
	2	R		R						R		30%	
	3								R		R	20%	
P02	1											0%	0%
	2											0%	
	3											0%	
P03	1							R	F			20%	13%
	2	FP										10%	
	3		W									10%	
P04	1						D					10%	7%
	2											0%	
	3									DR		10%	
P05	1	D			D							20%	13%
	2									R		10%	
	3						R					10%	
P06	1											0%	10%
	2			FT					R			20%	
	3									R		10%	
P07	1										R	10%	16.7%
	2											0%	
	3			R	RP	RP			W			40%	
P08	1				DR							10%	3%
	2											0%	
	3											0%	
												Total	13.8%

*Denoted as: R = Rooting, W = Wallows, D = Dung, T = Tree rubbing/tusking, F = Footprints, P = Travel pads



Sojitz Blue Pty Ltd

Figure 11
MDS
Evidence of feral pigs

- Disturbance areas
- Mining Lease
- Fences
- Tracks
- Watercourse
- Brigalow TEC
- Natural Grassland TEC
- Habitat for King blue-grass and bluegrass
- Habitat for squatter pigeon
- Habitat for Australian painted snipe

Pig monitoring plots (P01 - P08)

- No evidence of feral pigs
- Evidence of feral pigs

Location diagram

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

0 0.25 0.5 0.75 1
Kilometres

N

CO2 Australia

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:27,500@A3

Path: P:\GISData\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_20220202 - Figure 11 - MDS evidence of feral pigs.mxd

3.3.3 Fauna camera stations

Of the 15 fauna camera stations, 13 cameras were considered operable over all three camera trap nights. One camera (C01) was considered compromised across all three nights due to a failed camera flash, leaving photos taken at night (which would constitute the majority of pest animal activity) indiscernible. Another camera (C13) was considered compromised on day 3 as it was knocked over by a bird. For the purposes of calculating Catling Index values for pest animal species, the resulting total number operable station nights was 41 across each of the three consecutive nights. As indicated in Table 13, the fauna cameras confirmed the presence of three pest animal species, namely feral dogs (*Canis familiaris/lupus*), European rabbits (*Oryctolagus cuniculus*) and brown hares (*Lepus europaeus*) (Figure 12 and Figure 13). All three pest animal species detected had a score of 7.32 (Table 13). Feral pigs were not detected by fauna cameras. A pack of three feral dogs were observed while undertaking surveys at BioCondition site 10 on Wednesday 8 December. Additionally, cane toads (*Rhinella marina*) were detected on several cameras over the three nights. Non-pest animals were also detected from the fauna camera stations, including a common brush-tail possum (*Trichosurus vulpecula*) and cattle (*Bos taurus*).

Overall, there were nine individual pest animal detections, recorded from five of the 15 fauna camera stations. These records originated from cameras located in a variety of locations across the site (C04, C05, C06, C11, C14), some of which occurred on the eastern portion of the property within 1.5 km of the main site office, and some of which occurred in the far southwestern portion of the property up to 4.5 km from the main site office (Figure 14). In previous years, pest animals have generally been recorded at camera traps near permanent or ephemeral water sources. However, due to an exceedingly wet dry season, it is likely that pest animals have been able to disperse further from these water sources due to an abundance of lush vegetation and food. Generally, pest animals were recorded within the vicinity of patches of RE 11.8.5 (*Eucalyptus orgadophila* open woodland) and RE 11.8.11a (*Melaleuca bracteata* woodland to open forest), which may afford more suitable shelter compared to surrounding RE 11.8.11 grasslands.

Table 13: Pest animal results for the Project site. Greyed-out cells refer to inoperable nights.

Pest animal species	Confirmed incidence of pest animal species from given site															Catling Index
	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	
Dog																
Day 1											✓					
Day 2																7.3
Day 3					✓	✓										
Cat																
Day 1																
Day 2																0
Day 3																
European rabbit																
Day 1											✓			✓		
Day 2																7.3
Day 3														✓		
Brown hare																
Day 1				✓												
Day 2																7.3
Day 3											✓			✓		

Pest animal species	Confirmed incidence of pest animal species from given site															Catling Index
	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	
Feral pig																
Day 1																
Day 2																0
Day 3																

Figure 12: Feral dog (*Canis familiaris/lupus*) captured at fauna camera 05 at the MDS Project site

Figure 13: European rabbit (*Oryctolagus cuniculus*) captured at fauna camera 11 at the MDS Project site

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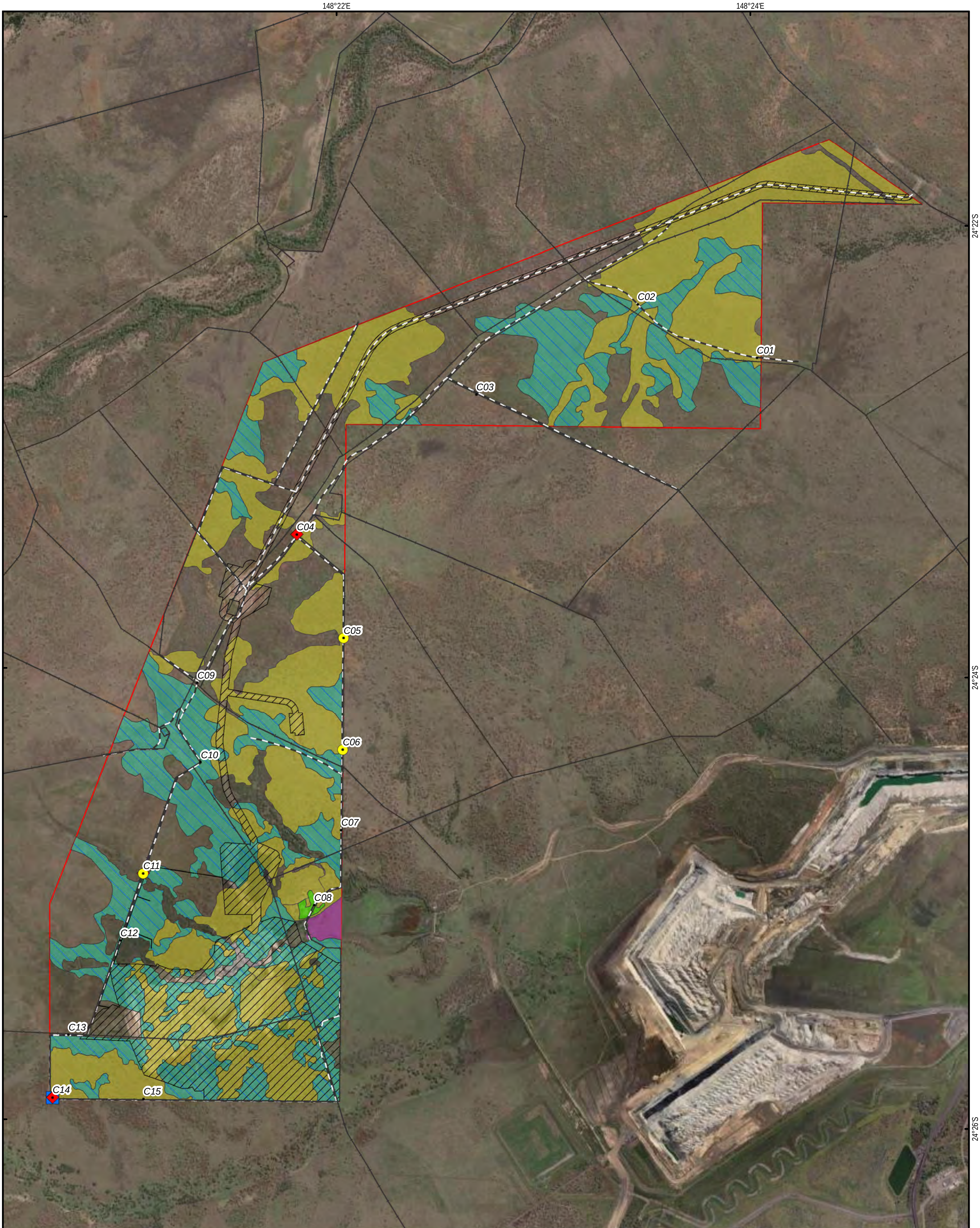


Figure 14
MDS
Pest animal results

- Disturbance areas
- Mining Lease
- Fences
- Tracks
- Brigalow TEC
- Natural Grassland TEC
- Habitat for King blue-grass and bluegrass
- Habitat for squatter pigeon
- Habitat for Australian painted snipe

Dogs (# days confirmed)
- 1 day

Rabbits (# days confirmed)
- 1 day
- 2 days

Hares (# days confirmed)
- 1 day

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

0 0.25 0.5 0.75 1
Kilometres
N

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:27,500@A3

Location diagram

Path: P:\GISData\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_22\220202 - Figure 14 - MDS pest animal results.mxd

3.4 WEED MONITORING

A total of 21 weed species were identified from the weed monitoring plots. No additional species of weeds were observed on the MDS Project site outside of those identified within the weed monitoring plots. Across the 20 weed monitoring plots, the average number of weed species observed per plot was 4.9 species, ranging between two (Sites 03, 12 and 14) and eight species (Sites 09, 17, 18 and 20). Weed cover across the 20 weed monitoring plots averaged 13.6%; ranging between 1% (Site 02) and 59% (Site 20) (Table 14, Figure 15).

The most commonly encountered weeds were *Melinis repens* (red natal grass) and *Parthenium hysterophorus* (parthenium weed), recorded at 17 and 15 out of 20 sites, respectively (Table 14). *Phyla nodiflora* (Condamine couch) was the weed species with the highest average cover, averaging 23.2% cover at the one site it was recorded at (Site 09; Table 14). Because it was only recorded at one site, *Phyla nodiflora* is not considered to be a concern despite being prevalent at that site. In comparison, other weeds such as *Cenchrus ciliaris* (buffel grass) and *Parthenium hysterophorus* had greater cover than *Phyla nodiflora* at some individual sites, reaching up to 32.1% and 24.9% cover, respectively.

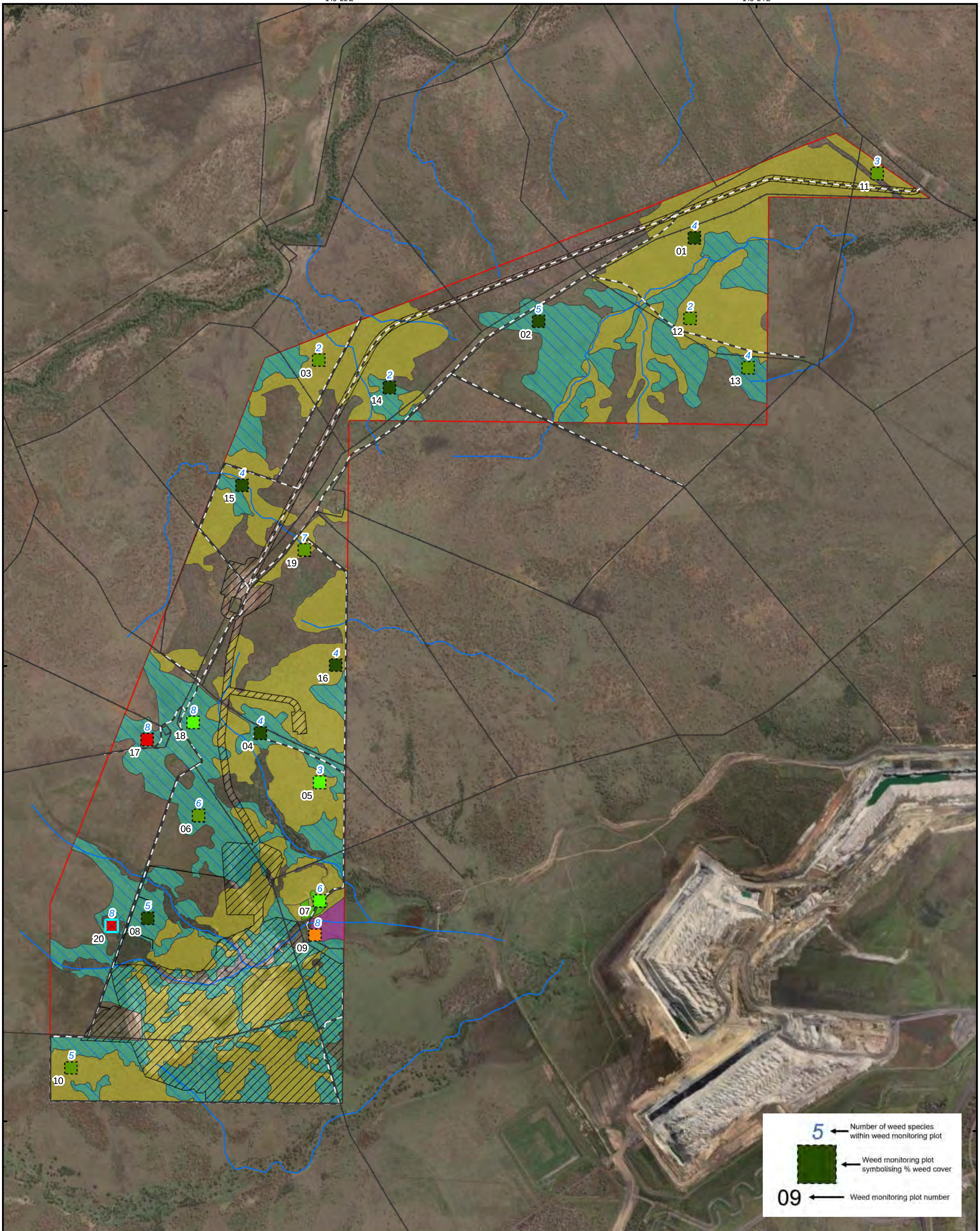
Sites 17 and 20 showed an infestation of *Parthenium hysterophorus* (Table 14, Photo D-133 and D-150). *P. hysterophorus* is toxic to cattle and rapidly colonises areas of disturbed land. As such, overgrazing can lead to severe *P. hysterophorus* infestation and cause it to outcompete native grasses.

Table 14: MDS Project site weed monitoring results.

Scientific name	Common name	Family name	Percentage cover of weed species from given site																				Number of sites	Average cover (%)[a]
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20		
Alternanthera pungens	Khaki Weed	Amaranthaceae				0.1																	1	0.1
Verbesina encelioides	Goldweed	Asteraceae		0.1		0.1					0.2												3	0.1
Parthenium hysterophorus	Parthenium Weed	Asteraceae		0.1		2.0	2.3	0.9	0.1	1.1	6.1	0.1			7.7		0.5	0.1	20.2	6.1	0.2	24.9	15	4.8
Helianthus sp.	a Sunflower	Asteraceae			0.1			0.2												0.2		0.6	4	0.3
Bidens pilosa	Cobbler's Pegs	Asteraceae								0.1	0.2											9.4	3	3.2
Vachellia farnesiana	Mimosa Bush	Fabaceae	0.5								2.3								3.4	0.5	1.8		5	1.7
Clitoria ternatea	Butterfly Pea	Fabaceae																				0.1	1	0.1
Stylosanthes scabra	Shrubby Stylo	Fabaceae							0.7									1.3			1.1		3	1.0
Malvastrum americanum	Malvastrum	Malvaceae							0.6		1.1								2.8	2.0	1.7	0.7	6	1.5
Sida acuta	Spinyhead sida	Malvaceae																			0.1		1	0.1
Cenchrus ciliaris	Buffel Grass	Poaceae						3.5	4.5	0.1	1.8	0.5	1.9		0.5		0.5		2.6	0.5		14.5	11	2.8
Megathyrsus maximus	Guinea Grass	Poaceae							0.6														1	0.6
Melinis repens	Red Natal Grass	Poaceae	0.8	0.2	8.9		8.4	0.7	6.4	1.5	0.1	5.0	3.3	8.7	0.1	3.9	2.5	0.8		0.6	1.4		17	3.1
Bothrichloa pertusa	Indian Bluegrass	Poaceae		0.1								2.3	1.0	0.1	1.5				1.3		1.3		7	1.1
Urochloa mosambicensis	Sabi Grass	Poaceae																	32.1	0.5		6.8	3	13.1
Physalis minima	Wild Gooseberry	Solanaceae						0.1											5.1			2.1	3	2.4
Verbena officinalis	Common Verbena	Verbenaceae	0.2	0.5		0.6	0.5	0.1		0.3		0.3				0.9	0.7			1.0			10	0.5
Phyla canescens	Lippia	Verbenaceae																	0.1				1	0.1
Verbena sp.	a Verbena	Verbenaceae	0.1																				1	0.1
Verbena rigida	Veined Verbena	Verbenaceae																0.2					1	0.2
Phyla nodiflora	Condamine couch	Verbenaceae									23.2												1	23.2
		Number of species	**4**	**5**	**2**	**4**	**3**	**6**	**6**	**5**	**8**	**5**	**3**	**2**	**4**	**2**	**4**	**4**	**8**	**8**	**7**	**8**		
		Weed cover (%)[b]	**1.6**	**1.0**	**9.0**	**2.8**	**11.1**	**5.5**	**12.9**	**3.1**	**34.9**	**8.1**	**6.2**	**8.8**	**9.8**	**4.8**	**4.2**	**2.4**	**67.5**	**11.4**	**7.5**	**59.0**		

[a] Avg cover (%) represents the average percentage cover of a given weed species across encountered sites.

[b] Weed cover represents the sum of the average weed cover percentages of all weed species.



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Location diagram

Figure 15
MDS
Weed monitoring results

- Disturbance areas
- Mining Lease
- Fences
- Access tracks
- Watercourse
- Brigalow TEC
- Natural Grassland TEC
- Habitat for King blue-grass and bluegrass
- Habitat for squatter pigeon
- Habitat for Australian painted snipe
- Weed monitoring plots

Weed cover (%)

- < 5
- 6 - 10
- 11 - 15
- 16 - 25
- 26 - 50
- 51 - 100

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease

The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

0 0.25 0.5 0.75 1
Kilometres

N

CO2 Australia

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:27,500@A3

3.5 BIOMASS MONITORING

Brigalow Belt pasture photo standards were used for all biomass monitoring points. ‘Downs country’ photo standards were used for monitoring sites comprising RE 11.8.11, whilst photo monitoring results from areas of RE 11.8.5 were assessed against ‘Eucalypt woodlands’, RE 11.4.3 was assessed against ‘Blue grass, wire grass’ and RE 11.3.3a was assessed against ‘Alluvial’ photo standards (Table 15). The photo standards used to calculate biomass are different to previous years’ assessments, although these photo standards are considered more representative of the actual vegetation communities observed on the MDS Project site. Where the observed biomass at a site was mid-way between two photos within a given biomass standard, the middle of the corresponding range was reported (e.g. observed biomass between 1,800 kg/ha and 2,500 kg/ha ‘Eucalypt woodlands’ photo standards was reported as 2,150 kg/ha).

Most sites had very high biomass throughout the MDS Project site due to the exceedingly high rainfall from October to December, with the highest being Sites 02, 04, 08, 14 and 15 containing approximately 5,400 kg/ha each. As such, it is expected that most sites at MDS may become fire hazards during the next dry season. Some sites had lower biomass than expected (Sites 12 and 17) due to heavy grazing. This was evidenced by extensive *Parthenium hysterophorus* establishment across the site, which readily colonises areas of high disturbance and outcompetes native species (as the cattle eat surrounding grass, but not the *P. hysterophorus* due to its toxicity).

Ground photos used to assign biomass at the MDS Project site are shown in Appendix C.

Table 15: Results of biomass monitoring on the MDS Project site using Brigalow Belt Future Beef pasture photo standards.

		Brigalow Belt Future Beef pasture photo standard type				
Photo monitoring site*	RE type	Eucalypt woodlands	Blue grass, wire grass	Alluvial	Downs country	Biomass kg/ha
01	11.8.5	✓				2,500
02	11.8.11				✓	5,040
03	11.8.5	✓				3,600
04	11.8.11				✓	5,040
05	11.8.5	✓				3,600
06	11.8.11				✓	3,850
07	11.4.3		✓			2,710
08	11.8.11				✓	5,040
09	11.3.3a			✓		3,405
10	11.8.5	✓				3,600

3.6 GENERAL SITE INSPECTION

The condition of all fencing and access gates across the MDS Project site was good, with no requirement for repair at the time of surveying. A number of existing access tracks and firebreaks had clearly been subject to minor rutting as a consequence of rainfall, and will require re-grading.

Field traverses in the south-west of the MDS Project site in June 2020 noted areas of RE 11.8.11a under stress, with the majority of *Melaleuca bracteata* in these areas showing signs of dieback. At the time of the November 2020 dry season surveys, there was additional evidence of epicormic regrowth, further lending weight to the suggestion that the vegetation community is in a state of recovery following the drought prior to the 2019/2020 wet season. In December 2021, the epicormic regrowth was noted to be more extensive than the November 2020 dry season surveys, likely associated with high rainfall over the previous months. Some stands of *Melaleuca bracteata* were observed to still have no epicormic growth. The condition of these communities will need to continue to be monitored to exclude alternative reasons for the dieback (e.g. whether a consequence of hydrological changes).

Site traverses as part of all monitoring activities on the MDS Project site showed no obvious evidence of any dust deposition, nor any impacts attributable to dust deposition on king blue-grass, bluegrass or other vegetation communities.

3.6.1 Significant species

No significant species were observed at MDS during BioCondition surveys nor incidentally while traversing the survey sites. The undescribed *Dichanthium sp. affine sericeum* was noted to still be present at Site 03, as has previously been recorded, however this species is not listed at the time of this monitoring period.

Detailed surveys for king blue-grass and blue grass are scheduled to be undertaken along pre-determined survey transects as part of the post-wet season surveys in April 2021.

4 RESULTS: MDS RAIL LOOP SITE

4.1 WEED MONITORING

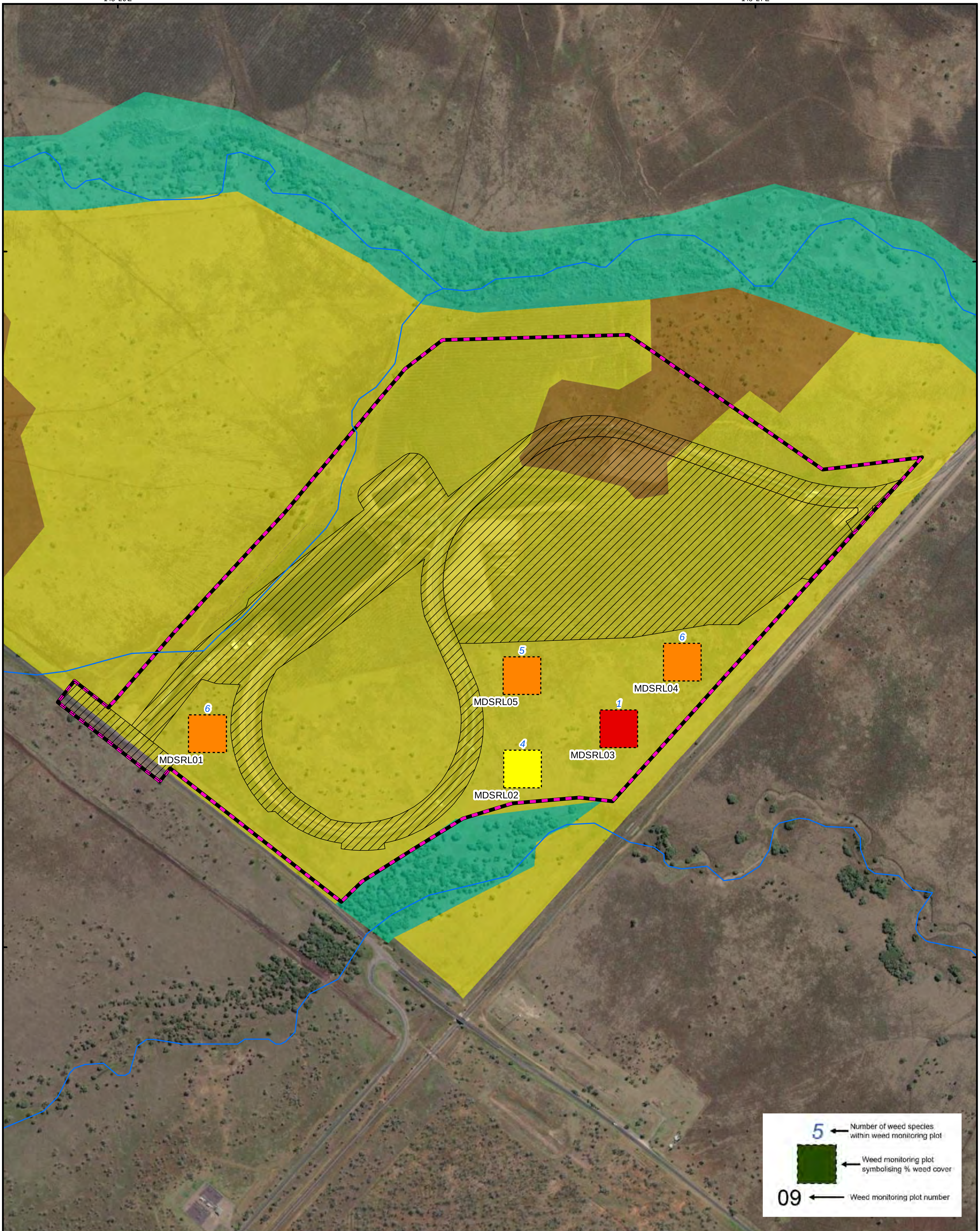
A total of eight weed species were identified from the five weed monitoring plots. No additional species of weeds were observed on the site outside of those identified within the weed monitoring plots. Across the plots, the average number of weed species observed per plot was 4.4 species, ranging between one species (Site MDSRL03) and six species (Sites MDSRL01 and MDSRL02), with *Alternanthera pungens* (khaki weed), *Stylosanthes scabra* (shrubby stylo) and *Malvastrum americanum* (malvastrum) encountered only at single sites, separately. Weed cover across the five weed monitoring plots averaged 32.4%; ranging between 16.8% (Site MDSRL05) and 50.1% (Site MDSRL03)(Table 16 and Figure 16). The most commonly encountered weed was *Setaria incrassata* (purple pigeon grass), recorded from each of the five sites with an average cover of 22.2% (Table 16). *Melinis repens* (red natal grass) was encountered at four of the five sites and had the second highest average cover, averaging 8.2% cover across the sites it was recorded from (Table 16).

Table 16: MDS Rail Loop weed assessment results.

Scientific name	Common name	Family name	Percentage cover of weed species from given site					Number of sites	Average cover (%)[a]
			MDSRL01	MDSRL02	MDSRL03	MDSRL04	MDSRL05		
Alternanthera pungens	Khaki weed	Amaranthaceae				0.1		1	0.1
Parthenium hysterophorus	Parthenium weed	Asteraceae	0.1	0.1		0.2	0.1	4	0.1
Stylosanthes scabra	Shrubby Stylo	Fabaceae		0.1				1	0.1
Malvastrum americanum	Malvastrum	Malvaceae	0.1					1	0.1
Cenchrus ciliaris	Buffel grass	Poaceae	5.5	11.4		0.1		3	5.7
Melinis repens	Red natal grass	Poaceae	26.2	0.6		5.5	0.5	4	8.2
Setaria incrassata	Purple pigeon grass	Poaceae	7.6	17.3	50.1	19.9	16.1	5	22.2
Verbena officinalis	Common verbena	Verbenaceae	0.2	0.1			0.1	3	0.1
Number of species			6	6	1	5	4		
Weed cover (%)[b]			39.7	29.5	50.1	25.8	16.8		

[a] Avg cover (%) represents the average percentage cover of a given weed species across encountered sites.

[b] Weed cover represents the sum of the average weed cover percentages of all weed species.



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Location diagram

Figure 16
MDS Rail Loop
Weed monitoring results

Disturbance areas
MDS Rail Loop site
Watercourse
Ground-truthed REs
RE 11.8.11
RE 11.8.11/11.8.5
RE 11.3.3a

Weed monitoring plots
Weed cover (%)
< 5
6 - 10
11 - 15
16 - 25
26 - 50
51 - 100

0 100 200 300 400
Metres

N

CO2 Australia

DATA SOURCE:
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed REs

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:9,000@A3

Path: P:\GISData\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_20220202 - Figure 16 - MDS RAIL LOOP weed monitoring plots.mxd

4.2 BIOMASS MONITORING

Brigalow Belt pasture photo standards were used for all biomass monitoring points. 'Downs country' photo standards were used for monitoring all four of the sites comprising RE 11.8.11 (Table 17). Where the observed biomass at a site was mid-way between two photos within a given biomass standard, the middle of the corresponding range was reported (i.e. observed biomass between 3,850 kg/ha and 5,040 kg/ha 'Downs country' photo standards was reported as 4,445 kg/ha).

Photo monitoring showed limited variability in biomass of ground cover across the monitoring sites. Overall, there was very high biomass throughout the MDSRL due to the exceedingly high rainfall from October to December, with the lowest being sites MDSRL01 and MDSRL02 at 4,445 kg/ha and the highest being Sites MDSRL03 and MDSRL04 at 5,400 kg/ha.

Ground photos used to assign biomass at the MDS Rail Loop site are shown in Appendix D.

Table 17: Results of biomass monitoring on the MDS Project site using Brigalow Belt Future Beef pasture photo standards.

		Brigalow Belt Future Beef pasture photo standard type	
Photo monitoring site*	RE type	Downs country	Biomass kg/ha
MDSRL01	11.8.11	✓	4,445
MDSRL02	11.8.11	✓	4,445
MDSRL03	11.8.11	✓	5,040
MDSRL04	11.8.11	✓	5,040

* taken from the 50 m point of the permanent habitat monitoring transect.

4.3 GENERAL SITE INSPECTION

A fire was reported to have occurred adjacent to the RE 11.8.11 at the MDSRL in mid-2021, however did not appear to have affected the areas surveyed as part of the dry season surveys. Consequently, a fire break has been constructed through the middle of the RE 11.8.11 at the MDSRL (Figure 4). No rubbish or other matters likely to impact on the monitoring area was observed. This included no evidence of dust or other particulate material on the vegetation within the MDS Rail Loop monitoring area.

5 RESULTS: LEXINGTON OFFSET SITE

5.1 PEST ANIMAL MONITORING

5.1.1 Rabbits

Results of rabbit monitoring confirmed the presence of rabbit/hare scats from eight out of 10 rabbit monitoring plots (R01– R08) (Table 18, Figure 17). Across these plots, pellet abundance ranged from isolated pellets and small clumps up to 10 pellets, to abundant pellets, often in large clumps and buck heaps. These results generally show less rabbit abundance than surveys undertaken in the 2019 dry season. Brown hares (*Lepus europaeus*) and European rabbits (*Oryctolagus cuniculus*) were also visually confirmed by six separate fauna camera stations (Sites C03, C06, C08, C11, C13, C15), which were spread evenly across the whole site. Brown hares were found to be more abundant, with seven captures recorded across five cameras on five separate nights, as opposed to only one European rabbit sightings on one night.

At most sites, minimal seedlings were encountered except for R02, R05 and R06. No sites were observed to have sustained damage from rabbits. This was likely due to high rainfall between October and December which produced lush and extensive grass cover, reducing the need for rabbits to graze on seedlings. As such, it is possible that overall rabbit impact results at some sites may be understated due to a moderate seedling abundance and no damage, despite a high abundance of rabbits (e.g. site R05). The assessment of overall rabbit impact was denoted as 'monitor closely' for most sites, 'acceptable' at sites R09 and R10 and 'unacceptable' for R02 – R04.

Table 18: Assessment of overall rabbit impact at the Lexington offset site.

Site	Rabbit abundance score (0 – 5)	Seedling abundance score (0 – 5)	Rabbit damage score (0 – 5)	Corrected regeneration score (0 – 5)	Overall rabbit impact*
R01	1	0	0	0.2	Monitor closely
R02	2	2	0	2	Unacceptable
R03	2	0	0	0.2	Unacceptable
R04	2	1	0	1	Unacceptable
R05	3	3	0	3	Monitor closely
R06	1	2	0	2	Monitor closely
R07	1	0	0	0.2	Monitor closely
R08	1	1	0	1	Monitor closely
R09	0	1	0	1	Acceptable
R10	0	0	0	0.2	Acceptable

* Sites with a rabbit abundance and damage score of 0 have been adjusted to be 'acceptable'.

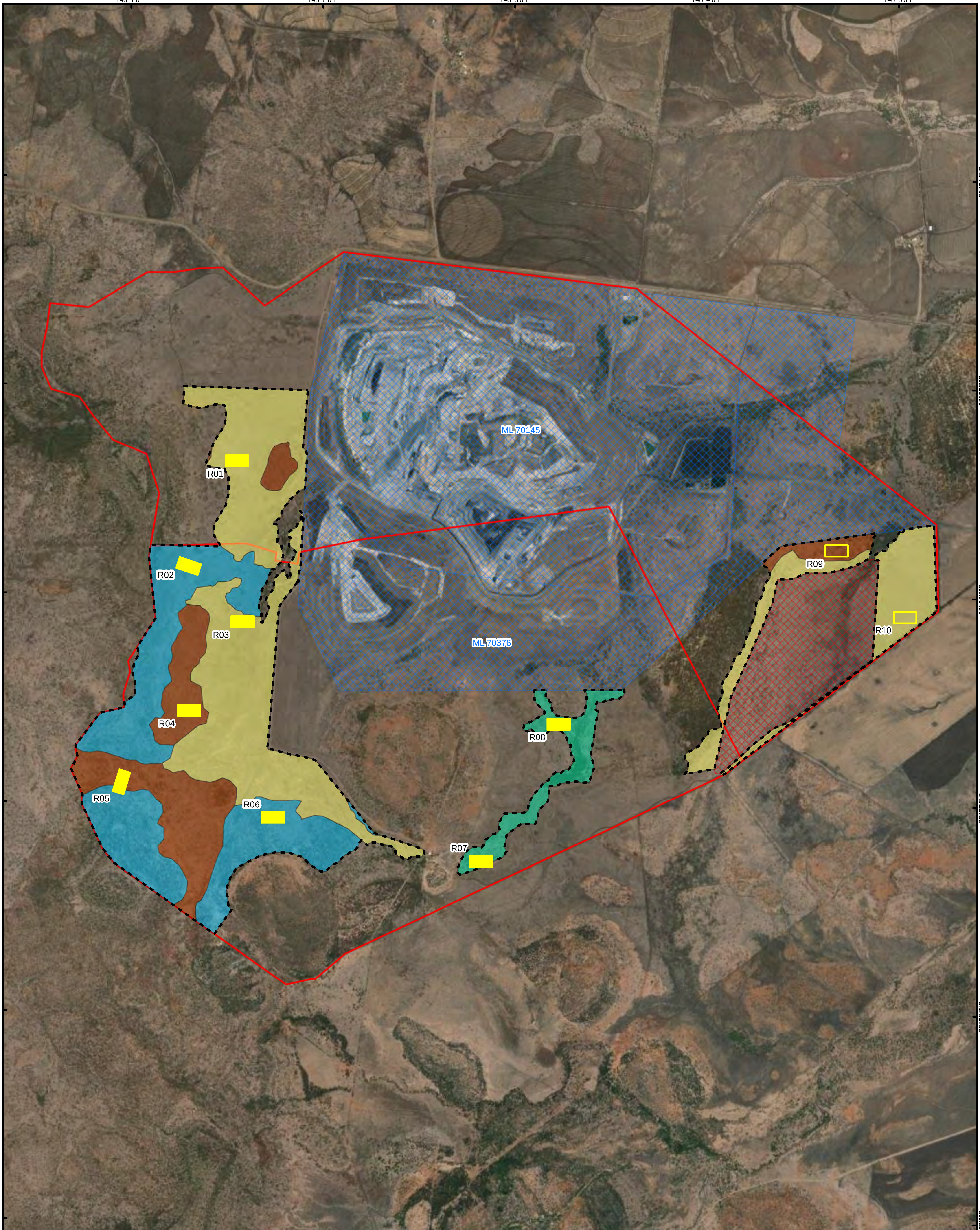

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Figure 17
Lexington - Rabbit/hare monitoring results

Minerva lots (lot 10 & 11 DN40126)
Existing offset area (Category A area)
Mining leases (ML70376 and ML70145)
Offset area

Regional ecosystem
RE 11.8.11
RE 11.8.11a
RE 11.8.4
RE 11.8.5

Rabbit monitoring plots (R01 - R10)
No evidence for rabbits/hares
Evidence of rabbits/hares

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Mining Lease

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:30,000@A3

0 0.5 1 1.5 2
Kilometres

N

CO2 Australia

Location diagram

Brisbane

5.1.2 Feral pigs

Evidence for the presence of feral pigs was confirmed in all eight pig monitoring plots at the Lexington offset site. However, there was no evidence for feral pigs either through direct observation or via the fauna cameras. Evidence of feral pig presence within plots ranged from 3% (Sites P04 and P06) to 63% (Site P01) and, on average, was observed across 22.08% of the available transect sections within each plot (Table 19). Opportunistic surveying through ephemeral watercourses, including observation efforts during weed and rabbit monitoring, also revealed additional evidence of feral pigs.

Table 19: Assessment of overall feral pig presence and activity at the Lexington offset site*.

		Monitoring plot survey section (50 m)											
Plot	**Transect**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Transect cover (%)**	**Plot % (record/30)**
P01	1	R	R									20%	63%
	2	R	R		R	R	RP	R	RD	R	R	90%	
	3			R	R	R	RP	R	RP	R	R	80%	
P02	1	F			F		R					30%	13%
	2											0%	
	3	R										10%	
P03	1		R			R		R				30%	30%
	2			R				R				20%	
	3		R		RP		P		R			40%	
P04	1											0%	3%
	2											0%	
	3			D								10%	
P05	1	D							R		R	30%	20%
	2									R		10%	
	3								DR	R		20%	
P06	1											0%	3%
	2											0%	
	3				R							10%	
P07	1				D				D			20%	6.7%
	2											0%	
	3											0%	
P08	1	R		R							R	30%	37%
	2	R					R	DR				30%	
	3	R	R	R	DR			R				50%	
												Total	**22.1%**

*Denoted as: R = Rooting, D = Dung, F = Footprints

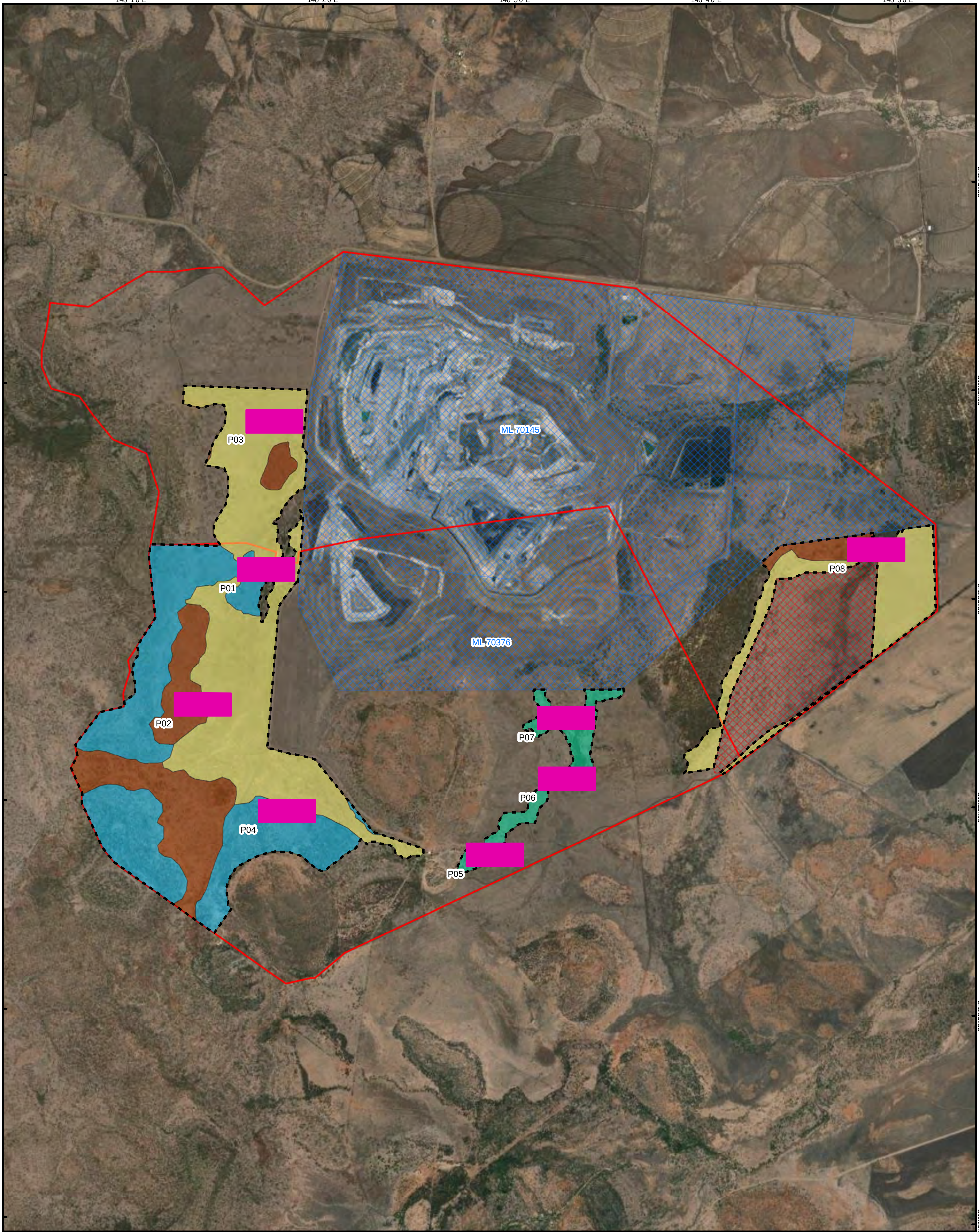

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Figure 18
Lexington
Evidence of feral pigs

- Minerva lots (lot 10 & 11 DN40126)
- Existing offset area (Category A area)
- Mining leases (ML70376 and ML70145)
- Offset area

Regional ecosystem

- RE 11.8.11
- RE 11.8.11a
- RE 11.8.4
- RE 11.8.5

Pig monitoring plots (P01 - P08)

- No evidence of feral pigs
- Evidence of feral pigs

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Mining Lease

0 0.5 1 1.5 2
Kilometres

N

CO2 Australia

Location diagram

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:30,000@A3

Path: P:\GIS\Data\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_20220202 - Figure 18 - Lexington evidence of feral pigs.mxd

5.1.3 Fauna camera station

Of the 15 fauna camera stations, 12 cameras were considered operable stations across each of the three consecutive nights. One camera (C01) was considered compromised across all three nights due to a failed camera flash, leaving photos taken at night (which would constitute the majority of pest animal activity) indiscernible. Additionally, one camera (C14) was considered compromised on days 2 and 3 and another (C15) was considered compromised on day 3, both because they were knocked over by cattle. As such, there was a total of 39 operable station nights for the purposes of calculating Catling Index values for pest animal species. The fauna cameras confirmed the presence of four pest animal species, namely feral dogs (*Canis familiaris/lupus*), feral cats (*Felis catus*), European rabbits (*Oryctolagus cuniculus*) and brown hares (*Lepus europaeus*) (Figure 19 and Figure 20). Scores from all four pest animal species detected ranged from 2.6 (European rabbit) to 18 (brown hare) (Table 20). Feral pigs were not detected by fauna cameras. Additionally, cane toads (Rhinella marina) were detected on several cameras over the three nights. Non-pest animals were also detected from the fauna camera stations, including a common brush-tail possum (*Trichosurus vulpecula*), rufous bettong (*Aepyprymnus rufescens*), a wallaby (Macropodidae indet.) and cattle (*Bos taurus*).

Overall, there were 12 individual pest animal detections, recorded from nine of the 15 fauna camera stations (Table 20). These detections were made throughout the site (Figure 21), with a concentration of records around the centre of the property represented largely by RE 11.8.11 natural grasslands habitat.

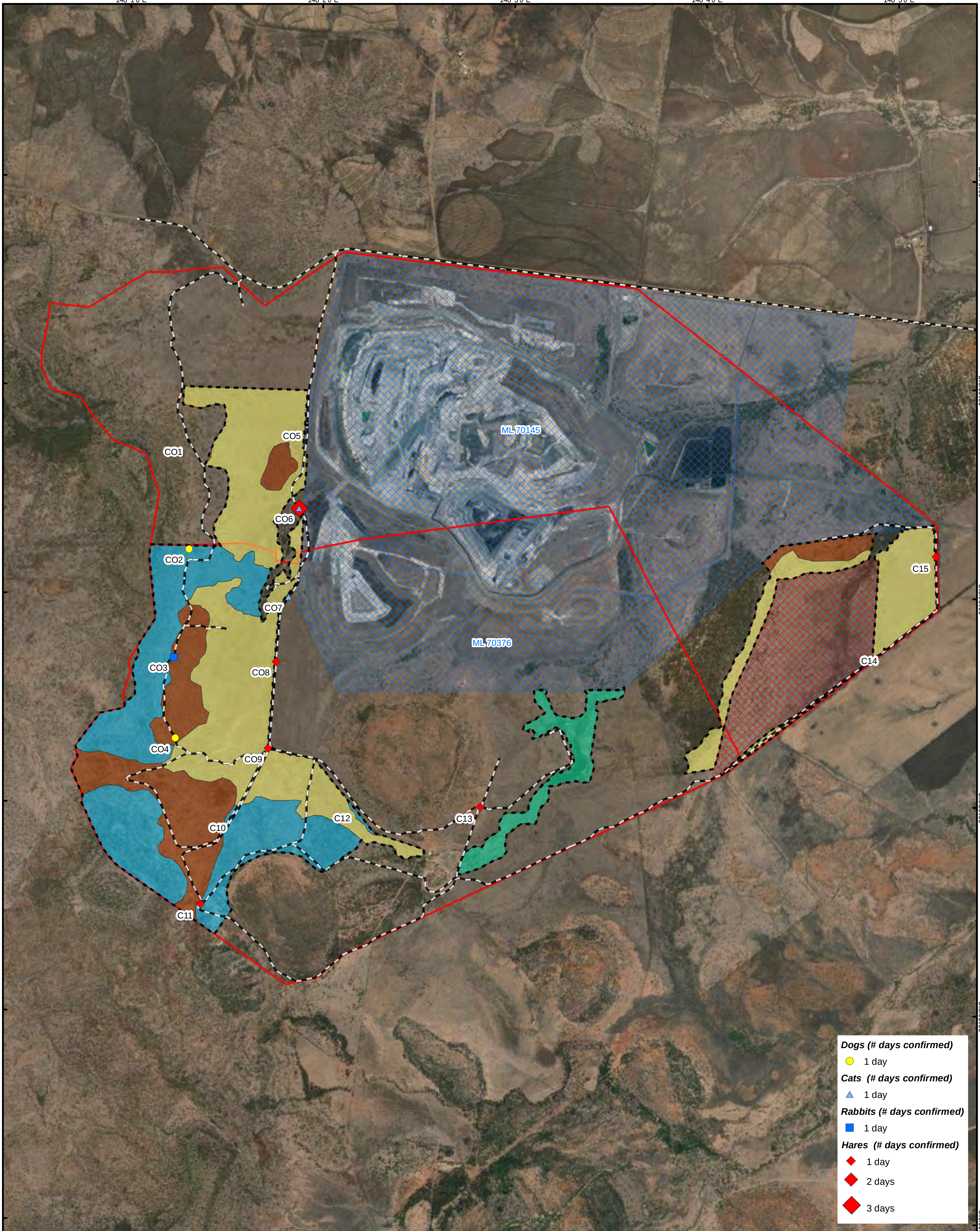
Table 20: Pest animal results from the Lexington offset site.

Pest animal species	Confirmed incidence of pest animal species from given site															Catling Index
	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	
Dog																
Day 1																
Day 2		✓		✓												**5.1**
Day 3																
Cat																
Day 1																
Day 2							✓									**5.1**
Day 3						✓										
European rabbit																
Day 1																
Day 2			✓													**2.6**
Day 3																
Brown hare																
Day 1						✓		✓								
Day 2						✓					✓		✓		✓	**18.0**
Day 3						✓										
Feral pig																
Day 1																**0**

Pest animal species	Confirmed incidence of pest animal species from given site															Catling Index
	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	
Day 2																
Day 3																

Figure 19: Feral cat (*Felis catus*) captured at fauna camera C06 at the Lexington offset site

Figure 20: Brown hare (*Lepus europaeus*) captured at fauna camera C08 at the Lexington offset site



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Location diagram

Figure 21
Lexington
Pest animal results

Minerva lots (lot 10 & 11 DN40126)		*Regional ecosystem*	
Access tracks		RE 11.8.11	
Existing offset area (Category A area)		RE 11.8.11a	
Mining leases (ML70376 and ML70145)		RE 11.8.4	
Offset area		RE 11.8.5	

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Mining Lease

0 0.5 1 1.5 2
Kilometres

N

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Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:30,000@A3

5.2 WEED MONITORING

A total of 24 weed species were identified from the 20 weed monitoring plots at the Lexington offset site. No additional species of weeds were observed on the site outside of those identified within the weed monitoring plots. Across the 20 weed monitoring plots, the average number of weed species observed per plot was 6.45 species, ranging between 3 species (Sites 06 and 19) and 13 species (Sites 09 and 10), with eight weed species only encountered at single sites. Weed cover across the 20 weed monitoring plots averaged 24.7%; ranging between 2% (Site 06) and 69.8% (Site 09) (Table 21, Figure 22). The most common weed was *Melinis repens*, recorded in 17 of the 20 sites (Table 21). *Megathyrsus maximus* (Guinea grass) was the weed species with the highest average cover, averaging 29.5% cover across the sites it was recorded within, and singly covering approximately half the area of Site 09. It should be noted that *M. maximus* only occurred in two of 20 weed plots, occurring in RE 11.8.11a along drainage channels.

Table 21: Lexington offset site weed assessment results.

Scientific name	Common name	Family name	Percentage cover of weed species from given site																				Number of sites	Average cover (%)[a]
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20		
Cryptostegia grandiflora	Rubber vine	Apocynaceae									0.8												1	0.8
Verbesina encelioides	Goldweed	Asteraceae									3.0	0.2					0.6						3	1.3
Parthenium hysterophorus	Parthenium weed	Asteraceae	17.1	0.7	1.8	0.5		0.2	1.3	14.5		8.2	15.0	4.6	2.8	4.0	23.9	14.1	5.3			12.6	16	7.9
Bidens pilosa	Cobbler's pegs	Asteraceae	0.1								5.7	1.0									0.1		4	1.7
Zinnia sp.	A sunflower	Asteraceae									0.1													0.1
Opuntia tomentosa	Velvety tree pear	Cactaceae															0.1						1	0.1
Vachellia farnesiana	Mimosa bush	Fabaceae	1.3		0.8					1.9	1.3	0.2	0.1			3.0	1.5	4.3	10.9	0.5			11	2.3
Stylosanthes viscosa	Sticky stylo	Fabaceae		0.5		1.7	0.9		2.7			0.1								0.1	0.8	0.1	8	0.9
Clitoria ternatea	Butterfly pea	Fabaceae								10.6	1.0	4.5											3	5.3
Macroptilium atropurpureum	Siratro	Fabaceae									0.1												1	0.1
Sida spinosa	Sida	Malvaceae		0.1							0.5												2	0.3
Waltheria indica	Sleepy morning	Malvaceae								0.1													1	0.1
Sida cordifolia	Flannel weed	Malvaceae									0.5												1	0.5
Malvastrum americanum	Malvastrum	Malvaceae			0.1	0.2	0.1		4.0	1.5		6.0	0.1				0.6	1.0	0.2				10	1.4
Sida acuta	Spinyhead Sida	Malvaceae										0.1											1	0.1
Cenchrus ciliaris	Buffel grass	Poaceae	0.1		1.1	8.9	21.5	1.3	9.4	1.8	3.0	8.9	5.8	0.5	0.5		0.7	1.9	13.6	0.1		0.1	17	4.6
Sorghum halepense	Johnson grass	Poaceae								0.6													1	0.6
Megathyrsus maximus	Guinea grass	Poaceae									47.8	11.2											2	29.5
Melinis repens	Red natal grass	Poaceae	21.7	8.2	0.1	12.6	39.0	0.5	1.0			0.7	2.9	0.2	2.5	0.2	0.6	0.2	0.5	8.4	11.2		17	6.5
Bothrichloa pertusa	Indian bluegrass	Poaceae	22.3	1.0		1.0					0.5	1.3					0.5		2.3				7	4.1
Capsicum sp.	Chilli	Solanaceae								1.0	5.6												2	3.3
Physalis minima	Wild gooseberry	Solanaceae	0.1		0.1					2.3							0.1	0.1	0.1				6	0.5
Solanum sp.	A nightshade	Solanaceae								0.5													1	0.5
Verbena officinalis	Common Verbena	Verbenaceae	1.1	0.1		0.2						0.3	0.1	0.8	0.3	0.4	0.1	0.3		0.1		0.9	12	0.4
Number of species			**8**	**6**	**6**	**7**	**4**	**3**	**5**	**10**	**13**	**13**	**6**	**4**	**4**	**4**	**10**	**7**	**7**	**5**	**3**	**4**		
Weed cover (%)[b]			**63.7**	**10.6**	**4.0**	**25.0**	**61.5**	**2.0**	**18.3**	**34.5**	**69.8**	**42.5**	**24.0**	**6.1**	**6.0**	**7.6**	**28.7**	**21.8**	**32.8**	**9.2**	**12.1**	**13.7**		

[a] Avg cover (%) represents the average percentage cover of a given weed species across encountered sites.

[b] Weed cover represents the sum of the average weed cover percentages of all weed species.

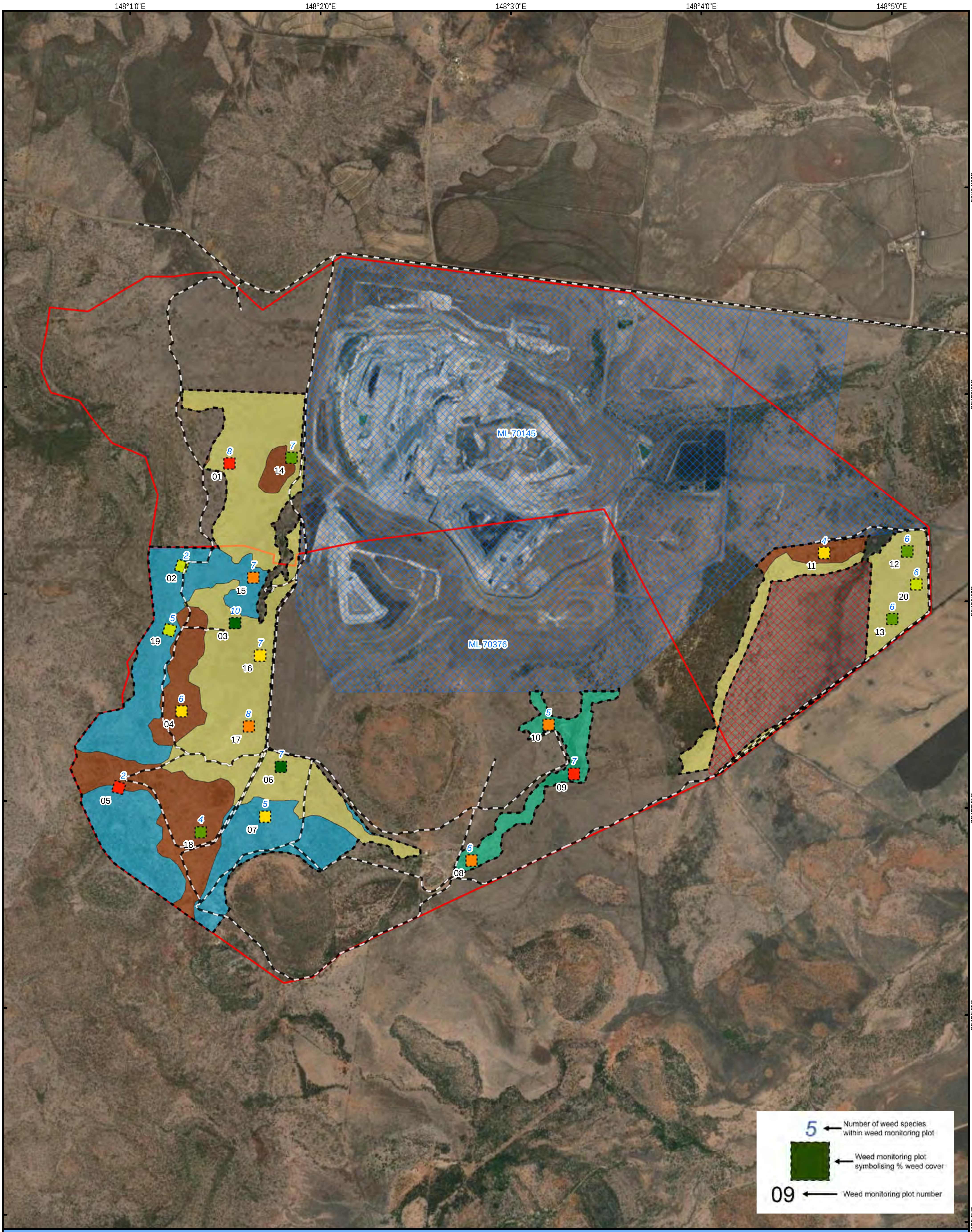

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Figure 22
Lexington
Weed monitoring results

Minerva lots (lot 10 & 11 DN40126)
Access tracks
Existing offset area (Category A area)
Mining leases (ML70376 and ML70145)
Offset area
Weed monitoring plots

Weed cover (%)
- <5%
- 6 - 10
- 11 - 15
- 16 - 25
- 26 - 50
- >50

Regional ecosystem
- RE 11.8.11
- RE 11.8.11a
- RE 11.8.4
- RE 11.8.5

0 0.5 1 1.5 2
Kilometres

N

CO2 Australia

Location diagram

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Mining Lease

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:30,000@A3

Path: P:\GIS\Data\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_20220202 - Figure 22 - Lexington weed monitoring plots.mxd

5.3 BIOMASS MONITORING

Brigalow Belt pasture photo standards were used for all biomass monitoring points. 'Downs country' photo standards were used for offset areas comprising of RE 11.8.11 and RE 11.8.11a, whilst photo monitoring results from areas of RE 11.8.4 and RE 11.8.5 were assessed against 'Narrow-leaved Ironbark' photo standards (Table 22).

Photo monitoring showed some variability in the biomass of ground cover. Most sites in RE 11.8.11 and 11.8.11a (except site 06) were at least 3,015 kg/ha (Site 16) and up to 5,040 kg/ha (Sites 08-09, 12, 17). Site 06 had very low biomass compared to other 11.8.11 and 11.8.11a sites with a biomass of 1,080kg/ha, indicating potential overgrazing. Biomass in RE 11.8.4 and RE 11.8.5 ranged between 720 kg/ha in wooded areas with high canopy cover (Site 07) and 5,000 kg/ha (Sites 14, 15 and 18) associated with more open grassy woodland areas (Table 22). Evidence of heavy grazing was not observed at site 07, and as such it is assumed that the low biomass is a result of natural processes (e.g. a canopy dense enough to shade-out most grasses). Most other sites had high biomass throughout the MDS Project site due to the exceedingly high rainfall from October to December.

Ground photos used to assign biomass at the Lexington offset site are shown in Appendix E.

Table 22: Results of biomass monitoring on the Lexington offset site using Brigalow Belt Future Beef pasture photo standards.

		Brigalow Belt pasture photo standard type		
Photo monitoring site*	**RE type**	**Narrow-leaved ironbark**	**Downs country**	**Biomass kg/ha**
01	11.8.11		✓	3,850
02	11.8.4	✓		1,750
03	11.8.11		✓	4,445
04	11.8.5	✓		1,750
05	11.8.4	✓		2,250
06	11.8.11		✓	1,080
07	11.8.4	✓		720
08	11.8.11a		✓	5,040
09	11.8.11a		✓	5,040
10	11.8.11a		✓	4,445
11	11.8.5	✓		3,625
12	11.8.11		✓	5,040
13	11.8.11		✓	4,445
14	11.8.5	✓		5,000
15	11.8.4	✓		5,000
16	11.8.11		✓	3,015
17	11.8.11		✓	5,040
18	11.8.5	✓		5,000
19	11.8.4	✓		2,250

Photo monitoring site*	RE type	Brigalow Belt pasture photo standard type		Biomass kg/ha
		Narrow-leaved ironbark	Downs country	
20	11.8.11		✓	4,445

* taken from the 0 m point of the permanent habitat monitoring transects (Sites 01 – 12) and the SW corner of the standalone weed monitoring plots (Sites 13 – 20).

5.4 GENERAL SITE INSPECTION

No additional fencing or access tracks were noted within of the extent of traversed areas in December 2021.

It is understood that a share-farming agreement is in place to limit the head of cattle per paddock. However, evidence of cattle has previously been observed in the natural grassland areas in the west and east of the Lexington offset area during surveys.

Outside of the weed monitoring plots assessed as part of the dry season surveys, there were a number of areas of notable weed infestation. Most noticeably was the extent and density of weeds within and adjacent to the ephemeral drainage line and bore on Prickle Farm Road that flanks the western edge of the mining lease (ML 70376). As noted in previous years' monitoring reports, the ephemeral drainage line continues to be densely infested by Noogoora burr (*Xanthium occidentale*), with areas away from the drainage line characterised by dense, monospecific stands of *Parthenium hysterophorus* and a sunflower (indet.). *P. hysterophorus* has also formed dense stands along the rest of the main track on the western edge of the mining lease (ML70376). Furthermore, there is considerable coverage of *Vachellia farnesiana* throughout the western Natural Grassland (RE 11.8.11) areas.

5.4.1 Significant species

While targeted surveys for *Dichanthium queenslandicum* (king blue-grass) and *D. setosum* were not scheduled to be undertaken at the Lexington offset site, *D. queenslandicum* was confirmed from near the vicinity of Sites 01 and 12 in Natural Grassland habitat (RE 11.8.11) in the east and west of the Lexington offset area. While flowering of *D. queenslandicum* is more typical during and after the wet season, the October and November rainfall is likely to have promoted the earlier than expected flush of growth and flowering of the species.

The presence of non-flowering *D. setosum*[2] has previously been confirmed in areas of RE 11.8.5 and RE 11.8.4 in the west of the offset area. However, *D. setosum* was not observed during the December 2021 dry season surveys. *D. setosum* is difficult to identify without fertile material and is more likely to produce inflorescences during and after the wet season.

[2] Prior surveying by CO2 Australia ecologists in March 2018 confirmed the presence of a previously undescribed species of *Dichanthium* from the Lexington offset area. This species was given the interim name *Dichanthium sp. affine. sericeum* until such time as it is formally described. Since this initial 2018 survey, CO2 Australia ecologist Dr Jarrad Cousin has confirmed additional populations of this undescribed species from other properties in the greater Springsure - Rolleston area. While investigations into this undescribed species are continuing by botanists from the Queensland Herbarium, with assistance from CO2 Australia, discerning the two species in the field is difficult, especially when there is limited flowering material.

6 RESULTS: LEXINGTON RAIL LOOP OFFSET SITE

6.1 WEED MONITORING

A total of 10 weed species were identified from the 12 weed monitoring plots. No additional species of weeds were observed in the offset area outside of those identified within the weed monitoring plots. Across the 12 weed monitoring plots, the average number of weed species observed per plot was 3.7, ranging between one species (LEXRL07 and LEXRL12) and six species (LEXRL03), with two weed species only encountered at single sites (*Senecio madagascariensis* and *Malvastrum americanum*). Weed cover across the 12 weed monitoring plots averaged 7.2%; ranging between 0.6% (LEXRL07) and 18.4% (LEXRL01)(Table 23, Figure 23 and Figure 24). The number of weed species differed by offset paddock, with the North Promenade paddock having a higher weed species richness and average cover (4.5 species and 13.2% cover) than Harry's paddock (5 species and 4.6% cover), with Contours paddock having the lowest weed species richness and average cover of all three paddocks (2.2 species and 3.9% cover). The most commonly encountered weed was *Melinis repens* which was recorded from 11 sites (Table 23). *Parthenium hysterophorus* had the highest average cover of 5.9% across the eight sites it was encountered at. Only three species had a greater average weed cover >1%.

Table 23: Lexington Rail Loop weed assessment results

Scientific name	Common name	Family name	Percentage cover of weed species from given site												Number of sites	Average cover (%)[a]
			LEXRL01	LEXRl02	LEXRL03	LEXRL04	LEXRL05	LEXRL06	LEXRL07	LEXRL08	LEXRL09	LEXRL10	LEXRL11	LEXRL12		
Parthenium hysterophorus	Parthenium weed	Asteraceae	13.2	5.1	4.9	1.6				6.1	4.0	0.2	12.4		8	5.9
Tridax procumbens	Tridax daisy	Asteraceae			0.1							0.5			2	0.3
Senecio madagascariensis	Fireweed	Asteraceae				0.1									1	0.1
Vachellia farnesiana	Mimosa bush	Fabaceae	2.5	3.8						3.8	1.0				4	2.8
Clitoria ternatea	Butterfly pea	Fabaceae			0.1	0.1									2	0.1
Malvastrum americanum	Malvastrum	Malvaceae				0.1									1	0.1
Cenchrus ciliaris	Buffel grass	Poaceae	0.5							1.3	0.5		0.1		4	0.6
Sorghum halepense	Johnson grass	Poaceae			1.0			0.1					0.1		3	0.4
Melinis repens	Red Natal grass	Poaceae	0.8	5.5	0.3	0.9	2.5	1.2	0.6	1.0		2.4	1.1	1.1	11	1.6
Verbena officinalis	Common Verbena	Verbenaceae	1.4	0.3	0.5		0.2			1.5	0.7	0.9	0.2		8	0.7
		Number of species	**5**	**4**	**6**	**5**	**2**	**2**	**1**	**5**	**4**	**4**	**5**	**1**		
		Weed cover (%)[b]	**18.4**	**14.6**	**6.9**	**2.8**	**2.7**	**1.3**	**0.6**	**13.6**	**6.2**	**4.0**	**13.9**	**1.1**		

[a] Avg cover (%) represents the average percentage cover of a given weed species across encountered sites.

[b] Weed cover represents the sum of the average weed cover percentages of all weed species.

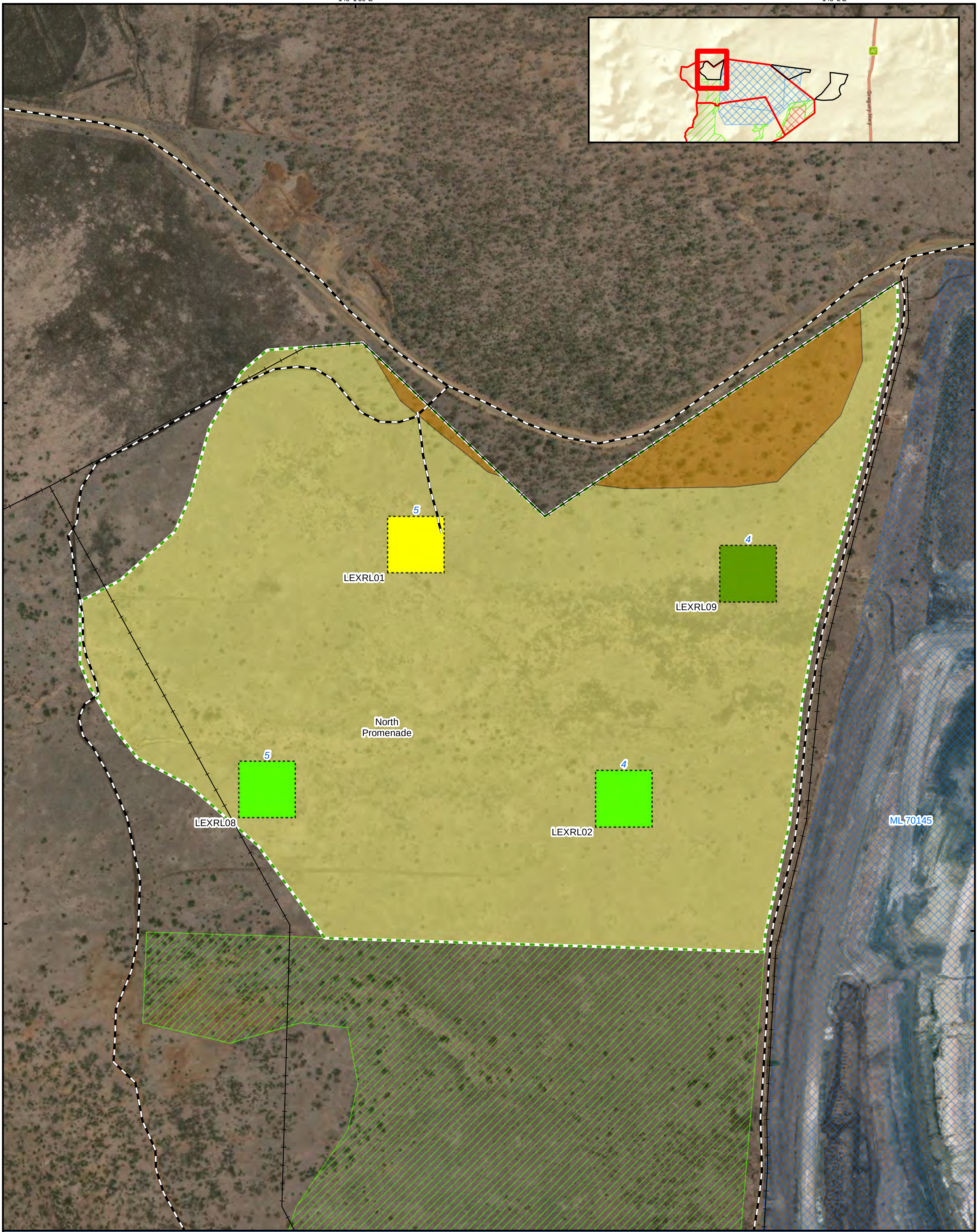

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Figure 23
Lexington Rail Loop offset
Weed monitoring results - west

Lexington existing fences
Access tracks
Lexington offset area
Mining leases (ML70376 and ML70145)

Lexington Rail Loop offset

North Promenade paddock

Observed vegetation

RE 11.8.11
RE 11.8.5

Weed monitoring plots

Weed cover (%)

< 5
6 - 10
11 - 15
16 - 25
26 - 50
51 - 100

DATA SOURCE:
The following datasets are © State of Qld:
- Mining leases
The following datasets provided by Sojitz
- Lexington Rail Loop offset areas

0 50 100 150 200
Metres

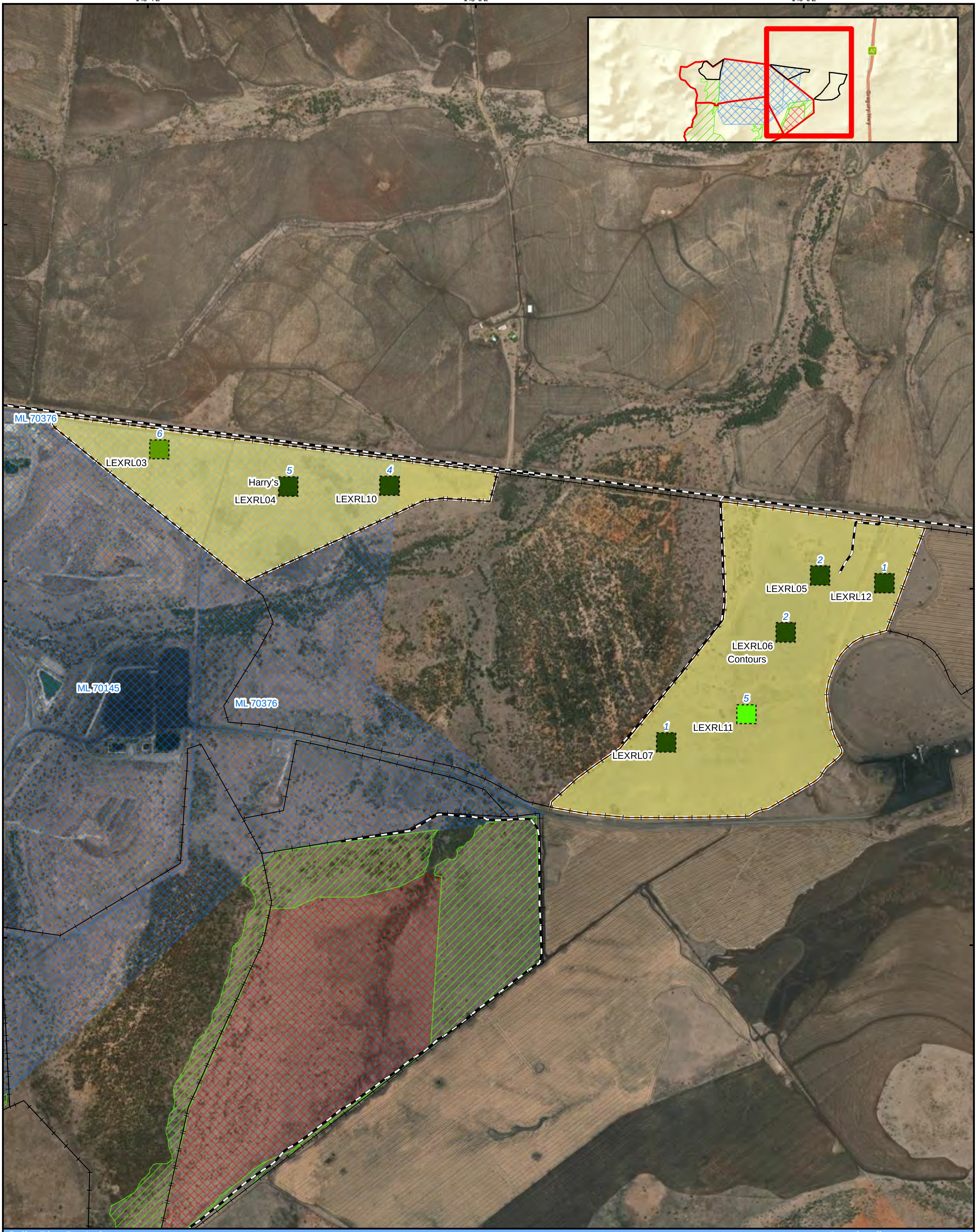
N

CO2 Australia

Location diagram

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:6,000@A3

Path: P:\GISData\Projects\Sojitz\927_20220202_dry_seas_monitor_report_2021_22\20220202 - Figure 23 - LEXINGTON RAIL LOOP weed monitoring plots west.mxd



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Location diagram

Figure 24
Lexington Rail Loop offset
Weed monitoring results - east

Lexington existing fences
Access tracks
Lexington Rail Loop offset
Harry's paddock
Contours paddock

Observed vegetation
RE 11.8.11
RE 11.8.5

Weed monitoring plots
Weed cover (%)
< 5
6 - 10
11 - 15
16 - 25
26 - 50
51 - 100

DATA SOURCE:
The following datasets are © State of Qld:
- Mining leases
The following datasets provided by Sojitz
- Lexington Rail Loop offset areas

Date: 2/2/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:17,500@A3

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6.2 BIOMASS MONITORING

Brigalow Belt pasture photo standards were used for all biomass monitoring points. 'Downs country' photo standards were used for monitoring all twelve of the sites comprising RE 11.8.11 (Table 24). Where the observed biomass at a site was mid-way between two photos within a given biomass standard, the middle of the corresponding range was reported (i.e. observed biomass between 2,140 kg/ha and 3,015 kg/ha 'Downs country' photo standards was reported as 2578 kg/ha).

Photo monitoring showed some variability in biomass of ground cover across all 12 photo monitoring sites. Overall, there was a high biomass for the grassland vegetation type. Aside from two sites supporting an estimated 2,578 kg/ha (Sites LEXRL03 and LEXRL09), all sites supported at least 3,850 kg/ha, up to 5,040 kg/ha (Sites LEXRL02, LEXRL04, LEXRL07 and LEXRL10). The average biomass was similar between the offset paddocks, with the average biomass at North Promenade, Harry's and Contours at an average of 3,978 kg/ha, 4,219 kg/ha and 4,088 kg/ha, respectively. Biomass between sites within the same paddocks was varied, with the most pronounced differences occurring at Harry's ranging between 2,578 kg/ha and 5,040 kg/ha. This is likely attributable to different grazing pressures, as well as historical trampling from horses in some areas.

Ground photos used to assign biomass at the Lexington Rail Loop offset site are shown in Appendix F.

Table 24: Results of biomass monitoring on the Lexington Rail Loop offset site using Brigalow Belt Future Beef pasture photo standards.

		Brigalow Belt Future Beef pasture photo standard type	
Photo monitoring site*	RE type	Downs country	Biomass kg/ha
LEXRL01 – North Promenade paddock	11.8.11	✓	3,850
LEXRL02 – North Promenade paddock	11.8.11	✓	5,040
LEXRL03 – Harry's paddock	11.8.11	✓	2,578
LEXRL04 – Harry's paddock	11.8.11	✓	5,040
LEXRL05 – Contours paddock	11.8.11	✓	3,850
LEXRL06 – Contours paddock	11.8.11	✓	3,850
LEXRL07 – Contours paddock	11.8.11	✓	5,040
LEXRL08 – North Promenade paddock	11.8.11	✓	4,445
LEXRL09 – North Promenade paddock	11.8.11	✓	2,578
LEXRL10 – Harry's paddock	11.8.11	✓	5,040
LEXRL11 – Contours paddock	11.8.11	✓	3,850
LEXRL12 – Contours paddock	11.8.11	✓	3,850

* taken from the 0 m point of the permanent habitat monitoring transects (LEXRL01 – LEXRL07) and the SW corner of the standalone weed monitoring plots (LEXRL08 – LEXRL12).

6.3 GENERAL SITE INSPECTION

It is understood that a share-farming agreement is in place to limit the head of cattle per paddock. A herd of 5 – 6 horses has previously been encountered within Harry's Paddock, with evidence throughout the paddock of horse manure. Horses were not observed during the December 2021 dry season surveys.

Likewise, evidence of cattle was observed within Contours paddock and in the vicinity of the southern boundary of North Promenade paddock.

All fences bounding the paddocks were in good condition. Access to many of the monitoring sites in the Contours paddock was via an access track outside of and adjacent to the western boundary of the paddock, whereas access to monitoring sites in Harry's paddock was via Wurba Road and access to the North Promenade monitoring sites was via existing access tracks into Lexington.

6.3.1 Significant species

While targeted survey for *Dichanthium queenslandicum* (king blue-grass) were not scheduled to be undertaken at the Lexington Rail Loop offset site, numerous populations of the species was confirmed. Most notably, a significant population of *D. queenslandicum* was noted throughout the LEXRL12 weed monitoring plot in the Contours paddock, with a population estimate of >250 tussocks. Further populations of *D. queenslandicum* were also confirmed from multiple locations within the LEXRL05 weed monitoring plot in the same paddock.

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APPENDIX A MONITORING SITE LOCATIONS

MDS PROJECT SITE

Table A-1: Dry-season monitoring site locations and purpose on the MDS Project site.

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values	Habitat condition assessment	Photo monitoring	Biomass monitoring	Pest animal monitoring		
									Rabbit plot	Feral pig plot	Fauna camera
01	H01_0m	641462	7304249	✓	Squatter pigeon	✓	✓	✓			
	H01_50m	641462	7304301	✓		✓	✓				
	W01_01	641462	7304249	✓			✓				
	W01_02	641462	7304301	✓							
	W01_03	641462	7304348								
	R01	641462	7304249	✓					✓		
02	H02_0m	640199	7303572	✓	Natural Grasslands TEC, King blue-grass, bluegrass	✓	✓	✓			
	H02_50m	640203	7303621	✓		✓	✓				
	W02_01	640199	7303572	✓			✓				
	W02_02	640203	7303621	✓							
	W02_03	640210	7303627								
	R02	640199	7303572	✓					✓		
03	H03_0m	638418	7303259	✓	Squatter pigeon	✓	✓	✓			
	H03_50m	638425	7303308	✓		✓	✓				
	W03_01	638418	7303259	✓			✓				

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values	Habitat condition assessment	Photo monitoring	Biomass monitoring	Pest animal monitoring		
									Rabbit plot	Feral pig plot	Fauna camera
	W03_02	638425	7303308	✓							
	W03_03	638430	7303358								
	R03	638418	7303259	✓					✓		
04	H04_0m	637945	7300236	✓	Natural Grasslands TEC, King blue-grass, bluegrass	✓	✓	✓			
	H04_50m	637951	7300287	✓		✓	✓				
	W04_01	637945	7300236	✓			✓				
	W04_02	637951	7300287	✓							
	W04_03	637950	7300338								
	R04	637945	7300236	✓					✓		
05	H05_0m	638426	7299836	✓	Squatter pigeon	✓	✓	✓			
	H05_50m	638420	7299885	✓		✓	✓				
	W05_01	638426	7299836	✓			✓				
	W05_02	638420	7299885	✓							
	W05_03	638416	7299937								
	R05	638426	7299836	✓					✓		
06	H06_0m	637445	7299566	✓	Natural Grasslands TEC, King blue-grass, bluegrass	✓	✓	✓			
	H06_50m	637447	7299615	✓		✓	✓				
	W06_01	637445	7299566	✓			✓				
	W06_02	637447	7299615	✓							
	W06_03	637443	7299668								

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values	Habitat condition assessment	Photo monitoring	Biomass monitoring	Pest animal monitoring		
									Rabbit plot	Feral pig plot	Fauna camera
	R06	637445	7299566	✓					✓		
07	H07_0m	638426	7298876	✓	Brigalow TEC	✓	✓	✓			
	H07_50m	638419	7298926	✓		✓	✓				
	W07_01	638426	7298876	✓			✓				
	W07_02	638419	7298926	✓							
	W07_03	638423	7298974								
	R07	638426	7298876	✓					✓		
08	H08_0m	637032	7298735	✓	Natural Grasslands TEC, King blue-grass, bluegrass	✓	✓	✓			
	H08_50m	637034	7298785	✓		✓	✓				
	W08_01	637032	7298735	✓			✓				
	W08_02	637034	7298785	✓							
	W08_03	637039	7298835								
	R08	637032	7298735	✓					✓		
09	H09_0m	638387	7298599	✓	Australian painted snipe	✓	✓	✓			
	H09_50m	638380	7298648	✓		✓	✓				
	W09_01	638387	7298599	✓			✓				
	W09_02	638380	7298648	✓							
	W09_03	638372	7298699								
	R09	638387	7298599	✓					✓		
10	H10_0m	636412	7297523	✓	Squatter pigeon	✓	✓	✓			

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values	Habitat condition assessment	Photo monitoring	Biomass monitoring	Pest animal monitoring		
									Rabbit plot	Feral pig plot	Fauna camera
	H10_50m	636415	7297571	✓		✓	✓				
	W10_01	636412	7297523	✓			✓				
	W10_02	636415	7297571	✓							
	W10_03	636413	7297617								
	R10	636412	7297523	✓					✓		
11	W11_01	642941	7304772	✓			✓				
	W11_02	642937	7304825								
	W11_03	642938	7304876								
12	W12_01	641428	7303597	✓			✓				
	W12_02	641426	7303646								
	W12_03	641429	7303696								
13	W13_01	641896	7303196	✓			✓				
	W13_02	641899	7303247								
	W13_03	641900	7303297								
14	W14_01	638991	7303038	✓			✓				
	W14_02	638987	7303090								
	W14_03	638988	7303140								
15	W15_01	637797	7302245	✓			✓				
	W15_02	637796	7302296								
	W15_03	637796	7302347								

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values	Habitat condition assessment	Photo monitoring	Biomass monitoring	Pest animal monitoring		
									Rabbit plot	Feral pig plot	Fauna camera
16	W16_01	638556	7300785	✓			✓				
	W16_02	638560	7300832								
	W16_03	638566	7300882								
17	W17_01	637029	7300184	✓			✓				
	W17_02	637028	7300231								
	W17_03	637024	7300282								
18	W18_01	637401	7300321	✓			✓				
	W18_02	637401	7300368								
	W18_03	637398	7300421								
19	W19_01	638301	7301720	✓			✓				
	W19_02	638295	7301771								
	W19_03	638290	7301821								
20	W20_01	636740	7298674	✓			✓				
	W20_02	636746	7298723								
	W20_03	636752	7298771								
21	P01_01	636412	7297523							✓	
	P01_02	636412	7297423							✓	
	P01_03	636412	7297323							✓	
22	P02_01	636397	7298627							✓	
	P02_02	636397	7298527							✓	

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values	Habitat condition assessment	Photo monitoring	Biomass monitoring	Pest animal monitoring		
									Rabbit plot	Feral pig plot	Fauna camera
	P02_03	636397	7298427							✓	
23	P03_01	637232	7298835							✓	
	P03_02	637232	7298735							✓	
	P03_03	637232	7298635							✓	
24	P04_01	638126	7299076							✓	
	P04_02	638126	7298976							✓	
	P04_03	638126	7298876							✓	
25	P05_01	638126	7299836							✓	
	P05_02	638126	7299736							✓	
	P05_03	638126	7299637							✓	
26	P06_01	638156	7300985							✓	
	P06_02	638156	7300885							✓	
	P06_03	638156	7300785							✓	
27	P07_01	638992	7303366							✓	
	P07_02	638992	7303266							✓	
	P07_03	638992	7303166							✓	
28	P08_01	641150	7303945							✓	
	P08_02	641150	7303845							✓	
	P08_03	641150	7303745							✓	
29	C01	642072	7303376								✓

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values	Habitat condition assessment	Photo monitoring	Biomass monitoring	Pest animal monitoring		
									Rabbit plot	Feral pig plot	Fauna camera
30	C02	641090	7303799								✓
31	C03	639787	7303069								✓
32	C04	638310	7301921								✓
33	C05	638696	7301071								✓
34	C06	638688	7300283								✓
35	C07	638680	7299504								✓
36	C08	638449	7298889								✓
37	C09	637509	7300705								✓
38	C10	637531	7300057								✓
39	C11	637071	7299149								✓
40	C12	636869	7298600								✓
41	C13	636439	7297829								✓
42	C14	636321	7297317								✓
43	C15	637054	7297306								✓

[a] Start points with prefix H = habitat assessment sites (HXX_0m and HXX_50m corresponds to 0 m and 50 m point of north-south habitat assessment transect), W = start point (west) of each site's weed monitoring plot transects (WXX_01, WXX_02 and WXX_03 corresponds to transect 1, 2 and 3). R = start point (south-west) of 2 ha rabbit monitoring plot, P = start point (west) of each site's pig monitoring plot transects (PXX_01, PXX_02 and PXX_03 corresponds to transect 1, 2 and 3), C = fauna camera station. Start points for habitat assessment, weed monitoring and rabbit monitoring plots are the same for sites 01 – 10, with sites 11 – 20 only corresponding to weed monitoring plots.

MDS RAIL LOOP SITE

Table A-2: Dry-season monitoring site locations and purpose on the MDS Rail Loop site.

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass monitoring
MDSRL01	W01_01	645575	7303101	✓	✓	
	W01_02	645575	7303151	✓	✓	✓
	W01_03	645575	7303201		✓	
MDSRL02	W02_01	646410	7303007	✓	✓	
	W02_02	646410	7303057	✓	✓	✓
	W02_03	646410	7303107		✓	
MDSRL03	W03_01	646666	7303114	✓	✓	
	W03_02	646666	7303164	✓	✓	✓
	W03_03	646666	7303214		✓	
MDSRL04	W04_01	646834	7303291	✓	✓	
	W04_02	646834	7303341	✓	✓	✓
	W04_03	646834	7303391		✓	
MDSRL05	W05_01	646409	7303255	✓	✓	
	W05_02	646409	7303305		✓	
	W05_03	646409	7303355		✓	

[a] Start points with prefix W = start point (west) of each site's weed monitoring plot transects (WXX_01, WXX_02 and WXX_03 corresponds to transect 1, 2 and 3).

LEXINGTON OFFSET SITE

Table A-3: Dry-season monitoring site locations and purpose on the Lexington offset site.

Site	Start point name[a]	Easting	Northing	Star picket?	Biomass monitoring	Weed monitoring	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
01	W01_01	604331	7354000	✓	✓	✓			
	W01_02	604331	7353950	✓		✓			
	W01_03	604331	7353900			✓			
	R01	604331	7353900	✓			✓		
02	W02_01	603925	7353100	✓	✓	✓			
	W02_02	603908	7353053	✓		✓			
	W02_03	603892	7353005			✓			
	R02	603892	7353005	✓			✓		
03	W03_01	604380	7352577	✓	✓	✓			
	W03_02	604380	7352527	✓		✓			
	W03_03	604380	7352477			✓			
	R03	604380	7352477	✓			✓		
04	W04_01	603904	7351791	✓	✓	✓			
	W04_02	603904	7351741	✓		✓			
	W04_03	603904	7351691			✓			
	R04	603904	7351691	✓			✓		
05	W05_01	603360	7351127	✓	✓	✓			
	W05_02	603345	7351079	✓		✓			

Site	Start point name[a]	Easting	Northing	Star picket?	Biomass monitoring	Weed monitoring	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
	W05_03	603330	7351031			✓			
	R05	603426	7351001	✓			✓		
06	W06_01	604790	7351295	✓	✓	✓			
	W06_02	604790	7351245	✓		✓			
	W06_03	604790	7351195			✓			
07	W07_01	604649	7350850	✓	✓	✓			
	W07_02	604649	7350800	✓		✓			
	W07_03	604649	7350750			✓			
	R06	604649	7350750	✓			✓		
08	W08_01	606488	7350461	✓	✓	✓			
	W08_02	606488	7350411	✓		✓			
	W08_03	606488	7350361			✓			
	R07	606488	7350361	✓			✓		
09	W09_01	607401	7351233	✓	✓	✓			
	W09_02	607401	7351183	✓		✓			
	W09_03	607401	7351133			✓			
10	W10_01	607175	7351671	✓	✓	✓			
	W10_02	607175	7351621	✓		✓			
	W10_03	607175	7351571			✓			
	R08	607175	7351571	✓			✓		
11	W11_01	609631	7353204	✓	✓	✓			

Site	Start point name[a]	Easting	Northing	Star picket?	Biomass monitoring	Weed monitoring	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
	W11_02	609631	7353154	✓		✓			
	W11_03	609631	7353104			✓			
	R09	609631	7353104	✓			✓		
12	W12_01	610371	7353217	✓	✓	✓			
	W12_02	610371	7353167	✓		✓			
	W12_03	610371	7353117			✓			
13	W13_01	610237	7352615	✓	✓	✓			
	W13_02	610237	7352565	✓		✓			
	W13_03	610237	7352515			✓			
	R10	610237	7352515	✓			✓		
14	W14_01	604883	7354051	✓	✓	✓			
	W14_02	604883	7354001			✓			
	W14_03	604883	7353951			✓			
15	W15_01	604543	7352984	✓	✓	✓			
	W15_02	604543	7352934			✓			
	W15_03	604543	7352884			✓			
16	W16_01	604604	7352289	✓	✓	✓			
	W16_02	604604	7352239			✓			
	W16_03	604604	7352189			✓			
17	W17_01	604503	7351656	✓	✓	✓			
	W17_02	604503	7351606			✓			

Site	Start point name[a]	Easting	Northing	Star picket?	Biomass monitoring	Weed monitoring	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
	W17_03	604503	7351556			✓			
18	W18_01	604074	7350714	✓	✓	✓			
	W18_02	604074	7350664			✓			
	W18_03	604074	7350614			✓			
19	W19_01	603812	7352530	✓	✓	✓			
	W19_02	603798	7352482			✓			
	W19_03	603784	7352434			✓			
20	W20_01	610453	7352923	✓	✓	✓			
	W20_02	610453	7352873			✓			
	W20_03	610453	7352823			✓			
21	P01_01	604442	7353084					✓	
	P01_02	604442	7352984					✓	
	P01_03	604442	7352884					✓	
22	P02_01	603879	7351891					✓	
	P02_02	603879	7351791					✓	
	P02_03	603879	7351691					✓	
23	P03_01	604513	7354397					✓	
	P03_02	604513	7354297					✓	
	P03_03	604513	7354197					✓	
24	P04_01	604624	7350950					✓	
	P04_02	604624	7350850					✓	

Site	Start point name[a]	Easting	Northing	Star picket?	Biomass monitoring	Weed monitoring	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
	P04_03	604624	7350750					✓	
25	P05_01	606463	7350561					✓	
	P05_02	606463	7350461					✓	
	P05_03	606463	7350361					✓	
26	P06_01	607101	7351233					✓	
	P06_02	607101	7351133					✓	
	P06_03	607101	7351033					✓	
27	P07_01	607092	7351771					✓	
	P07_02	607092	7351671					✓	
	P07_03	607092	7351571					✓	
28	P08_01	609840	7353261					✓	
	P08_02	609840	7353161					✓	
	P08_03	609840	7353061					✓	
29	C01	604003	7354128						✓
30	C02	604006	7353171						✓
31	C03	603871	7352215						✓
32	C04	603885	7351500						✓
33	C05	605051	7354267						✓
34	C06	604978	7353531						✓
35	C07	604885	7352747						✓
36	C08	604776	7352174						✓

Site	Start point name[a]	Easting	Northing	Star picket?	Biomass monitoring	Weed monitoring	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
37	C09	604705	7351408						✓
38	C10	604402	7350811						✓
39	C11	604107	7350032						✓
40	C12	610612	7353100						✓
41	C13	610156	7352282						✓
42	C14	606580	7350889						✓
43	C15	605496	7350889						✓

[a] Start points with prefix W = start point (west) of each site's weed monitoring plot transects (WXX_01, WXX_02 and WXX_03 corresponds to transect 1, 2 and 3), R = start point (south-west) of 2 ha European rabbit monitoring plot, P = start point (west) of each site's feral pig monitoring plot transects (PXX_01, PXX_02 and PXX_03 corresponds to transect 1, 2 and 3), C = fauna camera station. Start points for weed monitoring and European rabbit monitoring plots are the same for sites 01 – 10, with sites 11 – 20 only corresponding to weed monitoring plots.

LEXINGTON RAIL LOOP OFFSET SITE

Table A-4: Dry-season monitoring site locations and purpose on the Lexington Rail Loop offset site.

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass monitoring
LEXRL01	W01_01	604390	7355247	✓	✓	✓
	W01_02	604390	7355297		✓	
	W01_03	604390	7355347		✓	
LEXRL02	W02_01	604758	7354797	✓	✓	✓
	W02_02	604758	7354847		✓	
	W02_03	604758	7354897		✓	
LEXRL03	W03_01	608595	7355228	✓	✓	✓
	W03_02	608595	7355278		✓	
	W03_03	608595	7355328		✓	
LEXRL04	W04_01	609262	7355036	✓	✓	✓
	W04_02	609262	7355086		✓	
	W04_03	609262	7355136		✓	
LEXRL05	W05_01	612011	7354575	✓	✓	✓
	W05_02	612011	7354625		✓	
	W05_03	612011	7354675		✓	
LEXRL06	W06_01	611834	7354280	✓	✓	✓
	W06_02	611834	7354330		✓	
	W06_03	611834	7354380		✓	
LEXRL07	W07_01	611215	7353711	✓	✓	✓
	W07_02	611215	7353761		✓	

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass monitoring
	W07_03	611215	7353811		✓	
LEXRL08	W08_01	604126	7354813	✓	✓	✓
	W08_02	604126	7354863		✓	
	W08_03	604126	7354913		✓	
LEXRL09	W09_01	604978	7355196	✓	✓	✓
	W09_02	604978	7355246		✓	
	W09_03	604978	7355296		✓	
LEXRL10	W010_01	609785	7355039	✓	✓	✓
	W010_02	609785	7355089		✓	
	W010_03	609785	7355139		✓	
LEXRL11	W11_01	611630	7353857	✓	✓	✓
	W11_02	611630	7353907		✓	
	W11_03	611630	7353957		✓	
LEXRL12	W12_01	612344	7354534	✓	✓	✓
	W12_02	612344	7354584		✓	
	W12_03	612344	7354634		✓	

[a] Start points with prefix W = start point (west) of each site's weed monitoring plot transects (WXX_01, WXX_02 and WXX_03 corresponds to transect 1, 2 and 3).

APPENDIX B MDS PROJECT SITE YEAR 5 HABITAT CONDITION ASSESSMENT

The following tables provide details of the habitat condition assessments undertaken during the Year 5 monitoring period at the MDS Project site (Meteor Downs South). Habitat condition scores were calculated in accordance with the *Guide to Determining Terrestrial Habitat Quality version 1.2* (DEHP, 2017). The data required to inform the site condition, fauna species habitat index scores and flora species stocking rates were collected as part of detailed field surveys in December 2019. The site context score was calculated based on a desktop assessment following the method prescribed in the *Guide to Determining Terrestrial Habitat Quality version 1.2* (DEHP, 2017), incorporating ground-truthed regional ecosystem mapping within the extent of ML70452.

Table B-1: Site condition raw data for each RE assessment unit

Ecological condition indicators	Site 01 RE 11.8.5			Site 02 RE 11.8.11			Site 03 RE 11.8.5			Site 04 RE 11.8.11			Site 05 RE 11.8.5			Site 06 RE 11.8.11			Site 07 RE 11.4.3			Site 08 RE 11.8.11			Site 09 RE 11.3.3a			Site 10 RE 11.8.5		
	Raw data	Benchmark (11.8.5)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.5)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.5)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.4.3)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.3.3)	Score	Raw data	Benchmark (11.8.5)	Score
Recruitment of woody perennial species	100	100	5	0	-	-	100	100	5	0	-	-	100	100	5	0	-	-	100	100	5	0	-	-	100	100	5	100	100	5
Native plant species richness - trees	2	2	5		-	-	3	2	5		-	-	1	2	3		-	-	10	2	5		-	-	1	3	3	2	2	5
Native plant species richness - shrubs	2	3	3		-	-	2	3	3		-	-	1	3	3		-	-	8	10	3		-	-	2	5	3	1	3	3
Native plant species richness - grasses	12	6	5	12	11	5	8	6	5	10	11	5	12	6	5	10	11	5	13	4	5	10	11	5	9	12	3	9	6	5
Native plant species richness - forbs	18	16	5	17	17	5	21	16	5	14	17	3	18	16	5	20	17	5	23	13	5	16	17	5	15	15	5	14	16	3
Tree canopy height	14.85	15	5		-	-	13.4	15	5		-	-	12	15	5		-	-	11	24	3		-	-	9.15	18	3	14	15	5
Tree sub canopy height	5.8	5			-		6.2	5			-		5	5			-		4				-		6	10		6	5	
Tree canopy cover	2	13	3.5		-	-	14.5	13	5		-	-	0	13	0		-	-	30	70	2		-	-	22.7	28	5	6.5	13	2.5
Tree sub canopy cover	2.6	4			-		2.4	4			-		0	4			-		8.6				-		3.6	5		0	4	
Shrub canopy cover	0	3	0		-	-	0	3	0		-	-	2	3	5		-	-	3.5	48	0		-	-	0	4	0	1.5	3	5
Native perennial grass cover	55.4	60	5	51	43	5	59	60	5	75	43	5	64	60	5	23	43	3	4.6	6	3	43	43	5	28	45	3	83	60	5
Organic litter	11	25	3	12	13	5	7	25	3	10	13	5	10	25	3	19	13	5	45.8	75	5	16	13	5	27	30	5	5.4	25	3
Large eucalypt trees	4	6	10		-	-	8	6	15		-	-	2	6	5		-	-	0	0	0		-	-	0	10	0	10	6	15
Large non-eucalypt trees	0	0			-		0	0			-		0	0			-		0	80			-		0	0		0	0	
Coarse woody debris	110	250	2		-	-	355	250	5		-	-	0	250	0		-	-	346	1752	2		-	-	0	285	0	112	250	2
Non-native plant cover	1.8	0	10	1.4	0	10	5.4	0	5	0.6	0	10	1	0	10	0.75	0	10	2.2	0	10	0.8	0	10	29.4	0	3	10	0	5
Total			**61.5**			**30**			**66**			**28**			**54**			**28**			**48**			**30**			**38**			**63.5**
/10			**7.69**			**10.00**			**8.25**			**9.33**			**6.75**			**9.33**			**6.00**			**10.00**			**4.75**			**7.94**

Table B-2: Summary of the site condition, site context and fauna species habitat index scores used to calculate the habitat condition score for each RE assessment unit

MNES values	Site 01 11.8.5 Squatter pigeon	Site 02 11.8.11 Natural Grasslands TEC, King blue-grass, Bluegrass	Site 03 11.8.5 Squatter pigeon	Site 04 11.8.11 Natural Grasslands TEC, King blue-grass, Bluegrass	Site 05 11.8.5 Squatter pigeon	Site 06 11.8.11 Natural Grasslands TEC, King blue-grass, Bluegrass	Site 07 11.4.3 Brigalow TEC	Site 08 11.8.11 Natural Grasslands TEC, King blue-grass, Bluegrass	Site 09 11.3.3a Australian painted snipe	Site 10 11.8.5 Squatter pigeon
Site condition										
Recruitment of woody perennial species	5	-	5	-	5	-	5	-	5	5
Native plant species richness - trees	5	-	5	-	3	-	5	-	3	5
Native plant species richness - shrubs	3	-	3	-	3	-	3	-	3	3
Native plant species richness - grasses	5	5	5	5	5	5	5	5	3	5
Native plant species richness - forbs	5	5	5	3	5	5	5	5	5	3
Tree canopy height	5	-	5	-	5	-	3	-	3	5
Tree canopy cover	3.5	-	5	-	0	-	2	-	5	2.5
Shrub canopy cover	0	-	0	-	5	-	0	-	0	5
Native perennial grass cover	5	5	5	5	5	3	3	5	3	5
Organic litter	3	5	3	5	3	5	5	5	5	3
Large trees	10	-	15	-	5	-	0	-	0	15
Coarse woody debris	2	-	5	-	0	-	2	-	0	2
Non-native plant cover	10	10	5	10	10	10	10	10	3	5
Total of BioCondition attributes	61.5	30	66	28	54	28	48	30	38	63.5
MAX ecological condition score	80	30	80	30	80	30	80	30	80	80
Score /10	7.69	10.00	8.25	9.33	6.75	9.33	6.00	10.00	4.75	7.94
Site context										
Size of patch (fragmented bioregions)	10	10	10	10	10	10	10	10	10	10
Connectivity (fragmented bioregions)	5	4	5	5	5	5	5	5	5	5
Context (fragmented bioregions)	5	4	5	5	5	4	5	4	5	5
Distance to permanent watering point (intact bioregions)	-	-	-	-	-	-	-	-	-	-
Ecological corridors	0	0	0	0	0	0	0	0	0	0
Total of site context attributes	20	18	20	20	20	19	20	19	20	20
MAX site condition score	26	26	26	26	26	26	26	26	26	26
Score /10	7.69	6.92	7.69	7.69	7.69	7.31	7.69	7.31	7.69	7.69
Fauna species habitat index										
Threats to species	7	-	7	-	7	-	-	-	1	7
Quality and availability of food and foraging habitat	5	-	10	-	5	-	-	-	5	5
Quality and availability of shelter	5	-	5	-	5	-	-	-	5	5
Species mobility capacity	10	-	10	-	10	-	-	-	1	10

MNES values	Site 01 11.8.5 Squatter pigeon	Site 02 11.8.11 Natural Grasslands TEC, King blue-grass, Bluegrass	Site 03 11.8.5 Squatter pigeon	Site 04 11.8.11 Natural Grasslands TEC, King blue-grass, Bluegrass	Site 05 11.8.5 Squatter pigeon	Site 06 11.8.11 Natural Grasslands TEC, King blue-grass, Bluegrass	Site 07 11.4.3 Brigalow TEC	Site 08 11.8.11 Natural Grasslands TEC, King blue-grass, Bluegrass	Site 09 11.3.3a Australian painted snipe	Site 10 11.8.5 Squatter pigeon
Role of site location to species overall population in the state	3	-	3	-	3	-	-	-	4	3
Total of fauna species habitat index	30	-	35	-	30	-	-	-	16	30
MAX fauna habitat index score	50	-	50	-	50	-	-	-	50	50
Score /10	6.00	-	7.00	-	6.00	-	-	-	3.20	6.00

Table B-3: Summary of the species stocking rate index for king blue-grass and bluegrass

Species stocking rate /3[a]	Site 01 11.8.5	Site 02 11.8.11	Site 03 11.8.5	Site 04 11.8.11	Site 05 11.8.5	Site 06 11.8.11	Site 07 11.4.3	Site 08 11.8.11	Site 09 11.3.3a	Site 10 11.8.5
King blue-grass	-	0	-	0	-	0	-	0	-	-
Bluegrass	-	0	-	0	-	0	-	0	-	-

[a] species stocking rate contributes 20% toward the habitat condition score for the two MNES flora species, with the remaining 80% made up of site condition and site context.

Table B-4: Summary of the MNES habitat condition score for each RE assessment unit

Assessment unit habitat condition score /10	Site 01 11.8.5	Site 02 11.8.11	Site 03 11.8.5	Site 04 11.8.11	Site 05 11.8.5	Site 06 11.8.11	Site 07 11.4.3	Site 08 11.8.11	Site 09 11.3.3a	Site 10 11.8.5	FINAL MNES habitat quality score
Brigalow TEC							6.42				6.42
Natural Grasslands TEC		8.57		8.57		8.39		8.75			8.57
King blue-grass		6.86		6.86		6.71		7.00			6.86
Bluegrass		6.86		6.86		6.71		7.00			6.86
Squatter pigeon	7.15		7.76		6.67					7.28	7.22
Australian painted snipe									4.74		4.74

APPENDIX C MDS PROJECT SITE PHOTO MONITORING

SITE 01 – H01_0M

Photo C-1 North

Photo C-2 East

Photo C-3 South

Photo C-4 West

Photo C-5 Ground

SITE 01 – H01_50M

Photo C-6 North

Photo C-7 East

Photo C-8 South

Photo C-9 West

Photo C-10 Ground

SITE 02 – H02_0 M


Photo C-11 North


Photo C-12 East


Photo C-13 South


Photo C-14 West


Photo C-15 Ground

SITE 02 – H02_50M

Photo C-16 North

Photo C-17 East

Photo C-18 South

Photo C-19 West

Photo C-20 Ground

SITE 03 – H03_0M

Photo C-21 North

Photo C-22 East

Photo C-23 South

Photo C-24 West

Photo C-25 Ground

SITE 03 – H03_50M

Photo C-26 North

Photo C-27 East

Photo C-28 South

Photo C-29 West

Photo C-30 Ground

SITE 04 – H04_0M

Photo C-31 North

Photo C-32 East

Photo C-33 South

Photo C-34 West

Photo C-35 Ground

SITE 04 – H04_50M

Photo C-36 North

Photo C-37 East

Photo C-38 South

Photo C-39 West

Photo C-40 Ground

SITE 05 – H05_0M

Photo C-41 North

Photo C-42 East

Photo C-43 South

Photo C-44 West

Photo C-45 Ground

SITE 05 – H05_50M

Photo C-46 North

Photo C-47 East

Photo C-48 South

Photo C-49 West

Photo C-50 Ground

SITE 06 – H06_0M

Photo C-51 North

Photo C-52 East

Photo C-53 South

Photo C-54 West

Photo C-55 Ground

SITE 06 – H06_50M

Photo C-56 North

Photo C-57 East

Photo C-58 South

Photo C-59 West

Photo C-60 Ground

SITE 07 – H07_0M

Photo C-61 North

Photo C-62 East

Photo C-63 South

Photo C-64 West

Photo C-65 Ground

SITE 07 – H07_50M

Photo C-66 North

Photo C-67 East

Photo C-68 South

Photo C-69 West

Photo C-70 Ground

SITE 08 – H08_0M

Photo C-71 North

Photo C-72 East

Photo C-73 South

Photo C-74 West

Photo C-75 Ground

SITE 08 – H08_50M

Photo C-76 North

Photo C-77 East

Photo C-78 South

Photo C-79 West

Photo C-80 Ground

SITE 09 – H09_0M

Photo C-81 North

Photo C-82 East

Photo C-83 South

Photo C-84 West

Photo C-85 Ground

SITE 09 – H09_50M

Photo C-86 North

Photo C-87 East

Photo C-88 South

Photo C-89 West

Photo C-90 Ground

SITE 10 – H10_0M

Photo C-91 North

Photo C-92 East

Photo C-93 South

Photo C-94 West

Photo C-95 Ground

SITE 10 – H10_50M

Photo C-96 North

Photo C-97 East

Photo C-98 South

Photo C-99 West

Photo C-100 Ground

SITE 11 – W11_0

Photo C-101 North

Photo C-102 East

Photo C-103 South

Photo C-104 West

Photo C-105 Ground

SITE 12 – W12_0

Photo C-106 North

Photo C-107 East

Photo C-108 South

Photo C-109 West

Photo C-110 Ground

SITE 13 – W13_0

Photo C-111 North

Photo C-112 East

Photo C-113 South

Photo C-114 West

Photo C-115 Ground

SITE 14 – W14_0

Photo C-116 North

Photo C-117 East

Photo C-118 South

Photo C-119 West

Photo C-120 Ground

SITE 15 – W15_0

Photo C-121 North

Photo C-122 East

Photo C-123 South

Photo C-124 West

Photo C-125 Ground

SITE 16 – W16_0

Photo C-126 North

Photo C-127 East

Photo C-128 South

Photo C-129 West

Photo C-130 Ground

SITE 17 – W17_0

Photo C-131 North

Photo C-132 East

Photo C-133 South

Photo C-134 West

Photo C-135 Ground

SITE 18 – W18_0

Photo C-136 North

Photo C-137 East

Photo C-138 South

Photo C-139 West

Photo C-140 Ground

SITE 19 – W19_0

Photo C-141 North

Photo C-142 East

Photo C-143 South

Photo C-144 West

Photo C-145 Ground

SITE 20 – W20_0

Photo C-146 North

Photo C-147 East

Photo C-148 South

Photo C-149 West

Photo C-150 Ground

APPENDIX D MDS PROJECT RAIL LOOP SITE PHOTO MONITORING

SITE MDSRL01 – H01_0M

Photo D-1 North

Photo D-2 East

Photo D-3 South

Photo D-4 West

Photo D-5 Ground

SITE MDSRL01 – H01_50M

Photo D-6 North

Photo D-7 East

Photo D-8 South

Photo D-9 West

Photo D-10 Ground

SITE MDSRL02 – H02_0 M

Photo D-11 North

Photo D-12 East

Photo D-13 South

Photo D-14 West

Photo D-15 Ground

SITE MDSRL02 – H02_50M

Photo D-16 North

Photo D-17 East

Photo D-18 South

Photo D-19 West

Photo D-20 Ground

SITE MDSRL03 – H03_0M

Photo D-21 North

Photo D-22 East

Photo D-23 South

Photo D-24 West

Photo D-25 Ground

SITE MDSRL03 – H03_50M

Photo D-26 North

Photo D-27 East

Photo D-28 South

Photo D-29 West

Photo D-30 Ground

SITE MDSRL04 – H04_0M

Photo D-31 North

Photo D-32 East

Photo D-33 South

Photo D-34 West

Photo D-35 Ground

SITE MDSRL04 – H04_50M

Photo D-36 North

Photo D-37 East

Photo D-38 South

Photo D-39 West

Photo D-40 Ground

SITE MDSRL05 – W05_0

Photo D-41 North

Photo D-42 East

Photo D-43 South

Photo D-44 West

Photo D-45 Ground

APPENDIX E LEXINGTON OFFSET SITE PHOTO MONITORING

SITE 01 – H01_0M

Photo E-1 North

Photo E-2 East

Photo E-3 South

Photo E-4 West

Photo E-5 Ground

SITE 01 – H01_50M

Photo E-6 **North**

Photo E-7 **East**

Photo E-8 **South**

Photo E-9 **West**

Photo E-10 **Ground**

SITE 02 – H02_0M

Photo E-11 North

Photo E-12 East

Photo E-13 South

Photo E-14 West

Photo E-15 Ground

SITE 02 – H02_50M

Photo E-16 North

Photo E-17 East

Photo E-18 South

Photo E-19 West

Photo E-20 Ground

SITE 03 – H03_0M

Photo E-21 North

Photo E-22 East

Photo E-23 South

Photo E-24 West

Photo E-25 Ground

SITE 03 – H03_50M

Photo E-26 North

Photo E-27 East

Photo E-28 South

Photo E-29 West

Photo E-30 Ground

SITE 04 – H04_0M

Photo E-31 North

Photo E-32 East

Photo E-33 South

Photo E-34 West

Photo E-35 Ground

SITE 04 – H04_50M

Photo E-36 North

Photo E-37 East

Photo E-38 South

Photo E-39 West

Photo E-40 Ground

SITE 05 – H05_0M

Photo E-41 North

Photo E-42 East

Photo E-43 South

Photo E-44 West

Photo E-45 Ground

SITE 05 – H05_50M

Photo E-46 North

Photo E-47 East

Photo E-48 South

Photo E-49 West

Photo E-50 Ground

SITE 06 – H06_0M

Photo E-51 North

Photo E-52 East

Photo E-53 South

Photo E-54 West

Photo E-55 Ground

SITE 06 – H06_50M

Photo E-56 North

Photo E-57 East

Photo E-58 South

Photo E-59 West

Photo E-60 Ground

SITE 07 – H07_0M

Photo E-61 North

Photo E-62 East

Photo E-63 South

Photo E-64 West

Photo E-65 Ground

SITE 07 – H07_50M

Photo E-66 North

Photo E-67 East

Photo E-68 South

Photo E-69 West

Photo E-70 Ground

SITE 08 – H08_0M

Photo E-71 North

Photo E-72 East

Photo E-73 South

Photo E-74 West

Photo E-75 Ground

SITE 08 – H08_50M

Photo E-76 North

Photo E-77 East

Photo E-78 South

Photo E-79 West

Photo E-80 Ground

SITE 09 – H09_0M

Photo E-81 North

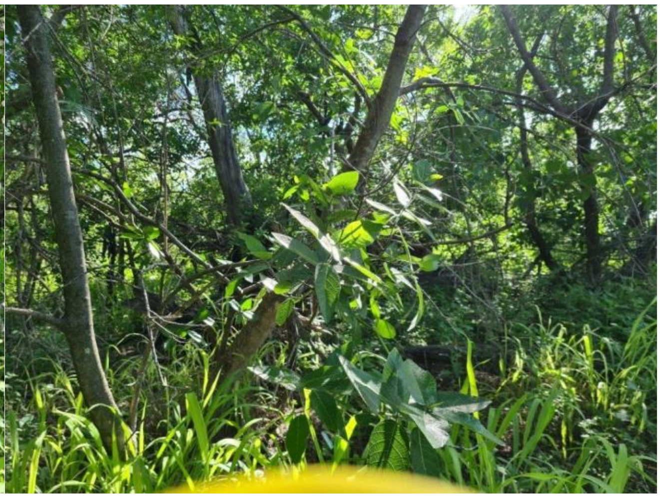


Photo E-82 East

Photo E-83 South

Photo E-84 West

Photo E-85 Ground

SITE 09 – H09_50M

Photo E-86 North

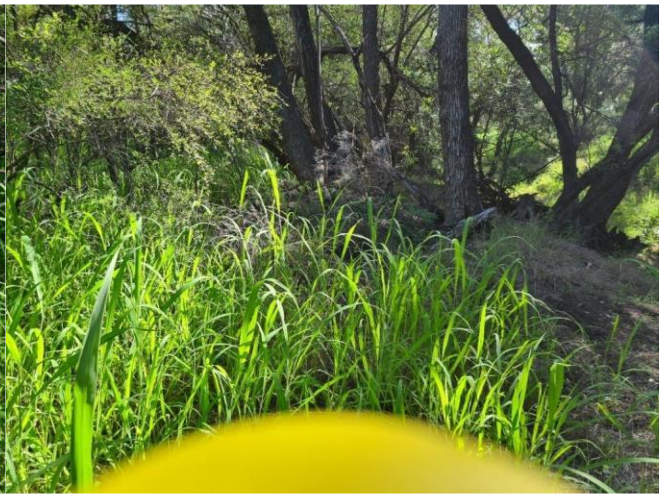


Photo E-87 East

Photo E-88 South

Photo E-89 West

Photo E-90 Ground

SITE 10 – H10_0M

Photo E-91 North

Photo E-92 East

Photo E-93 South

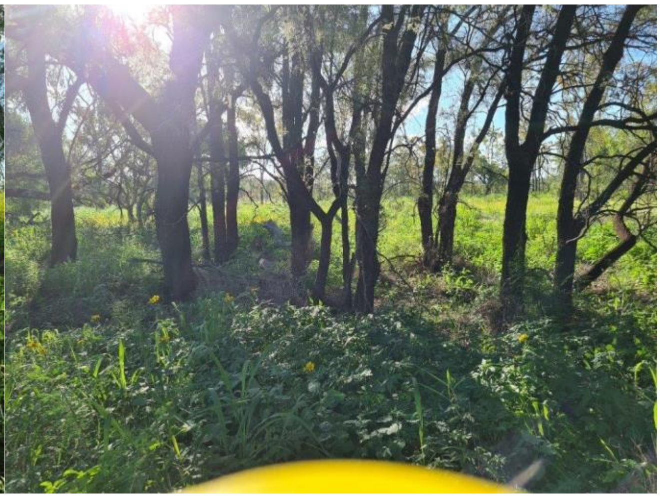


Photo E-94 West

Photo E-95 Ground

SITE 10 – H10_50M

Photo E-96 North

Photo E-97 East

Photo E-98 South

Photo E-99 West

Photo E-100 Ground

SITE 11 – H11_0M

Photo E-101 North

Photo E-102 East

Photo E-103 South

Photo E-104 West

Photo E-105 Ground

SITE 11 – H11_50M

Photo E-106 North

Photo E-107 East

Photo E-108 South

Photo E-109 West

Photo E-110 Ground

SITE 12 – H12_0M

Photo E-111 North

Photo E-112 East

Photo E-113 South

Photo E-114 West

Photo E-115 Ground

SITE 12 – H12_50M

Photo E-116 North

Photo E-117 East

Photo E-118 South

Photo E-119 West

Photo E-120 Ground

SITE 13 – H13_0M

Photo E-121 North

Photo E-122 East

Photo E-123 South

Photo E-124 West

Photo E-125 Ground

SITE 13 – H13_50M

Photo E-126 North

Photo E-127 East

Photo E-128 South

Photo E-129 West

Photo E-130 Ground

SITE 14 – W14_0

Photo E-131 North

Photo E-132 East

Photo E-133 South

Photo E-134 West

Photo E-135 Ground

SITE 15 – W15_0

Photo E-136 North

Photo E-137 East

Photo E-138 South

Photo E-139 West

Photo E-140 Ground

SITE 16 – W16_0

Photo E-141 North

Photo E-142 East

Photo E-143 South

Photo E-144 West

Photo E-145 Ground

SITE 17 – W17_0

Photo E-146 North

Photo E-147 East

Photo E-148 South

Photo E-149 West

Photo E-150 Ground

SITE 18 – W18_0

Photo E-151 North

Photo E-152 East

Photo E-153 South

Photo E-154 West

Photo E-155 Ground

SITE 19 – W19_0

Photo E-156 North

Photo E-157 East

Photo E-158 South

Photo E-159 West

Photo E-160 Ground

SITE 20 – W20_0

Photo E-161 North

Photo E-162 East

Photo E-163 South

Photo E-164 West

Photo E-165 Ground

APPENDIX F LEXINGTON RAIL LOOP OFFSET SITE PHOTO MONITORING

SITE LEXRL01 – H01_0M

Photo F-1 North

Photo F-2 East

Photo F-3 South

Photo F-4 West

Photo F-5 Ground

SITE LEXRL01 – H01_50M

Photo F-6 North

Photo F-7 East

Photo F-8 South

Photo F-9 West

Photo F-10 Ground

SITE LEXRL02 – H02_0M

Photo F-11 North

Photo F-12 East

Photo F-13 South

Photo F-14 West

Photo F-15 Ground

SITE LEXRL02 – H02_50M

Photo F-16 North

Photo F-17 East

Photo F-18 South

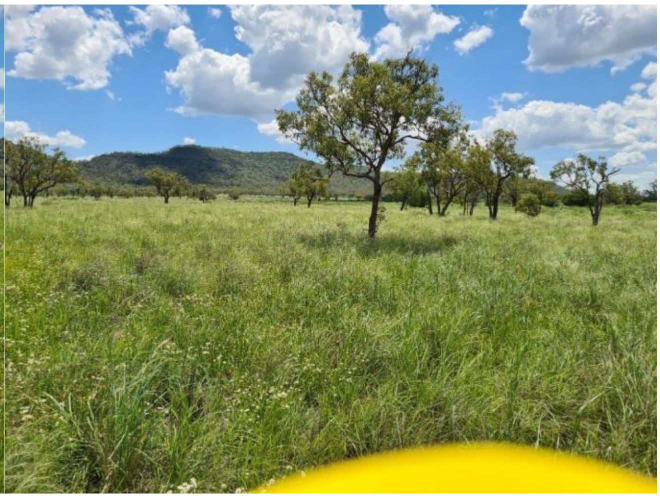


Photo F-19 West

Photo F-20 Ground

SITE LEXRL03 – H03_0M

Photo F-21 North

Photo F-22 East

Photo F-23 South

Photo F-24 West

Photo F-25 Ground

SITE LEXRL03 – H03_50M

Photo F-26 North

Photo F-27 East

Photo F-28 South

Photo F-29 West

Photo F-30 Ground

SITE LEXRL04 – H04_0M

Photo F-31 North

Photo F-32 East

Photo F-33 South

Photo F-34 West

Photo F-35 Ground

SITE LEXRL04 – H04_50M

Photo F-36 **North**

Photo F-37 **East**

Photo F-38 **South**

Photo F-39 **West**

Photo F-40 **Ground**

SITE LEXRL05 – H05_0M

Photo F-41 North

Photo F-42 East

Photo F-43 South

Photo F-44 West

Photo F-45 Ground

SITE LEXRL05 – H05_50M

Photo F-46 North

Photo F-47 East

Photo F-48 South

Photo F-49 West

Photo F-50 Ground

SITE LEXRL06 – H06_0M

Photo F-51 North

Photo F-52 East

Photo F-53 South

Photo F-54 West

Photo F-55 Ground

SITE LEXRL06 – H06_50M

Photo F-56 North

Photo F-57 East

Photo F-58 South

Photo F-59 West

Photo F-60 Ground

SITE LEXRL07 – H07_0M

Photo F-61 North

Photo F-62 East

Photo F-63 South

Photo F-64 West

Photo F-65 Ground

SITE LEXRL07 – H07_50M

Photo F-66 North

Photo F-67 East

Photo F-68 South

Photo F-69 West

Photo F-70 Ground

SITE LEXRL08 – W08_0

Photo F-71 North

Photo F-72 East

Photo F-73 South

Photo F-74 West

Photo F-75 Ground

SITE LEXRL09 – W09_0

Photo F-76 North

Photo F-77 East

Photo F-78 South

Photo F-79 West

Photo F-80 Ground

SITE LEXRL10 – W10_0

Photo F-81 North

Photo F-82 East

Photo F-83 South

Photo F-84 West

Photo F-85 Ground

SITE LEXRL11 – W11_0

Photo F-86 North

Photo F-87 East

Photo F-88 South

Photo F-89 West

Photo F-90 Ground

SITE LEXRL12 – W12_0

Photo F-91 North

Photo F-92 East

Photo F-93 South

Photo F-94 West

Photo F-95 Ground

APPENDIX B POST-WET SEASON MONITORING REPORT (2021/22) (CO2 AUSTRALIA 2022)

Post-wet Season Monitoring Report (2021/22)

Year 5

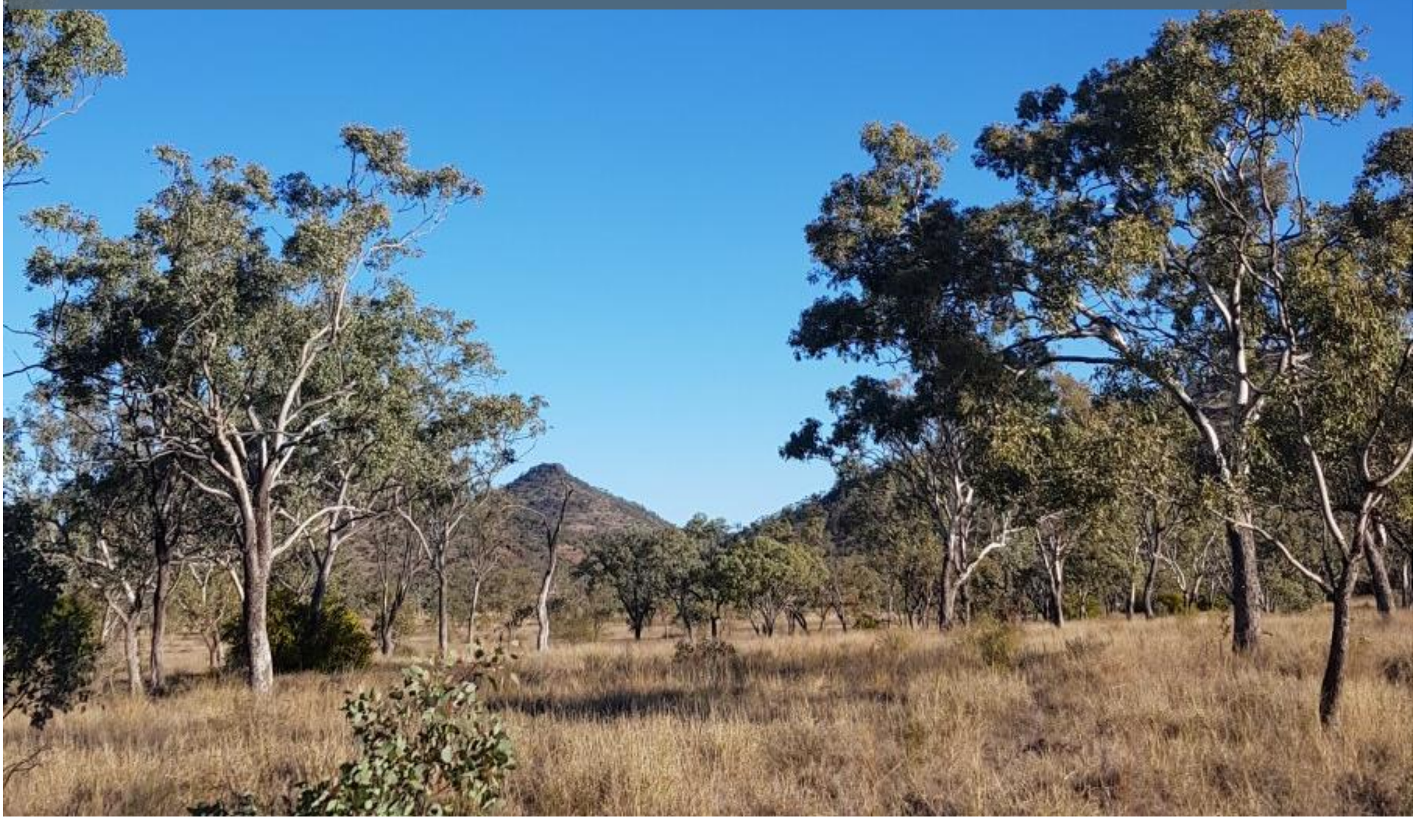
- *MDS Project site*
- *Lexington offset site*

Year 3

- *MDS Rail Loop site*
- *Lexington Rail Loop offset site*

Meteor Downs South Coal Mine Project

Sojitz Blue Pty Ltd



Rev	Date	Description
0	11 April 2022	Draft issued to client for review

	Name	Position	Date
ORIGINATORS	Dean Orrick Meghan Farr	Ecologist Environmental Scientist	11 April 2022
APPROVER	Dr Jarrad Cousin	Head of Ecosystem Markets and Innovation	11 April 2022

CO2 Australia recognises the First Nations of Australia. We acknowledge the Traditional Custodians who have lived on and cared for Country, and their continuing connection to the land, and extend our respects to all First Nations Peoples.

CONTENTS

1 INTRODUCTION

U&D Mining Industry (Australia) Pty (U&D) has approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to develop and operate the Meteor Downs South (MDS) Coal Mine Project (the MDS Project) (Figure 1). U&D is in a joint venture with Sojitz Blue Pty Ltd (Sojitz Blue) to develop and operate the MDS Project.

1.1 MDS PROJECT AND CORRESPONDING OFFSETS

Under the Project EPBC Act approval (EPBC 2013/6779), the MDS Project has prepared the following documents:

- Matters of National Environmental Significance Management Plan (MNESMP)
  - to address EPBC 2013/6779 conditions 2, 3 and 4 with respect to the direct and indirect impacts of the MDS Project on matters of national environmental significance (MNES) at the MDS Project site
- Offset Management Plan (OMP)
  - to address EPBC 2013/6779 conditions 5 and 6 with respect to environmental offsets at the Lexington offset site (Figure 1) for significant residual impacts of the MDS Project on MNES and matters of state environmental significance (MSES)

The MNESMP and OMP outline annual biodiversity monitoring requirements at each site, as summarised in Table 1. The baseline (Year 1) management periods for the MDS Project site and the Lexington offset site are considered to be June 2017 – June 2018 (Project site) and October 2017 – October 2018 (Lexington offset site).

The current report includes the Year 5 (2021/2022) post-wet season monitoring report for the MDS Project site and the Lexington offset site.

Table 1: Summary of MDS Project and offset site biodiversity monitoring requirements

<table>
<tr><th>Site</th><th>Monitoring activity</th><th>Management plan</th><th>Frequency</th><th>Timing</th></tr>
<tr><td rowspan="9">MDS Project site</td><td>General site inspection</td><td>MNESMP Section 13.2</td><td>Annually</td><td>Dry season and post-wet season</td></tr>
<tr><td>Habitat condition assessment</td><td>MNESMP Section 13.3</td><td>Annually</td><td rowspan="2">Dry season</td></tr>
<tr><td>Photo monitoring</td><td>MNESMP Section 13.4</td><td>Annually</td></tr>
<tr><td>Targeted surveys for king blue-grass and bluegrass</td><td>MNESMP Section 13.5</td><td>Annually</td><td>End of the wet season and/or when most detectable</td></tr>
<tr><td>Habitat availability assessment for Australian painted snipe</td><td>MNESMP Section 13.6</td><td>Every 2 years</td><td>Wet season or following inundation event</td></tr>
<tr><td>Targeted surveys for the squatter pigeon</td><td>MNESMP Section 13.3</td><td>Annually</td><td>Post-wet season</td></tr>
<tr><td>Pest animal monitoring</td><td>MNESMP Section 13.7</td><td>Every 2 years</td><td rowspan="2">Dry season and post-wet season</td></tr>
<tr><td>Weed monitoring</td><td>MNESMP Section 13.8</td><td>Every 2 years</td></tr>
<tr><td>Biomass</td><td>MNESMP Section 13.9</td><td>Annually</td><td>Post-wet season</td></tr>
<tr><td>Lexington offset site</td><td>General offset site monitoring</td><td>OMP Section 7.1</td><td>Annual</td><td>Post-wet season</td></tr>
</table>

Site	Monitoring activity	Management plan	Frequency	Timing
	Weed monitoring	OMP Section 7.4	Every 2 years	Dry season and post-wet season
	Pest animal monitoring	OMP Section 7.5	Every 2 years (dry season and post wet season surveys)	Dry season and post-wet season
	Biomass monitoring	OMP Section 7.6	Annually	Post wet season prior to and during grazing events

1.2 MDS RAIL LOOP AND CORRESPONDING OFFSETS

In December 2019, Sojitz Blue received approval under the EPBC Act to develop and operate the Meteor Downs South Mine Rail Loop (MDS Rail Loop). Under the Project EPBC Act approval (EPBC 2019/8482), Sojitz Blue has prepared the following documents:

- Matters of National Environmental Significance Management Plan (Rail Loop MNESMP)
  - to address EPBC 2019/8482 condition 6 with respect to the direct and indirect impacts of the MDS Rail Loop project on matters of national environmental significance (MNES) at the MDS Rail Loop site
- Offset Management Plan (OMP)
  - to address EPBC 2019/8482 conditions 2, 3, 4 and 5 with respect to environmental offsets at the Lexington Rail Loop offset site (Figure 1) for significant residual impacts of the MDS Rail Loop on MNES.

The Rail Loop MNESMP and OMP outline annual biodiversity monitoring requirements at each site, as summarised in Table 2. This report incorporates the Year 3 (2021/2022) post-wet season monitoring report for both the MDS Rail Loop and the corresponding Lexington offset site.

Table 2: Summary of MDS Project Rail Loop and Lexington Rail Loop offset biodiversity monitoring requirements

Site	Monitoring activity	Management plan	Frequency	Timing
MDS Rail Loop site	General site inspection	Rail Loop MNESMP Section 7.2	Biannually	End of the dry season and end of the wet season
	Habitat quality assessments and photo monitoring	Rail Loop MNESMP Section 7.3	Annually	Post-wet season
	Photo monitoring	Rail Loop MNESMP Section 7.3	Annually	
	Targeted surveys for king blue-grass	Rail Loop MNESMP Section 7.4	Annually	
	Weed monitoring	Rail Loop MNESMP Section 7.5	Biannually within habitat quality assessment plots Every 2 years at each of the weed monitoring plots	End of the dry season and post-wet season

Site	Monitoring activity	Management plan	Frequency	Timing
	Biomass monitoring for fire management	Rail Loop MNESMP Section 7.6	Biannually	End of the dry season and end of the wet season
Lexington Rail Loop offset site	General offset site monitoring	OMP Section 7.1	Annually	Post-wet season
	Habitat condition assessment and photo monitoring	OMP Section 7.2	Every 2 years for first 10 years and then every 5 years thereafter until 31 October 2039	Post-wet season
	Photo monitoring	OMP Section 7.2.2	Every 2 years for first 10 years and then every 5 years thereafter until 31 October 2039	Post-wet season
	Weed monitoring	OMP Section 7.4	Baseline in 2020 (Year 1), then every 2 years	Dry season and post-wet season
	Biomass monitoring	OMP Section 7.6	Annually	Post wet season prior to and during grazing events

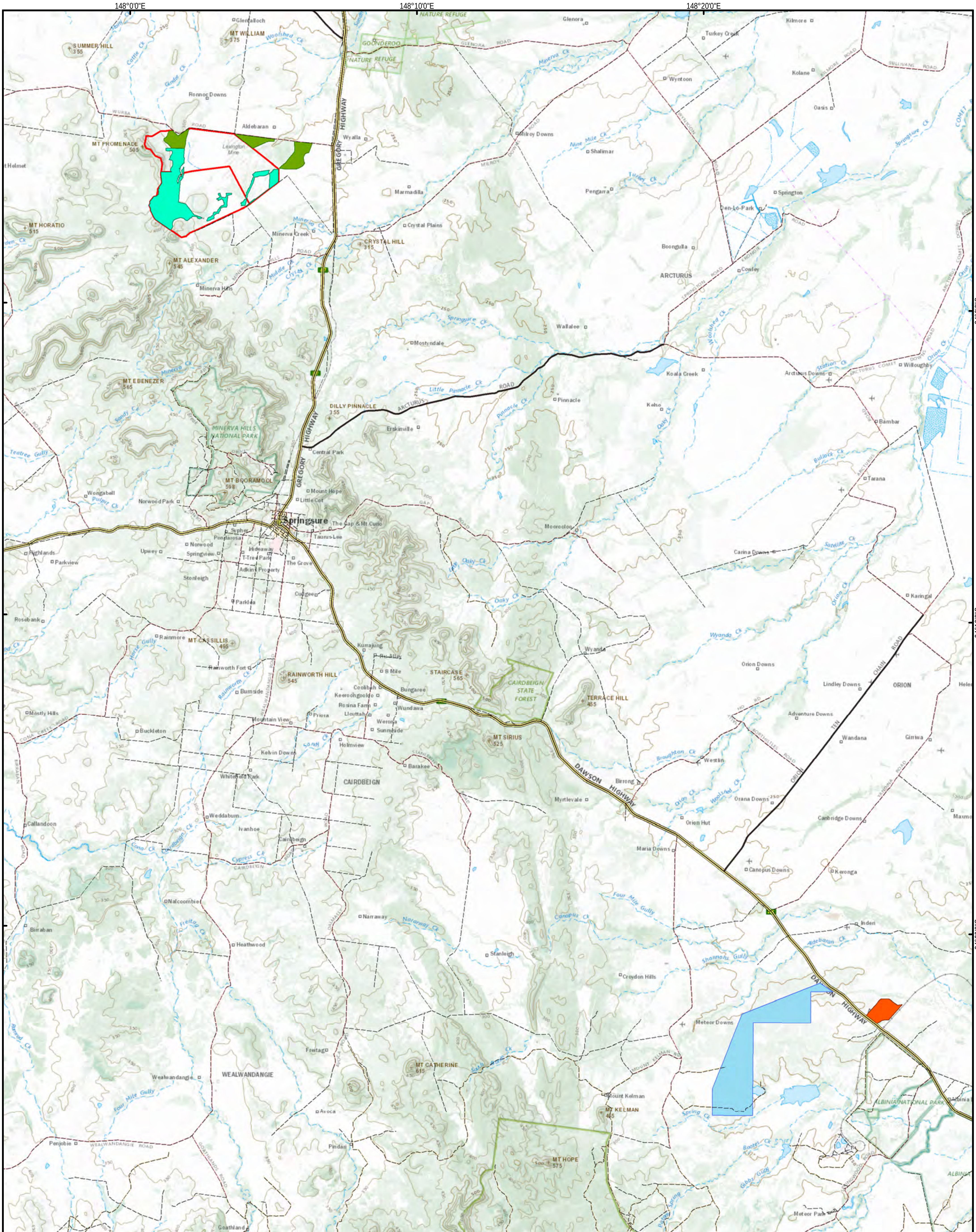


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Figure 1
Location of the MDS project, MDS Rail Loop and corresponding offsets

- Minerva lots (lot 10 & 11 DN40126)
- MDS Project (ML70452)
- MDS Rail Loop
- Lexington offset
- Lexington Rail Loop offset

Roads and tracks

- State-controlled roads
- Regional access
- Local access

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Roads and tracks
- Mining Lease
Information provided by Sojitz
- Rail Loop project area
- Lexington Rail Loop offset

0 2.5 5 7.5 10
Kilometres

N

CO2 Australia

Location diagram

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:200,000@A3

2 METHODOLOGY

Field surveys were undertaken by two tertiary-qualified ecologists (Dean Orrick and Simon Danielsen) between 7 and 14 April 2022.

Permanent monitoring sites were established at each site for the MDS Project and Lexington offset site as part of the baseline surveys carried out between December 2017 and April 2018, detailed in the following:

- *MNESMP Baseline Monitoring Report – Meteor Downs South Coal Mine Project.* A report prepared by CO2 Australia in 2017 (CO2 Australia 2017) – baseline monitoring sites established in December 2017
- *Lexington Offset Area Initial Baseline Monitoring Report – Meteor Downs South.* A report prepared by CO2 Australia in 2018 (CO2 Australia 2018) – baseline monitoring sites established in April 2018.

Permanent monitoring sites for the MDS Rail Loop and the Lexington Rail Loop offset were established as part of Year 1 surveys carried out during the post-wet season field surveys (June/July 2020), detailed in the following:

- *Post-wet Season Monitoring Report – Year 3 (2019/20)*. A report prepared by CO2 Australia in 2020 (CO2 Australia 2020) – baseline monitoring sites established in June 2020.

2.1 MONITORING LOCATIONS

2.1.1 MDS Project site

Post-wet season monitoring activities at the MDS Project site comprised:

- General site inspection
- Targeted king blue-grass and bluegrass surveys
- Targeted squatter pigeon surveys
- Habitat availability assessments for the Australian painted snipe
- Pest animal monitoring
- Weed monitoring
- Biomass monitoring

Table 3 shows activities at each monitoring location at the MDS Project site. A total of 43 permanent sites/plots were monitored across the balance of ML70452 outside of the MDS project (refer to Figure 2 and Figure 3). Permanent monitoring sites comprised a mix of nested and non-nested sites (Table 3), according to the following:

- 15 x targeted king blue-grass and bluegrass surveys
- 20 x weed monitoring plots (1 ha)
  - Partially collocated with rabbit monitoring plots (sites 01 – 10), with remaining 10 sites (Sites 11 – 20) standalone weed monitoring plots
- 10 x rabbit monitoring plots (2 ha)
  - Collocated with habitat monitoring sites and weed monitoring plots (R01 – R10)
- 8 x pig monitoring plots (15 ha) (sites P01 – P08)
- 15 x pest animal fauna camera stations (sites C01 – C15)
  - Located throughout the site adjacent existing tracks
- 30 x photo monitoring sites

- established at 0 m and 50 m points along 100 m habitat monitoring transect (Sites 01 – 10) and at SW corner of weed monitoring plots (Sites 11 – 20)
- 20 x biomass monitoring sites
  - Established at 0 m point along 100 m habitat monitoring transect (Sites 01 – 10) and at SW corner of weed monitoring plots (Sites 11 – 20)

At the first 10 weed monitoring sites (Sites 01 – 10), a 1.8 m capped galvanised star picket is installed at the start (0 m) and central (50 m) points of the habitat monitoring sites' 100 m transect. At the other weed monitoring plots (Sites 11 – 20), a single 1.8 m capped galvanised star picket is installed at the SW corner of the plot. GPS locations are recorded for each of the sites in GDA94, Zone 55 projection.

Refer to Table A-1 in Appendix A for detailed locations of each of the monitoring sites at the MDS Project site.

Table 3: Monitoring locations at the MDS Project site, surveyed as part of the 2021/22 post-wet season surveys

Site	King blue-grass and bluegrass	Australian painted snipe	Squatter pigeon	Biomass monitoring	Photo monitoring	Weed monitoring	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Camera trap
01 – 10				✓	✓	✓	✓		
11 – 20				✓	✓	✓			
P01 – P08								✓	
C01 – C15									✓
Established grass transects	✓								
Naroo Dam		✓							
General site traverses			✓						

Site	Biomass (kg/ha)
01	2,500
02	3,850
03	1,800
04	5,040
05	3,600
06	3,850
07	1,750
08	4,445
09	2,250
10	4,445

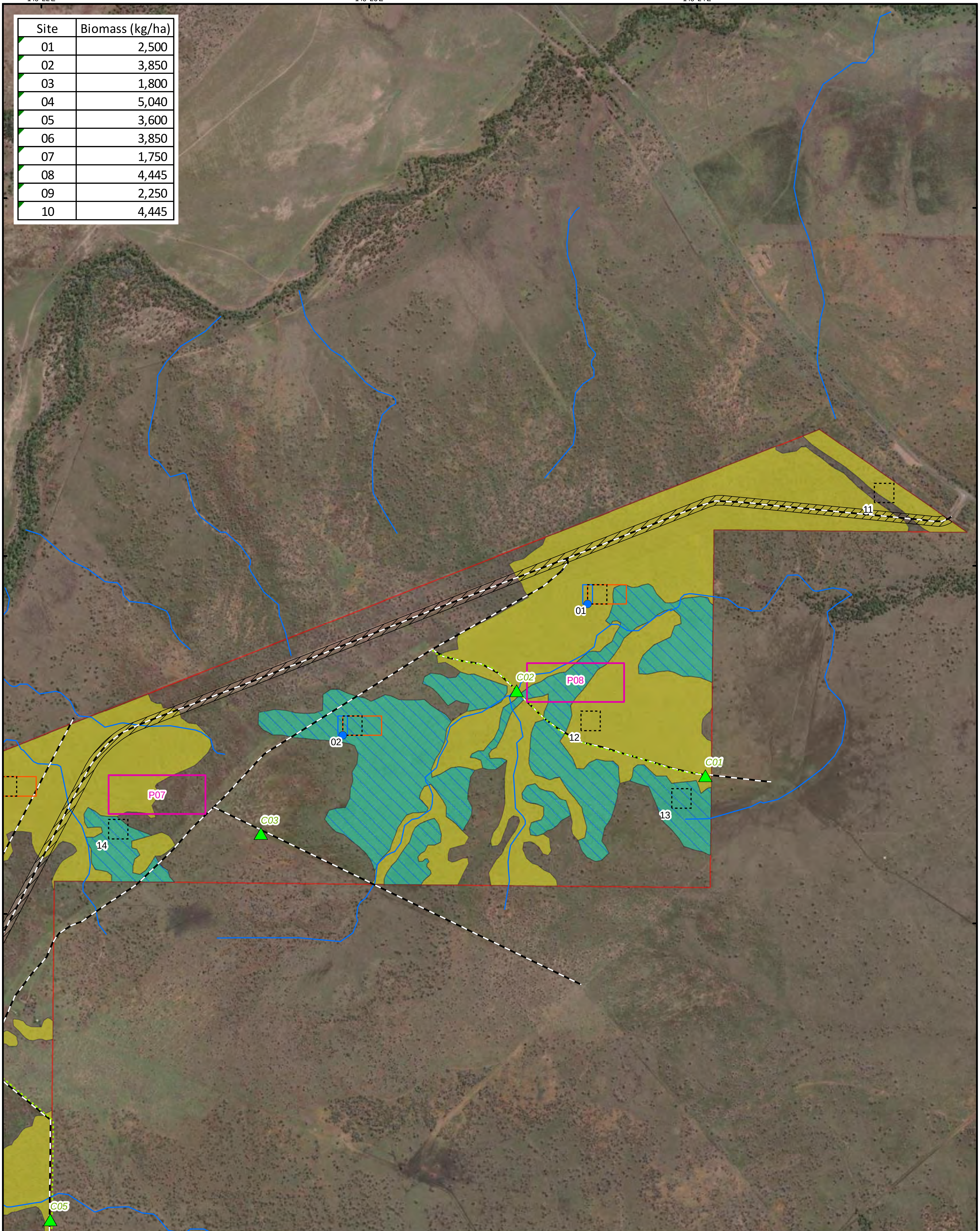

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Figure 2
MDS Project
monitoring sites - north

Mining Lease
Disturbance areas
Access tracks
Watercourse
Brigalow TEC
Natural Grassland TEC
Habitat for King blue-grass and bluegrass
Habitat for squatter pigeon
Habitat for Australian painted snipe
Habitat monitoring site
Habitat monitoring plots
Weed monitoring plots
Rabbit monitoring plots
Pig monitoring plots
Pest animal survey tracks
Pest animal camera sites

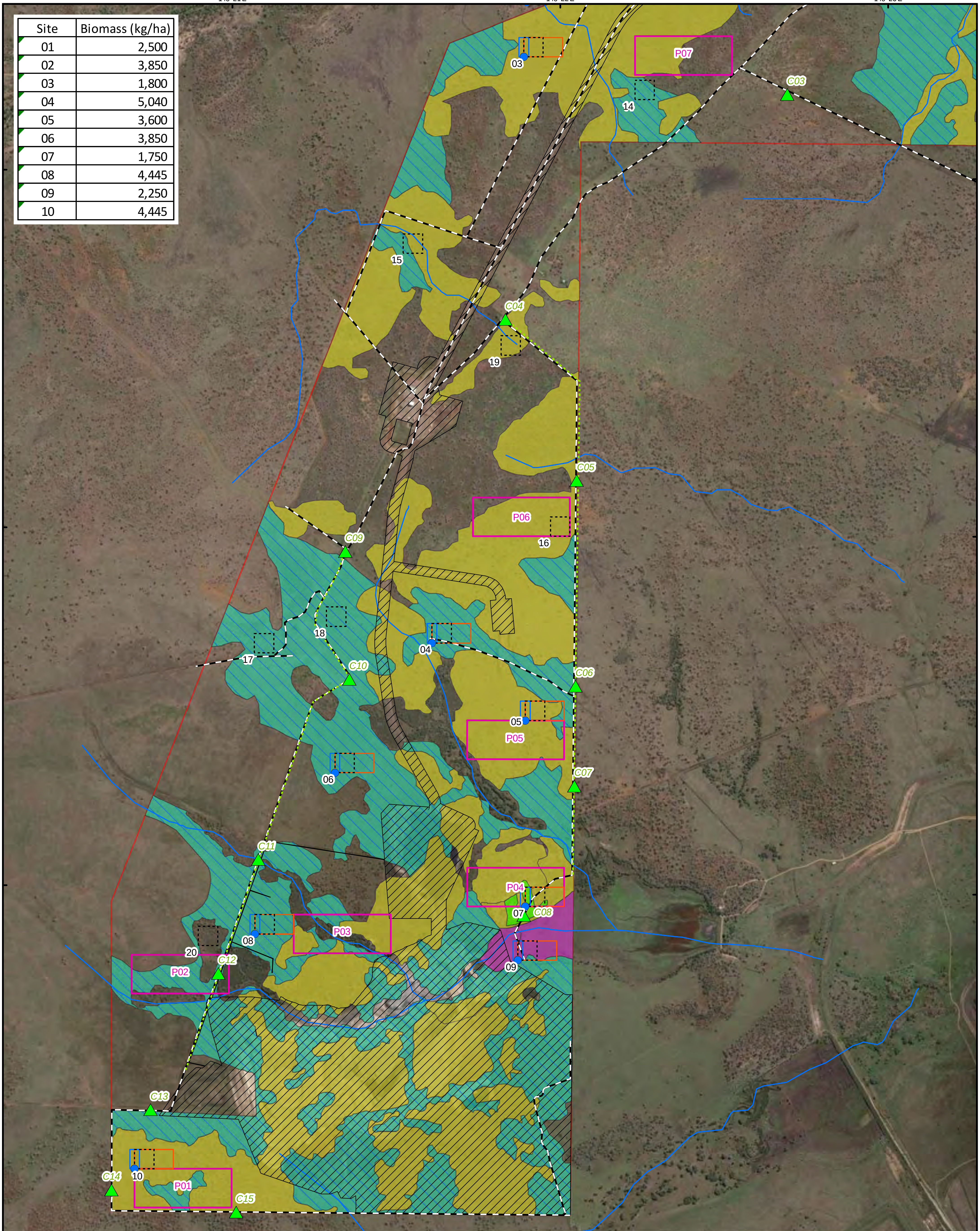
0 0.25 0.5 0.75 1
Kilometres

N

Location diagram

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:17,500@A3



Site	Biomass (kg/ha)
01	2,500
02	3,850
03	1,800
04	5,040
05	3,600
06	3,850
07	1,750
08	4,445
09	2,250
10	4,445

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Figure 3
MDS Project
monitoring sites - south

Mining Lease
Disturbance areas
Access tracks
Watercourse
Brigalow TEC
Natural Grassland TEC
Habitat for King blue-grass and bluegrass
Habitat for squatter pigeon
Habitat for Australian painted snipe
Habitat monitoring site
Habitat monitoring plots
Weed monitoring plots
Rabbit monitoring plots
Pig monitoring plots
Pest animal survey tracks
Pest animal camera sites

0 0.25 0.5 0.75 1
Kilometres

N

CO2 Australia

Location diagram

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:17,500@A3

Path: P:\GISData\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_21\20220406 - Figure 3 - MDS monitoring sites south.mxd

2.1.2 MDS Rail Loop site

Post-wet season monitoring activities at the MDS Rail Loop site comprised monitoring of the following:

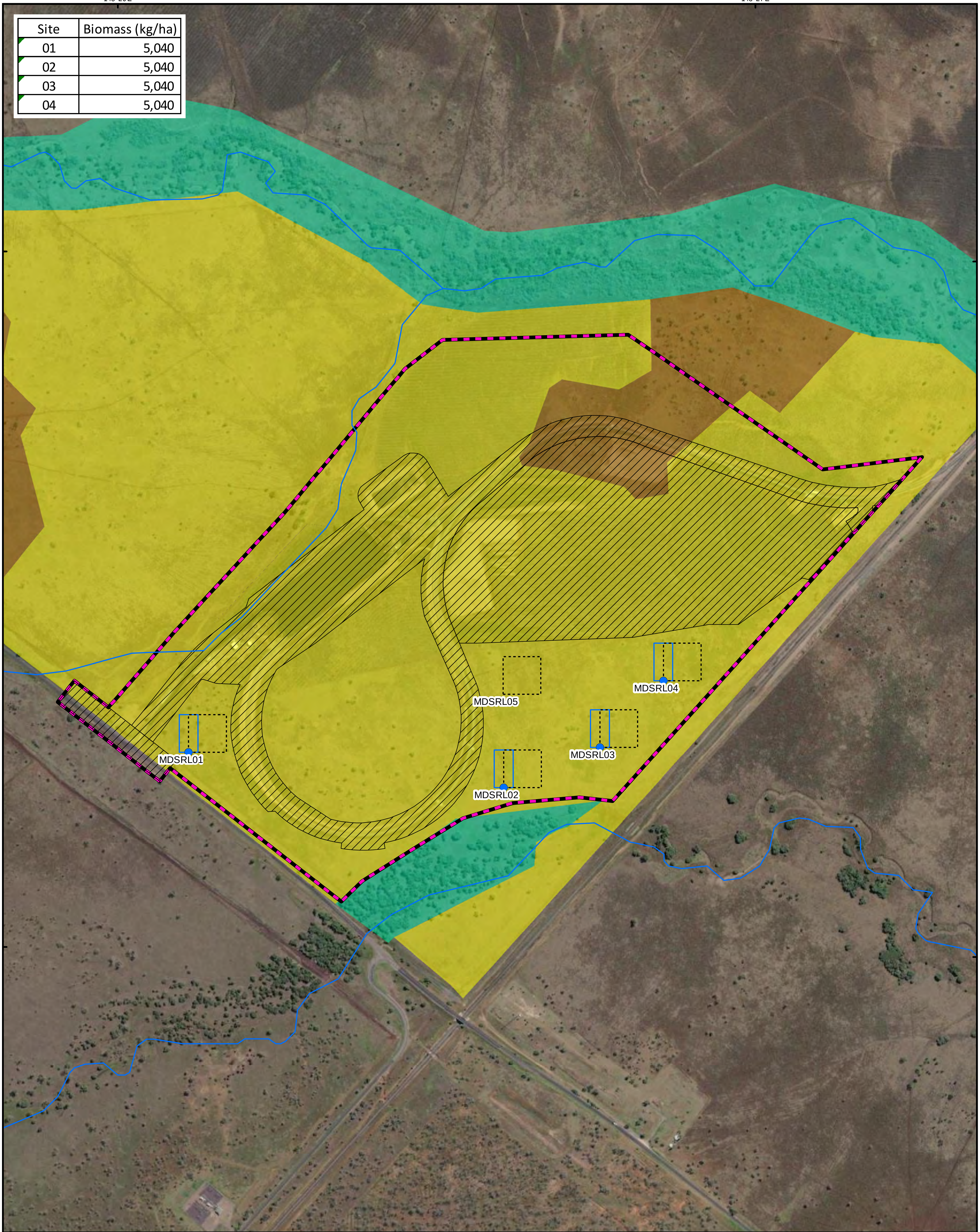
- General offset site monitoring
- Habitat condition assessments
- Photo monitoring
- Targeted king blue-grass surveys
- Weed monitoring
- Biomass monitoring

Table 4 shows activities at each monitoring location established at the MDS Rail Loop site. A total of five permanent monitoring sites/plots are monitored (refer to Figure 4). While the Rail Loop MNESMP (SLR 2019a) stipulated one of the weed monitoring plots to be established in the *Leucaena* plantation, consultation with Sojitz Blue indicated the safety issues related to monitoring sites within the centre of the rail loop requiring crossing of the rail line. Instead, all plots were established on the outside of the rail loop (refer to Figure 4). Permanent monitoring sites comprised a mix of nested and non-nested sites (Table 4), according to the following:

- 4 x habitat quality assessment sites (50 m x 10 m)
  - collocated with weed monitoring plots, grassland assessment sites and king blue-grass survey sites (sites MDSRL01 – MDSRL04)
- 4 x natural grasslands TEC monitoring sites (50 m x 20 m)
  - collocated with habitat quality assessment sites, assessing Natural Grassland indicators (sites MDSRL01 – MDSRL04)
- 4 x targeted king blue-grass surveys (50m x 10m)
  - collocated with habitat quality assessment plots and grassland assessment sites (sites MDSRL01 – MDSRL04)
- 5 x weed monitoring plots (1 ha)
  - Collocated with habitat monitoring sites (sites MDSRL01 – MDSRL04), with a single standalone weed monitoring plot (site MDSRL05)
- 9 x photo monitoring sites
  - established at 0 m and 50 m points along 50 m habitat monitoring transect (sites MDSRL01 – MDSRL04) and at SW corner of the standalone weed monitoring plot (site MDSRL05)
- 4 x biomass monitoring sites
  - assessed from the 50 m point of the habitat monitoring transect at each of the four habitat monitoring sites (sites MDSRL01 – MDSRL04)

Table 4: Monitoring locations at the MDS Rail Loop site, surveyed as part of the 2021/22 post-wet season surveys

Site	Habitat quality assessment	Natural Grasslands TEC monitoring	King blue-grass surveys	Photo monitoring	Weed monitoring	Biomass monitoring
MDSRL01 – MDSRL04	✓	✓	✓	✓	✓	✓
MDSRL05				✓	✓	



Site	Biomass (kg/ha)
01	5,040
02	5,040
03	5,040
04	5,040

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Figure 4
MDS Rail Loop
- monitoring sites

Disturbance areas
MDS Rail Loop site
Watercourse

Ground-truthed REs
RE 11.8.11
RE 11.8.11/11.8.5
RE 11.3.3a

Habitat monitoring site
Habitat monitoring plots
Weed monitoring plots

Location diagram

DATA SOURCE:
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed REs

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:9,000@A3

0 100 200 300 400
Metres

N

CO2 Australia

Path: P:\GISData\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\220406 - Figure 4 - MDS RAIL LOOP monitoring sites.mxd

2.1.3 Lexington offset site

Post-wet season monitoring activities at the offset site comprised:

- General offset site monitoring
- Pest animal monitoring
- Weed monitoring
- Biomass monitoring

Table 5 shows activities at each monitoring location at the offset site. A total of 43 permanent monitoring sites/plots were monitored across the offset site (refer to Figure 5 and Figure 6). Permanent monitoring sites comprised a mix of nested and non-nested sites (Table 5), according to the following:

- 20 x weed monitoring plots (1 ha)
  - 13 sites are collocated with habitat monitoring sites (Sites 01 – 13), and 7 sites (Sites 14 – 20) are standalone weed monitoring plots
- 20 x biomass monitoring sites
  - 13 sites established at 0 m point along 100 m habitat monitoring transect (Sites 01 – 13) and at SW corner of weed monitoring plots (Sites 14 – 20)
- 10 x rabbit monitoring plots (2 ha)
  - collocated with 10 of the weed monitoring sites (sites 01 – 05, 07 – 08, 10 – 11 and 13)
- 8 x pig monitoring plots (15 ha) (P01 – P08)
- 15 x pest animal fauna camera stations (sites C01 – C15)
  - fauna camera stations were established along pest animal survey tracks

At each of the 13 habitat monitoring sites (Sites 01 – 13), a 1.8 m capped galvanised star picket is installed at the start (0 m) and central (50 m) points of the 100 m transect. At the other seven weed monitoring plots (Sites 14 – 20), a single 1.8 m capped galvanised star picket is installed at the SW corner of the plot. GPS locations are recorded for each of the sites in GDA94, Zone 55 projection.

Refer to Table A-2 in Appendix A for detailed locations of each of the monitoring sites at the Lexington offset site.

Table 5: Monitoring locations at the Lexington offset site, surveyed as part of the 2021/22 post-wet season surveys

Site	Weed monitoring	Biomass monitoring	Pest monitoring		
			Rabbit monitoring	Pig monitoring	Pest animal camera stations
01 – 20	✓	✓	✓*		
P01 – P08				✓	
C01 – C15					✓

* Includes sites 01 – 05, 07 – 08, 10 – 11 and 13.

Site	Biomass (kg/ha)
01	5,040
02	1,750
03	3,015
04	2,000
05	3,625
06	3,015
07	1,200
08	5,040
09	5,040
10	3,015
11	1,750
12	3,015
13	3,433
14	5,000
15	2,000
16	2,578
17	3,850
18	5,000
19	2,250
20	3,850

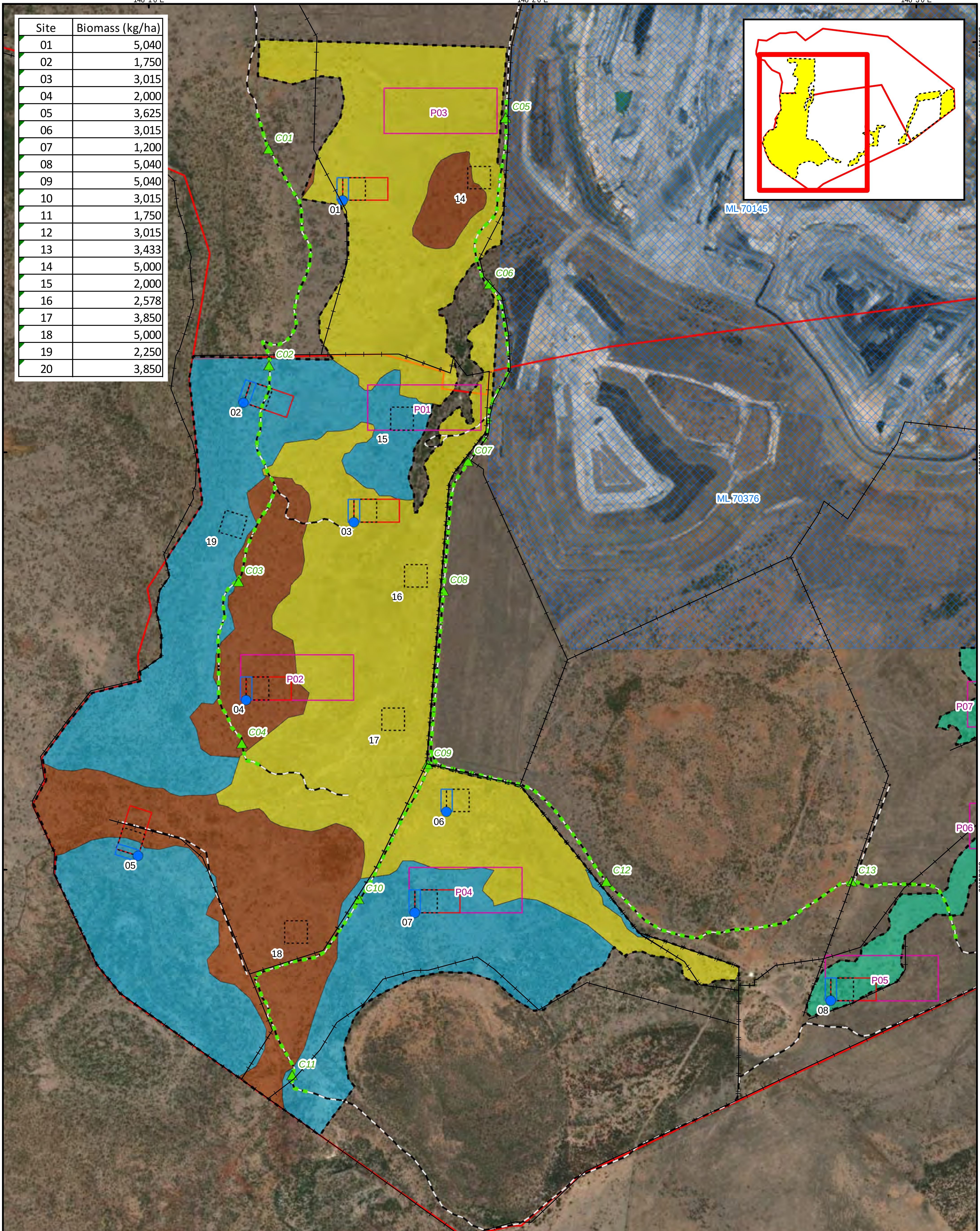


Figure 5
Lexington offset monitoring sites - west

- Minerva lots (lot 10 & 11 DN40126)
- Existing offset area (Category A area)
- Mining leases (ML70376 and ML70145)
- Offset area
- Access tracks
- Lexington existing fences

Regional ecosystem
- RE 11.8.11
- RE 11.8.11a
- RE 11.8.4
- RE 11.8.5

- Pest animal camera site
- Pest animal survey tracks
- Habitat monitoring sites
- Habitat monitoring plot
- Weed monitoring plots
- Rabbit monitoring plots
- Pig monitoring plots

0 0.25 0.5 0.75 1
Kilometres

N

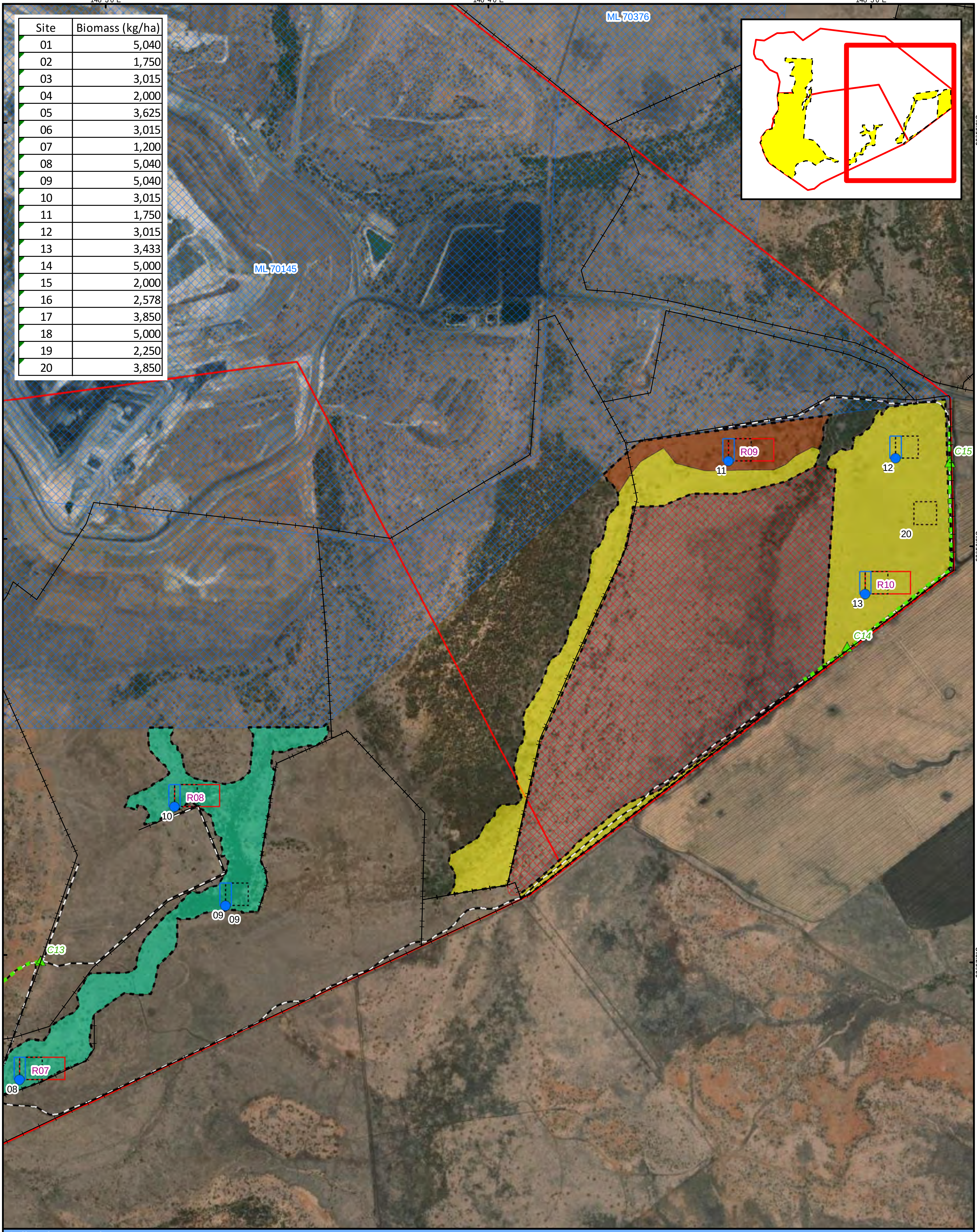
CO2 Australia

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data
- Mining Lease
- Existing offset area

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:15,000@A3

Path: P:\GISData\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\220406 - Figure 5 - Lexington monitoring sites west.mxd

Site	Biomass (kg/ha)
01	5,040
02	1,750
03	3,015
04	2,000
05	3,625
06	3,015
07	1,200
08	5,040
09	5,040
10	3,015
11	1,750
12	3,015
13	3,433
14	5,000
15	2,000
16	2,578
17	3,850
18	5,000
19	2,250
20	3,850



Sojitz Blue Pty Ltd

Location diagram

Figure 6
Lexington offset monitoring sites - east

Minerva lots (lot 10 & 11 DN40126)
Existing offset area (Category A area)
Mining leases (ML70376 and ML70145)
Offset area
Access tracks
Lexington existing fences

Regional ecosystem
RE 11.8.11
RE 11.8.11a
RE 11.8.4
RE 11.8.5

Pest animal camera site
Pest animal survey tracks
Habitat monitoring sites
Habitat monitoring plot
Weed monitoring plots

Rabbit monitoring plots
Pig monitoring plots

0 0.25 0.5 0.75 1
Kilometres

N

CO2 Australia

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data
- Mining Lease
- Existing offset area

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:15,000@A3

2.1.4 Lexington Rail Loop offset site

Post-wet season monitoring activities at the Lexington Rail Loop offset site comprised establishment and monitoring of the following:

- General offset site monitoring
- Habitat condition assessments
- Weed monitoring
- Photo monitoring
- Biomass monitoring

Table 6 shows activities at each monitoring location established at the Lexington Rail Loop offset site; divided into three 'paddocks' across the north of Lexington – 'North Promenade', 'Harry's' and 'Contours'. A total of 12 permanent monitoring sites/plots are monitored across the three paddocks (refer to Figure 7 and Figure 8). Permanent monitoring sites comprised a mix of nested and non-nested sites (Table 6), according to the following:

- 7 x habitat monitoring sites (50 m x 10 m)
  - collocated with weed monitoring plots (sites LEXRL01 – LEXRL07)
- 12 x weed monitoring plots (1 ha)
  - collocated with the seven habitat monitoring sites (sites LEXRL01 – LEXRL07), with five additional, standalone weed monitoring plots (sites LEXRL08 – LEXRL12)
- 19 x photo monitoring sites
  - 14 established at 0 m and 50 m points along habitat monitoring transect (sites LEXRL01 – LEXRL07), and five at SW corner of standalone weed monitoring plots (sites LEXRL08 – LEXRL12)
- 12 x biomass monitoring sites
  - seven established at the 0 m point along the 100 m habitat monitoring transects (Sites LEXRL01 – LEXRL07), and five at SW corner of standalone weed monitoring plots (Sites LEXRL08 – LEXRL12).

Table 6: Monitoring locations at the Lexington Rail Loop offset site, surveyed as part of the 2021/22 post-wet season surveys.

Site	Habitat monitoring	Photo monitoring	Weed monitoring	Biomass monitoring
North Promenade paddock				
LEXRL01 – LEXRL02	✓	✓	✓	✓
LEXRL08 – LEXRL09		✓	✓	✓
Harry's paddock				
LEXRL03 – LEXRL04	✓	✓	✓	✓
LEXRL10		✓	✓	✓
Contours paddock				
LEXRL05 – LEXRL07	✓	✓	✓	✓
LEXRL11 – LEXRL12		✓	✓	✓

Site	Biomass (kg/ha)
01	3,015
02	3,850
03	3,015
04	3,850
05	4,445
06	4,445
07	4,445
08	3,850
09	3,015
10	5,040
11	4,445
12	5,040

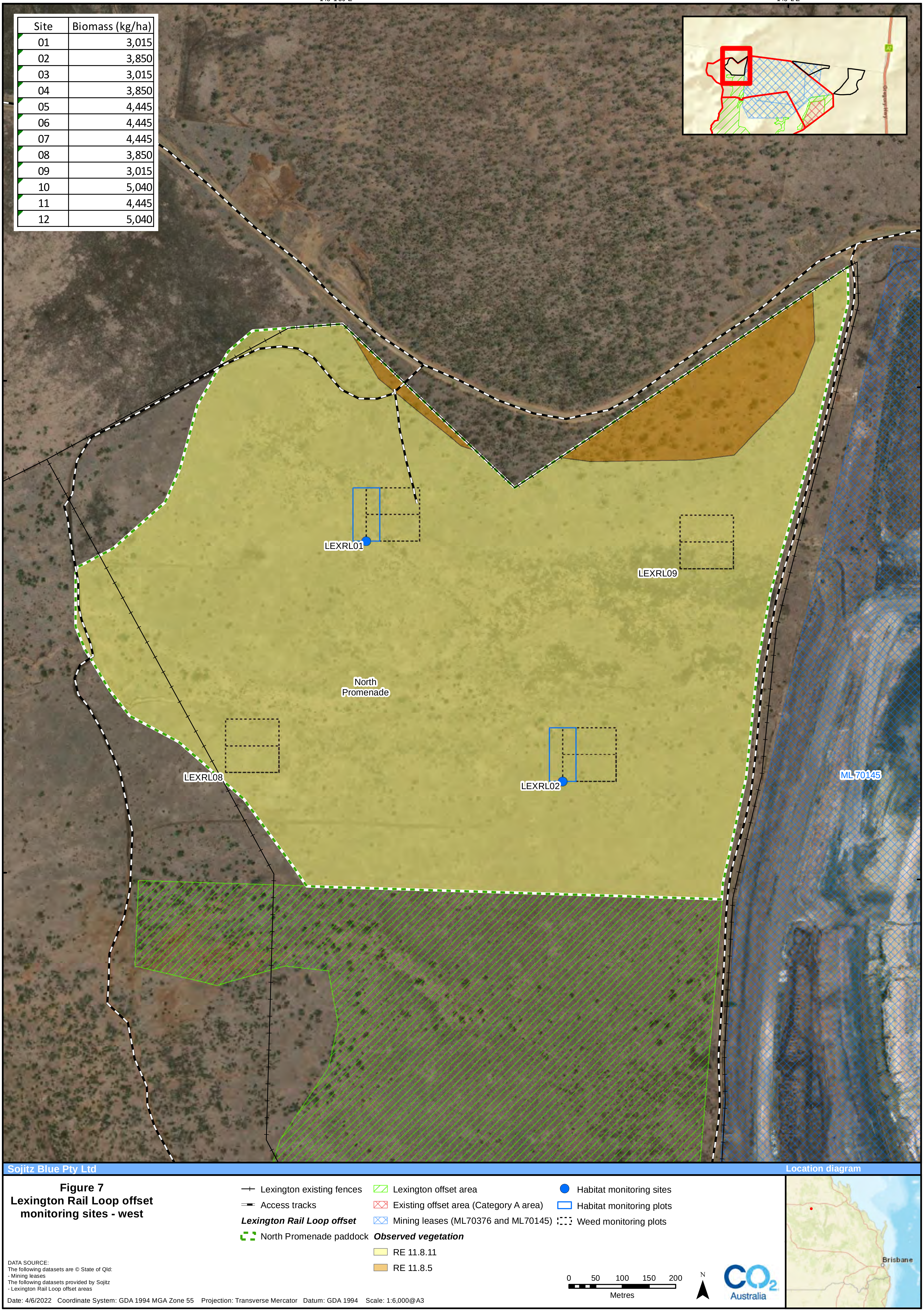


Figure 7
Lexington Rail Loop offset monitoring sites - west

DATA SOURCE:
The following datasets are © State of Qld:
- Mining leases
The following datasets provided by Sojitz
- Lexington Rail Loop offset areas

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:6,000@A3

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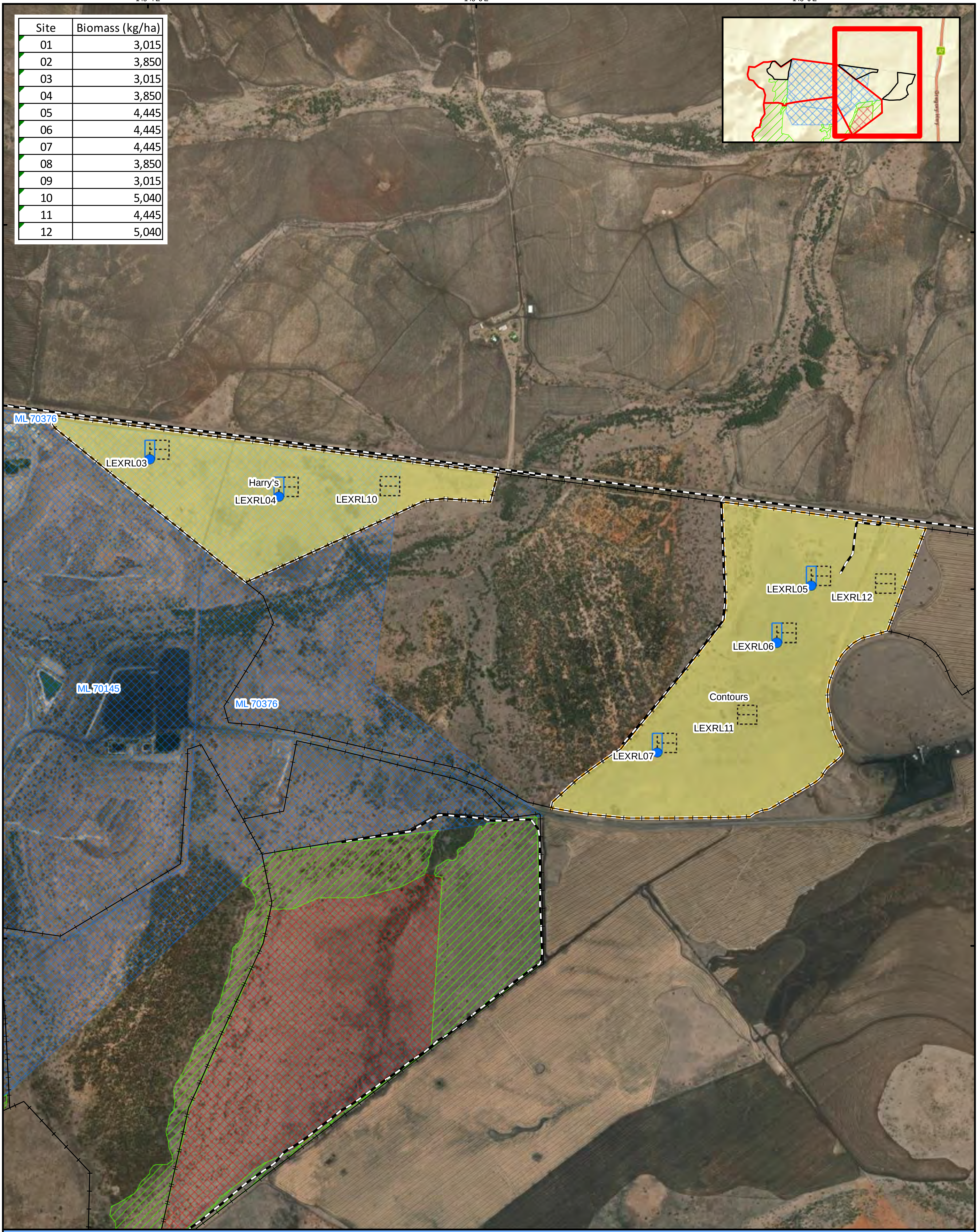
Site	Biomass (kg/ha)
01	3,015
02	3,850
03	3,015
04	3,850
05	4,445
06	4,445
07	4,445
08	3,850
09	3,015
10	5,040
11	4,445
12	5,040



Sojitz Blue Pty Ltd

Figure 8
Lexington Rail Loop offset monitoring sites - east

- Lexington existing fences
- Access tracks
- ***Lexington Rail Loop offset***
- Harry's paddock
- Contours paddock
- Lexington offset area
- Existing offset area (Category A area)
- Mining leases (ML70376 and ML70145)
- ***Observed vegetation***
- RE 11.8.11
- RE 11.8.5
- Habitat monitoring sites
- Habitat monitoring plots
- Weed monitoring plots

0 200 400 600 800
Metres

N

CO2 Australia

Location diagram

DATA SOURCE:
The following datasets are © State of Qld:
- Mining leases
The following datasets provided by Sojitz
- Lexington Rail Loop offset areas

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:17,500@A3

2.2 HABITAT CONDITION ASSESSMENT (MDS RAIL LOOP AND LEXINGTON RAIL LOOP OFFSET SITE)

Habitat condition assessment sites were undertaken at the MDS Rail Loop site and Lexington Rail Loop offset sites based on the requirements of the *Guide to determining terrestrial habitat quality* (DEHP 2017). A total of four habitat condition assessment sites were undertaken at the MDS Rail Loop site, with seven habitat condition assessment sites undertaken at the Lexington Rail Loop offset site. Each of the habitat condition assessment sites comprise N – S running 100 m x 50 m transects, with the start (0 m) and central (50 m) points marked with a 1.8 m galvanised steel picket with plastic safety cap (refer to Figure 4, Figure 5 and Figure 6).

Habitat condition assessments for Natural Grasslands TEC and king blue-grass were undertaken at the habitat condition assessment sites generally in accordance with the *Guide to determining terrestrial habitat quality* (DEHP 2017). Through the application of the guide, a habitat quality score was calculated for each MNES based on the following key indicators:

- site condition: a general condition assessment of vegetation compared to a benchmark
- site context: an analysis of the site in relation to the surrounding environment

Natural Grasslands TEC habitat condition was determined according to the approved Commonwealth listing advice (TSSC 2009). As per the listing advice, five condition thresholds were used to classify a patch of Natural Grasslands TEC into 'best quality' and 'good quality', which are defined in Table 7.

In the absence of the *Guide to determining terrestrial habitat quality* (DEHP 2017) including a species habitat index for flora species, the habitat condition scores for the MNES flora species (king blue-grass) included a species presence index out of three, whereby: 0 = absent/not confirmed, 2 = up to five tussocks confirmed, 2.5 = up to 20 tussocks confirmed, 3 = more than 20 tussocks confirmed. The habitat condition score for the king blue-grass was then calculated as a combination of site condition and site context for the RE assessment unit (representing 80% of the score), with species stocking rate converted to a score out of 10 and contributing 20%.

Table 7: Condition Classes for the Natural Grasslands of the Queensland Central Highlands and the Northern Fitzroy Basin Ecological Community (TSSC 2009)

	Best quality	Good quality
Patch size	At least 1ha; **and**	At least 5ha; **and**
Grasses	**At least 4** native perennial grass species from the list of perennial native grass indicator species; **and**	**At least 3** native perennial grass species from the list of perennial native grass indicator species; **and**
Tussock cover	**At least 200** native grass tussocks; **and**	**At least 200** native grass tussocks; **and**
Woody shrub[1] cover	Total projected canopy cover of shrubs is **less than 30%; and**	Total projected canopy cover of shrubs is **less than 50%; and**
Introduced species	Perennial non-woody introduced species are **less than 5%** of the total projected perennial plant cover.	Perennial non-woody introduced species are **less than 30%** of the total projected perennial plant cover.
[1] The shrub layer is typically absent. However, where shrubs are present, they are defined as woody plants, more than 0.5 m tall that occupy the mid vegetation layer. The upper, or tree canopy layer, also is typically absent but may comprise scattered trees to less than 10% projective crown cover.		
Sampling should be based upon a quadrat size of 0.1ha (e.g. 50 m x 20 m) selected in an area with the most apparent native perennial grass species. Unless exceptional circumstances apply, to maximise the assessment of condition,		

	Best quality	Good quality
sites must be assessed during a good season, two months after cessation of disturbance (fire/grazing/mowing/slashing) and within two months of effective rain.		

2.3 PHOTO MONITORING (MDS RAIL LOOP SITE AND LEXINGTON RAIL LOOP OFFSET SITE)

Photo monitoring was undertaken at permanent sites established as part of baseline surveys on the MDS Rail Loop site and Lexington Rail Loop offset site to give a representative indication of cover and species composition (including weeds) for the general area and enable visual assessment of habitat changes over time. Photo monitoring sites were established with a 1.8 m galvanised steel picket with plastic safety cap.

At each of the photo monitoring points, five photos were taken from 1.5 m height above ground level looking north, east, south and west with a ground photo taken looking down at an angle of 45° to the north-west of the star picket. Photo monitoring sites were delineated as follows:

- At the MDS Rail Loop site, photo monitoring was undertaken at nine sites, including two at each of the four habitat quality assessment sites (0 m and 50 m points: Site MDSRL01 – MDSRL04), with a single photo monitoring point at the SW corner of the remaining one standalone weed monitoring plot (Site MDSRL05) identified in Table 4 and shown in Figure 4
- At the Lexington Rail Loop offset site, photo monitoring was undertaken at 19 sites, including 14 at each of the habitat condition assessment sites (0 m and 50 m points: sites LEXRL01 – LEXRL07), with single photo monitoring points at the SW corner of the remaining five weed monitoring plots (sites LEXRL08 – LEXRL12) identified in seven established at the 0 m point along the 100 m habitat monitoring transects (Sites LEXRL01 – LEXRL07), and five at SW corner of standalone weed monitoring plots (Sites LEXRL08 – LEXRL12) identified in Table 6 and shown in Figure 7 and Figure 8.

A record of the photographs is shown in Appendix E and Appendix G for the MDS Rail Loop and the Rail Loop offset sites, respectively. While not required to be collected as part of the 2022 post-wet season surveys, photo monitoring was also undertaken at the MDS Project site and Lexington offset site (Appendix D and Appendix F) primarily as reference material for the condition of each site across each year.

2.4 HABITAT AVAILABILTY ASSESSMENT FOR AUSTRALIAN PAINTED SNIPE (MDS PROJECT SITE)

Monitoring of habitat availability for Australian painted snipe was undertaken during the post-wet season surveys, which typically includes:

- systematic surveying for Australian painted snipe by traversing habitat areas with the aim of detecting by sight or by flushing. Surveys are generally undertaken on three mornings over a five day period, totalling approximately eight hours
- quantification of the area of Australian painted snipe habitat.

The systematic survey typically includes multiple circumnavigations of fringing habitat surrounding Naroo Dam, with access granted by Glencore via the Rolleston Mine to those parts of Naroo Dam not within the MDS lease. It should be noted that for this particular monitoring period, a lack of suitable Australian painted snipe habitat (i.e. water in the dam) meant it was redundant to complete surveys for more than one morning (see Section 3.1.3 for more detail).

The extent of Australian painted snipe habitat on the site was identified and quantified in the field in accordance with the following criteria, consistent with the known ecology of the species:

- Shallow water foraging habitat – calculated as the area of open water habitat (on the lease and adjacent lease).
- Muddy substrate foraging habitat – calculated as 10 m buffer adjacent open water habitat (on the lease and adjacent lease).
- Area of appropriate shelter habitat – calculated as areas of rank emergent tussocks of grass, sedges, rushes or reeds, samphire, clumps of lignum (*Muehlenbeckia*), canegrass or Melaleuca within 50 m of the boundary of open water habitat.

2.5 KING BLUE-GRASS AND BLUEGRASS SURVEYS (MDS PROJECT AND MDS RAIL LOOP SITES)

2.5.1 MDS Project site

Targeted surveys were undertaken for king blue-grass and bluegrass throughout the MDS Project site. This included incidental surveys while traversing the site on foot (e.g. biomass monitoring) as well as targeted surveys along established transects established in March 2018.

Targeted transect surveys were undertaken along 15 of the 25 transects previously surveyed in March 2018, June 2020 and May 2021, including the four transects with previously confirmed king blue-grass records (Sites 12, 19, 22 and 25) and one transect with previously confirmed bluegrass records (Site 07). Sites traversed in March 2022 are listed in Table 8. Threatened grass surveys were undertaken targeting the presence, distribution and abundance of king blue-grass and bluegrass within 2 m of the centreline of the 12 transects.

Where king blue-grass or bluegrass was encountered within 2 m of the centreline of a transect, an estimate was made of the number of tussocks of each species considered to be within a contiguous population. A tussock was defined as a tuft or clump of a given species of grass growing from a common origin, whereas a population was defined as a collection of contiguous tussocks of a given species. The number of tussocks comprising a population was still estimated where populations extended beyond 2 m of the transect centreline. The number of tussocks in a population was estimated by assigning a population size to one of six abundance categories:

- 1 – 2 tussocks
- ≥2 – 5 tussocks
- ≥5 – 20 tussocks
- ≥20 – 50 tussocks
- ≥50 – 100 tussocks
- 100+ tussocks

An estimate of population size of a given species was calculated by summing the lower range interval of each population's tussock abundance category to represent the minimum estimate of abundance, with the upper range interval of each population's tussock abundance category summed to give an upper estimate of abundance. The resulting range represents a conservative estimate of tussock abundance across the survey area (i.e. survey area with four populations: 1-2 tussocks, 2-5 tussocks, 20-50 tussocks and 100+ tussocks equates to a survey area abundance range estimate of 123 – 157 tussocks from four populations). Based on the number of populations, a calculation was also made of the number of populations per kilometre of transect, which in combination with the estimate of total population size within the survey area allows for a comparison with monitoring events in subsequent years.

Optimal conditions for the detectability for king blue-grass and bluegrass are typically during and just after the wet season (summer months), provided there has been sufficient rain. This generally leads to abundant fertile material, which is key for accurate identification of the two grass species. Particularly dry weather leading up to a survey event often leads to an absence of lush fertile material, and as such, the two species are difficult to be confidently discerned from other grass species with similar morphology (particularly superficially-similar *Dichanthium* and *Bothriochloa* species).

Table 8: Threatened grass survey transect locations (UTM coordinates in GDA94) and lengths for the 15 transects surveyed in March 2022

Transect	Start point		End point		Length (m)
	Easting	Northing	Easting	Northing	
06	638306	7303321	638238	7303185	152
07	637991	7302726	637926	7302590	151
08	637777	7302305	637857	7302105	215
10	637417	7300418	637561	7299986	456
11	637935	7300289	638196	7300219	270
12	638328	7300164	638659	7299995	372
13	638634	7300462	638640	7300700	238
15	637599	7299716	637855	7299348	448
16	638517	7299569	638623	7299261	326
17	637148	7299183	637319	7299064	208
18	636979	7299062	636876	7298806	277
19	637123	7298983	637002	7298677	329
22	636545	7298529	636783	7298451	251
24	636562	7297408	636656	7297343	114
25	637273	7297385	637498	7297339	230
				Total	**4,037**

2.5.2 MDS Rail Loop site

Targeted surveys for king blue-grass were undertaken within the 50 m x 10 m plot of each of the four habitat quality assessment sites (MDSRL01 – MDSRL04). As noted above, the survey period is later than the typical flowering season for king blue-grass and the species can be difficult to confidently discern from superficially-similar species. Where king blue-grass was encountered within the plot, an estimate was made of the number of tussocks considered to be within a contiguous population in accordance with the method outlined above (Section 2.2.1).

2.6 BIOMASS MONITORING FOR FIRE MANAGEMENT (ALL SITES)

Biomass monitoring for fire management is undertaken annually to determine the risk of fire and to inform fire management strategies. Biomass is at its greatest at the end of the wet season (around April) with fire risk greatest towards the end of the dry season (September/October). Biomass is monitored using appropriate photo standards[1] to determine dry matter yields and subsequently fuel loads. Biomass

[1] See https://futurebeef.com.au/knowledge-centre/pastures-forage-crops/pasture-photo-standards/

monitoring is undertaken at permanent weed monitoring sites at the MDS Project site, MDS Rail Loop site, Lexington offset site and Lexington Rail Loop offset site.

2.7 WEED MONITORING (ALL SITES)

For the purposes of this assessment, weeds were taken as any species of plant not considered by the Queensland Herbarium as being native to Queensland (i.e. not listed as either least concern, special least concern, near threatened, vulnerable, endangered, critically endangered or presumed extinct in the wild under the *Nature Conservation Act 1992* (Qld); NC Act), as well as species of plant not considered locally endemic to the region.

Weed monitoring was undertaken at 20 permanent plots at the MDS Project site, 20 permanent plots at the Lexington offset site, five permanent plots established at the MDS Rail Loop site and 12 permanent plots established at the Lexington Rail Loop offset site. Weed monitoring plots were located to incorporate natural variability such as aspect (e.g. a mix of north-, east-, south- and west-facing monitoring sites) and community type, while also targeting trafficable areas (e.g. entry gates, creek crossings, stock watering points) to monitor potential introduction and/or irruptions of prohibited and restricted weed species. At each weed monitoring plot, 3 x 100 m transects (traversing in an east-west direction) were traversed, keeping them parallel to one another, 50 m apart.

Figure 2 and Figure 3 show the location of the MDS Project site weed monitoring plots, Figure 4 shows the MDS Rail Loop weed monitoring plots, Figure 5 and Figure 6 show the Lexington offset site weed monitoring plots and Figure 7 and Figure 8 show the Lexington Rail Loop offset site weed monitoring plots.

At each of the permanent weed monitoring plots, monitoring of weeds was undertaken in accordance with the following method:

- At 10 m intervals along each of the three transects, a 2 m x 2 m plot frame was used to record the presence, species and cover of weeds
- Weed cover at each 2 m x 2 m survey site was recorded as one of five cover classes: 1 = 0%; 2 = 0-5%; 3 = 6-25%; 4 = 26-50%; 5 = 51-100% (Auld 2009)
- An average cover score for each weed species for each 1 ha site was calculated
- The average cover score was then calculated as the average percentage from the 30 plots surveyed from the three 100 m transects
- The mean cover score across all weed monitoring sites was then calculated.

For the purposes of the calculation of average percentage cover of weeds, each of the five weed cover classes (0 – 5) were converted to a quantitative weed cover value based on the average value of the range corresponding to that weed cover class, as outlined below:

- Weed cover class 1 (0%) retained a value of 0%
- Weed cover class 2 (0-5%) was converted to a value of 2.5%
- Weed cover class 3 (6-25%) was converted to a value of 15%
- Weed cover class 4 (26-50%) was converted to a value of 37.5%
- Weed cover class 5 (51-100%) was converted to a value of 75%.

In addition to permanent weed monitoring plots, where relevant, incidental observations were collated as part of general site monitoring, recording details of weeds (including location, species and extent) and areas of significant weed cover.

2.8 PEST ANIMAL MONITORING (MDS PROJECT SITE AND LEXINGTON OFFSET SITE)

For the purposes of this assessment, pest animals are defined as any species of fauna not native to Queensland, nor protected under the NC Act.

Pest animal monitoring was undertaken through a combination of:

- plot based monitoring, searching for direct presence (e.g. visual confirmation) or indirect evidence (e.g. tracks, diggings, scats, rubbings etc)
- infra-red, motion-detector fauna cameras, representing opportunities to visually confirm the presence of pest animals.

2.8.1 Rabbits

An assessment of the presence and impact of rabbits was undertaken generally in accordance with Cooke *et al.* (1990). Rabbit monitoring plots were established at the same location as habitat monitoring sites and weed monitoring plots (refer to Figure 2 and Figure 3 for locations at the MDS project site and Figure 5 and Figure 6 for locations at the Lexington offset site).

Each rabbit monitoring plot consisted of a 2 ha plot which was traversed for 15 to 20 minutes, assessing the following (refer to Cooke *et al.* 1990):

- Rabbit abundance – a measure of the presence and number of rabbit warrens and the abundance of any faecal pellets (including 'buck-heaps' or latrines) – measured on a scale of 0 – 5.
- Seedling abundance – a measure of the presence and abundance of native vegetation seedlings encountered during the 15-20-minute traverse – measured on a scale of 0 – 5.
- Rabbit damage – a measure of seedlings (< 0.5 m height) with evidence of rabbit damage, identified as 45˚ 'secateurs-like' cuts through smaller stems, defoliation and gnawing of bark – measured on a scale of 0 – 5.

From this assessment, a 'corrected regeneration score' was calculated from the seedling abundance and rabbit damage score in accordance with Table 9. This measure corrects for seedling regeneration as a function of observed rabbit damage and is subsequently used to calculate overall rabbit impact with the rabbit abundance score.

Table 9: Calculation of corrected regeneration score

	Seedling abundance					
Rabbit damage	**0**	**1**	**2**	**3**	**4**	**5**
0	0.20	1.00	2.00	3.00	4.00	5.00
1	0.20	0.50	1.00	1.50	2.00	2.50
2	0.20	0.34	0.70	1.00	1.30	1.70
3	0.20	0.28	0.50	0.80	1.00	1.30
4	0.20	0.20	0.40	0.60	0.80	1.00
5	0.20	0.20	0.30	0.50	0.70	0.80

As illustrated in Figure 9, overall rabbit impact was assigned as one of three categories – 'acceptable', 'monitor closely' or 'unacceptable', as determined from a combination of the score for rabbit abundance and the corrected regeneration score. Note that it was assumed that any site with a rabbit abundance score of '0' was assumed to be 'acceptable', irrespective of corrected regeneration score. This is to avoid the situation where, with an absence of rabbits, and a corrected regeneration score of ≤2 (attributable to no rabbit damage and less than 20 seedlings), a given site may be identified as one to 'monitor closely' only by virtue of the fact that the few seedlings are attributable to the site being a grassland, rather than it reflecting rabbit grazing.

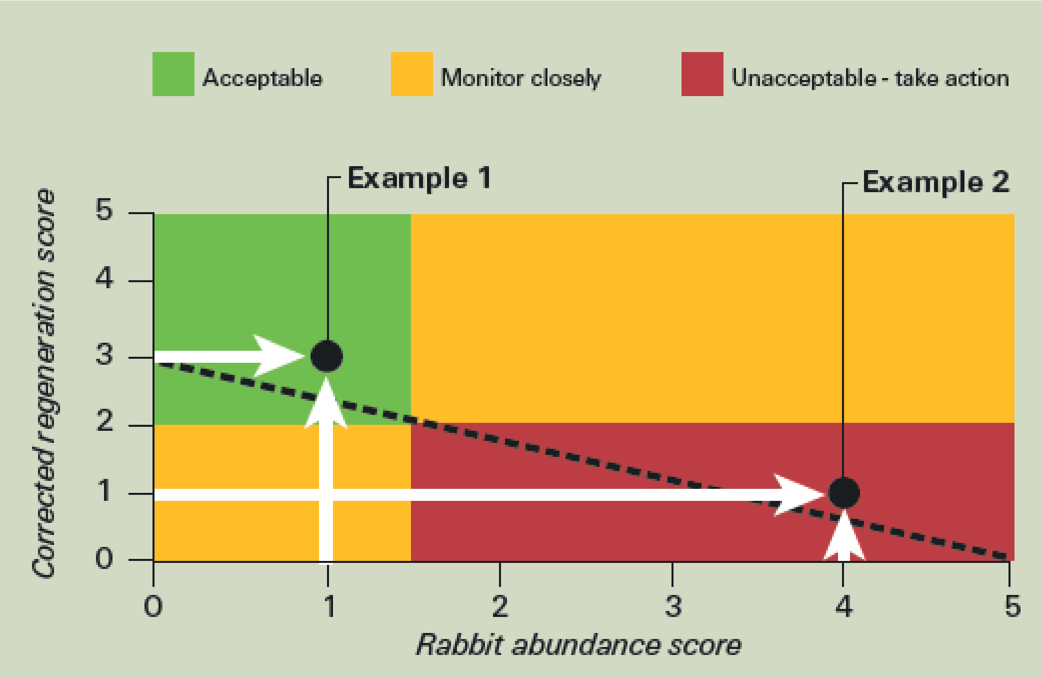


Figure 9: Calculation of overall rabbit impact based on rabbit abundance score and corrected regeneration score.

2.8.2 Fauna camera stations

An assessment of pest animal presence and activity was conducted using infra-red cameras. Infra-red fauna cameras were placed approximately 1.3 m above the ground at 15 fauna camera stations at the MDS Project site, and 15 fauna camera stations at the Lexington offset site. Once established, the fauna cameras were left unattended for a minimum of 3 days/nights to be able to intercept any active fauna using trails in the surveyed area.

Cameras were represented by 12 x Browning Dark Ops 940 HD 16 mega-pixel digital cameras (BTC-6HD-940), one Browning Dark Ops MAX HD 18 mega-pixel digital camera (BTC-6HD-MAX) and two x LTL-6310 Acorn 12 mega-pixel digital cameras (LTL-6310M). Both camera models were supported by 940nm infra-red night vision and motion sensor capabilities to allow for capture of fauna during the day and night.

The camera settings were set to capture a series of images in succession following a motion trigger. If motion continued after this series of images were captured, then the camera would continue to capture images (in sets of four), followed by at least a one-minute pause, after which the camera could be triggered again. Secure Digital (SD) memory cards of 32 gigabyte capacity were used in the cameras for storing captured images.

For each pest animal species, a measure of pest animal presence/activity (Catling Index value) was calculated for the site by summing the number of operable fauna camera stations with evidence of the targeted pest animal by the sum of all operable station days/nights (refer to Mitchell and Balogh 2007a).

Refer to Figure 2 and Figure 3 for locations at the MDS Project site and Figure 5 and Figure 6 for locations at the Lexington offset site.

2.8.3 Feral pigs

An assessment of the presence of feral pig signs (as a measure of feral pig presence or activity) was undertaken generally in accordance with (Mitchell & Balogh 2007b) and (Hone 1988).

Randomly stratified, 500 m x 300 m (15 ha) plots were established in environments that are more regularly impacted included plots within and traversing ephemeral watercourses. A total of eight pig monitoring plots were established at the project site (Figure 2 and Figure 3) including plots within the immediate vicinity of Naroo Dam in the east of the site. Eight pig monitoring plots were also established at the Lexington offset site (Figure 5 and Figure 6), one of which was relocated (P03) following a recommendation in the 2018/19 monitoring report (NRC 2019).

Each 15-ha plot comprised 3 x 500 m transects spaced 100 m apart. At each plot, the following method was used for each of the transects:

- traversing in an east-west direction, surveying for the presence of any feral pig signs (rooting, wallows, dung, footprints, travel pads, plant damage and tree rubs, as well as the physical presence of feral pigs) 1 m either side of the transect in 50 m sections
- calculating an abundance score for each transect as the percentage of 'present' feral pig signs from the 10 sections along the 500 m transect
- calculating the mean abundance score (and variance) across all transects.

2.9 GENERAL SITE INSPECTIONS (ALL SITES)

General site inspections across all project and offset sites was undertaken, to assess:

- Observations of fencing condition, including any repair/upgrades
- Access track conditions, including location of watercourse crossings, grids, erosion, etc
- Fire management, including assessment of existing firebreaks, access tracks and roads, fuel loads, and any recent burning activities
- Livestock management including assessment of signs of land degradation and over-grazing
- Erosion management, including assessment of the incidence of erosion, especially around permanent and semi-permanent water bodies or areas subject to inundation or waterlogging
- Incidental fauna observations, including presence, traces and/or abundance of pest animals
- Signs of dust deposition on vegetation located adjacent to the MDS Project and MDS Rail Loop footprints
- Locations of known king blue-grass and bluegrass specimens throughout all sites
- Any additional risks to fauna (i.e. evidence of vehicle strike)

3 RESULTS: MDS PROJECT SITE

3.1 TARGETED SURVEYS

Post-wet season, targeted surveys were undertaken for king blue-grass bluegrass and squatter pigeon; the results for which are described below.

3.1.1 King blue-grass and bluegrass

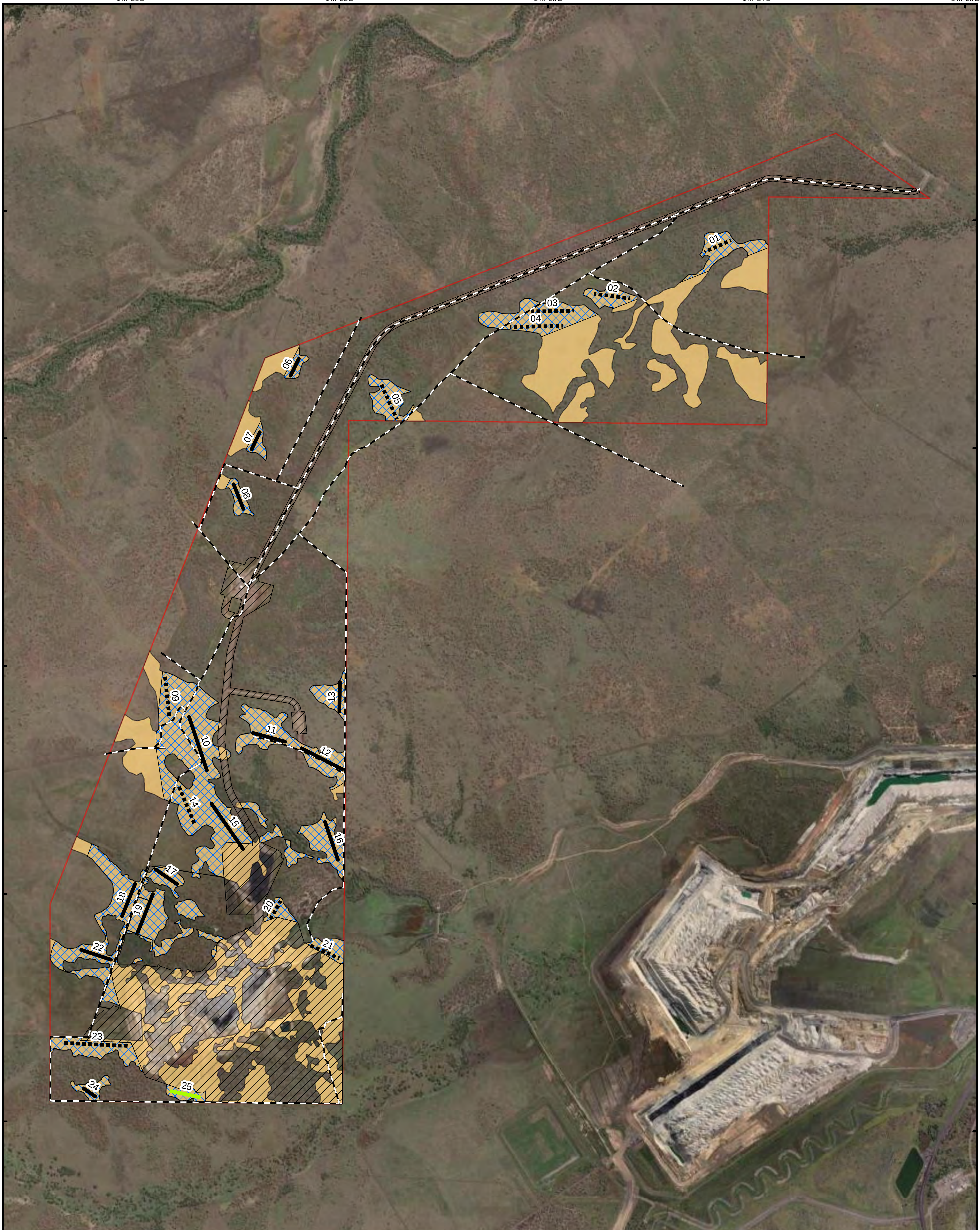
Due to an unusually dry wet season (December to February), grasses at the MDS site were dry and desiccated and contained little to no fertile material which is used to identify them. As such, detectability of king blue-grass and bluegrass was reduced. Targeted surveys confirmed the presence of king blue-grass at transects in the south of the MDS Project site. Bluegrass was unable to be positively identified due to sub-optimal conditions for detection. Records of king blue-grass were confirmed from one (6.7%) of the 15 threatened grass survey transects (transect 25) (Table 10, Figure 10 and Figure 11), with no incidentally recorded populations detected outside of targeted survey transects. Five populations of king blue-grass were recorded along transect 25 (totalling 40-130 tussocks), compared with eight populations recorded in 2020. A single population was identified from transect 25, represented by 2-5 tussocks. The paucity of records during this 2022 post-wet season survey compared with previous surveys is likely a consequence of reduced detectability rather than a reduction (or otherwise) of king blue-grass and bluegrass throughout the MDS Project site.

Table 10: King blue-grass populations and their estimated size from transects at the MDS Project site in March 2022

Transect number	King blue-grass population size range					Population per transect
25	5-20	20-50	5-20	5-20	5-20	40-130
Total survey area population (range)	**40-130**					
Number of populations (#/km)	**5 (1.24/km)***					

* Based on a total survey area of 4,037 m.

Records of bluegrass were not able to be detected from any of the 15 threatened grass survey transects, nor incidentally throughout the site (Figure 10).



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Location diagram

Figure 10
MDS Project
Threatened grass survey results overview

Mining Lease
Disturbance areas
Access tracks
Habitat for King blue-grass and bluegrass
Threatened grass survey area

Grass survey transects
Transect not surveyed
No threatened grasses
King blue-grass
Bluegrass

0 0.25 0.5 0.75 1
Kilometres

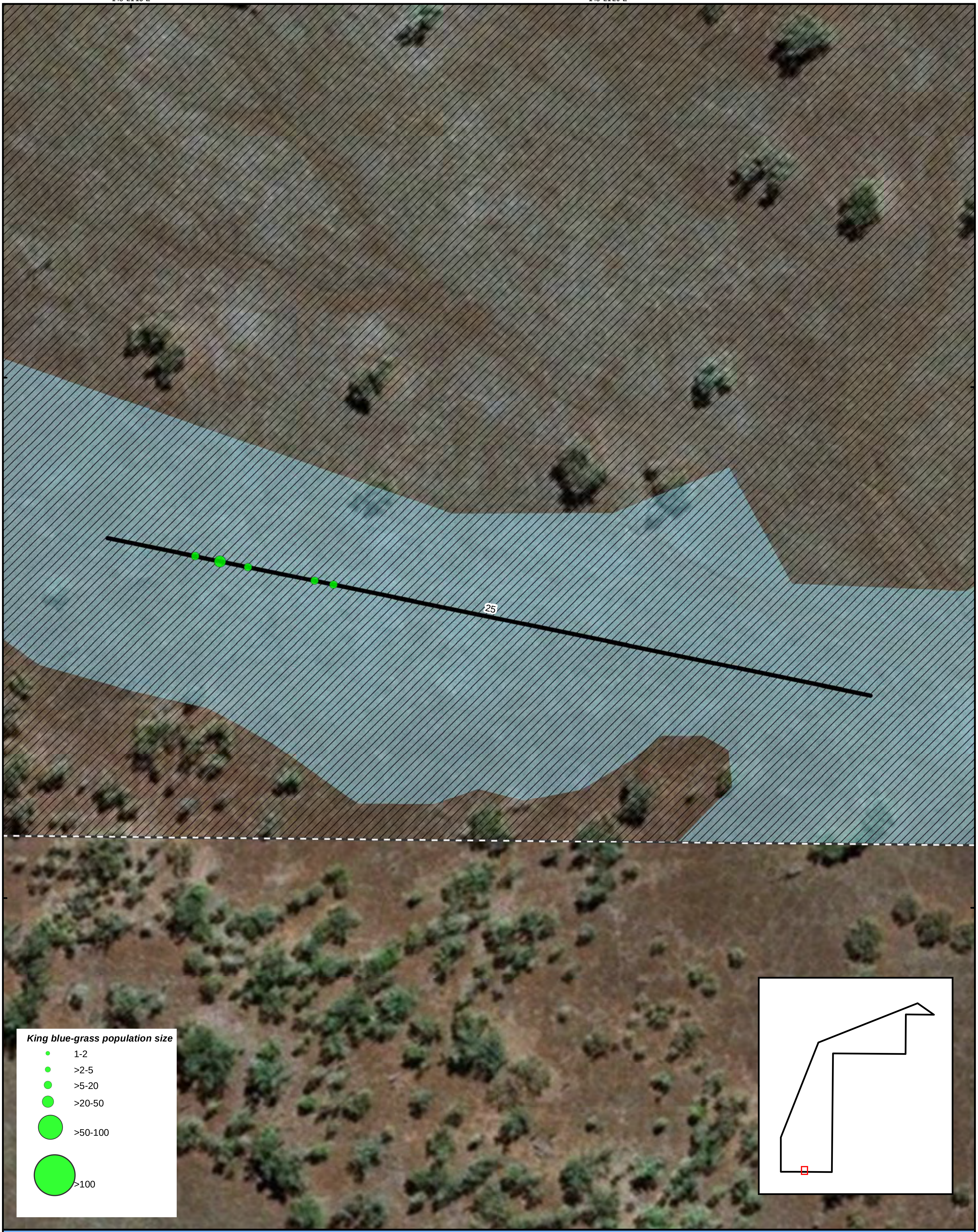
N

CO2 Australia

DATA SOURCE:
The following datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Habitat for king blue-grass and bluegrass

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:27,500@A3

Path: P:\GIS\Data\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_21\20220406 - Figure 10 - MDS KBG BG survey overviews.mxd



Sojitz Blue Pty Ltd

Location diagram

Figure 11
MDS Project
Threatened grass survey results - transect 25

Mining Lease
Disturbance areas
Tracks
Threatened grass survey area
Grass survey transects

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz MDS Mining Pty Ltd
- Disturbance areas

0 10 20 30 40
Metres

N

CO2 Australia

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:1,000@A3

3.1.2 Squatter pigeon

Incidental searches for the squatter pigeon were conducted opportunistically from over 130 km of driving during the four days of field surveys on the project site, however, no squatter pigeons were recorded.

3.1.3 Australian painted snipe

Surveying was undertaken around Naroo Dam for Australian painted snipe on one morning (8 March 2022), from sunrise (~6.00am). Access was granted to Naroo Dam via the Glencore Rolleston Mine, which allowed for an on-ground inspection of the dam (as it lies outside the Sojitz Coal Mine ML). At the time of surveying, there was virtually no open body of water except for a small ~10 m x 5 m 'pond' near the dam wall in the northeast corner of the dam (Figure 12 and Figure 13). The survey involved traversing the surrounding fringing vegetation (as close to the waterline as possible) for 10 minutes and a brief scan of the surrounding banks for the Australian painted snipe. This body of water was not shallow and did not provide suitable habitat (e.g. shallow mud flats) as required by the Australian painted snipe. Vegetation surrounding the body of water was dense and consisted mostly of a *Typha* sp. and other aquatic species as well as various weed species (e.g. *Megathyrsus maximus* and *Vachellia farnesiana*). Other areas of Naroo Dam that have been inundated in the past were dry and unsuitable for the Australian painted snipe. It was deemed that, at the time of survey, Naroo Dam did not provide suitable habitat for the Australian painted snipe.

Figure 12: Naroo Dam looking west from the dam wall showing a small open waterbody and surrounding dried plains

Figure 13: Remaining waterbody at Naroo Dam

3.2 WEED MONITORING

A total of 12 weed species were identified from the weed monitoring plots. No additional species of weeds were observed on the MDS Project site outside of those identified within the weed monitoring plots. Across the 20 weed monitoring plots, the average number of weed species observed per plot was 2.9 species, ranging between one species (Sites 1-4, 12) and 6 species (Sites 07 and 09). Weed cover across the 20 weed monitoring plots averaged 8.7%; ranging between 0.1% (Site 02) and 51.2% (Site 20)(Table 11 and Figure 14).

The most commonly encountered weed was *Parthenium hysterophorus* (parthenium), recorded from 14 of the 20 sites, followed by *Melinis repens* (*red natal grass*) at 11 of the 20 sites (Table 11), with five of the 12 weed species only encountered at single sites. While encountered at a large number of sites, the average cover of *Parthenium hysterophorus* and *Melinis repens* across those encountered sites averaged 6.9% and 3.8%, respectively. For those weeds found from at least two sites, *Parthenium hysterophorus* was the weed species with the highest average cover (6.9%), and also had the highest cover at any single site (46.4% at Site 20) (Table 11).

The observed number of weed species and weed cover is atypically low for the post-wet season and can be attributed to a lack of annual weed species, which would have died back in response to low rainfall over the summer wet season months. However, this is not to say that these species are not still in the soil seed bank, and they may reappear after sufficient rain.

Table 11: Results of weed monitoring assessments at the MDS Project site

Scientific name	Common name	Family	Percentage cover of weed species from given site																				# sites	Avg cover (%)[a]
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20		
Bidens pilosa	Cobbler's pegs	Asteraceae									0.6												1	0.6
Parthenium hysterophorus	Parthenium weed	Asteraceae		0.1		5.2	1.1	0.9	1.0	0.4	2.9				22.7	0.1	1.3	0.1	7.5	6.9		46.4	14	6.9
Verbesina encelioides	Goldweed	Asteraceae									0.3												1	0.3
Stylosanthes scabra	Shrubby stylo	Fabaceae							0.6								1.0	0.9			0.4		4	0.7
Vachellia farnesiana	Mimosa bush	Fabaceae									0.5		0.1					0.1	3.1	1.3	0.8		6	1.0
Malvastrum americanum	Malvastrum	Malvaceae									2.1		0.1		0.1	0.5		0.1	0.2	2.4	0.1		8	0.7
Bothrichloa pertusa	Indian bluegrass	Poaceae																				2.5	1	2.5
Cenchrus ciliaris	Buffel grass	Poaceae					0.5		4.1	0.5	0.5		0.6						1.0			2.4	7	1.4
Megathyrsus maximus	Guinea grass	Poaceae							2.5														1	2.5
Melinis repens	Red natal grass	Poaceae	0.3		2.6		22.5		0.1			0.3	3.5	4.3		0.2	0.8	0.1		11.0	0.5		12	3.8
Urochloa mosambicensis	Sabi grass	Poaceae							0.5										1.3				2	0.9
Verbena officinalis	Common verbena	Verbenaceae										0.1											1	0.1
		# species	1	1	1	1	3	1	6	2	6	2	4	1	2	3	3	5	5	4	4	3		
		Weed cover (%)[b]	0.3	0.1	2.6	5.2	24.1	0.9	8.8	0.9	6.9	0.4	4.3	4.3	22.8	0.8	3.1	1.3	13.0	21.5	1.8	51.2		

[a] Avg cover (%) represents the average percentage cover of a given weed species across encountered sites. [b] Weed cover represents the sum of the average weed cover percentages of all weed species.

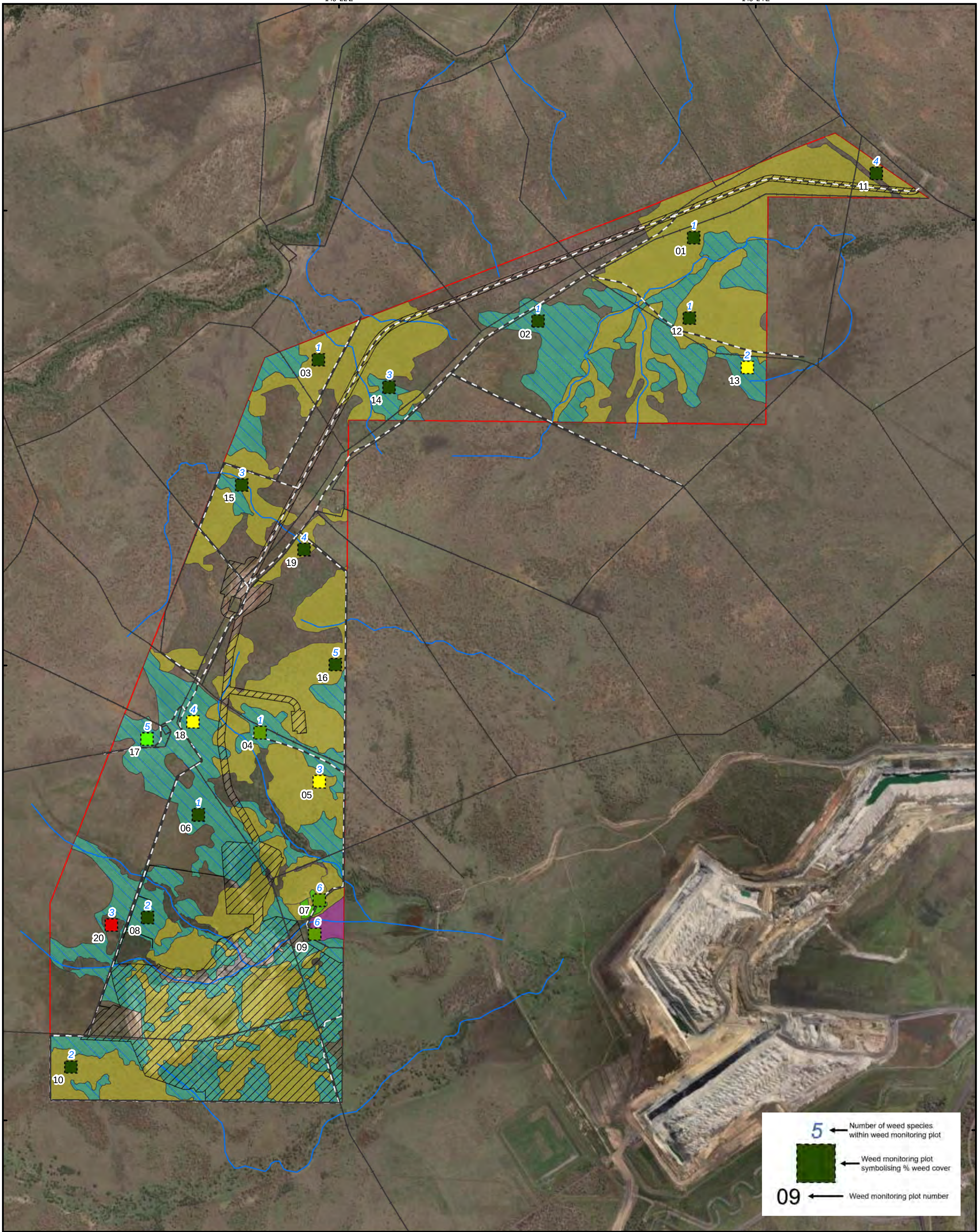


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Figure 14
MDS
Weed monitoring results

Disturbance areas
Mining Lease
Fences
Access tracks
Watercourse
Brigalow TEC
Natural Grassland TEC
Habitat for King blue-grass and bluegrass
Habitat for squatter pigeon
Habitat for Australian painted snipe
Weed monitoring plots

Weed cover (%)
< 5
6 - 10
11 - 15
16 - 25
26 - 50
51 - 100

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

0 0.25 0.5 0.75 1
Kilometres

N

CO2 Australia

Location diagram

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:27,500@A3

3.3 PEST ANIMAL MONITORING

3.3.1 Rabbits

Results of rabbit monitoring confirmed the presence of rabbit/hare scats from four of the ten rabbit monitoring plots (R05, R07, R08, R09; Figure 15). Across these plots, pellet abundance ranged from isolated pellets and small clumps more than 10 m apart, to common, pellets in larger clumps and occasional buck heaps 10 m apart (Site R09). European rabbits (*Oryctolagus cuniculus*) were not visually confirmed during these surveys, however a brown hare (*Lepus europaeus*) was sighted while undertaking pig transects at P08 and was also confirmed at a single camera station (C11)(see Section 3.3.3; Figure 18 and Figure 19).

Table 12 shows the results of the assessment of overall rabbit impact. The assessment of overall rabbit impact was denoted as 'Acceptable' for the majority of sites, with site R05 and R08 denoted as 'monitor closely' and sites R07 and R09 denoted as 'Unacceptable' due to higher rabbit abundance.

Table 12: Assessment of overall rabbit impact at the MDS Project site

Site	Rabbit abundance score (0 – 5)	Seedling abundance score (0 – 5)	Rabbit damage score (0 – 5)	Corrected regeneration score (0 – 5)	Overall rabbit impact
R01	0	1	0	1	Acceptable
R02	0	1	0	1	Acceptable
R03	0	2	0	2	Acceptable
R04	0	0	0	0.2	Acceptable
R05	1	2	0	2	Monitor closely
R06	0	0	0	0.2	Acceptable
R07	2	2	0	2	Unacceptable
R08	1	0	0	0.2	Monitor closely
R09	3	1	0	1	Unacceptable
R10	0	1	0	1	Acceptable

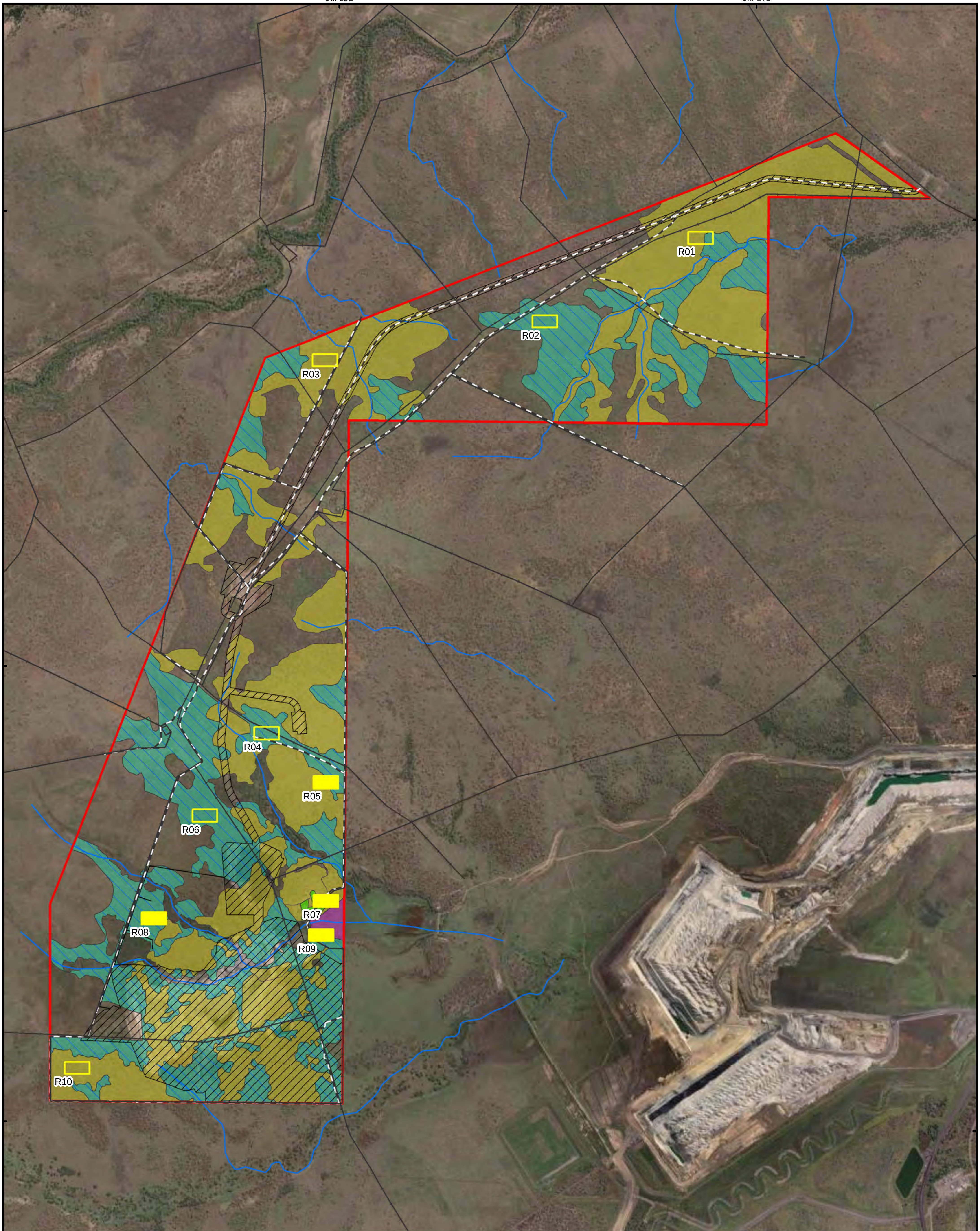

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Figure 15
MDS
Evidence of rabbits/hares

- Disturbance areas
- Mining Lease
- Fences
- Tracks
- Watercourse
- Brigalow TEC
- Natural Grassland TEC
- Habitat for King blue-grass and bluegrass
- Habitat for squatter pigeon
- Habitat for Australian painted snipe

Rabbit monitoring plots (R01 - R10)
- No evidence for rabbits/hares
- Evidence of rabbits/hares

0 0.25 0.5 0.75 1
Kilometres
N

CO2 Australia

Location diagram

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:27,500@A3

3.3.2 Feral pigs

Across all eight pig monitoring plots, represented by a total of 12 km of transects, there was confirmed evidence for the presence of feral pigs in five plots (Figure 16). No feral pigs were confirmed visually throughout the MDS Project site. Evidence of feral pig presence within plots ranged from 0% (Sites P02, P04, P07) to 10% (Sites P01 and P08) and, on average, was observed across 4.58% of the transect sections surveyed within each plot (Table 13).

Table 13: Assessment of overall feral pig presence and activity at the MDS Project site, denoted as either rooting (R), footprints (F), travel pads (P), or dung (D)

		Monitoring plot survey section (50 m)											
Plot	**Transect**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Transect**	**Plot % (record/30)**
P01	1								R			10%	10%
	2					R				R		20%	
	3											0%	
P02	1											0%	0%
	2											0%	
	3											0%	
P03	1						D					10%	3%
	2											0%	
	3											0%	
P04	1											0%	0%
	2											0%	
	3											0%	
P05	1									D		10%	7%
	2						D					10%	
	3											0%	
P06	1						D					10%	7%
	2							D				10%	
	3											0%	
P07	1											0%	0%
	2											0%	
	3											0%	
P08	1								DR			10%	10%
	2						R					10%	
	3		D									10%	
												Total	**4.58%**

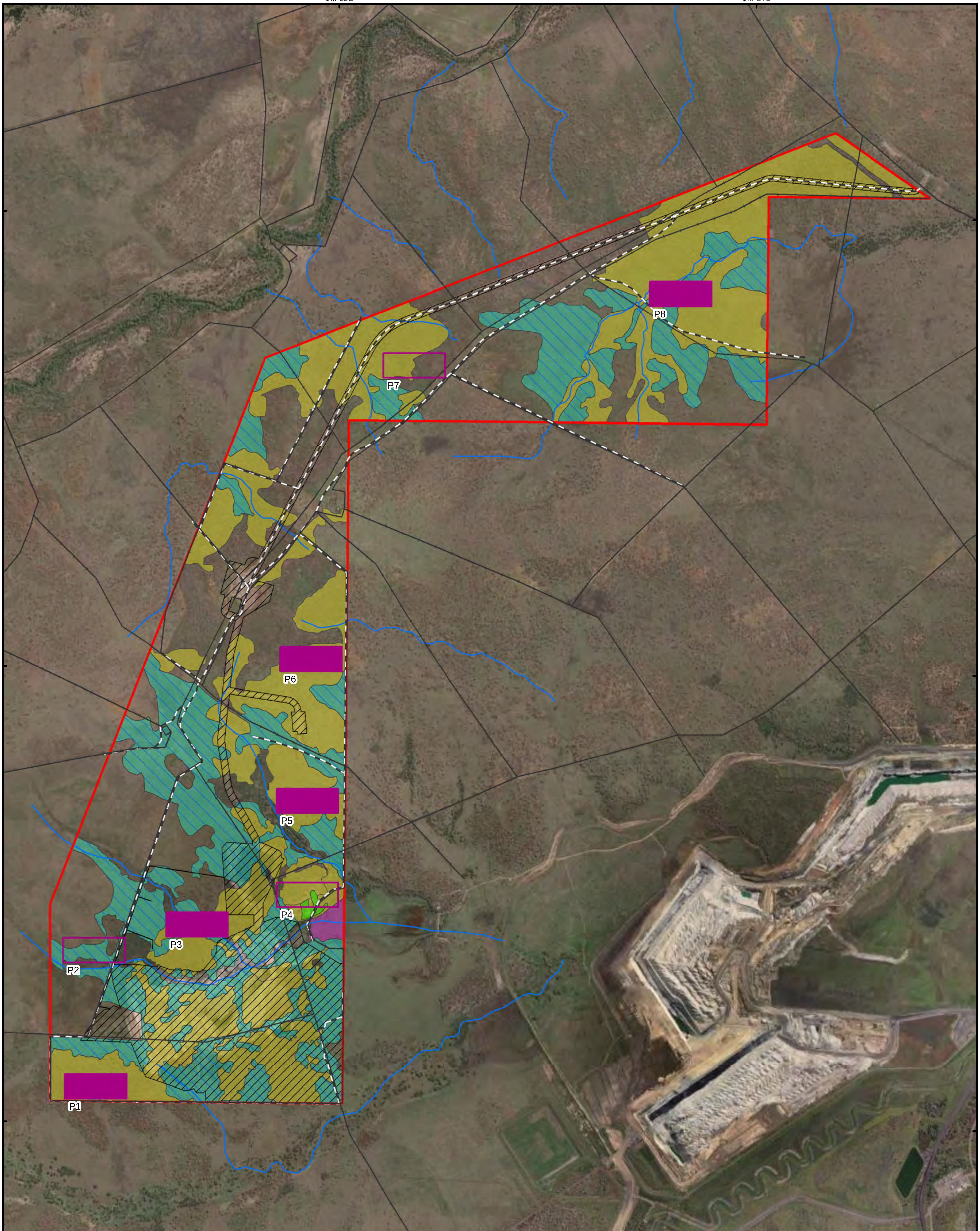

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Figure 16
MDS
Evidence of feral pigs

- Disturbance areas
- Mining Lease
- Fences
- Tracks
- Watercourse
- Brigalow TEC
- Natural Grassland TEC
- Habitat for King blue-grass and bluegrass
- Habitat for squatter pigeon
- Habitat for Australian painted snipe

Pig monitoring plots (P01 - P08)
- No evidence of feral pigs
- Evidence of feral pigs

0 0.25 0.5 0.75 1
Kilometres

N

CO2 Australia

Location diagram

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:27,500@A3

Path: P:\GISData\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\220406 - Figure 16 - MDS evidence of feral pigs.mxd

3.3.3 Fauna camera stations

Of the 15 fauna camera stations, 13 cameras were considered operable stations across each of the three consecutive nights. Two cameras (C01 and C02) were considered compromised across all three nights due to failed camera flashes, leaving photos taken at night (which would constitute the majority of pest animal activity) indiscernible. Additionally, C02 was knocked over by cattle on day 1 and could not take suitable daytime photos. As such, there was a total of 39 operable station nights for the purposes of calculating Catling Index values for pest animal species. The fauna cameras confirmed the presence of two targeted pest animal species, namely feral dogs (*Canis familiaris/lupus*) (Figure 17), and a brown hare (*Lepus europaeus*) (Figure 18). Scores from all four pest animal species detected ranged from 2.6 (brown hare) to 5.1 (feral dog) (Table 14). Cats, feral pigs and European rabbits were not detected by fauna cameras. Additionally, cane toads (*Rhinella marina*) were detected on one camera (C15). Non-pest animals were also detected from the fauna camera stations, including a stubble quail (*Coturnix pectoralis*), peaceful doves (*Geopelia striata*), a common brushtail possum (*Trichosurus vulpecula*) and cattle (*Bos taurus*).

Overall, there were three individual pest animal detections, recorded from three of the 13 operable fauna camera stations (Table 14). These detections were made on the east, west and north of the mining lease (Figure 19).

Table 14: Pest animal results for the MDS Project site

Pest animal species	Confirmed incidence of pest animal species from given site															Catling Index
	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	
Dog																
Day 1																
Day 2				✓			✓									**5.1**
Day 3																
Cat																
Day 1																
Day 2																**0**
Day 3																
European rabbit																
Day 1																
Day 2																**0**
Day 3																
Brown hare																
Day 1																
Day 2											✓					**2.6**
Day 3																
Feral pig																
Day 1																
Day 2																**0**
Day 3																

Figure 17: Feral dog (*Canis familiaris/lupus*) captured at camera C07 at the MDS Project site

Figure 18: Brown hare (*Lepus europaeus*) captured at camera C11 at the MDS Project site

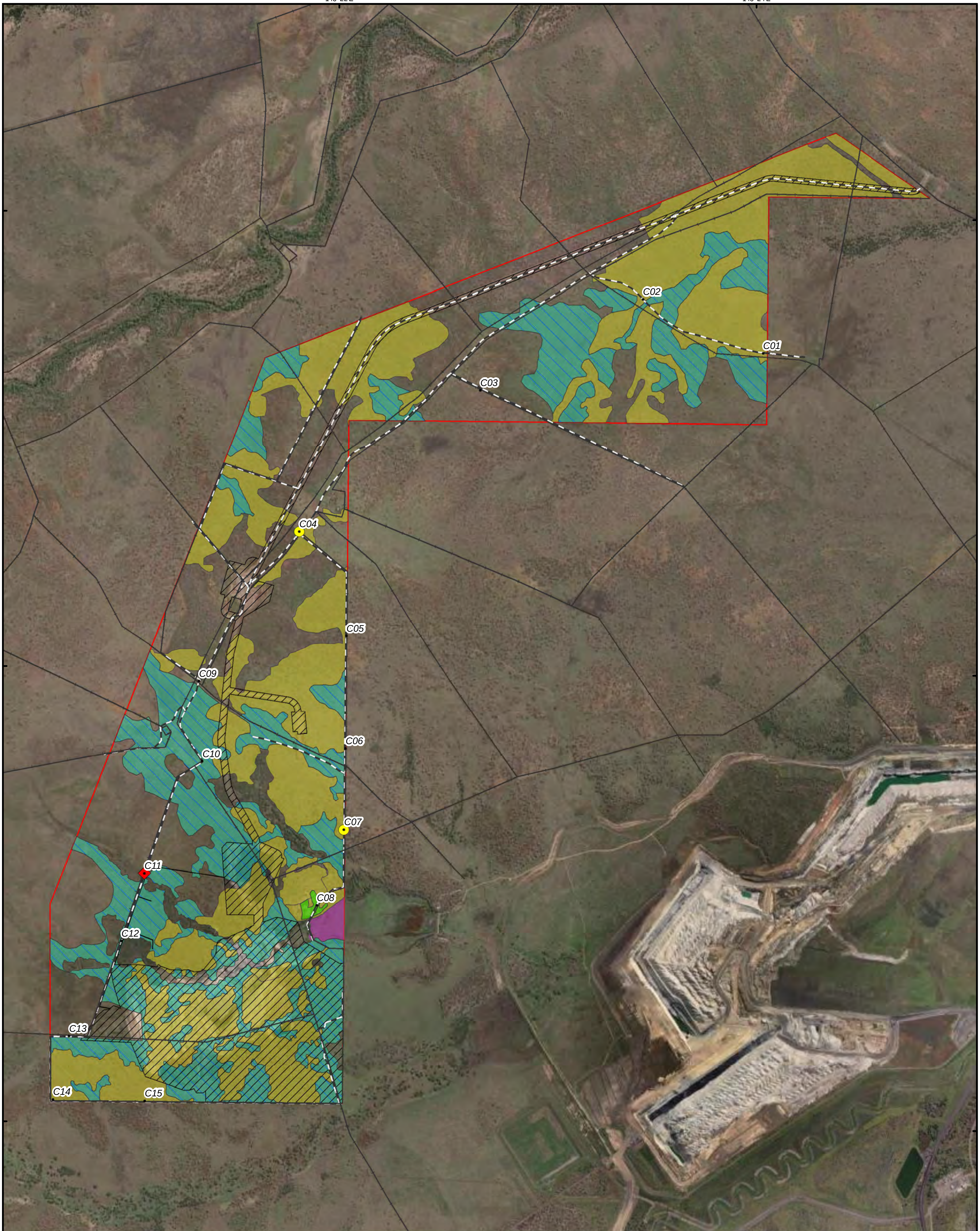

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Figure 19
MDS
Pest animal results

- Disturbance areas
- Mining Lease
- Fences
- Tracks
- Brigalow TEC
- Natural Grassland TEC
- Habitat for King blue-grass and bluegrass
- Habitat for squatter pigeon
- Habitat for Australian painted snipe

Dogs (# days confirmed)
- 1 day

Hares (# days confirmed)
- 1 day

DATA SOURCE:
The folowing datasets are © State of Qld:
- Mining Lease
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed regional ecosystem mapping

0 0.25 0.5 0.75 1
Kilometres

N

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:27,500@A3

Location diagram

3.4 BIOMASS MONITORING

Brigalow Belt pasture photo standards were used for all biomass monitoring points. ‘Downs country’ photo standards were used for monitoring sites comprising RE 11.8.11, whilst biomass monitoring results from areas of RE 11.8.5 were assessed against ‘Eucalypt woodlands’, RE 11.4.3 was assessed against ‘Bluegrass, wiregrass’, and RE 11.3.3a was assessed against ‘Alluvial’ photo standards (Table 15). Where the observed biomass at a site was mid-way between two photos within a given biomass standard, the middle of the corresponding range was reported (i.e. observed biomass between 2,500 kg/ha and 3,600 kg/ha ‘Eucalypt woodlands’ photo standards was reported as 3,050 kg/ha).

Photo monitoring showed some variability in biomass of ground cover across all 10 photo monitoring sites, although biomass levels were generally high following plentiful rainfall in the second half of 2021. Sites in RE 11.8.11 supported the greatest biomass (averaging 4,296 kg/ha), while Site 07 (RE 11.4.3) supported the lowest biomass (1,750 kg/ha) (Table 15). Areas of RE 11.8.5 supported mostly ≥2,500 kg/ha (except for site 03 at 1,800 kg/ha), averaging 3,086 kg/ha, the one RE 11.3.3a photo monitoring site supported 2,250 kg/ha biomass.

Ground photos used to assign biomass at the MDS Project site are shown in Appendix D.

Table 15: Results of biomass monitoring on the MDS Project site using Brigalow Belt Future Beef pasture photo standards

		Brigalow Belt Future Beef pasture photo standard type				
Photo monitoring site*	RE type	Eucalypt woodlands	Blue grass, wire grass	Alluvial	Downs country	Biomass kg/ha
01	11.8.5	✓				2,500
02	11.8.11				✓	3,850
03	11.8.5	✓				1,800
04	11.8.11				✓	5,040
05	11.8.5	✓				3,600
06	11.8.11				✓	3,850
07	11.4.3		✓			1,750
08	11.8.11				✓	4,445
09	11.3.3a			✓		2,250
10	11.8.5	✓				4,445

* taken from the 0 m point of the permanent habitat monitoring transects.

3.5 GENERAL SITE INSPECTION

The condition of fencing and access gates across the MDS site was good, with no requirement for repair at the time of surveying. Existing access tracks including firebreaks were of a similar standard.

Field traverses in the south-west of the MDS Project site noted areas of RE 11.8.11a under stress, with the majority of *Melaleuca bracteata* in these areas showing signs of dieback. However, it was noted that much of this vegetation community was showing evidence of epicormic regrowth. It is therefore likely that this vegetation community is in a state of recovery following the drought prior to the 2019/2020 wet season. Notwithstanding, the condition of these communities will need to continue to be monitored to exclude alternative reasons for the dieback (e.g. whether a consequence of hydrological changes).

Additionally, as noted in Section 3.1.3, Naroo Dam has experienced a drying event and now harbours only a small body of water. This is despite higher-than-average rainfall in the area over the past two years. Ongoing monitoring and/or corrective actions between Sojitz and Glencore is recommended as the aquatic (lacustrine and palustrine) ecosystem is considered likely to further degrade.

Site assessments revealed that some areas in the west of the ML (near site 17) still showed evidence of grazing pressure (e.g. reduced grass height, bare soil areas). These areas will require ongoing monitoring to ensure they recover adequately. Notwithstanding, it is acknowledged that MDS is responsible for the management of activities within the MDS Project site only and does not have any responsibility for grazing regimes in the mining lease area that is outside of the MDS Project site.

Site traverses as part of all monitoring activities on the MDS Project site showed no obvious evidence of any dust deposition, nor any impacts attributable to dust deposition on king blue-grass, bluegrass or other vegetation communities. Approximately 1 ha of cleared grassland (consistent with RE 11.8.11) was observed in the east of ML70452 associated with the mine’s explosives cache. The area of clearing intersects a grass survey transect (site 12) where king blue-grass has previously been recorded.

Note that RE 11.8.11a is no longer a recognised regional ecosystem since the release of version 12 of the Regional Ecosystem Description Database (REDD) in March 2021 (Queensland Herbarium 2021). Instead, all areas of RE 11.8.11a are now recognised as RE 11.3.25d. This constitutes not only a change in RE, but a change in landzone (LZ) (i.e. LZ 11 to LZ 3). Notwithstanding, all mention of RE 11.8.11a will continue given historical approval incorporating this regional ecosystem.

4 RESULTS: MDS RAIL LOOP SITE

4.1 HABITAT MONITORING

4.1.1 Site condition and context

Results of habitat condition assessments identified an average site condition score of 5.92 out of 10 across all four habitat monitoring sites, with scores ranging between 4.67 (Site MDSRL04) and 7.00 (Site MDSRL02). Site context scores varied from 8.85 out of 10 (MDSRL02, MDSRL03 and MDSRL04) up to 10 out of 10 (MDSRL01). Appendix B outline details of the site condition assessments, summarised below in Table 16.

It should be noted that high rainfall between October and November 2021 is likely to have increased weed cover (and native perennial grass cover and organic litter, to an extent). However, low rainfall between December 2021 and the March 2022 survey period left many of the grass specimens dry and lacking fertile material (which is key to their identification). As such, species richness may be reduced compared to a typical post-wet season survey.

Table 16: MDS Rail Loop site habitat monitoring sites: site condition and site context scores calculated in accordance with the *Guide to determining terrestrial habitat quality* (DEHP 2017)

Site	RE	Easting	Northing	Site condition score (/10)	Site context score (/10)
MDSRL01	11.8.11	645575	7303101	6.33	10.00
MDSRL02	11.8.11	646410	7303007	7.00	8.85
MDSRL03	11.8.11	646666	7303114	5.67	8.85
MDSRL04	11.8.11	646834	7303291	4.67	8.85
			Average score	**5.92**	**9.13**

4.1.2 MNES habitat condition assessments

Based on the results of the site condition and context assessments, habitat condition scores for the two MNES averaged 7.14 out of 10 for Natural Grasslands TEC and 7.41 out of 10 for king blue-grass (Table 17).

Table 17: MDS Rail Loop site monitoring sites showing their habitat condition scores contributing to MNES

Site	RE	Natural Grasslands TEC	King blue-grass
MDSRL01	11.8.11	8.04	8.43
MDSRL 02	11.8.11	7.86	8.29
MDSRL 03	11.8.11	7.14	5.71
MDSRL 04	11.8.11	6.61	5.29
	Average score	**7.14**	**7.41**

Natural Grasslands habitat

Natural Grasslands TEC habitat condition scores for the four habitat monitoring sites ranged between 6.61 and 8.04 (Table 17). The four assessment sites supported between three and five TEC indicator grass species (Table 18).

Natural Grassland quality assessments were conducted at each of the four habitat condition sites within a 50 m x 10 m plot. This included an assessment of the species richness of Natural Grassland TEC indicator species, density of grass tussocks, shrub cover and non-native plant cover as per the approved Commonwealth listing advice (TSSC 2009) (Table 7). The results of this assessment (Table 19) indicated that only one of the condition sites (MDSRL02) was in 'good' condition, with the remaining three sites (MDSRL01, MDSRL03 and MDSRL04) being less than 'good' condition. According to the approved Commonwealth listing advice (TSSC 2009), MDSRL01, MDSRL03 and MDSRL04 do not meet the criteria for 'good' or 'best' condition class on account of the sites having weed cover > 30%, and are therefore too degraded to be considered to comprise the Natural Grasslands TEC.

As mentioned in Section 4.1.1, low rainfall between December 2021 and the March 2022 post-wet season surveys had left most of the grass specimens dry and lacking fertile material. As such, some natural grasslands TEC indicator species may have been unable to be accurately identified in-field, despite being present.

Table 18: Natural grasslands TEC indicator species at the MDS Rail Loop site

Scientific name	Common name	MDSRL01 RE 11.8.11	MDSRL02 RE 11.8.11	MDSRL03 RE 11.8.11	MDSRL04 RE 11.8.11
Aristida latifolia	Feather-top wiregrass	✓		✓	✓
Aristida leptopoda	White speargrass		✓		✓
Astrebla elymoides	Hoop mitchell grass				
Astrebla lappacea	Curly mitchell grass				
Astrebla squarrosa	Bull mitchell grass				
Bothriochloa erianthoides	Satin-top grass				
Dichanthium queenslandicum	King blue-grass	✓	✓		
Dichanthium sericeum	Queensland bluegrass	✓	✓	✓	✓
Eriochloa crebra	Cup grass				
Panicum decompositum	Native millet	✓			
Panicum queenslandicum	Yabila grass	✓	✓	✓	✓
Paspalidium globoideum	Shot grass				
Thellungia advena	Coolibah grass				
	TOTAL	**5**	**4**	**3**	**4**

Table 19: Condition classes for the Natural Grasslands TEC

TEC quality criteria	MDSRL01 RE 11.8.11	MDSRL02 RE 11.8.11	MDSRL03 RE 11.8.11	MDSRL04 RE 11.8.11
Perennial indicator grass species	5	4	3	4
Number of native grass tussocks	>200	>200	>200	>200
Woody shrub canopy cover (%)	<5	<5	<5	<5
Perennial non-native plant cover (%)	40	22	47	74
Condition class	**Not TEC**	**Good**	**Not TEC**	**Not TEC**

King blue-grass habitat

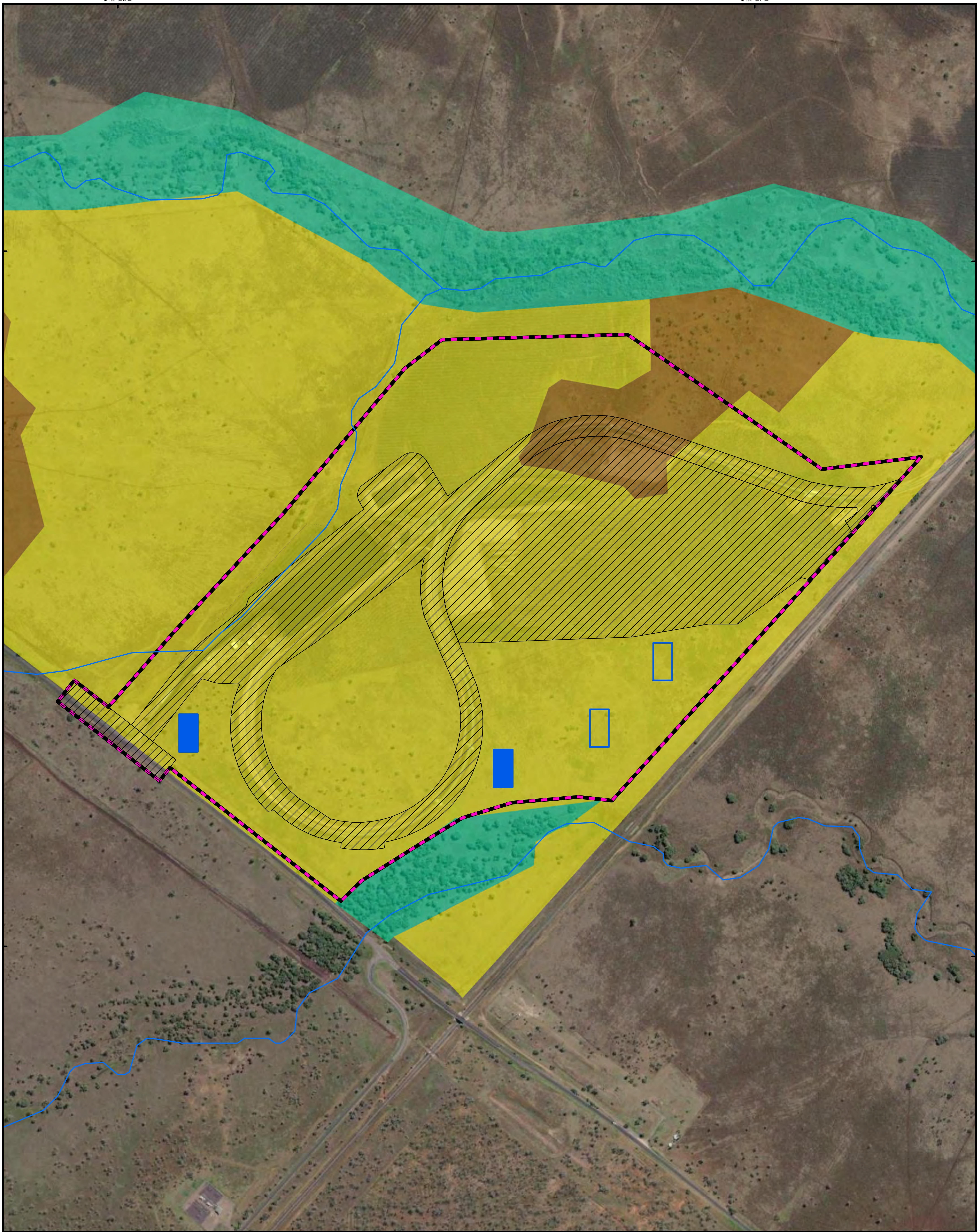
King blue-grass habitat condition scores for the four habitat monitoring sites ranged between 5.29 and 8.43 (Table 17). King blue-grass specimens were positively identified at two of the four habitat monitoring sites (MDSRL01 and MDSRL02) (Table 18) which accounts for the higher habitat condition scores at these two sites (Figure 20 and Figure 21). Incidental observations of king blue-grass were also made within proximity to sites MDSRL01, MDSRL02 and MDSRL05 (Figure 20).

4.2 WEED MONITORING

A total of six weed species were identified from the five weed monitoring plots. No additional species of weeds were observed on the site outside of those identified within the weed monitoring plots. Across the five weed monitoring plots, the average number of weed species observed per plot was 2.8 species, ranging between one species (Site MDSRL03 and MDSRL05) and six species (Site MDSRL01), with three weed species only encountered at single sites. Weed cover across the five weed monitoring plots averaged 36.9%; ranging between 15.8% (Site MDSRL05) and 55.6% (Site MDSRL02)(Table 20 and Figure 22).

The most commonly encountered weed was *Setaria incrassata*, which was recorded from all five sites (Table 20). *Setaria incrassata* also had the highest average cover of 28.5%. *Cenchrus ciliaris* and *Melinis repens* were encountered at three of the five sites, and had the second and third highest average cover, averaging 9.3% and 4.4% cover, respectively, across the three sites they were recorded from (Table 20).

The observed number of weed species is low for the post-wet season and can be attributed to a lack of annual weed species, which would have died back in response to low rainfall over the summer wet season months. During the survey period, most weed cover appeared to consist of perennial weed species (e.g. *Setaria incrassata*).



Sojitz Blue Pty Ltd

Figure 20
MDS Rail Loop
Threatened grass survey results overview

Disturbance areas
MDS Rail Loop site
Watercourse

Ground-truthed REs
RE 11.8.11
RE 11.8.11/11.8.5
RE 11.3.3a

Grass survey results
No King blue-grass
King blue-grass confirmed

DATA SOURCE:
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed REs

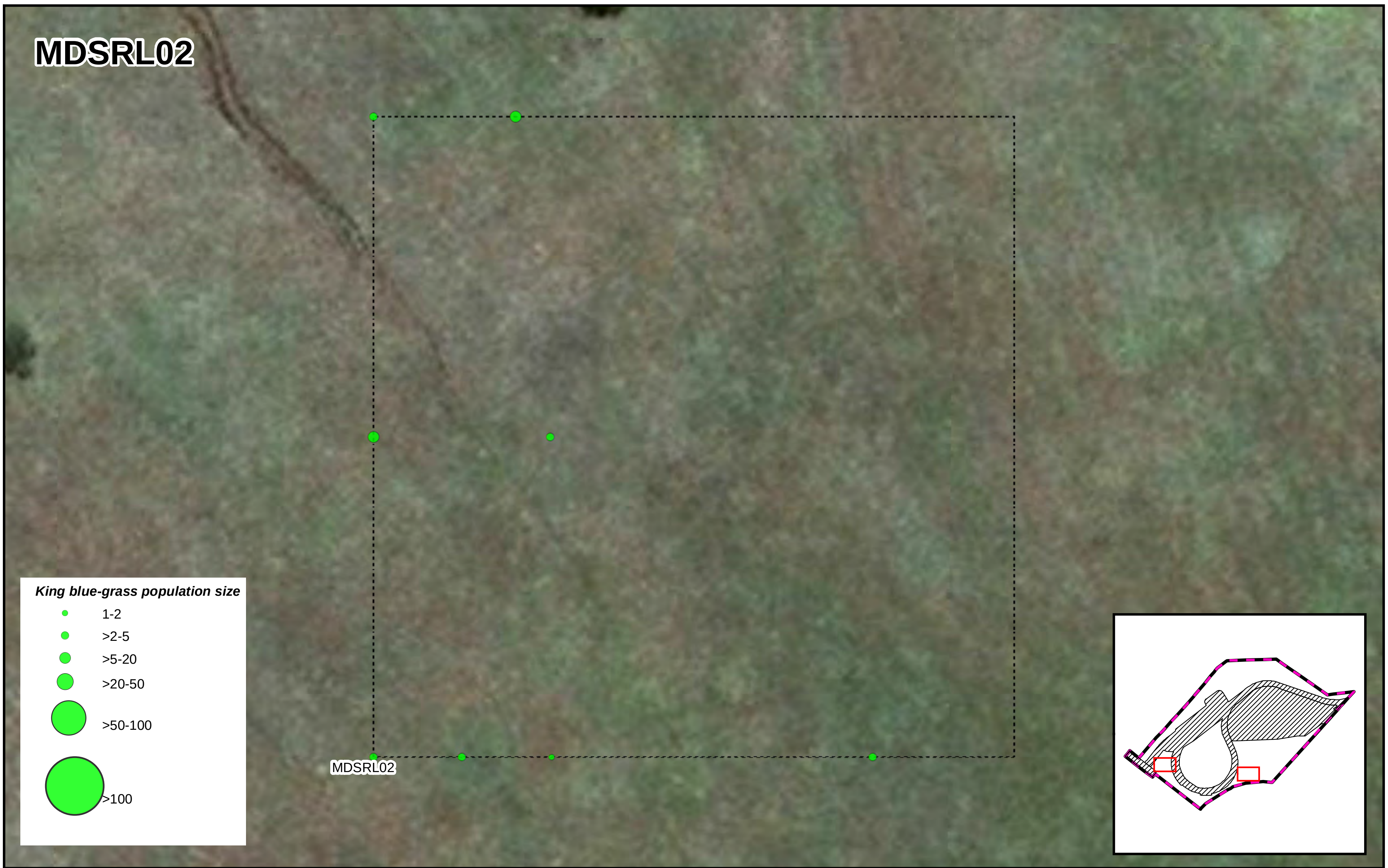
Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:9,000@A3

0 100 200 300 400
Metres

N

CO2 Australia

Location diagram



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Location diagram

Figure 21
MDS Rail Loop
Threatened grass survey results - MDSRL01 and MDSRL02

Watercourse
Grass survey plot
Disturbance areas
MDS Rail Loop site

DATA SOURCE:
The following datasets provided by Sojitz
- Disturbance areas

0 10 20 30 40
Metres

N

CO2 Australia

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:750@A3

Path: P:\GIS\Data\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\20220406 - Figure 21 - MDSRL KBG survey MDSRL01_MDSRL02.mxd

Table 20: Results of weed monitoring assessments at the MDS Rail Loop site

Scientific name	Common name	Family	Percentage cover of weed species from given site					# sites	Avg cover (%)[a]
			MDSRL01	MDSRL02	MDSRL03	MDSRL04	MDSRL05		
Parthenium hysterophorus	Parthenium weed	Asteraceae				0.1		1	0.1
Cenchrus ciliaris	Buffel grass	Poaceae	2.6	9.4		1.3		3	4.4
Melinis repens	Red natal grass	Poaceae	24.4	0.5		3.1		3	9.3
Setaria incrassata	Purple pigeon grass	Poaceae	16.7	26.6	55.6	28.1	15.8	5	28.5
Urochloa decumbens	Signal grass	Poaceae				0.2		1	0.2
Physalis lanceifolia	Gooseberry	Solanaceae				0.1		1	0.1
		# species	3	3	1	6	1		
		Weed cover (%)[b]	43.7	36.5	55.6	32.9	15.8		

[a] Avg cover (%) represents the average percentage cover of a given weed species across encountered sites.

[b] Weed cover represents the sum of the average weed cover percentages of all weed species.

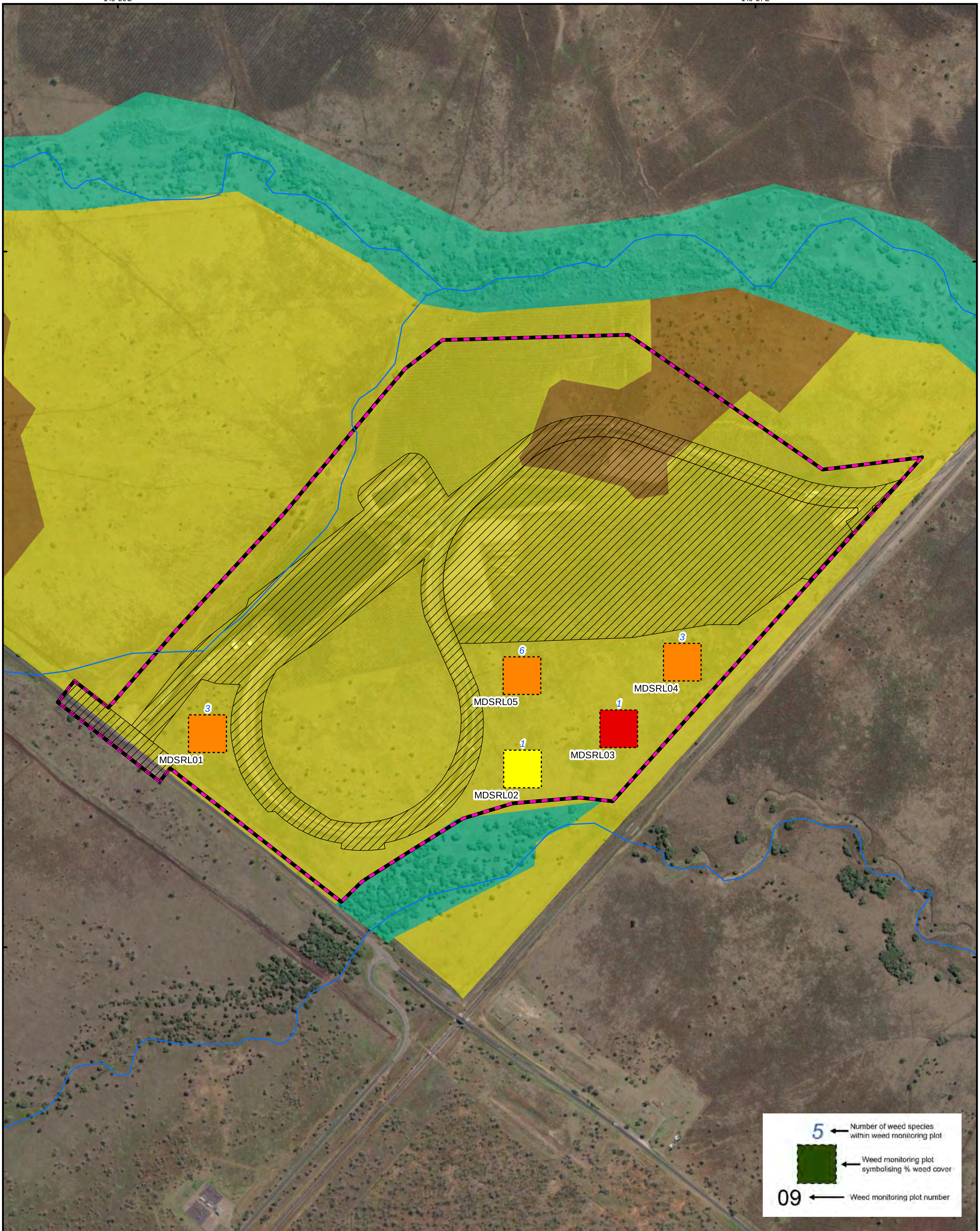

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Figure 22
MDS Rail Loop
Weed monitoring results

Disturbance areas
MDS Rail Loop site
Watercourse

Ground-truthed REs

RE 11.8.11
RE 11.8.11/11.8.5
RE 11.3.3a

Weed monitoring plots

Weed cover (%)

< 5
6 - 10
11 - 15
16 - 25
26 - 50
51 - 100

DATA SOURCE:
The following datasets provided by Sojitz
- Disturbance areas
- Ground-truthed REs

0 100 200 300 400
Metres

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:9,000@A3

Location diagram

4.3 PHOTO MONITORING

Photo monitoring of the MDS Rail Loop site showed consistently high levels of biomass, characterised by dense non-native grass cover (e.g. *Setaria incrassata*; see Photo E-25 in Appendix E). This is likely a consequence of historical disturbance, with the current weedy condition an indication that the site is in a state of recovery. Ongoing management and concurrent photo monitoring should detect that change over time, as the grassland continues to recover. The results of the photo monitoring in the MDS Rail Loop site are presented in Appendix E.

4.4 BIOMASS MONITORING

Brigalow Belt pasture photo standards were used for all biomass monitoring points. 'Downs country' photo standards were used for monitoring all four of the sites comprising RE 11.8.11 (Table 21).

Photo monitoring showed biomass of ground cover across all four photo monitoring sites was high, with all sites supporting a biomass of at least 5,040 kg/ha. This is likely attributable to high rainfall in the second half of 2021.

Ground photos used to assign biomass at the MDS Rail Loop site are shown in Appendix E.

Table 21: Results of biomass monitoring on the MDS Project site using Brigalow Belt Future Beef pasture photo standards

		Brigalow Belt Future Beef pasture photo standard type	
Photo monitoring site*	RE type	Downs country	Biomass kg/ha
MDSRL01	11.8.11	✓	5,040
MDSRL02	11.8.11	✓	5,040
MDSRL03	11.8.11	✓	5,040
MDSRL04	11.8.11	✓	5,040

* taken from the 50 m point of the permanent habitat monitoring transect.

4.5 GENERAL SITE INSPECTION

It is understood that a fire occurred adjacent to the RE 11.8.11 at the MDSRL in mid-2021, however did not appear to have affected grass tussocks or cover the areas surveyed as part of the dry season surveys. Consequently, a fire break has been constructed through the middle of the RE 11.8.11 at the MDSRL (Figure 4). Small amounts of rubbish were observed adjacent to the railway track itself, however this is not likely to impact on the monitoring area. There was no evidence of dust or other particulate material on the vegetation within the MDS Rail Loop monitoring area. It is noted that BioCondition weed cover estimates appear to be higher than previous surveys at most sites, particularly at site 04 which is adjacent to the Dawson Highway. Non-native grass species (e.g. *Setaria incrassata*, *Melinis repens* and *Cenchrus ciliaris*) form the majority of weed incursion in the MDS Rail Loop site Natural Grasslands TEC.

5 RESULTS: LEXINGTON OFFSET SITE

5.1 WEED MONITORING

A total of 16 weed species were identified from the 20 weed monitoring plots. No additional species of weeds were observed on the site outside of those identified within the weed monitoring plots. Across the 20 weed monitoring plots, the average number of weed species observed per plot was 3.95 species, ranging between two species (Sites 12, 14, 19, 20) and nine species (Site 10), with six weed species only encountered at single sites. Weed cover across the 20 weed monitoring plots averaged 18%; ranging between 1.8% (Site 06) and 48.9% (Site 09; Table 22; Figure 23).

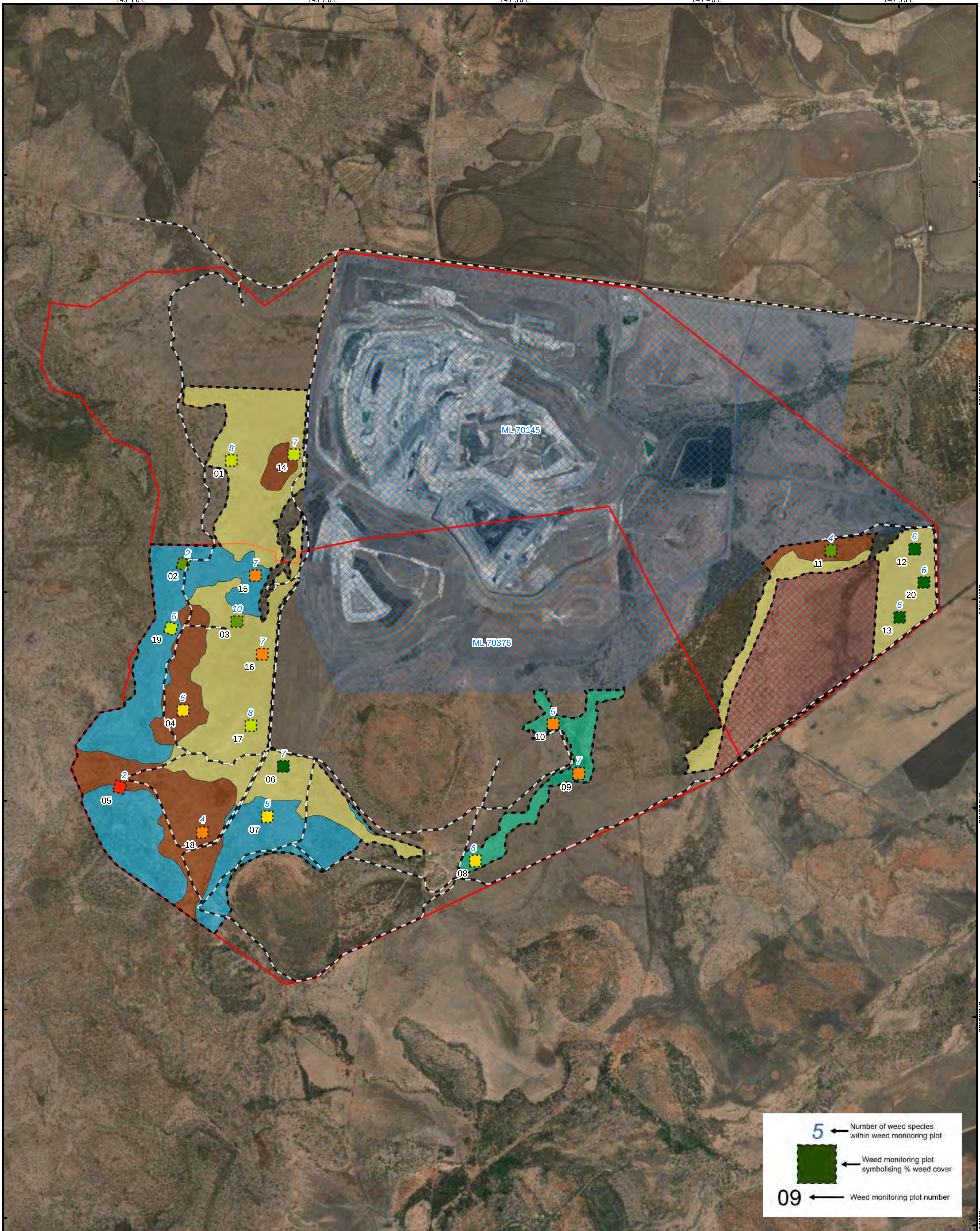
The most commonly encountered weed was *Parthenium hysterophorus*, which was recorded from 16 of the 20 sites (Table 22). While recorded from only two weed monitoring plots, *Megathyrsus maximus* had the highest average cover of all species at sites it was recorded from, averaging 25.9%.

Table 22: Results of weed monitoring assessments at the Lexington offset site

Scientific name	Common name	Family	Percentage cover of weed species from given site																				# sites	Avg cover (%)[a]
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20		
Cryptostegia grandiflora	Rubber vine	Apocynaceae									2.1												1	2.1
Bidens pilosa	Cobbler's pegs	Asteraceae									0.7												1	0.7
Parthenium hysterophorus	Parthenium weed	Asteraceae	5.9	1.2	1.4	1.6		0.8	3.9	9.1		10.8	3.6	3.9	0.5	10.0	25.4	21.6	4.7			3.8	16	6.7
Verbesina encelioides	Goldweed	Asteraceae									1.9	0.5											2	1.2
Zinnia sp.	A sunflower	Asteraceae									0.1												1	0.1
Clitoria ternatea	Butterfly pea	Fabaceae								1.9		2.6											2	2.2
Stylosanthes viscosa	Sticky stylo	Fabaceae		0.1		0.7	2.6		5.7											0.6	1.2		6	1.8
Vachellia farnesiana	Mimosa bush	Fabaceae	3.6		4.6	0.5		0.5		0.5		0.1				0.1	0.7	4.2	4.3	0.1			11	1.7
Malvastrum americanum	Malvastrum	Malvaceae								0.7		1.5	0.1				0.2	0.3					5	0.6
Cenchrus ciliaris	Buffel grass	Poaceae	0.5		0.5	3.8	7.1	0.5	5.9	3.8		8.3	1.1				3.9	0.6	1.6				12	3.1
Dichanthium aristatum	Angleton grass	Poaceae										2.3											1	2.3
Megathyrsus maximus	Guinea grass	Poaceae									42.4	9.5											2	25.9
Melinis repens	Red natal grass	Poaceae	4.3	4.0		12.5	46.8		0.5			1.1	0.7		1.0		0.5			31.5	12.2		11	10.5
Capsicum sp.	Chilli	Solanaceae									0.5												1	0.5
Solanum sp.	A nightshade	Solanaceae									1.3												1	1.3
Verbena officinalis	Common verbena	Verbenaceae	0.1							0.1				0.2	0.3					0.3		0.2	6	0.2
		# species	5	3	3	5	3	3	4	6	7	9	4	2	3	2	5	4	3	4	2	2		
		Weed cover (%)[b]	14.4	5.3	6.5	19.0	56.4	1.8	15.9	16.0	48.9	36.6	5.5	4.1	1.8	10.1	30.7	26.7	10.6	32.5	13.4	4.0		

[a] Avg cover (%) represents the average percentage cover of a given weed species across encountered sites.

[b] Weed cover represents the sum of the average weed cover percentages of all weed species.



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Location diagram

Figure 23
Lexington
Weed monitoring results

Minerva lots (lot 10 & 11 DN40126)
Access tracks
Existing offset area (Category A area)
Mining leases (ML70376 and ML70145)
Offset area
Weed monitoring plots

Weed cover (%)
- <5%
- 6 - 10
- 11 - 15
- 16 - 25
- 26 - 50
- >50

Regional ecosystem
- RE 11.8.11
- RE 11.8.11a
- RE 11.8.4
- RE 11.8.5

0 0.5 1 1.5 2
Kilometres

N

CO2 Australia

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Mining Lease

Date: 4/6/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:30,000@A3

Path: P:\GISData\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\220406 - Figure 23 - Lexington weed monitoring plots.mxd

5.2 PEST ANIMAL MONITORING

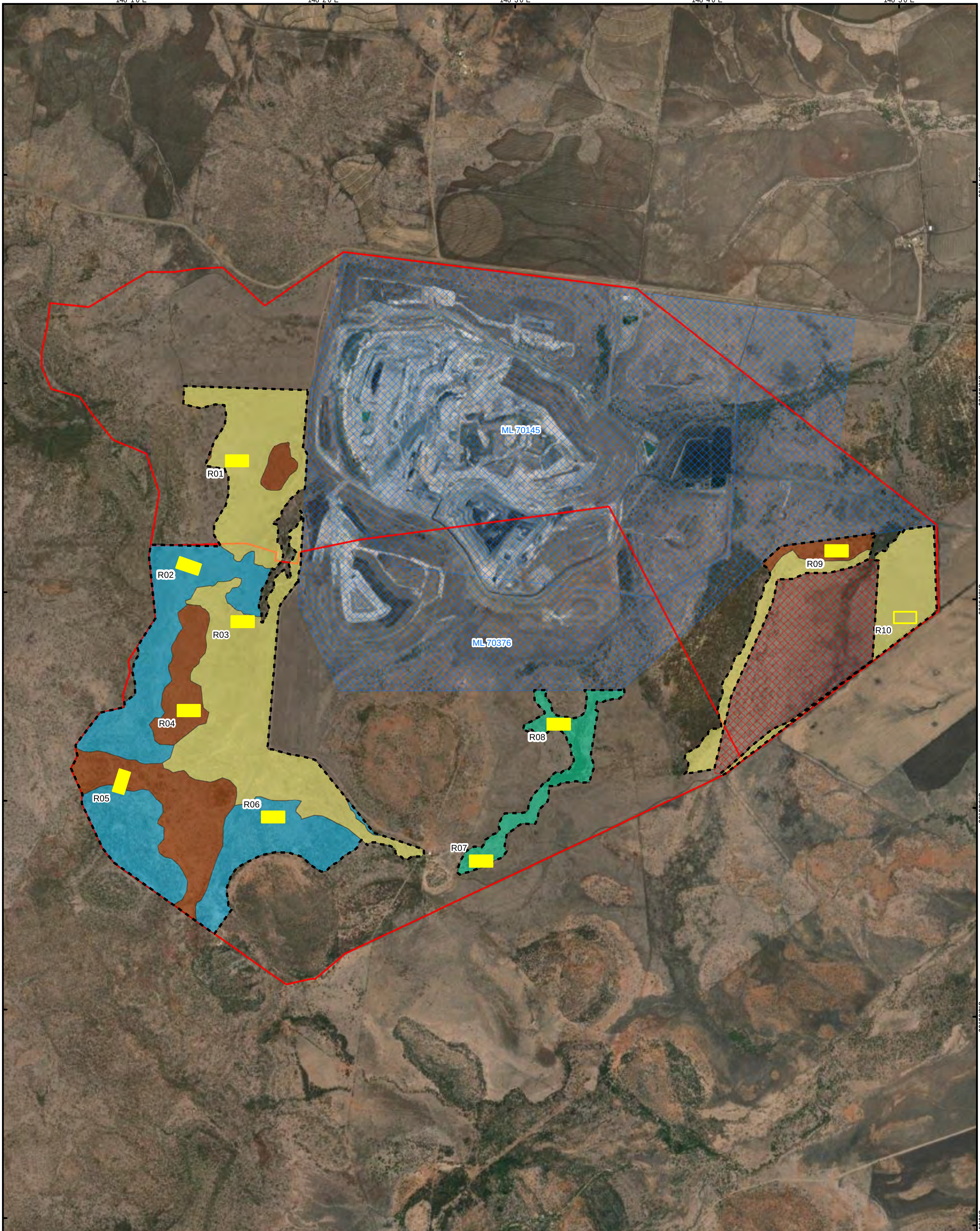
5.2.1 Rabbits

Results of rabbit monitoring confirmed the presence of rabbit/hare scats from nine of the 10 rabbit monitoring plots (R01 – R09)(Figure 24). Across these plots, pellet abundance ranged from isolated pellets and small clumps more than 10 m apart, to common, pellets in larger clumps and occasional buck-heaps on about half the areas you scan closely during the search. Brown hares (*Lepus europaeus*) and European rabbits (*Oryctolagus cuniculus*) were also visually confirmed at two fauna camera stations (Site C02 and C05) (see Section 5.2.3; Figure 26).

Table 23 shows the results of the assessment of overall rabbit impact. The results indicate that all of the sites displayed evidence of rabbit abundance with the exception of R10. The assessment of overall rabbit impact was denoted as 'unacceptable' for three sites, due to moderate levels of rabbit abundance (identified through the presence of scats). Remaining sites were denoted as 'monitor closely'.

Table 23: Assessment of overall rabbit impact at the Lexington offset site

Site	Rabbit abundance score (0 – 5)	Seedling abundance score (0 – 5)	Rabbit damage score (0 – 5)	Corrected regeneration score (0 – 5)	Overall rabbit impact
R01	1	0	0	0.2	Monitor closely
R02	2	3	0	3	Monitor closely
R03	2	0	0	0.2	Unacceptable
R04	2	2	0	2	Unacceptable
R05	3	3	0	3	Monitor closely
R06	2	1	0	1	Unacceptable
R07	1	1	0	1	Monitor closely
R08	1	3	0	3	Acceptable
R09	1	3	0	3	Acceptable
R10	0	0	0	0.2	Acceptable



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Location diagram

Figure 24
Lexington - Rabbit/hare monitoring results

Minerva lots (lot 10 & 11 DN40126)
Existing offset area (Category A area)
Mining leases (ML70376 and ML70145)
Offset area

Regional ecosystem
RE 11.8.11
RE 11.8.11a
RE 11.8.4
RE 11.8.5

Rabbit monitoring plots (R01 - R10)
No evidence for rabbits/hares
Evidence of rabbits/hares

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Mining Lease

0 0.5 1 1.5 2
Kilometres

N

CO2 Australia

Date: 4/7/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:30,000@A3

5.2.2 Feral pigs

Across the eight pig monitoring plots, there was confirmed evidence for the presence of feral pigs in five plots. No visual confirmation of pigs was recorded observationally nor through camera traps throughout the Lexington property. Evidence of feral pig presence within plots ranged from 0% (Sites P04, P05 and P08) to 20% (Site P03) and, on average, was observed across 5.83% of the available transect sections within each plot (Table 24). Indicators of pig presence were often observed within natural grasslands (RE 11.8.11) in the west of the property (Figure 25).

Table 24: Assessment of overall feral pig presence and activity at the Lexington offset site, denoted as either rooting (R), footprints (F), travel pads (P) or physical presence (+)

Plot	Transect	Monitoring plot survey section (50 m)										Transect	Plot % (record/30)
		1	2	3	4	5	6	7	8	9	10		
P01	1											0%	**10.0%**
	2		R									10%	
	3	D			R							20%	
P02	1											0%	**6.7%**
	2	R				DR						20%	
	3											0%	
P03	1											0%	**20.0%**
	2	D			R				R			30%	
	3	R						R	R			30%	
P04	1											0%	**0.0%**
	2											0%	
	3											0%	
P05	1											0%	**0.0%**
	2											0%	
	3											0%	
P06	1	D		D								20%	**6.7%**
	2											0%	
	3											0%	
P07	1											0%	**3.3%**
	2	D										10%	
	3											0%	
P08	1											0%	**0.0%**
	2											0%	
	3											0%	
												Total	**5.83%**

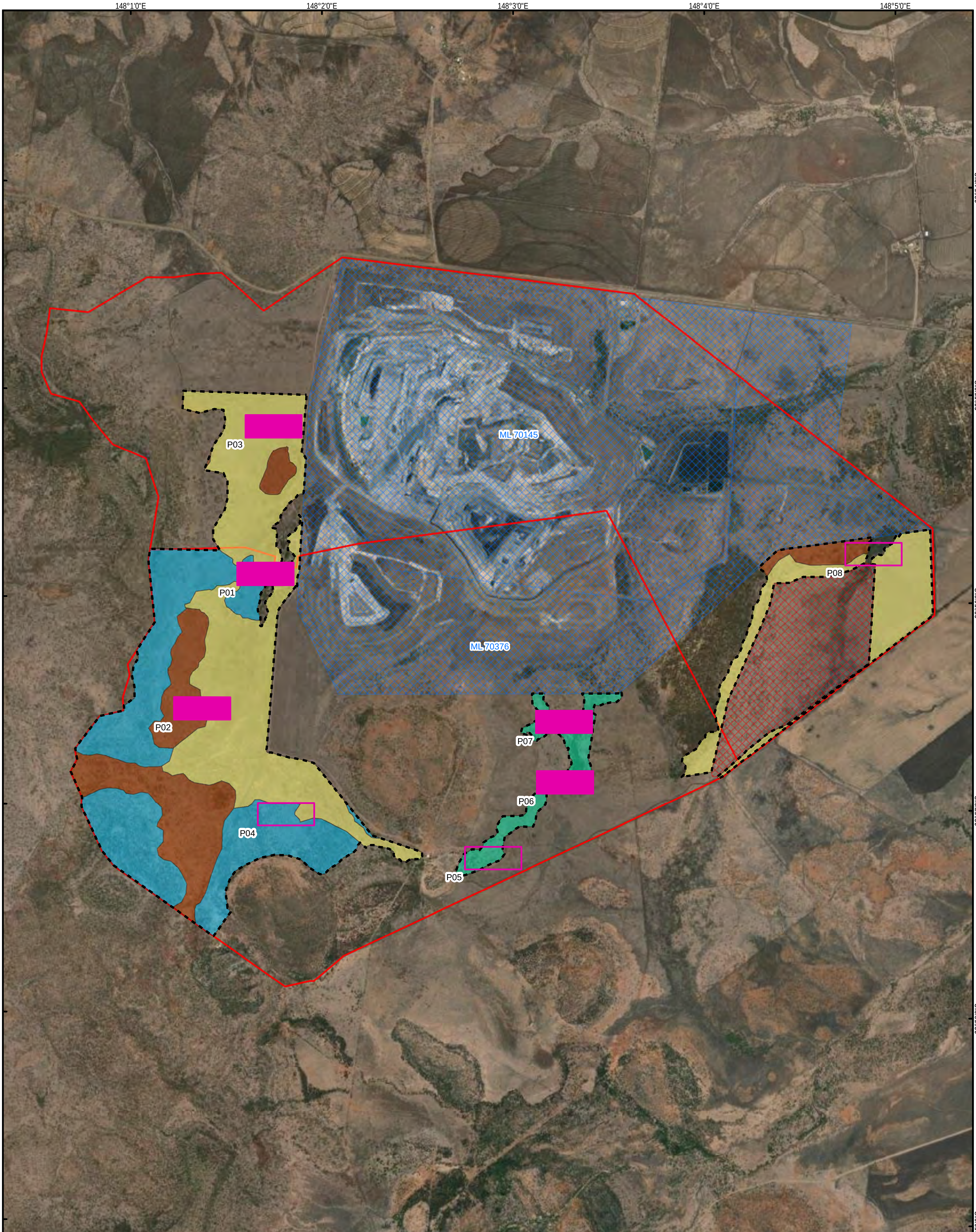

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Figure 25
Lexington
Evidence of feral pigs

Minerva lots (lot 10 & 11 DN40126)
Existing offset area (Category A area)
Mining leases (ML70376 and ML70145)
Offset area

Regional ecosystem
RE 11.8.11
RE 11.8.11a
RE 11.8.4
RE 11.8.5

Pig monitoring plots (P01 - P08)
No evidence of feral pigs
Evidence of feral pigs

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Mining Lease

Date: 4/7/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Merculator Datum: GDA 1994 Scale: 1:30,000@A3

0 0.5 1 1.5 2
Kilometres

N

CO2 Australia

Location diagram

Path: P:\GISData\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\20220406 - Figure 25 - Lexington evidence of feral pigs.mxd

5.2.3 Fauna camera station

Of the 15 fauna camera stations, 12 cameras were considered operable stations across each of the three consecutive nights. One camera (C01) was considered compromised across all three nights due to a failed camera flash, leaving photos taken at night (which would constitute the majority of pest animal activity) indiscernible. Additionally, one camera (C02) was considered compromised on day one due to a failed camera flash, and another (C13) was considered compromised on day three because it was knocked over by cattle. As such, there was a total of 40 operable station nights for the purposes of calculating Catling Index values for pest animal species. The fauna cameras confirmed the presence of four pest animal species, namely feral dogs (*Canis familiaris/lupus*), a cat (*Felis catus*), European rabbits (*Oryctolagus cuniculus*) and a brown hare (*Lepus europaeus*) (Figure 26 and Figure 27). Scores from all four pest animal species detected ranged from 2.5 (cat and brown hare) to 7.5 (feral dog) (Table 25). Feral pigs were not detected by fauna cameras. Additionally, cane toads (*Rhinella marina*) were detected on several cameras over the three nights. Non-pest animals were also detected from the fauna camera stations, including a whiptail wallaby (*Notamacropus parryi*), rufous bettong (*Aepyprymnus rufescens*) and cattle (*Bos taurus*).

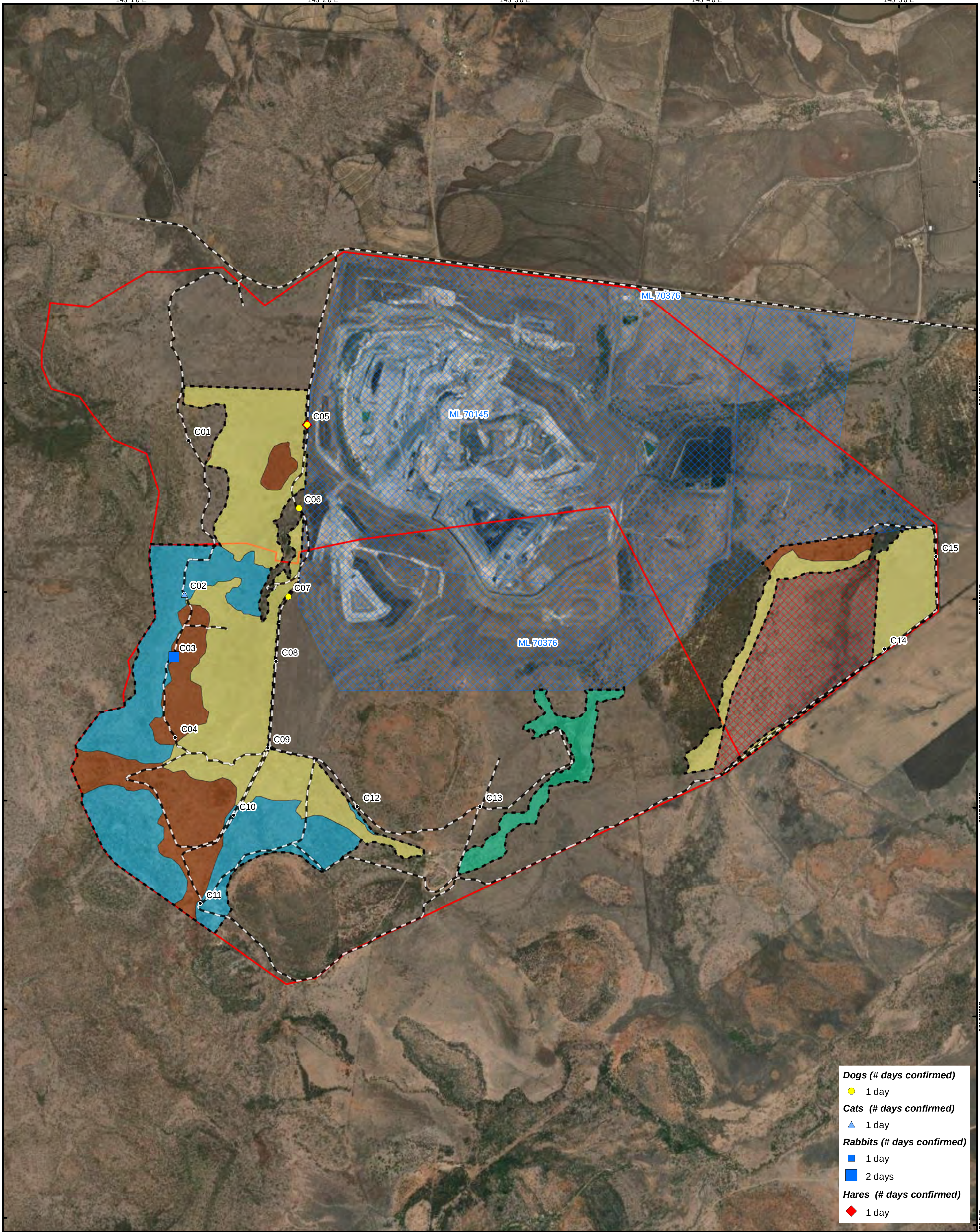
Overall, there were seven individual pest animal detections recorded from four of the 15 fauna camera stations (Table 25). These detections were made primarily in the northwest of the property (C02, C04-C06) (Figure 28), with a concentration of records around the fence line bordering the west of the Minerva Coal Mine. These sites were represented largely by RE 11.8.11 natural grasslands habitat.

Table 25: Pest animal results from the Lexington offset site

Pest animal species	Confirmed incidence of pest animal species from given site															Catling Index
	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	C11	C12	C13	C14	C15	
Dog																
Day 1						✓										
Day 2					✓			✓								**7.5**
Day 3																
Cat																
Day 1																
Day 2																**2.5**
Day 3		✓														
European rabbit																
Day 1																
Day 2			✓													**5**
Day 3			✓													
Brown hare																
Day 1					✓											
Day 2																**2.5**
Day 3																
Feral pig																
Day 1																
Day 2																**0**
Day 3																

Figure 26: Brown hare (*Lepus europaeus*) captured at fauna camera C05 on the Lexington offset site

Figure 27: Wild dog (*Canis familiaris*) captured at fauna camera C08 on the Lexington offset site



Sojitz Blue Pty Ltd

Figure 28
Lexington
Pest animal results

Minerva lots (lot 10 & 11 DN40126)
Access tracks
Existing offset area (Category A area)
Mining leases (ML70376 and ML70145)
Offset area

Regional ecosystem
RE 11.8.11
RE 11.8.11a
RE 11.8.4
RE 11.8.5

0 0.5 1 1.5 2
Kilometres

N

Location diagram

DATA SOURCE:
The following datasets are © State of Qld:
- Cadastral Data (Qld DCDB)
- Mining Lease

Date: 4/7/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:30,000@A3

CO2 Australia

Path: P:\GISData\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\20220406 - Figure 28 - Lexington pest animal results.mxd

5.3 BIOMASS MONITORING

5.3.1 Biomass monitoring for fire management

Brigalow Belt pasture photo standards were used for all biomass monitoring points. 'Downs country' photo standards were used for offset areas comprising of RE 11.8.11 and RE 11.8.11a, whilst photo monitoring results from areas of RE 11.8.4 and RE 11.8.5 were assessed against 'Narrow-leaved Ironbark' photo standards (Table 26)

Photo monitoring showed some variability in the biomass of ground cover. Most sites in RE 11.8.11 and 11.8.11a (except site 06) were at least 2,578 kg/ha (Site 16) and up to 5,040 kg/ha (Sites 01, 08-09). Biomass in RE 11.8.4 and RE 11.8.5 ranged between 1,200 kg/ha in wooded areas with high canopy cover (Site 07) and 5,000 kg/ha (Sites 14 and 18) associated with more open grassy woodland areas (Table 26). Evidence of heavy grazing was not observed at site 07, and as such it is assumed that the low biomass is a result of natural processes (e.g. a canopy dense enough to shade-out most grasses). Most other sites had high biomass throughout the MDS Project site due to the exceedingly high rainfall from October to December.

Ground photos used to assign biomass at the Lexington offset site are shown in Appendix F.

Table 26: Results of biomass monitoring on the Lexington offset site using Brigalow Belt Future Beef pasture photo standards

Photo monitoring site*	RE type	Brigalow Belt pasture photo standard type		Biomass (kg/ha)
		Narrow-leaved ironbark	Downs country	
01	11.8.11		✓	5,040
02	11.8.4	✓		1,750
03	11.8.11		✓	3,015
04	11.8.5	✓		2,000
05	11.8.4	✓		3,625
06	11.8.11		✓	3,015
07	11.8.4	✓		1,200
08	11.8.11a		✓	5,040
09	11.8.11a		✓	5,040
10	11.8.11a		✓	3,015
11	11.8.5	✓		1,750
12	11.8.11		✓	3,015
13	11.8.11		✓	3,433
14	11.8.5	✓		5,000
15	11.8.4	✓		2,000
16	11.8.11		✓	2,578
17	11.8.11		✓	3,850
18	11.8.5	✓		5,000
19	11.8.4	✓		2,250
20	11.8.11		✓	3,850

* taken from the 0 m point of the permanent habitat monitoring transects (Sites 01 – 12) and the SW corner of the standalone weed monitoring plots (Sites 13 – 20).

5.3.2 Biomass monitoring for sustainable grazing

While cattle were observed within the north-west of the offset area as part of the post-wet season survey, the results of the current biomass monitoring will be utilised as part of the Annual Land Condition-Pasture Budget Assessment, to be completed by Sojitz Blue. This will include an assessment of any proposed grazing management regimes in the offset area.

5.4 GENERAL SITE INSPECTION

No additional fencing or access tracks were noted within of the extent of traversed areas in May 2021. Any additional fencing and tracks outside of traversed areas were not able to be confirmed and will need to be supplied for updating as part of future monitoring events.

It is understood that a share-farming agreement is in place to limit the head of cattle per paddock. However, past evidence of cattle were observed in the natural grassland areas in the west and east of the Lexington offset area during the post-wet season monitoring.

Outside of the weed monitoring plots assessed as part of the dry season surveys, there were a number of areas of notable weed infestation. Most noticeably was the extent and density of weeds within and adjacent to the ephemeral drainage line and bore on Prickle Farm Road that flanks the western edge of the mining lease (ML 70376). As noted in previous years' monitoring reports, the ephemeral drainage line continues to be densely infested by Noogoora burr (*Xanthium occidentale*), with areas away from the drainage line characterised by dense, monospecific stands of *Parthenium hysterophorus* and a sunflower (indet.). Parthenium has also formed dense stands along the rest of the main track on the western edge of the mining lease (ML70376). Several of the RE 11.8.11a patches in the south of the property (outside of the weed monitoring plots) have become densely infested with *Megathyrsus maximus* and *P. hysterophorus* following the intense rainfall throughout October to December 2021. Furthermore, there is considerable coverage of *Vachellia farnesiana* throughout the western Natural Grassland (RE 11.8.11) areas.

6 RESULTS: LEXINGTON RAIL LOOP OFFSET SITE

6.1 HABITAT MONITORING

6.1.1 Site condition and context

Results of habitat condition assessments identified an average site condition score of 8.12 out of 10 across all seven habitat monitoring sites, with scores ranging between 6.33 (Site LEXRL01) and 8.67 (Sites LEXRL02, LEXRL05, LEXRL07). Site context scores varied from 6.54 out of 10 (LEXRL03) up to 10 out of 10 (LEXRL01 and LEXRL02). Appendix C outline details of the site condition assessments, summarised below in Table 27.

Table 27: Lexington Rail Loop offset site habitat monitoring sites: site condition and site context scores calculated in accordance with the *Guide to determining terrestrial habitat quality* (DEHP 2017)

Offset paddock	Site	RE	Easting	Northing	Site condition score (/10)	Site context score (/10)
North Promenade	LEXRL01	11.8.11	604390	7355247	6.33	10
	LEXRL02	11.8.11	604758	7354797	8.67	10
Harry's	LEXRL03	11.8.11	608595	7355228	8.00	6.54
	LEXRL04	11.8.11	609262	7355036	8.00	7.31
Contours	LEXRL05	11.8.11	612011	7354575	8.67	7.31
	LEXRL06	11.8.11	611834	7354280	8.50	7.31
	LEXRL07	11.8.11	611215	7353711	8.67	7.31
				Average score	**8.12**	**7.97**

6.1.2 MNES habitat condition assessments

Based on the results of the site condition and context assessments, habitat condition scores for the two MNES averaged 8.05 out of 10 for natural grasslands TEC and 6.44 out of 10 for king blue-grass (Table 28).

Table 28: Lexington Rail Loop offset site monitoring sites showing their habitat condition scores contributing to MNES

Offset paddock	Site	RE	Natural grasslands TEC	King blue-grass
North Promenade	LEXRL01	11.8.11	8.04	6.43
	LEXRL02	11.8.11	9.29	7.43
Harry's	LEXRL03	11.8.11	7.32	5.86
	LEXRL04	11.8.11	7.68	6.14
Contours	LEXRL05	11.8.11	8.04	6.43
	LEXRL06	11.8.11	7.95	6.36
	LEXRL07	11.8.11	8.04	6.43
		Average score	**8.05**	**6.44**

Natural Grasslands habitat

Natural Grasslands TEC habitat condition scores for the seven habitat monitoring sites ranged between 7.32 and 9.29 (Table 28). The seven assessment sites supported between two and six TEC indicator grass species (Table 29).

Natural Grassland quality assessments were conducted at each of the seven habitat condition sites within a 50 m x 20 m plot. This included an assessment of the species richness of Natural Grassland TEC indicator species, density of grass tussocks, shrub cover and non-native plant cover as per the approved Commonwealth listing advice (TSSC 2009) (Table 30).

The results of this assessment (Table 30) indicated that only one of the condition sites (LEXRL02) was in 'best' condition, with four sites (LEXRL03, LEXRL04 and LEXRL05) being in 'good' condition. The remaining two sites (LEXRL01 and LEXRL06) did not meet the criteria for 'good' or 'best' condition classes according to the approved Commonwealth listing advice (TSSC 2009). This was due to the high weed cover at LEXRL01 (weed cover >30%) and the low number of perennial indicator grass species at LEXRL06 (>3 perennial indicator grass species).

Table 29: Natural Grasslands TEC indicator species at the Lexington Rail Loop offset site

Scientific name	Common name	North Promenade		Harry's		Contours		
		LEXRL01	LEXRL02	LEXRL03	LEXRL04	LEXRL05	LEXRL06	LEXRL07
Aristida latifolia	Feather-top wiregrass		✓					
Aristida leptopoda	White speargrass	✓	✓	✓	✓	✓	✓	✓
Astrebla elymoides	Hoop mitchell grass							
Astrebla lappacea	Curly mitchell grass							
Astrebla squarrosa	Bull mitchell grass							
Bothriochloa erianthoides	Satin-top grass	✓	✓					
Dichanthium queenslandicum	King blue-grass							
Dichanthium sericeum	Queensland bluegrass	✓	✓	✓	✓	✓	✓	✓
Eriochloa crebra	Cup grass							
Panicum decompositum	Native millet					✓		
Panicum queenslandicum	Yabila grass	✓	✓	✓	✓			✓
Paspalidium globoideum	Shot grass							
Thellungia advena	Coolibah grass	✓	✓					
	TOTAL	**5**	**6**	**3**	**3**	**3**	**2**	**3**

Table 30: Condition classes for the Natural Grasslands TEC at the Lexington Rail Loop offset site

TEC quality criteria	North Promenade		Harry's		Contours		
	LEXRL01	LEXRL02	LEXRL03	LEXRL04	LEXRL05	LEXRL06	LEXRL07
Perennial indicator grass species	5	6	3	3	3	2	3
Number of native grass tussocks	>200	>200	>200	>200	>200	>200	>200
Woody shrub canopy cover (%)	<5%	<5%	<5%	<5%	<5%	<5%	<5%
Perennial non-native plant cover (%)	40%	1%	3%	2%	0%	0%	0%
Condition class	**Not TEC**	**Best**	**Good**	**Good**	**Good**	**Not TEC**	**Good**

King blue-grass habitat

King blue-grass habitat condition scores for the four habitat monitoring sites ranged between 5.86 and 7.43 (Table 28). No King-blue grass were positively identified from the seven habitat condition assessment plots at the time of surveying (Table 29), accounting for the lower MNES habitat condition score compared with Natural Grassland TEC scores.

6.2 PHOTO MONITORING

Photo monitoring of the Lexington Rail Loop offset sites showed consistent levels of high grass cover across the Harry's and Contours paddocks (Site LEXRL05: refer to Photo G-85 in Appendix G), with reduced ground cover in Harry's Paddock and very little grass cover in the North Promenade paddock (Site LEXRL03 and LEXRL09: refer to Photos E-25 and E-80 in Appendix G). Variability in the ground cover within the North Promenade and Harry's paddocks is likely a consequence of cattle grazing and horse grazing/trampling (respectively). North promenade has largely been overtaken by non-palatable shrubs and other forbs (e.g. *Salsola australis*). Ongoing management and concurrent photo monitoring should detect improvements in these paddocks over time (provided horses and cattle are managed appropriately), as the grassland continues to mature and recover from these disturbances. The results of the photo monitoring in the Lexington Rail Loop offset site is presented in Appendix G.

6.3 WEED MONITORING

A total of seven weed species were identified from the 12 weed monitoring plots. No additional species of weeds were observed on the site outside of those identified within the weed monitoring plots. Across the 12 weed monitoring plots, the average number of weed species observed per plot was 3.25 species, ranging between two species (Sites LEXRL04, LEXRL06 and LEXRL07) and five species (Sites LEXRL02 and LEXRL11), with two weed species only encountered at single sites. Weed cover across the 12 weed monitoring plots averaged 4.9%; ranging between 0.2% (Site LEXRL07) and 10% (Site LEXRL02 and LEXRL08)(Table 31, Figure 29 and Figure 30).

The number of weed species differed by offset paddock, with the North Promenade paddock having a higher weed species richness and average cover (3.75 species and 8.5% cover) than Harry's (3 species and 3.1% cover) and Contours (3 species and 3.2% cover).

The most commonly encountered weed was *Melinis repens* which was recorded from 11 of the 12 sites (Table 31). *Parthenium hysterophorus* had the highest average cover of 4.4%. four of the seven weed species detected (57%) had average covers <0.5%.

Table 31: Results of weed monitoring assessments at the Lexington Rail Loop offset site

Scientific name	Common name	Family	Percentage cover of weed species from given site												# sites	Avg cover (%)[a]
			LEXRL01	LEXRL02	LEXRL03	LEXRL04	LEXRL05	LEXRL06	LEXRL07	LEXRL08	LEXRL09	LEXRL10	LEXRL11	LEXRL12		
Parthenium hysterophorus	Parthenium weed	Asteraceae	7.4	7.1	0.3	2.6	0.1			7.8	6.1	2.4	5.9		9	4.4
Vachellia farnesiana	Mimosa bush	Fabaceae	0.2	1.7				2.5		1.1	0.1				5	1.1
Waltheria indica	Sleepy morning	Malvaceae		0.1											1	0.1
Cenchrus ciliaris	Buffel grass	Poaceae											0.1		1	0.1
Melinis repens	Red natal grass	Poaceae	0.2	1.0	0.2	0.1	0.7	0.2	0.1	1.0		2.7	0.3	5.0	11	1.0
Sorghum halepense	Johnson grass	Poaceae			0.2								0.5	0.1	3	0.3
Verbena officinalis	Common verbena	Verbenaceae		0.1	0.1		0.2		0.1	0.1	0.1	0.7	0.1	0.2	9	0.2
		# species	3	5	4	2	3	2	2	4	3	3	5	3		
		Weed cover (%)[b]	7.8	10.0	0.8	2.7	1.0	2.7	0.2	10.0	6.3	5.7	6.9	5.3		

[a] Avg cover (%) represents the average percentage cover of a given weed species across encountered sites.

[b] Weed cover represents the sum of the average weed cover percentages of all weed species.

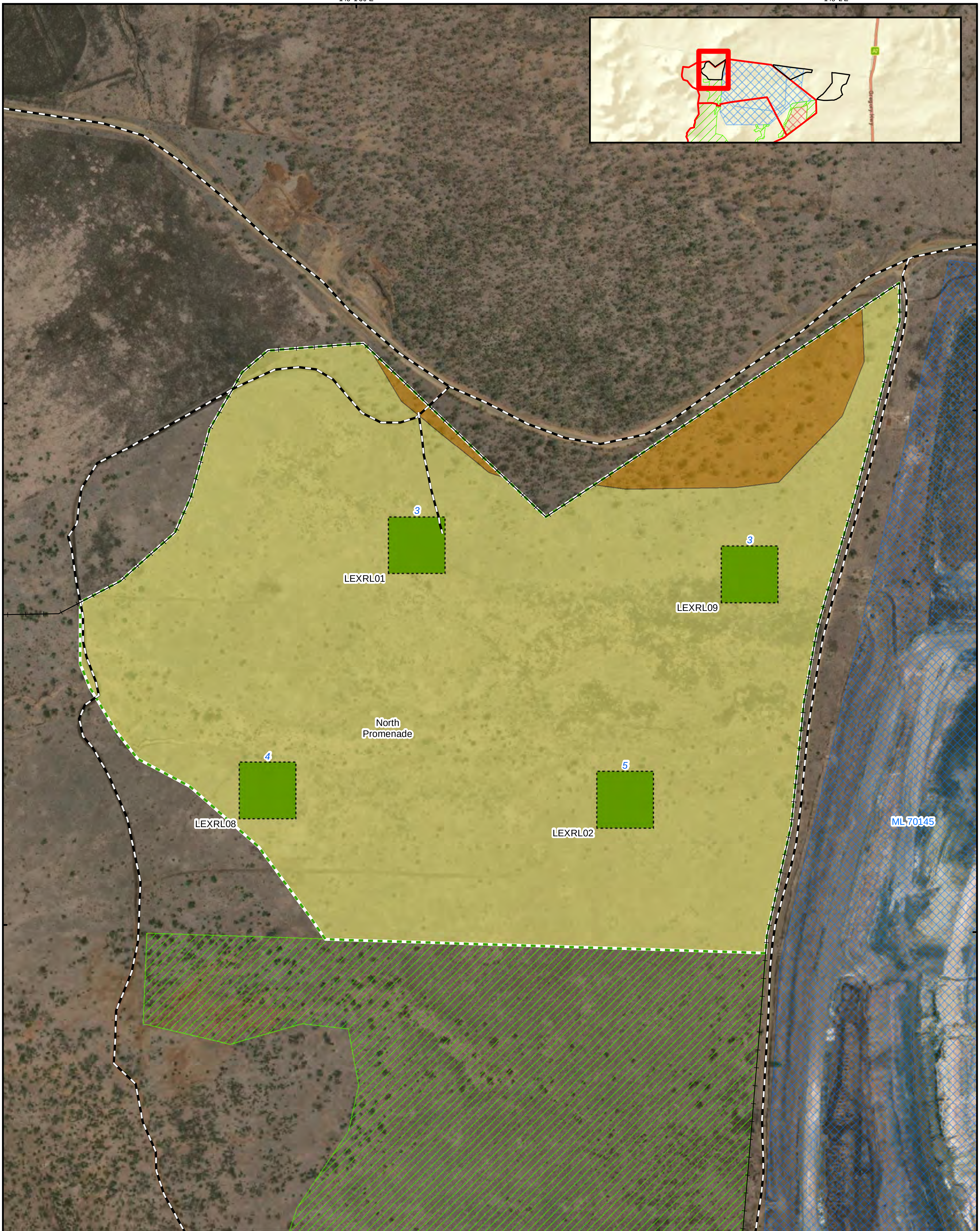


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Figure 29
Lexington Rail Loop offset
Weed monitoring results - west

Lexington existing fences
Access tracks
Lexington offset area
Mining leases (ML70376 and ML70145)

Lexington Rail Loop offset

North Promenade paddock

Observed vegetation

RE 11.8.11
RE 11.8.5

Weed monitoring plots

Weed cover (%)

< 5
6 - 10
11 - 15
16 - 25
26 - 50
51 - 100

0 50 100 150 200
Metres

N

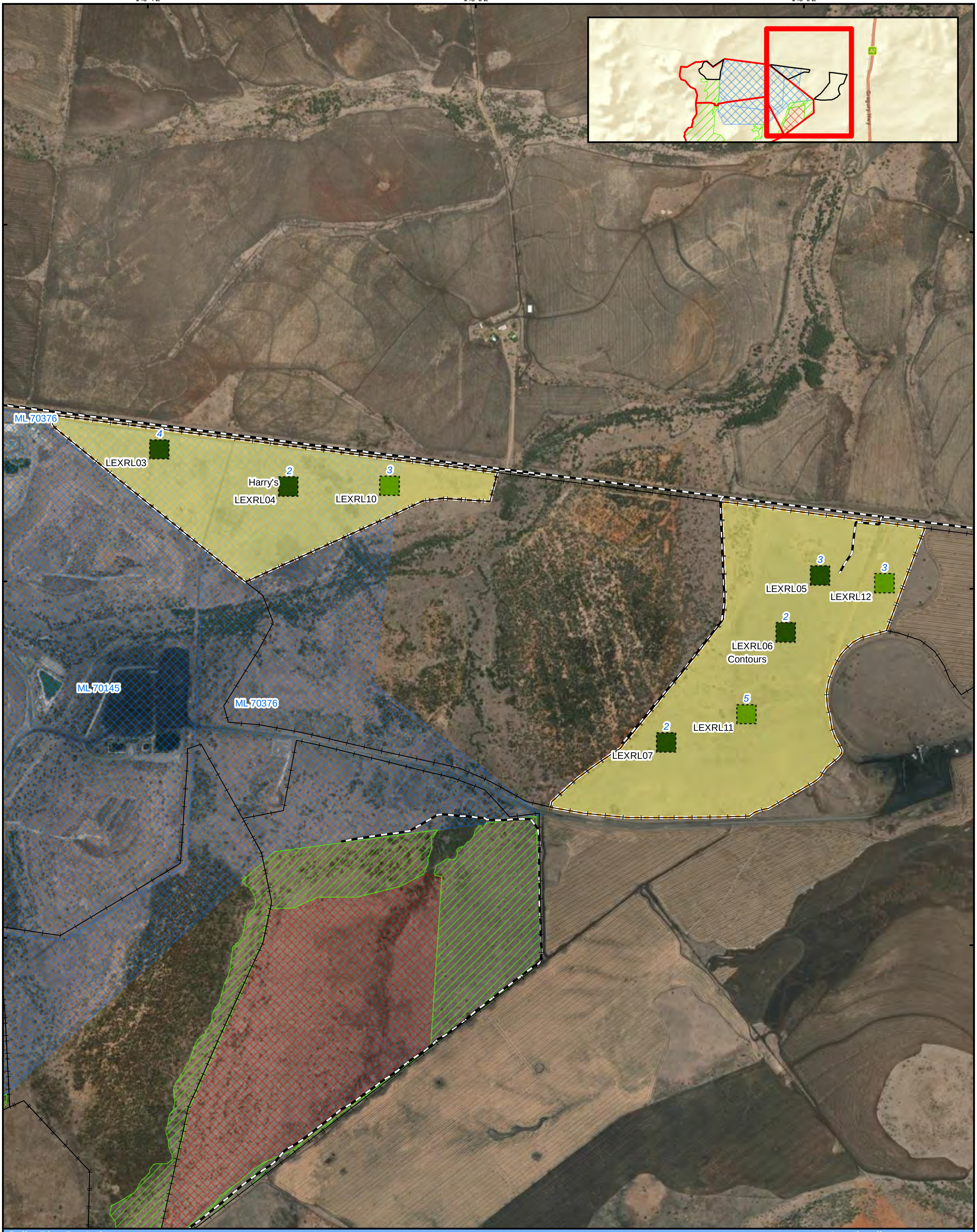
CO2 Australia

Location diagram

DATA SOURCE:
The following datasets are © State of Qld:
- Mining leases
The following datasets provided by Sojitz
- Lexington Rail Loop offset areas

Date: 4/7/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:6,000@A3

Path: P:\GISData\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\28406 - Figure 29 - LEXINGTON RAIL LOOP weed monitoring plots west.mxd



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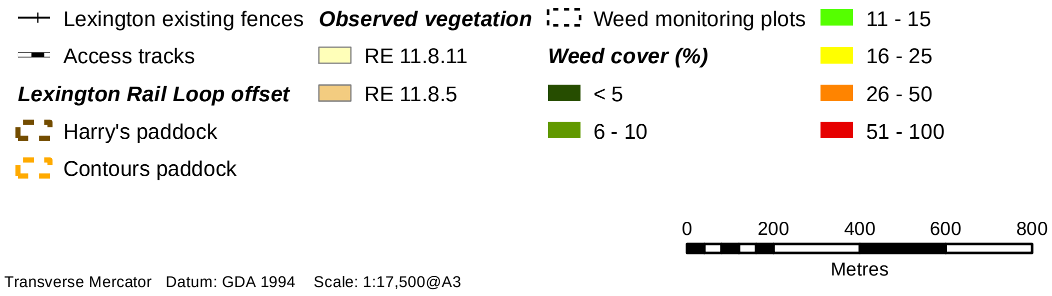
Location diagram

Figure 30
Lexington Rail Loop offset
Weed monitoring results - east



DATA SOURCE:
The following datasets are © State of Qld:
- Mining leases
The following datasets provided by Sojitz
- Lexington Rail Loop offset areas

Date: 4/7/2022 Coordinate System: GDA 1994 MGA Zone 55 Projection: Transverse Mercator Datum: GDA 1994 Scale: 1:17,500@A3

Path: P:\GIS\Data\Projects\Sojitz\928_20220406_wet_seas_monitor_report_2021_22\20220406 - Figure 30 - LEXINGTON RAIL LOOP weed monitoring plots east.mxd

6.4 BIOMASS MONITORING

Brigalow Belt pasture photo standards were used for all biomass monitoring points. 'Downs country' photo standards were used for monitoring all twelve of the sites comprising RE 11.8.11 (Table 32). Where the observed biomass at a site was mid-way between two photos within a given biomass standard, the middle of the corresponding range was reported (i.e. observed biomass between 3,850 kg/ha and 5,040 kg/ha 'Downs country' photo standards was reported as 4,445 kg/ha).

Photo monitoring showed some variability in biomass of ground cover across all 12 photo monitoring sites. Overall, there was a high biomass for the grassland vegetation type, with a biomass ranging between 3,015 kg/ha and 5,040 kg/ha across all sites. The average biomass varied considerably between the offset paddocks, with the average biomass at Contours (4,564 kg/ha) greater than at Harry's (3,968 kg/ha) and greater again than at North Promenade (3,433 kg/ha). Biomass between sites within the same paddocks was varied, with the most pronounced differences occurring at Harry's ranging between 3,015 kg/ha and 5,040 kg/ha. This is likely attributable to different grazing pressures, as well as historical trampling from horses in some areas.

Ground photos used to assign biomass at the Lexington Rail Loop offset site are shown in Appendix G.

Table 32: Results of biomass monitoring on the Lexington Rail Loop offset site using Brigalow Belt Future Beef pasture photo standards

Biomass monitoring site*	RE type	Brigalow Belt Future Beef pasture photo standard type Downs country	Biomass kg/ha
LEXRL01 – North Promenade paddock	11.8.11	✓	3,015
LEXRL02 – North Promenade paddock	11.8.11	✓	3,850
LEXRL03 – Harry's paddock	11.8.11	✓	3,015
LEXRL04 – Harry's paddock	11.8.11	✓	3,850
LEXRL05 – Contours paddock	11.8.11	✓	4,445
LEXRL06 – Contours paddock	11.8.11	✓	4,445
LEXRL07 – Contours paddock	11.8.11	✓	4,445
LEXRL08 – North Promenade paddock	11.8.11	✓	3,850
LEXRL09 – North Promenade paddock	11.8.11	✓	3,015
LEXRL10 – Harry's paddock	11.8.11	✓	5,040
LEXRL11 – Contours paddock	11.8.11	✓	4,445
LEXRL12 – Contours paddock	11.8.11	✓	5,040

* taken from the 0 m point of the permanent habitat monitoring transects (Sites LEXRL01 – LEXRL07) and the SW corner of the standalone weed monitoring plots (Sites LEXRL08 – LEXRL12).

6.5 GENERAL SITE INSPECTION

It is understood that a share-farming agreement is in place to limit the head of cattle per paddock. A herd of six horses was encountered on a number of days within Harry's Paddock, with evidence throughout the paddock of horse manure and grazing.

All fences bounding the paddocks were in good condition. Access to many of the monitoring sites in the Contours paddock was via an access track outside of and adjacent to the western boundary of the paddock, whereas access to monitoring sites in Harry's paddock was via Wurba Road and access to the North Promenade monitoring sites was via existing access tracks into Lexington.

7 REFERENCES

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APPENDIX A MONITORING SITE LOCATIONS

MDS PROJECT SITE

Table A-1: Post-wet-season monitoring site locations and purpose on the MDS Project site.

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
01	W01_01	641462	7304249	✓	✓	✓			
	W01_02	641462	7304301	✓	✓	✓			
	W01_03	641462	7304348		✓	✓			
	R01	641462	7304249	✓			✓		
02	W02_01	640199	7303572	✓	✓	✓			
	W02_02	640203	7303621	✓	✓	✓			
	W02_03	640210	7303627		✓	✓			
	R02	640199	7303572	✓			✓		
03	W03_01	638418	7303259	✓	✓	✓			
	W03_02	638425	7303308	✓	✓	✓			
	W03_03	638430	7303358		✓	✓			
	R03	638418	7303259	✓			✓		
04	W04_01	637945	7300236	✓	✓	✓			
	W04_02	637951	7300287	✓	✓	✓			
	W04_03	637950	7300338		✓	✓			
	R04	637945	7300236	✓			✓		
05	W05_01	638426	7299836	✓	✓	✓			
	W05_02	638420	7299885	✓	✓	✓			
	W05_03	638416	7299937		✓	✓			
	R05	638426	7299836	✓			✓		
06	W06_01	637445	7299566	✓	✓	✓			
	W06_02	637447	7299615	✓	✓	✓			
	W06_03	637443	7299668						
	R06	637445	7299566	✓			✓		
07	W07_01	638426	7298876	✓	✓	✓			
	W07_02	638419	7298926	✓	✓	✓			
	W07_03	638423	7298974		✓	✓			
	R07	638426	7298876	✓			✓		
08	W08_01	637032	7298735	✓	✓	✓			
	W08_02	637034	7298785	✓	✓	✓			

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
	W08_03	637039	7298835		✓	✓			
	R08	637032	7298735	✓			✓		
09	W09_01	638387	7298599	✓	✓	✓			
	W09_02	638380	7298648	✓	✓	✓			
	W09_03	638372	7298699		✓	✓			
	R09	638387	7298599	✓			✓		
10	W10_01	636412	7297523	✓	✓	✓			
	W10_02	636415	7297571	✓	✓	✓			
	W10_03	636413	7297617		✓	✓			
	R10	636412	7297523	✓			✓		
11	W11_01	642941	7304772	✓	✓	✓			
	W11_02	642937	7304825		✓	✓			
	W11_03	642938	7304876		✓	✓			
12	W12_01	641428	7303597	✓	✓	✓			
	W12_02	641426	7303646		✓	✓			
	W12_03	641429	7303696		✓	✓			
13	W13_01	641896	7303196	✓	✓	✓			
	W13_02	641899	7303247		✓	✓			
	W13_03	641900	7303297		✓	✓			
14	W14_01	638991	7303038	✓	✓	✓			
	W14_02	638987	7303090		✓	✓			
	W14_03	638988	7303140		✓	✓			
15	W15_01	637797	7302245	✓	✓	✓			
	W15_02	637796	7302296		✓	✓			
	W15_03	637796	7302347		✓	✓			
16	W16_01	638556	7300785	✓	✓	✓			
	W16_02	638560	7300832		✓	✓			
	W16_03	638566	7300882		✓	✓			
17	W17_01	637029	7300184	✓	✓	✓			
	W17_02	637028	7300231		✓	✓			
	W17_03	637024	7300282		✓	✓			
18	W18_01	637401	7300321	✓	✓	✓			
	W18_02	637401	7300368		✓	✓			
	W18_03	637398	7300421		✓	✓			

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
19	W19_01	638301	7301720	✓	✓	✓			
	W19_02	638295	7301771		✓	✓			
	W19_03	638290	7301821		✓	✓			
20	W20_01	636740	7298674	✓	✓	✓			
	W20_02	636746	7298723		✓	✓			
	W20_03	636752	7298771		✓	✓			
21	P01_01	636412	7297523					✓	
	P01_02	636412	7297423					✓	
	P01_03	636412	7297323					✓	
22	P02_01	636397	7298627					✓	
	P02_02	636397	7298527					✓	
	P02_03	636397	7298427					✓	
23	P03_01	637232	7298835					✓	
	P03_02	637232	7298735					✓	
	P03_03	637232	7298635					✓	
24	P04_01	638126	7299076					✓	
	P04_02	638126	7298976					✓	
	P04_03	638126	7298876					✓	
25	P05_01	638126	7299836					✓	
	P05_02	638126	7299736					✓	
	P05_03	638126	7299637					✓	
26	P06_01	638156	7300985					✓	
	P06_02	638156	7300885					✓	
	P06_03	638156	7300785					✓	
27	P07_01	638992	7303366					✓	
	P07_02	638992	7303266					✓	
	P07_03	638992	7303166					✓	
28	P08_01	641150	7303945					✓	
	P08_02	641150	7303845					✓	
	P08_03	641150	7303745					✓	
29	C01	642069	7303364						✓
30	C02	641096	7303802						✓
31	C03	639777	7303065						✓
32	C04	638324	7301905						✓

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
33	C05	638692	7301073						✓
34	C06	638685	7300013						✓
35	C07	638679	7299497						✓
36	C08	638419	7298830						✓
37	C09	637498	7300708						✓
38	C10	637519	7300049						✓
39	C11	637050	7299119						✓
40	C12	636843	7298531						✓
41	C13	636494	7297829						✓
42	C14	636293	7297414						✓
43	C15	636936	7297300						✓

[a] Start points with prefix H = habitat assessment sites (HXX_0m and HXX_50m corresponds to 0 m and 50 m point of north-south habitat assessment transect), W = start point (west) of each site's weed monitoring plot transects (WXX_01, WXX_02 and WXX_03 corresponds to transect 1, 2 and 3), R = start point (south-west) of 2 ha rabbit monitoring plot, P = start point (west) of each site's pig monitoring plot transects (PXX_01, PXX_02 and PXX_03 corresponds to transect 1, 2 and 3), C = fauna camera station. Start points for habitat assessment, weed monitoring and rabbit monitoring plots are the same for sites 01 – 10, with sites 11 – 20 only corresponding to weed monitoring plots.

LEXINGTON OFFSET SITE

Table A-2: Post-wet season monitoring site locations and purpose on the Lexington offset site.

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
01	W01_01	604331	7354000	✓	✓	✓			
	W01_02	604331	7353950	✓	✓	✓			
	W01_03	604331	7353900		✓	✓			
	R01	604331	7353900	✓			✓		
02	W02_01	603925	7353100	✓	✓	✓			
	W02_02	603908	7353053	✓	✓	✓			
	W02_03	603892	7353005		✓	✓			
	R02	603892	7353005	✓			✓		
03	W03_01	604380	7352577	✓	✓	✓			
	W03_02	604380	7352527	✓	✓	✓			
	W03_03	604380	7352477		✓	✓			
	R03	604380	7352477	✓			✓		
04	W04_01	603904	7351791	✓	✓	✓			
	W04_02	603904	7351741	✓	✓	✓			
	W04_03	603904	7351691		✓	✓			
	R04	603904	7351691	✓			✓		
05	W05_01	603360	7351127	✓	✓	✓			
	W05_02	603345	7351079	✓	✓	✓			
	W05_03	603330	7351031		✓	✓			
	R05	603426	7351001	✓			✓		
06	W06_01	604790	7351295	✓	✓	✓			
	W06_02	604790	7351245	✓	✓	✓			
	W06_03	604790	7351195		✓	✓			
07	W07_01	604649	7350850	✓	✓	✓			
	W07_02	604649	7350800	✓	✓	✓			
	W07_03	604649	7350750		✓	✓			
	R06	604649	7350750	✓			✓		
08	W08_01	606488	7350461	✓	✓	✓			
	W08_02	606488	7350411	✓	✓	✓			
	W08_03	606488	7350361		✓	✓			
	R07	606488	7350361	✓			✓		
09	W09_01	607401	7351233	✓	✓	✓			
	W09_02	607401	7351183	✓	✓	✓			

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
	W09_03	607401	7351133		✓	✓			
10	W10_01	607175	7351671	✓	✓	✓			
	W10_02	607175	7351621	✓	✓	✓			
	W10_03	607175	7351571		✓	✓			
	R08	607175	7351571	✓			✓		
11	W11_01	609631	7353204	✓	✓	✓			
	W11_02	609631	7353154	✓	✓	✓			
	W11_03	609631	7353104		✓	✓			
	R09	609631	7353104	✓			✓		
12	W12_01	610371	7353217	✓	✓	✓			
	W12_02	610371	7353167	✓	✓	✓			
	W12_03	610371	7353117		✓	✓			
13	W13_01	610237	7352615	✓	✓	✓			
	W13_02	610237	7352565	✓	✓	✓			
	W13_03	610237	7352515		✓	✓			
	R10	610237	7352515	✓			✓		
14	W14_01	604883	7354051	✓	✓	✓			
	W14_02	604883	7354001		✓	✓			
	W14_03	604883	7353951		✓	✓			
15	W15_01	604543	7352984	✓	✓	✓			
	W15_02	604543	7352934		✓	✓			
	W15_03	604543	7352884		✓	✓			
16	W16_01	604604	7352289	✓	✓	✓			
	W16_02	604604	7352239		✓	✓			
	W16_03	604604	7352189		✓	✓			
17	W17_01	604503	7351656	✓	✓	✓			
	W17_02	604503	7351606		✓	✓			
	W17_03	604503	7351556		✓	✓			
18	W18_01	604074	7350714	✓	✓	✓			
	W18_02	604074	7350664		✓	✓			
	W18_03	604074	7350614		✓	✓			
19	W19_01	603812	7352530	✓	✓	✓			
	W19_02	603798	7352482		✓	✓			
	W19_03	603784	7352434		✓	✓			
20	W20_01	610453	7352923	✓	✓	✓			

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
	W20_02	610453	7352873		✓	✓			
	W20_03	610453	7352823		✓	✓			
21	P01_01	604442	7353084					✓	
	P01_02	604442	7352984					✓	
	P01_03	604442	7352884					✓	
22	P02_01	603879	7351891					✓	
	P02_02	603879	7351791					✓	
	P02_03	603879	7351691					✓	
23	P03_01	604513	7354397					✓	
	P03_02	604513	7354297					✓	
	P03_03	604513	7354197					✓	
24	P04_01	604624	7350950					✓	
	P04_02	604624	7350850					✓	
	P04_03	604624	7350750					✓	
25	P05_01	606463	7350561					✓	
	P05_02	606463	7350461					✓	
	P05_03	606463	7350361					✓	
26	P06_01	607101	7351233					✓	
	P06_02	607101	7351133					✓	
	P06_03	607101	7351033					✓	
27	P07_01	607092	7351771					✓	
	P07_02	607092	7351671					✓	
	P07_03	607092	7351571					✓	
28	P08_01	609840	7353261					✓	
	P08_02	609840	7353161					✓	
	P08_03	609840	7353061					✓	
29	C01	604003	7354128						✓
30	C02	604006	7353171						✓
31	C03	603871	7352215						✓
32	C04	603885	7351500						✓
33	C05	605051	7354267						✓
34	C06	604978	7353531						✓
35	C07	604885	7352747						✓
36	C08	604776	7352174						✓
37	C09	604705	7351408						✓

Site	Start point name[a]	Easting	Northing	Star picket?	Weed monitoring	Biomass	Pest animal monitoring		
							Rabbit plot	Feral pig plot	Fauna camera
38	C10	604402	7350811						✓
39	C11	604107	7350032						✓
40	C12	605496	7350889						✓
41	C13	606580	7350889						✓
42	C14	610156	7352282						✓
43	C15	610612	7353100						✓

[a] Start points with prefix W = start point (west) of each site's weed monitoring plot transects (WXX_01, WXX_02 and WXX_03 corresponds to transect 1, 2 and 3), R = start point (south-west) of 2 ha European rabbit monitoring plot, P = start point (west) of each site's feral pig monitoring plot transects (PXX_01, PXX_02 and PXX_03 corresponds to transect 1, 2 and 3), C = fauna camera station. Start points for weed monitoring and European rabbit monitoring plots are the same for sites 01 – 10, with sites 11 – 20 only corresponding to weed monitoring plots.

MDS RAIL LOOP SITE

Table A-3: Post-wet-season monitoring site locations and purpose on the MDS Rail Loop site

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values	Photo monitoring	Weed monitoring	Biomass monitoring
MDSRL01	H01_0m	645575	7303101	✓	Natural Grasslands TEC, King blue-grass	✓		
	H01_50m	645575	7303151	✓		✓		✓
	W01_01	645575	7303101	✓		✓	✓	
	W01_02	645575	7303151	✓			✓	
	W01_03	645575	7303201				✓	
MDSRL02	H02_0m	646410	7303007	✓	Natural Grasslands TEC, King blue-grass	✓		
	H02_50m	646410	7303057	✓		✓		✓
	W02_01	646410	7303007	✓		✓	✓	
	W02_02	646410	7303057	✓			✓	
	W02_03	646410	7303107				✓	
MDSRL03	H03_0m	646666	7303114	✓	Natural Grasslands TEC, King blue-grass	✓		
	H03_50m	646666	7303164	✓		✓		✓
	W03_01	646666	7303114	✓		✓	✓	
	W03_02	646666	7303164	✓			✓	
	W03_03	646666	7303214				✓	
MDSRL04	H04_0m	646834	7303291	✓	Natural Grasslands TEC, King blue-grass	✓		
	H04_50m	646834	7303341	✓		✓		✓
	W04_01	646834	7303291	✓		✓	✓	
	W04_02	646834	7303341	✓			✓	
	W04_03	646834	7303391				✓	
MDSRL05	W05_01	646409	7303255	✓		✓	✓	
	W05_02	646409	7303305				✓	
	W05_03	646409	7303355				✓	

[a] Start points with prefix H = habitat assessment sites (HXX_0m and HXX_50m corresponds to 0 m and 50 m point of north-south habitat assessment transect), W = start point (west) of each site's weed monitoring plot transects (WXX_01, WXX_02 and WXX_03 corresponds to transect 1, 2 and 3). Start points for habitat assessment and weed monitoring plots are the same for sites 01 – 04, with site 05 only corresponding to a standalone weed monitoring plot.

LEXINGTON RAIL LOOP SITE

Table A-4: Post-wet-season monitoring site locations and purpose on the MDS Rail Loop site

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values	Photo monitoring	Weed monitoring	Biomass monitoring
LEXRL01	H01_0m	604390	7355247	✓	Natural Grasslands TEC, King blue-grass	✓		
	H01_50m	604390	7355297	✓		✓		
	W01_01	604390	7355247	✓		✓	✓	✓
	W01_02	604390	7355297	✓			✓	
	W01_03	604390	7355347				✓	
LEXRL02	H02_0m	604758	7354797	✓	Natural Grasslands TEC, King blue-grass	✓		
	H02_50m	604758	7354847	✓		✓		
	W02_01	604758	7354797	✓		✓	✓	✓
	W02_02	604758	7354847	✓			✓	
	W02_03	604758	7354897				✓	
LEXRL03	H03_0m	608595	7355228	✓	Natural Grasslands TEC, King blue-grass	✓		
	H03_50m	608595	7355278	✓		✓		
	W03_01	608595	7355228	✓		✓	✓	✓
	W03_02	608595	7355278	✓			✓	
	W03_03	608595	7355328				✓	
LEXRL04	H04_0m	609262	7355036	✓	Natural Grasslands TEC, King blue-grass	✓		
	H04_50m	609262	7355086	✓		✓		
	W04_01	609262	7355036	✓		✓	✓	✓
	W04_02	609262	7355086	✓			✓	
	W04_03	609262	7355136				✓	
LEXRL05	H05_0m	612011	7354575	✓	Natural Grasslands TEC, King blue-grass	✓		
	H05_50m	612011	7354625	✓		✓		
	W05_01	612011	7354575	✓		✓	✓	✓
	W05_02	612011	7354625	✓			✓	
	W05_03	612011	7354675				✓	
LEXRL06	H06_0m	611834	7354280	✓	Natural Grasslands TEC, King blue-grass	✓		
	H06_50m	611834	7354330	✓		✓		
	W06_01	611834	7354280	✓		✓	✓	✓
	W06_02	611834	7354330	✓			✓	
	W06_03	611834	7354380				✓	
LEXRL07	H07_0m	611215	7353711	✓	Natural Grasslands TEC, King blue-grass	✓		

Site	Start point name[a]	Easting	Northing	Star picket?	Habitat condition MNES values		Photo monitoring	Weed monitoring	Biomass monitoring
	H07_50m	611215	7353761	✓			✓		
	W07_01	611215	7353711	✓			✓	✓	✓
	W07_02	611215	7353761	✓				✓	
	W07_03	611215	7353811					✓	
LEXRL08	W08_01	604126	7354813	✓			✓	✓	✓
	W08_02	604126	7354863					✓	
	W08_03	604126	7354913					✓	
LEXRL09	W09_01	604978	7355196	✓			✓	✓	✓
	W09_02	604978	7355246					✓	
	W09_03	604978	7355296					✓	
LEXRL10	W010_01	609785	7355039	✓			✓	✓	✓
	W010_02	609785	7355089					✓	
	W010_03	609785	7355139					✓	
LEXRL11	W11_01	611630	7353857	✓			✓	✓	✓
	W11_02	611630	7353907					✓	
	W11_03	611630	7353957					✓	
LEXRL12	W12_01	612344	7354534	✓			✓	✓	✓
	W12_02	612344	7354584					✓	
	W12_03	612344	7354634					✓	

[a] Start points with prefix H = habitat assessment sites (HXX_0m and HXX_50m corresponds to 0 m and 50 m point of north-south habitat assessment transect), W = start point (west) of each site's weed monitoring plot transects (WXX_01, WXX_02 and WXX_03 corresponds to transect 1, 2 and 3). Start points for habitat assessment and weed monitoring plots are the same for sites 01 – 07, with sites 08 – 12 only corresponding to a standalone weed monitoring plot.

APPENDIX B MDS RAIL LOOP SITE – YEAR 3 HABITAT CONDITION ASSESSMENT

The following tables provide details of the habitat condition assessments undertaken during the Year 3 monitoring period at the MDS Rail Loop site. Habitat condition scores were calculated in accordance with the *Guide to Determining Terrestrial Habitat Quality version 1.2* (DEHP, 2017). The data required to inform the site condition and flora species stocking rates were collected as part of detailed field surveys in March 2022. The site context score was calculated in accordance with the method prescribed in the *Guide to Determining Terrestrial Habitat Quality version 1.2* (DEHP, 2017), derived from ground-truthed regional ecosystem mapping within the extent of the MDS Rail Loop, as presented in the MDS Rail Loop ecological assessment (SLR 2019b).

Table B-1: Site condition raw data for each RE assessment unit

Ecological condition indicators	Site MDSRL01 RE 11.8.11			Site MDSRL02 RE 11.8.11			Site MDSRL03 RE 11.8.11			Site MDSRL04 RE 11.8.11		
	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.11)	Score
Recruitment of woody perennial species	-	-	-	-	-	-	-	-	-	-	-	-
Native plant species richness - trees	-	-	-	-	-	-	-	-	-	-	-	-
Native plant species richness - shrubs	-	-	-	-	-	-	-	-	-	-	-	-
Native plant species richness - grasses	9	11	3	7	11	3	7	11	3	7	11	3
Native plant species richness - forbs	5	17	3	9	17	3	8	17	3	5	17	3
Tree canopy height	-	-	-	-	-	-	-	-	-	-	-	-
Tree sub canopy height	-	-	-	-	-	-	-	-	-	-	-	-
Tree canopy cover	-	-	-	-	-	-	-	-	-	-	-	-
Tree sub canopy cover	-	-	-	-	-	-	-	-	-	-	-	-
Shrub canopy cover	-	-	-	-	-	-	-	-	-	-	-	-
Native perennial grass cover	48	43	5	50	43	5	23.8	43	3	29	43	3
Organic litter	13.2	13	5	14.5	13	5	7.6	13	5	14	13	5
Large eucalypt trees	-	-	-	-	-	-	-	-	-	-	-	-
Large non-eucalypt trees	-	-	-	-	-		-	-	-	-	-	
Coarse woody debris	-	-	-	-	-	-	-	-	-	-	-	-
Non-native plant cover	40	0	3	22	0	10	47	0	3	74	0	0
Total			19			21			17			14
/10			**6.33**			**7.00**			**5.67**			**4.67**

Table B-2: Summary of the site condition and site context scores used to calculate the habitat condition score for each RE assessment unit

MNES values	Site MDSRL01 RE 11.8.11 Natural Grasslands TEC, King blue-grass	Site MDSRL02 RE 11.8.11 Natural Grasslands TEC, King blue-grass	Site MDSRL03 RE 11.8.11 Natural Grasslands TEC, King blue-grass	Site MDSRL04 RE 11.8.11 Natural Grasslands TEC, King blue-grass
Site condition				
Recruitment of woody perennial species	-	-	-	-
Native plant species richness - trees	-	-	-	-
Native plant species richness - shrubs	-	-	-	-
Native plant species richness - grasses	3	3	3	3
Native plant species richness - forbs	3	3	3	3
Tree canopy height	-	-	-	-
Tree canopy cover	-	-	-	-
Shrub canopy cover	-	-	-	-
Native perennial grass cover	5	5	3	3
Organic litter	5	5	5	5
Large trees	-	-	-	-
Coarse woody debris	-	-	-	-
Non-native plant cover	3	5	3	0
Total of BioCondition attributes	19	21	17	14
MAX ecological condition score	30	30	30	30
Score /10	**6.33**	**7.00**	**5.67**	**4.67**
Site context				
Size of patch (fragmented bioregions)	10	10	10	10
Connectivity (fragmented bioregions)	5	5	5	5
Context (fragmented bioregions)	5	4	4	4
Distance to permanent watering point (intact bioregions)	-	-	-	-
Ecological corridors	6	4	4	4
Total of site context attributes	26	23	23	23
MAX site context score	26	26	26	26
Score /10	**10.00**	**8.85**	**8.85**	**8.85**

Table B-3: Summary of the species stocking rate index for king blue-grass

Species stocking rate /3[a]	Site MDSRL01 RE 11.8.11	Site MDSRL02 RE 11.8.11	Site MDSRL03 RE 11.8.11	Site MDSRL04 RE 11.8.11
King blue-grass – Absent/not confirmed = 0 – up to 2 tussocks = 2 – between 3 and 20 tussocks = 2.5 – 20 or more tussocks = 3	3	3	0	0

[a] species stocking rate contributes 20% toward the habitat condition score for King blue-grass, with the remaining 80% made up of site condition and site context.

Table B-4: Summary of the MNES habitat condition score for each RE assessment unit

Assessment unit habitat condition score /10	Site MDSRL01 RE 11.8.11	Site MDSRL02 RE 11.8.11	Site MDSRL03 RE 11.8.11	Site MDSRL04 RE 11.8.11	Average habitat condition score
Natural Grasslands TEC – calculated based on site condition (/80) + site context (/26) converted to score out of 10	8.04	7.86	7.14	6.61	**7.41**
King blue-grass – calculated based on combination of: – habitat quality (site condition + site context) – 80% – species stocking rate (score out of 3) – 20%	8.43	8.29	5.71	5.29	**6.93**

APPENDIX C LEXINGTON RAIL LOOP OFFSET SITE – YEAR 3 HABITAT CONDITION ASSESSMENT

The following tables provide details of the habitat condition assessments undertaken during the Year 3 monitoring period at the Lexington Rail Loop offset site. Habitat condition scores were calculated in accordance with the *Guide to Determining Terrestrial Habitat Quality version 1.2* (DEHP, 2017). The data required to inform the site condition and flora species stocking rates were collected as part of detailed field surveys in March 2022. The site context score was calculated in accordance with the method prescribed in the *Guide to Determining Terrestrial Habitat Quality version 1.2* (DEHP, 2017), derived from ground-truthed regional ecosystem mapping within the extent of the Lexington Rail Loop offset sites, as presented in the Lexington Rail Loop ecological assessment (SLR 2019b).

Table C-1: Site condition raw data for each RE assessment unit

Ecological condition indicators	Site LEXRL01 RE 11.8.11			Site LEXRL02 RE 11.8.11			Site LEXRL03 RE 11.8.11			Site LEXRL04 RE 11.8.11			Site LEXRL05 RE 11.8.11			Site LEXRL06 RE 11.8.11			Site LEXRL07 RE 11.8.11		
	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.11)	Score	Raw data	Benchmark (11.8.11)	Score
Recruitment of woody perennial species	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Native plant species richness - trees	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Native plant species richness - shrubs	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Native plant species richness - grasses	6	11	3	8	11	3	3	11	3	3	11	3	5	11	3	2	11	2.5	3	11	3
Native plant species richness - forbs	5	17	3	5	17	3	6	17	3	5	17	3	7	17	3	8	17	3	7	17	3
Tree canopy height	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Tree sub canopy height	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Tree canopy cover	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Tree sub canopy cover	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Shrub canopy cover	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Native perennial grass cover	48	43	5	50	43	5	23.8	43	3	29	43	3	65	43	5	51	43	5	50	43	5
Organic litter	13.2	13	5	14.5	13	5	7.6	13	5	14	13	5	17.4	13	5	15	13	5	6.6	13	5
Large eucalypt trees	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Large non-eucalypt trees	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Coarse woody debris	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Non-native plant cover	40	0	3	0.6	0	10	3	0	10	2	0	10	0.2	0	10	0.4	0	10	0.4	0	10
Total			19			26			24			24			26			25.5			26
/10			**6.33**			**8.67**			**8.00**			**8.00**			**8.67**			**8.50**			**8.67**

Table C-2: Summary of the site condition and site context scores used to calculate the habitat condition score for each RE assessment unit

MNES values	Site LEXRL01 RE 11.8.11 Natural Grasslands TEC, King blue-grass	Site LEXRL02 RE 11.8.11 Natural Grasslands TEC, King blue-grass	Site LEXRL03 RE 11.8.11 Natural Grasslands TEC, King blue-grass	Site LEXRL04 RE 11.8.11 Natural Grasslands TEC, King blue-grass	Site LEXRL05 RE 11.8.11 Natural Grasslands TEC, King blue-grass	Site LEXRL06 RE 11.8.11 Natural Grasslands TEC, King blue-grass	Site LEXRL07 RE 11.8.11 Natural Grasslands TEC, King blue-grass
Site condition							
Recruitment of woody perennial species	-	-	-	-	-	-	-
Native plant species richness - trees	-	-	-	-	-	-	-
Native plant species richness - shrubs	-	-	-	-	-	-	-
Native plant species richness - grasses	3	3	3	3	3	2.5	3
Native plant species richness - forbs	3	3	3	3	3	3	3
Tree canopy height	-	-	-	-	-	-	-
Tree canopy cover	-	-	-	-	-	-	-
Shrub canopy cover	-	-	-	-	-	-	-
Native perennial grass cover	5	5	3	3	5	5	5
Organic litter	5	5	5	5	5	5	5
Large trees	-	-	-	-	-	-	-
Coarse woody debris	-	-	-	-	-	-	-
Non-native plant cover	3	10	10	10	10	10	10
Total of BioCondition attributes	19	26	24	24	26	25.5	26
MAX ecological condition score	30	30	30	30	30	30	30
Score /10	**6.33**	**8.67**	**8.00**	**8.00**	**8.67**	**8.50**	**8.67**
Site context							
Size of patch (fragmented bioregions)	10	10	10	10	10	10	10
Connectivity (fragmented bioregions)	5	5	5	5	5	5	5
Context (fragmented bioregions)	5	5	2	4	4	4	4
Distance to permanent watering point (intact bioregions)	-	-	-	-	-	-	-
Ecological corridors	6	6	0	0	0	0	0
Total of site context attributes	26	26	17	19	19	19	19
MAX site context score	26	26	26	26	26	26	26
Score /10	**10.00**	**10.00**	**6.54**	**7.31**	**7.31**	**7.31**	**7.31**

Table C-3: Summary of the species stocking rate index for king blue-grass

Species stocking rate /3[a]	Site LEXRL01 RE 11.8.11	Site LEXRL02 RE 11.8.11	Site LEXRL03 RE 11.8.11	Site LEXRL04 RE 11.8.11	Site LEXRL05 RE 11.8.11	Site LEXRL06 RE 11.8.11	Site LEXRL07 RE 11.8.11
King blue-grass – Absent/not confirmed = 0 – up to 2 tussocks = 2 – between 3 and 20 tussocks = 2.5 – 20 or more tussocks = 3	0	0	0	0	0	0	0

[a] species stocking rate contributes 20% toward the habitat condition score for King blue-grass, with the remaining 80% made up of site condition and site context.

Table C-4: Summary of the MNES habitat condition score for each RE assessment unit

Assessment unit habitat condition score /10	Site LEXRL01 RE 11.8.11	Site LEXRL02 RE 11.8.11	Site LEXRL03 RE 11.8.11	Site LEXRL04 RE 11.8.11	Site LEXRL05 RE 11.8.11	Site LEXRL06 RE 11.8.11	Site LEXRL07 RE 11.8.11	FINAL MNES habitat quality score
Natural Grasslands TEC – calculated based on site condition (/80) + site context (/26) converted to score out of 10	8.04	9.29	7.32	7.68	8.04	7.95	8.04	**8.05**
King blue-grass – calculated based on combination of: – habitat quality (site condition + site context) – 80% – species stocking rate (score out of 3) – 20%	6.43	7.43	5.86	6.14	6.43	6.36	6.43	**6.44**

APPENDIX D MDS PROJECT SITE PHOTO MONITORING

SITE 01 – H01_0M

Photo D-1 North

Photo D-2 East

Photo D-3 South

Photo D-4 West

Photo D-5 Ground

SITE 01 – H01_50M

Photo D-6 North

Photo D-7 East

Photo D-8 South

Photo D-9 West

Photo D-10 Ground

SITE 02 – H02_0 M

Photo D-11 North

Photo D-12 East

Photo D-13 South

Photo D-14 West

Photo D-15 Ground

SITE 02 – H02_50M

Photo D-16 North

Photo D-17 East

Photo D-18 South

Photo D-19 West

Photo D-20 Ground

SITE 03 – H03_0M

Photo D-21 North

Photo D-22 East

Photo D-23 South

Photo D-24 West

Photo D-25 Ground

SITE 03 – H03_50M

Photo D-26 North

Photo D-27 East

Photo D-28 South

Photo D-29 West

Photo D-30 Ground

SITE 04 – H04_0M

Photo D-31 North

Photo D-32 East

Photo D-33 South

Photo D-34 West

Photo D-35 Ground

SITE 04 – H04_50M

Photo D-36 North

Photo D-37 East

Photo D-38 South

Photo D-39 West

Photo D-40 Ground

SITE 05 – H05_0M

Photo D-41 North

Photo D-42 East

Photo D-43 South

Photo D-44 West

Photo D-45 Ground

SITE 05 – H05_50M

Photo D-46 North

Photo D-47 East

Photo D-48 South

Photo D-49 West

Photo D-50 Ground

SITE 06 – H06_0M

Photo D-51 North

Photo D-52 East

Photo D-53 South

Photo D-54 West

Photo D-55 Ground

SITE 06 – H06_50M

Photo D-56 North

Photo D-57 East

Photo D-58 South

Photo D-59 West

Photo D-60 Ground

SITE 07 – H07_0M

Photo D-61 North

Photo D-62 East

Photo D-63 South

Photo D-64 West

Photo D-65 Ground

SITE 07 – H07_50M

Photo D-66 North

Photo D-67 East

Photo D-68 South

Photo D-69 West

Photo D-70 Ground

SITE 08 – H08_0M

Photo D-71 North

Photo D-72 East

Photo D-73 South

Photo D-74 West

Photo D-75 Ground

SITE 08 – H08_50M

Photo D-76 North

Photo D-77 East

Photo D-78 South

Photo D-79 West

Photo D-80 Ground

SITE 09 – H09_0M

Photo D-81 North

Photo D-82 East

Photo D-83 South

Photo D-84 West

Photo D-85 Ground

SITE 09 – H09_50M

Photo D-86 North

Photo D-87 East

Photo D-88 South

Photo D-89 West

Photo D-90 Ground

SITE 10 – H10_0M

Photo D-91 North

Photo D-92 East

Photo D-93 South

Photo D-94 West

Photo D-95 Ground

SITE 10 – H10_50M

Photo D-96 North

Photo D-97 East

Photo D-98 South

Photo D-99 West

Photo D-100 Ground

SITE 11 – W11_0

Photo D-101 North

Photo D-102 East

Photo D-103 South

Photo D-104 West

Photo D-105 Ground

SITE 12 – W12_0

Photo D-106 North

Photo D-107 East

Photo D-108 South

Photo D-109 West

Photo D-110 Ground

SITE 13 – W13_0

Photo D-111 North

Photo D-112 East

Photo D-113 South

Photo D-114 West

Photo D-115 Ground

SITE 14 – W14_0

Photo D-116 North

Photo D-117 East

Photo D-118 South

Photo D-119 West

Photo D-120 Ground

SITE 15 – W15_0

Photo D-121 North

Photo D-122 East

Photo D-123 South

Photo D-124 West

Photo D-125 Ground

SITE 16 – W16_0

Photo D-126 North

Photo D-127 East

Photo D-128 South

Photo D-129 West

Photo D-130 Ground

SITE 17 – W17_0

Photo D-131 North

Photo D-132 East

Photo D-133 South

Photo D-134 West

Photo D-135 Ground

SITE 18 – W18_0

Photo D-136 North

Photo D-137 East

Photo D-138 South

Photo D-139 West

Photo D-140 Ground

SITE 19 – W19_0

Photo D-141 North

Photo D-142 East

Photo D-143 South

Photo D-144 West

Photo D-145 Ground

SITE 20 – W20_0

Photo D-146 North

Photo D-147 East

Photo D-148 South

Photo D-149 West

Photo D-150 Ground

APPENDIX E MDS RAIL LOOP SITE PHOTO MONITORING

SITE MDSRL01 – H01_0M

Photo E-1 North

Photo E-2 East

Photo E-3 South

Photo E-4 West

Photo E-5 Ground

SITE MDSRL01 – H01_50M

Photo E-6 North

Photo E-7 East

Photo E-8 South

Photo E-9 West

Photo E-10 Ground

SITE MDSRL02 – H02_0 M

Photo E-11 North

Photo E-12 East

Photo E-13 South

Photo E-14 West

Photo E-15 Ground

SITE MDSRL02 – H02_50M

Photo E-16 North

Photo E-17 East

Photo E-18 South

Photo E-19 West

Photo E-20 Ground

SITE MDSRL03 – H03_0M

Photo E-21 North

Photo E-22 East

Photo E-23 South

Photo E-24 West

Photo E-25 Ground

SITE MDSRL03 – H03_50M

Photo E-26 North

Photo E-27 East

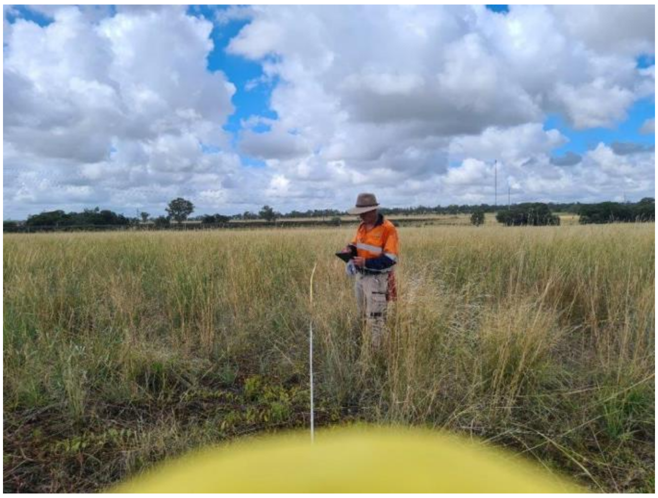

Photo E-28 South

Photo E-29 West

Photo E-30 Ground

SITE MDSRL04 – H04_0M

Photo E-31 North

Photo E-32 East

Photo E-33 South

Photo E-34 West

Photo E-35 Ground

SITE MDSRL04 – H04_50M

Photo E-36 North

Photo E-37 East

Photo E-38 South

Photo E-39 West

Photo E-40 Ground

SITE MDSRL05 – W05_0

Photo E-41 North

Photo E-42 East

Photo E-43 South

Photo E-44 West

Photo E-45 Ground

APPENDIX F LEXINGTON OFFSET SITE PHOTO MONITORING

SITE 01 – H01_0M

Photo F-1 North

Photo F-2 East

Photo F-3 South

Photo F-4 West

Photo F-5 Ground

SITE 01 – H01_50M

Photo F-6 North

Photo F-7 East

Photo F-8 South

Photo F-9 West

Photo F-10 Ground

SITE 02 – H02_0 M

Photo F-11 North

Photo F-12 East

Photo F-13 South

Photo F-14 West

Photo F-15 Ground

SITE 02 – H02_50M

Photo F-16 North

Photo F-17 East

Photo F-18 South

Photo F-19 West

Photo F-20 Ground

SITE 03 – H03_0M

Photo F-21 North

Photo F-22 East

Photo F-23 South

Photo F-24 West

Photo F-25 Ground

SITE 03 – H03_50M

Photo F-26 North

Photo F-27 East

Photo F-28 South

Photo F-29 West

Photo F-30 Ground

SITE 04 – H04_0M

Photo F-31 North

Photo F-32 East

Photo F-33 South

Photo F-34 West

Photo F-35 Ground

SITE 04 – H04_50M

Photo F-36 North

Photo F-37 East

Photo F-38 South

Photo F-39 West

Photo F-40 Ground

SITE 05 – H05_0M

Photo F-41 North

Photo F-42 East

Photo F-43 South

Photo F-44 West

Photo F-45 Ground

SITE 05 – H05_50M

Photo F-46 North

Photo F-47 East

Photo F-48 South

Photo F-49 West

Photo F-50 Ground

SITE 06 – H06_0M

Photo F-51 North

Photo F-52 East

Photo F-53 South

Photo F-54 West

Photo F-55 Ground

SITE 06 – H06_50M

Photo F-56 North

Photo F-57 East

Photo F-58 South

Photo F-59 West

Photo F-60 Ground

SITE 07 – H07_0M

Photo F-61 North

Photo F-62 East

Photo F-63 South

Photo F-64 West

Photo F-65 Ground

SITE 07 – H07_50M

Photo F-66 North

Photo F-67 East

Photo F-68 South

Photo F-69 West

Photo F-70 Ground

SITE 08 – H08_0M

Photo F-71 North

Photo F-72 East

Photo F-73 South

Photo F-74 West

Photo F-75 West

SITE 08 – H08_50M

Photo F-76 North

Photo F-77 East

Photo F-78 South

Photo F-79 West

Photo F-80 Ground

SITE 09 – H09_0M

Photo F-81 North

Photo F-82 East

Photo F-83 South

Photo F-84 West

Photo F-85 Ground

SITE 09 – H09_50M

Photo F-86 North

Photo F-87 East

Photo F-88 South

Photo F-89 West

Photo F-90 Ground

SITE 10 – H10_0M

Photo F-91 North

Photo F-92 East

Photo F-93 South

Photo F-94 West

Photo F-95 Ground

SITE 10 – H10_50M

Photo F-96 North

Photo F-97 East

Photo F-98 South

Photo F-99 West

Photo F-100 Ground

SITE 11 – H11_0M

Photo F-101 North

Photo F-102 East

Photo F-103 South

Photo F-104 West

Photo F-105 Ground

SITE 11 – H11_50M

Photo F-106 North

Photo F-107 East

Photo F-108 South

Photo F-109 West

Photo F-110 Ground

SITE 12 – H12_0M

Photo F-111 North

Photo F-112 East

Photo F-113 South

Photo F-114 West

Photo F-115 Ground

SITE 12 – H12_50M

Photo F-116 North

Photo F-117 East

Photo F-118 South

Photo F-119 West

Photo F-120 Ground

SITE 13 – H13_0M

Photo F-121   North

Photo F-122   East

Photo F-123   South

Photo F-124   West

Photo F-125   Ground

SITE 13 – H13_50M

Photo F-126 North

Photo F-127 East

Photo F-128 South

Photo F-129 West

Photo F-130 Ground

SITE 14 – W14_0

Photo F-131 North

Photo F-132 East

Photo F-133 South

Photo F-134 West

Photo F-135 Ground

SITE 15 – W15_0

Photo F-136 North

Photo F-137 East

Photo F-138 South

Photo F-139 West

Photo F-140 Ground

SITE 16 – W16_0

Photo F-141 North

Photo F-142 East

Photo F-143 South

Photo F-144 West

Photo F-145 Ground

SITE 17 – W17_0

Photo F-146 North

Photo F-147 East

Photo F-148 South

Photo F-149 West

Photo F-150 Ground

SITE 18 – W18_0

Photo F-151 North

Photo F-152 East

Photo F-153 South

Photo F-154 West

Photo F-155 Ground

SITE 19 – W19_0

Photo F-156 North

Photo F-157 East

Photo F-158 South

Photo F-159 West

Photo F-160 Ground

SITE 20 – W20_0

Photo F-161 North

Photo F-162 East

Photo F-163 South

Photo F-164 West

Photo F-165 Ground

APPENDIX G LEXINGTON RAIL LOOP OFFSET SITE PHOTO MONITORING

SITE LEXRL01 – H01_0M

Photo G-1 North

Photo G-2 East

Photo G-3 South

Photo G-4 West

Photo G-5 Ground

SITE LEXRL01 – H01_50M

Photo G-6 North

Photo G-7 East

Photo G-8 South

Photo G-9 West

Photo G-10 Ground

SITE LEXRL02 – H02_0M

Photo G-11 North

Photo G-12 East

Photo G-13 South

Photo G-14 West

Photo G-15 Ground

SITE LEXRL02 – H02_50M

Photo G-16 North

Photo G-17 East

Photo G-18 South

Photo G-19 West

Photo G-20 Ground

SITE LEXRL03 – H03_0M

Photo G-21 North

Photo G-22 East

Photo G-23 South

Photo G-24 West

Photo G-25 Ground

SITE LEXRL03 – H03_50M

Photo G-26 North

Photo G-27 East

Photo G-28 South

Photo G-29 West

Photo G-30 Ground

SITE LEXRL04 – H04_0M

Photo G-31 North

Photo G-32 East

Photo G-33 South

Photo G-34 West

Photo G-35 Ground

SITE LEXRL04 – H04_50M

Photo G-36 North

Photo G-37 East

Photo G-38 South

Photo G-39 West

Photo G-40 Ground

SITE LEXRL05 – H05_0M

Photo G-41 North

Photo G-42 East

Photo G-43 South

Photo G-44 West

Photo G-45 Ground

SITE LEXRL05 – H05_50M

Photo G-46 North

Photo G-47 East

Photo G-48 South

Photo G-49 West

Photo G-50 Ground

SITE LEXRL06 – H06_0M

Photo G-51 North

Photo G-52 East

Photo G-53 South

Photo G-54 West

Photo G-55 Ground

SITE LEXRL06 – H06_50M

Photo G-56 North

Photo G-57 East

Photo G-58 South

Photo G-59 West

Photo G-60 Ground

SITE LEXRL07 – H07_0M

Photo G-61 North

Photo G-62 East

Photo G-63 South

Photo G-64 West

Photo G-65 Ground

SITE LEXRL07 – H07_50M

Photo G-66 North

Photo G-67 East

Photo G-68 South

Photo G-69 West

Photo G-70 Ground

SITE LEXRL08 – W08_0

Photo G-71 North

Photo G-72 East

Photo G-73 South

Photo G-74 West

Photo G-75 Ground

SITE LEXRL09 – W09_0

Photo G-76 North

Photo G-77 East

Photo G-78 South

Photo G-79 West

Photo G-80 Ground

SITE LEXRL10 – W10_0

Photo G-81 North

Photo G-82 East

Photo G-83 South

Photo G-84 West

Photo G-85 Ground

SITE LEXRL11 – W11_0

Photo G-86 North

Photo G-87 East

Photo G-88 South

Photo G-89 West

Photo G-90 Ground

SITE LEXRL12 – W12_0

Photo G-91 North

Photo G-92 East

Photo G-93 South

Photo G-94 West

Photo G-95 Ground