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Project Name	Alcoa Holyoake Environmental Assessments		
Subject	O'Neil East Targeted Woylie Assessment		

1. Introduction and Survey Area

Alcoa of Australia Limited (Alcoa) is proposing to progressively transition the Huntly Mine into the Holyoake Stage 2 (East), Holyoake West and/or O'Neil mining regions in the future. As part of potential future expansions and environmental approvals, GHD has been undertaking fauna surveys in the O'Neil East blocks over the 2023 period. The O'Neil East survey project is located in the Peel region, Western Australia (WA), approximately 30 kilometres (km) southeast from the township of Jarrahdale. The O'Neil East Survey Area covers an area of approximately 2425.65 hectares (ha). The Survey Area has a 10 km buffer known as the Study Area Figure 1.

During the O'Neil East surveys GHD recorded a Woylie (*Bettongia penicillata ogilbyi*) on a remote camera in the north of the survey area. Alcoa then requested GHD to further investigate the population of Woylies within the O'Neil East Survey Area. The Woylie is listed as Critically Endangered under the *Biodiversity Conservation Act 2016* (BC Act) and Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Woylie is a small grey-brown bipedal marsupial, reaching a head body length 310-380 mm and a weight range of 1 – 1.6 kilograms (kg). The Woylie has a distinctive semi prehensile tail with brush like appearance, reaching a length of 290-350 mm (Menkhorst & Knight, 2011).

Woylie populations are restricted to four natural populations, Dryandra Woodland National Park, Tutanning Nature Reserve, Greater Kingston National Park and Perup forest along with 16 re-established populations across Western Australia (Yeatman & Groom, 2012). In 1995, 21 Individuals were reintroduced to the O'Neil area in plot 663. These animals were sourced from the population at Dryandra Woodland National Park. In 2007 the status of the reintroduced population was classified as undetermined (DEC, 2007). This location (according to broad GPS locations) is approximately 8.7 km southwest of the Woylies recorded in the O'Neil East Survey Area.

1.1 Purpose of this Memorandum

The purpose of the technical memorandum, is to identify the extent of the Woylie population within the O'Neil East Survey Area and Study Area.

1.2 Scope and limitations

This scope of work addresses the O'Neil East Survey Area. The scope of work includes:

- Undertake a targeted survey for Woylies via deployment of remote cameras.
- Identify the extent and range of the Woylie population.
- Provide a technical memorandum.
- Data management.

This technical memorandum has been prepared by GHD for Alcoa of Australia Limited. It is not prepared as, and is not represented to be, a deliverable suitable for reliance by any person for any purpose. It is not intended for circulation or incorporation into other documents. The matters discussed in this memorandum are limited to those specifically detailed in the memorandum and are subject to any limitations or assumptions specially set out.

Accessibility of documents

If this Technical Memorandum is required to be accessible in any other format this can be provided by GHD upon request and at an additional cost if necessary.

2. Methodology

Targeted remote cameras were deployed within a mixed shrub dampland where GHD identified a Woylie population in June 2023 via three images over two cameras. Based on this information cameras were scattered along the length of the dampland as well as two parallel rows of 10 remote cameras were deployed approximately 100 - 200 m from the edge on the dampland in Jarrah/Marri forest running from east and west. Each camera was deployed approximately 400 m apart. The next round of remote cameras was two rows of parallel cameras deployed approximately one kilometre from the edge of the dampland. Each camera was deployed approximately 400 m apart. For the duration of the survey a total of 71 remote cameras were deployed and remained in situ from 15 to 41 nights. Remote cameras were baited with liquified peanut butter and sardines placed in the field or view. For each remote camera deployed, the time and date deployed and recovered, as well as the GPS coordinates were recorded, Table, and displayed in Figure 2, Appendix A.

Data (images/video) was collected to SD card and downloaded in office to database. Images were then screened for fauna species present and identified to species level. Where species level could not be achieved then species group or best determination to highest taxonomic level was made. Species recorded was classified as an event with one event occurring every 24 hours unless individual specimens could be identified (i.e. Chuditch - *Dasyurus geoffroii* with spots or animal sizes or injury marks). By restricting data to one event every 24 hours assumes some level of independence over species.

The targeted field survey was conducted by a team of GHD Zoologists. Led by Senior Zoologist Glen Gaikhorst (20+ years of experience) and accompanied by Senior Zoologist Brad Maryan (20+ years of experience) and Zoologist Dylan Goldspink (2+ years of experience). Glen Gaikhorst and Dylan Goldspink conducted the data analysis.

The survey area for Woylies is in the Northwestern portion of the O'Neil East Survey Area and extends into the Study Area abutting with the Monadnocks Conservation Park, an area heavily baited with 1080 due to the Western Shield Program (DBCA, 2023). The Study Area is located approximately 70 km southeast of the City of Perth.

Table 1 Targeted Woylie remote camera survey effort

Phase	Camera Number	Habitat type	Latitude	Longitude	Date deployed	Date collected	Nights deployed
Reccie	CAM P3	Mixed shrub dampland	-32.4967	116.3078	28/06/2023	24/07/2023	26
Reccie	CAM 21	Mixed shrub dampland	-32.4954	116.3066	28/06/2023	24/07/2023	26
Phase 1	CAM PRO 4	Mixed shrub dampland	-32.4917	116.3031	21/08/2023	5/09/2023	15
Phase 1	CAM 15	Mixed shrub dampland	-32.4999	116.3088	21/08/2023	5/09/2023	15
Phase 2	CAM HF10	Mixed shrub dampland	-32.4999	116.3088	8/09/2023	18/10/2023	40
Phase 2	CAM HP3	Mixed shrub dampland	-32.5009	116.3100	8/09/2023	18/10/2023	40
Phase 2	CAM PRO 4	Mixed shrub dampland	-32.5004	116.3120	8/09/2023	18/10/2023	40
Phase 2	CAM 5	Jarrah -Marri forest	-32.4952	116.3082	14/09/2023	18/10/2023	34
Phase 2	CAM 16	Jarrah -Marri forest	-32.4964	116.3053	14/09/2023	18/10/2023	34
Phase 2	CAM 28	Jarrah -Marri forest	-32.4994	116.3073	14/09/2023	18/10/2023	34
Phase 2	CAM PRO 4	Jarrah -Marri forest	-32.5029	116.3081	14/09/2023	18/10/2023	34
Phase 2	CAM R59	Jarrah -Marri forest	-32.5067	116.3089	14/09/2023	18/10/2023	34
Phase 2	CAM gero F 17	Jarrah -Marri forest	-32.5099	116.3107	14/09/2023	18/10/2023	34
Phase 2	CAM 53	Jarrah -Marri forest	-32.4977	116.3109	14/09/2023	18/10/2023	34
Phase 2	CAM 19	Jarrah -Marri forest	-32.4994	116.3149	14/09/2023	18/10/2023	34
Phase 2	CAM C42	Jarrah -Marri forest	-32.5023	116.3143	14/09/2023	18/10/2023	34
Phase 2	CAM 20	Jarrah -Marri forest	-32.5036	116.3186	14/09/2023	18/10/2023	34
Phase 3	CAM 19	Mixed shrub dampland	-32.4949	116.3061	19/10/2023	28/11/2023	40
Phase 3	CAM 53	Mixed shrub dampland	-32.4934	116.3055	19/10/2023	28/11/2023	40
Phase 3	CAM W1	Jarrah woodland	-32.4940	116.3032	19/10/2023	28/11/2023	40
Phase 3	CAM W2	Jarrah woodland	-32.4925	116.3012	19/10/2023	28/11/2023	40
Phase 3	CAM W3	Mixed shrub dampland	-32.4916	116.3031	19/10/2023	28/11/2023	40

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Phase	Camera Number	Habitat type	Latitude	Longitude	Date deployed	Date collected	Nights deployed
Phase 3	CAM W4	Mixed shrub dampland	-32.4911	116.3041	19/10/2023	28/11/2023	40
Phase 3	CAM W5	Jarrah woodland	-32.4895	116.3003	19/10/2023	28/11/2023	40
Phase 3	CAM W6	Mixed shrub dampland	-32.4893	116.3029	19/10/2023	28/11/2023	40
Phase 3	CAM W7	Mixed shrub dampland	-32.4891	116.3036	19/10/2023	28/11/2023	40
Phase 3	CAM W8	Jarrah woodland	-32.4869	116.2997	19/10/2023	28/11/2023	40
Phase 3	CAM W9	Mixed shrub dampland	-32.4862	116.3016	19/10/2023	28/11/2023	40
Phase 3	CAM W10	Jarrah woodland	-32.4842	116.2971	19/10/2023	28/11/2023	40
Phase 3	CAM 28	Mixed shrub dampland	-32.4949	116.3068	19/10/2023	28/11/2023	40
Phase 3	CAM 20	Jarrah -Marri forest	-32.4843	116.3019	19/10/2023	28/11/2023	40
Phase 3	CAM 17	Minor drainage line	-32.4802	116.3026	19/10/2023	29/11/2023	41
Phase 3	CAM P4	Minor drainage line	-32.4777	116.3003	19/10/2023	29/11/2023	41
Phase 3	CAM 16	Minor drainage line	-32.4823	116.3052	19/10/2023	29/11/2023	41
Phase 3	CAM 5	Minor drainage line	-32.4823	116.3089	19/10/2023	29/11/2023	41
Phase 3	CAM R59	Minor drainage line	-32.4797	116.3114	19/10/2023	29/11/2023	41
Phase 3	CAM C (42)	Minor drainage line	-32.4797	116.3165	19/10/2023	29/11/2023	41
Phase 3	CAM 15B	Mixed shrub dampland	-32.4924	116.3056	19/10/2023	28/11/2023	40
Phase 3	CAM P5	Mixed shrub dampland	-32.4892	116.3047	19/10/2023	28/11/2023	40
Phase 3	CAM HF10	Jarrah -Marri forest	-32.4931	116.3078	20/10/2023	28/11/2023	39
Phase 3	CAM R41	Mixed shrub dampland	-32.4909	116.3048	20/10/2023	28/11/2023	39
Phase 3	CAM W13	Jarrah -Marri forest	-32.4886	116.3069	20/10/2023	28/11/2023	39
Phase 3	CAM W12	Jarrah -Marri forest	-32.4864	116.3058	20/10/2023	29/11/2023	40
Phase 3	CAM W11	Sheoak and jarrah woodland	-32.4837	116.3053	20/10/2023	29/11/2023	40
Phase 3	CAM HP2	Jarrah -Marri forest	-32.4822	116.2943	20/10/2023	28/11/2023	39
Phase 3	CAM W15	Jarrah -Marri forest	-32.4776	116.2928	20/10/2023	28/11/2023	39
Phase 3	CAM SW2	Jarrah -Marri forest	-32.4740	116.2922	20/10/2023	28/11/2023	39

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Phase	Camera Number	Habitat type	Latitude	Longitude	Date deployed	Date collected	Nights deployed
Phase 3	CAM 12	Jarrah -Marri forest	-32.4735	116.2954	20/10/2023	28/11/2023	39
Phase 3	CAM R56	Wandoo woodland	-32.4763	116.2968	20/10/2023	28/11/2023	39
Phase 3	CAM YALGOO	Wandoo woodland	-32.4808	116.2962	20/10/2023	28/11/2023	39
Phase 3	CAM R57	Jarrah -Marri forest	-32.4805	116.2990	20/10/2023	28/11/2023	39
Single Target	CAM 19	Jarrah -Marri forest	-32.4785	116.3139	29/11/2023	18/12/2023	19
Single Target	CAM 28	Jarrah -Marri forest	-32.4749	116.3134	29/11/2023	18/12/2023	19
Single Target	CAM W6	Jarrah -Marri forest	-32.4821	116.3136	29/11/2023	18/12/2023	19
Single Target	CAM R57	Jarrah -Marri forest	-32.4854	116.3141	29/11/2023	18/12/2023	19
Single Target	CAM W3	Sheoak woodland	-32.4892	116.3133	29/11/2023	18/12/2023	19
Single Target	CAM C42	Jarrah -Marri forest	-32.4922	116.3160	30/11/2023	18/12/2023	18
Single Target	CAM W7	Jarrah -Marri forest	-32.5045	116.3260	30/11/2023	18/12/2023	18
Single Target	CAM W1	Jarrah -Marri forest	-32.5006	116.3254	30/11/2023	18/12/2023	18
Single Target	CAM W13	Jarrah -Marri forest	-32.4973	116.3239	30/11/2023	18/12/2023	18
Single Target	CAM HP2	Jarrah -Marri forest	-32.4945	116.3209	30/11/2023	18/12/2023	18
Single Target	CAM 16	Jarrah -Marri forest	-32.5005	116.2970	30/11/2023	19/12/2023	19
Single Target	CAM 5	Jarrah -Marri forest	-32.4979	116.2944	30/11/2023	19/12/2023	19
Single Target	CAM 12	Jarrah -Marri forest	-32.4944	116.2926	30/11/2023	19/12/2023	19
Single Target	CAM 20	Eucalyptus woodland	-32.4909	116.2917	30/11/2023	19/12/2023	19
Single Target	CAM W10	Jarrah -Marri forest	-32.4876	116.2901	30/11/2023	19/12/2023	19
Single Target	CAM R59	Jarrah -Marri forest	-32.5034	116.2995	30/11/2023	18/12/2023	18
Single Target	CAM 15B	Jarrah -Marri forest	-32.5068	116.3007	30/11/2023	18/12/2023	18
Single Target	CAM 17	Jarrah -Marri forest	-32.5104	116.3018	30/11/2023	18/12/2023	18
Single Target	CAM W4	Jarrah -Marri forest	-32.5138	116.3035	30/11/2023	18/12/2023	18
Single Target	CAM W9	Jarrah -Marri forest	-32.5173	116.3029	30/11/2023	18/12/2023	18
Total effort							2273

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3. Survey results

Woylies were recorded at abundance during the remote camera trapping period within the mixed shrub dampland and fringing Jarrah Marri Forest. The remote cameras recorded a total of 49 events where Woylies were present, Table 3. Woylies were mainly observed within the Mixed shrub dampland where they were recorded on nine cameras with a total of 35 camera events. Four cameras recording Woylies in the fringing Jarrah Marri forest, with 14 camera events, Table 2. Figure 3, Appendix A, shows the locations where Woylies were recorded.

Woylies were observed traveling up to approximately 200 m from the edge of the dampland into Jarrah Marri Forest. Camera PRO 4 recorded a single Woylie at 185 m from the edge of the dampland and Camera HF10 recorded four Woylie events at a distance of 160 m from the edge of the dampland, Table 2. One Woylie was recorded on Cam 16 carrying nest materials displaying the value of the Jarrah Marri forest for foraging for food and nest material, Plate 2 Woylie captured carrying nest material. Additional observations were made between the interactions between species. On numerous occasions Woylie/ Quokka interactions were recorded with Quokka appear to be grooming (in one event, Plate 3 but mostly trying to "monster" a Woylie. In response the Woylie is observed lying in a submissive or defensive type of response using its legs to defend itself, Plate 4.

Table 2 Woylie events within critical habitat and distance from critical habitat

Phase	Camera	Habitat	Latitude	Longitude	No. of events	Distance from dampland (m)
Reccie	CAM P3	Mixed shrub dampland	-32.4967	116.3078	4	0
Reccie	CAM 21	Mixed shrub dampland	-32.4954	116.3066	2	0
Phase 1	CAM 15	Mixed shrub dampland	-32.4999	116.3088	1	0
Phase 2	CAM 16	Jarrah -Marri forest	-32.4964	116.3053	7	113
Phase 2	CAM HF10	Mixed shrub dampland	-32.4999	116.3088	4	0
Phase 2	CAM 53	Jarrah -Marri forest	-32.4977	116.3109	2	128
Phase 2	CAM PRO 4	Jarrah -Marri forest	-32.5029	116.3081	1	185
Phase 3	CAM 19	Mixed shrub dampland	-32.4949	116.3061	13	0
Phase 3	CAM HF10*	Jarrah -Marri forest	-32.4931	116.3078	4	160
Phase 3	CAM W3	Mixed shrub dampland	-32.4916	116.3031	3	0
Phase 3	CAM W6	Mixed shrub dampland	-32.4893	116.3029	3	0
Phase 3	CAM W7	Mixed shrub dampland	-32.4891	116.3036	3	0
Phase 3	CAM 15B	Mixed shrub dampland	-32.4924	116.3056	2	0



Plate 1 Woylie captured via remote camera



Plate 2 Woylie captured carrying nest material



Plate 3 Quokka 'grooming' Woylie



Plate 4 Woylie displaying defensive type response towards Quokka

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Five non-targeted conservation significant species were identified during the survey: Chuditch (*Dasyurus geoffroii*, VU), Quokka (*Setonix brachyurus*, VU), Southwestern Brush-tailed Phascogale (*phascogale tapoatafa wambenger*, CD), Western Brush Wallaby (*Notamacropus irma*, P4) and Quenda (*Isoodon fusciventer*, P4).

Introduced predators, the Red Fox, *Vulpes vulpes*, and Feral Cat, *Felis catus*, were minimal within the Survey Area with no signs of the Red Fox and very few camera events which showed feral cats. Introduced herbivores, Feral Pig, *Sus scrofa*, had minimal camera events but extensive feral pig activity was observed when deploying the cameras.

Table 3 Woylie camera events

Phase	Date	Habitat	Latitude	Longitude	Number of individuals
Reccie	28/06/2023	Mixed shrub dampland	-32.4967	116.3078	1
Reccie	29/06/2023	Mixed shrub dampland	-32.4954	116.3066	1
Reccie	29/06/2023	Mixed shrub dampland	-32.4967	116.3078	1
Reccie	30/06/2023	Mixed shrub dampland	-32.4954	116.3066	1
Reccie	2/07/2023	Mixed shrub dampland	-32.4967	116.3078	1
Reccie	4/07/2023	Mixed shrub dampland	-32.4967	116.3078	1
Phase 1	20/08/2023	Mixed shrub dampland	-32.4999	116.3088	1
Phase 2	10/09/2023	Mixed shrub dampland	-32.4999	116.3088	1
Phase 2	10/09/2023	Jarrah -Marri forest	-32.5029	116.3081	1
Phase 2	11/09/2023	Mixed shrub dampland	-32.4999	116.3088	1
Phase 2	15/09/2023	Mixed shrub dampland	-32.4999	116.3088	1
Phase 2	19/09/2023	Jarrah -Marri forest	-32.4964	116.3053	1
Phase 2	19/09/2023	Jarrah -Marri forest	-32.4964	116.3053	1
Phase 2	19/09/2023	Jarrah -Marri forest	-32.4977	116.3109	1
Phase 2	20/09/2023	Mixed shrub dampland	-32.4999	116.3088	1
Phase 2	20/09/2023	Jarrah -Marri forest	-32.4976	116.3109	1
Phase 2	22/09/2023	Jarrah -Marri forest	-32.4964	116.3053	1
Phase 2	22/09/2023	Jarrah -Marri forest	-32.4964	116.3053	1
Phase 2	24/09/2023	Jarrah -Marri forest	-32.4964	116.3053	1
Phase 2	3/10/2023	Jarrah -Marri forest	-32.4964	116.3053	1
Phase 2	5/10/2023	Jarrah -Marri forest	-32.4964	116.3053	1
Phase 3	19/10/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	19/10/2023	Jarrah -Marri forest	-32.4931	116.3078	1
Phase 3	19/10/2023	Mixed shrub dampland	-32.4916	116.3031	1
Phase 3	20/10/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	20/10/2023	Mixed shrub dampland	-32.4924	116.3056	1
Phase 3	20/10/2023	Mixed shrub dampland	-32.4916	116.3031	1
Phase 3	21/10/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	21/10/2023	Mixed shrub dampland	-32.4891	116.3036	1
Phase 3	21/10/2023	Jarrah -Marri forest	-32.4931	116.3078	1
Phase 3	22/10/2023	Mixed shrub dampland	-32.4949	116.3061	1

Phase	Date	Habitat	Latitude	Longitude	Number of individuals
Phase 3	22/10/2023	Mixed shrub dampland	-32.4893	116.3029	1
Phase 3	22/10/2023	Mixed shrub dampland	-32.4891	116.3036	1
Phase 3	22/10/2023	Mixed shrub dampland	-32.4924	116.3056	1
Phase 3	23/10/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	23/10/2023	Mixed shrub dampland	-32.4891	116.3036	1
Phase 3	23/10/2023	Jarrah -Marri forest	-32.4931	116.3078	1
Phase 3	24/10/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	26/10/2023	Mixed shrub dampland	-32.4893	116.3029	1
Phase 3	26/10/2023	Mixed shrub dampland	-32.4916	116.3031	1
Phase 3	28/10/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	29/10/2023	Mixed shrub dampland	-32.4893	116.3029	1
Phase 3	29/10/2023	Jarrah -Marri forest	-32.4931	116.3078	1
Phase 3	1/11/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	8/11/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	25/11/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	26/11/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	27/11/2023	Mixed shrub dampland	-32.4949	116.3061	1
Phase 3	29/11/2023	Mixed shrub dampland	-32.4949	116.3061	1
Total camera events					49

**This is the number of events recorded on camera and doesn't imply number of individuals

4. Conclusion

Through the targeted camera trapping survey, a population of Woylies has been identified and appears concentrated in an area of the Mixed shrub dampland with 35 Woylie observations within the dampland and 14 events of the Woylie venturing into the skirting Jarrah Marri forest. No animals were recorded up to 1 km from the dampland. The core area of the dampland is approximately 75 ha with a further 20 ha of supportive Jarrah Marri forest habitat (within 200 m of adjoining forest) surrounding. The dampland (where the Woylie were recorded) is long unburnt surrounded by more recent burn scars in both the dampland and Jarrah Marri Forrest. The burn scar is particularly prominent north of the Woylie's current use area with little habitat and ground cover remaining in these areas.

It is recognised that remote camera data is extremely difficult to interpret population size within an area unless individuals can be isolated in data i.e. such as Chuditch with representative spot pattern. In this case Woylie cannot be distinguished individually therefore interpretation of data is based on presumption looking at location and timing of records. It has been previously observed that Woylies can travel distances of up to 1 km within an individuals home range (Yeatman and Wayne 2015). Based on this and the data we have collected we assume approximately 3 to 6 individuals were recorded.

Numerous studies have demonstrated a high variation of home range sizes for the Woylie with 8.1 ha (Chistensen 1977), 29 ha (Sampson 1971), 14.6 ha (Wayne et al 2013) and 65 ha (Yeatman and Wayne 2015) at a stocking rate of approximately 1 animal per hectare for low populations (Yeatman and Wayne 2015) and over 2 individual per hectare for higher populations (Wayne et al 2013) recorded. These numbers vary due to a number of environmental conditions and factors. In this instance, a high stocking rate is not expected. While the home range size is unknown, the area of habitation currently being utilised is approximately 75 ha.

The most evident threatening process to this Woylie population is fire and feral species. A large fire could cause catastrophic habitat destruction to this restricted population of Woylies as they occupy an area of approximately 75 ha. Feral pigs and cats are active within the area, providing competition for food and predation to the Woylies whilst pigs also being destructive when they forage affecting the landscape.

A total of five other conservation species were recorded: Chuditch, Quokka, Southwestern Brush-tailed Phascogale, Western Brush Wallaby and Quenda.

Regards

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Appendices

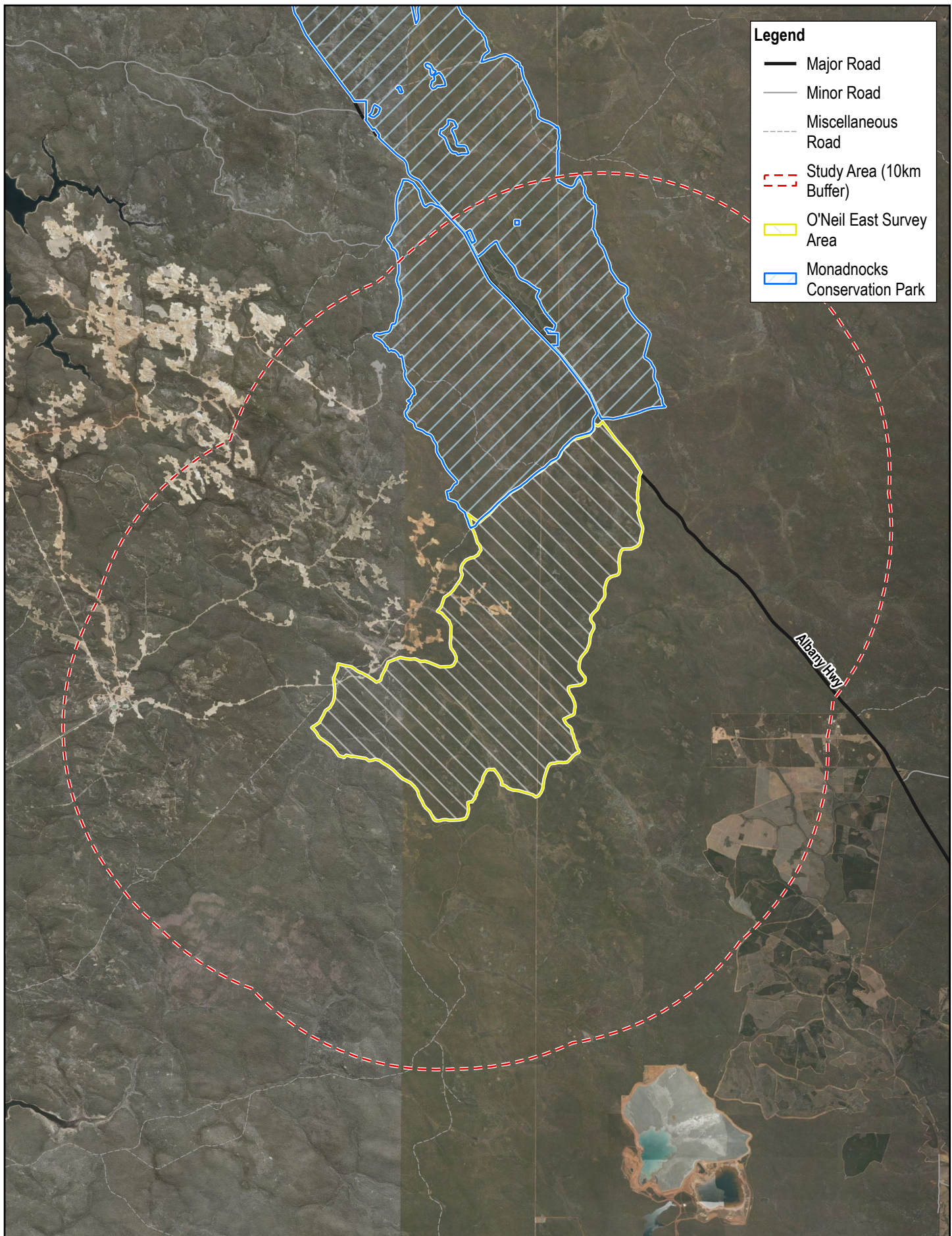
Appendix A

Figures







Figure 1 Study Area

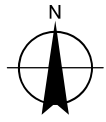
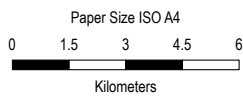
Figure 2 Remote Camera Locations

Figure 3 Woylie Observations Locations



Legend

-  Major Road
-  Minor Road
-  Miscellaneous Road
-  Study Area (10km Buffer)
-  O'Neil East Survey Area
-  Monadnocks Conservation Park



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Terrestrial Fauna Assessment Holyoake East

Project No. **12565572**
 Revision No. **A**
 Date **21/02/2024**

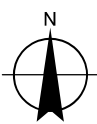
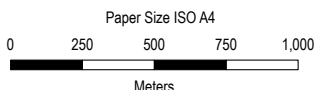
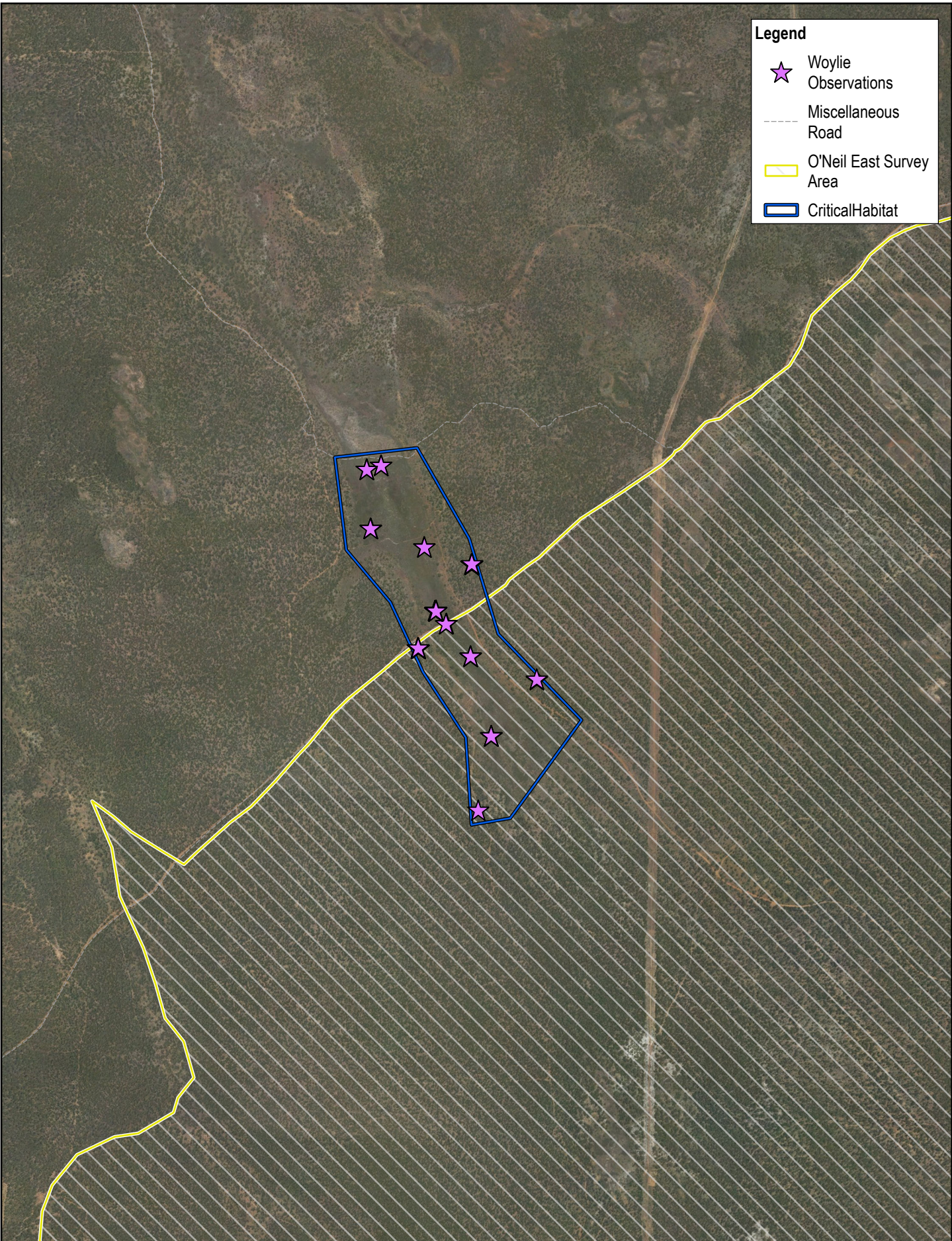
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 Horizontal Datum: WGS 1984
 Grid: WGS 1984 Web Mercator Auxiliary Sphere

O'Neil East Study Area

FIGURE 1

Legend

- ★ Woylie Observations
- Miscellaneous Road
- ▭ O'Neil East Survey Area
- ▭ CriticalHabitat





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Map Projection: Mercator Auxiliary Sphere
 Horizontal Datum: WGS 1984
 Grid: WGS 1984 Web Mercator Auxiliary Sphere

Woylie Observation Locations

FIGURE 3

Project name		Alcoa Holyoake Environmental Assessments					
Document title		O'Neil East Targeted Woylie Assessment					
Project number		12565572					
File name		12565572-00000-CI-MEM-002_1					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S3	B	G. Gaikhorst, D. Goldspink	R. Browne-Cooper	On file	M. Brook	On file	
S3	A	G. Gaikhorst	R. Browne-Cooper	On file	M. Brook	On file	
S4	Rev 1	G. Gaikhorst	R. Browne-Cooper		M. Brook		15/03/24

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