Draft Report

Annual Report (Year 2): Barry Road Offset Site, Thomastown, Victoria

Prepared for

YourLand Developments

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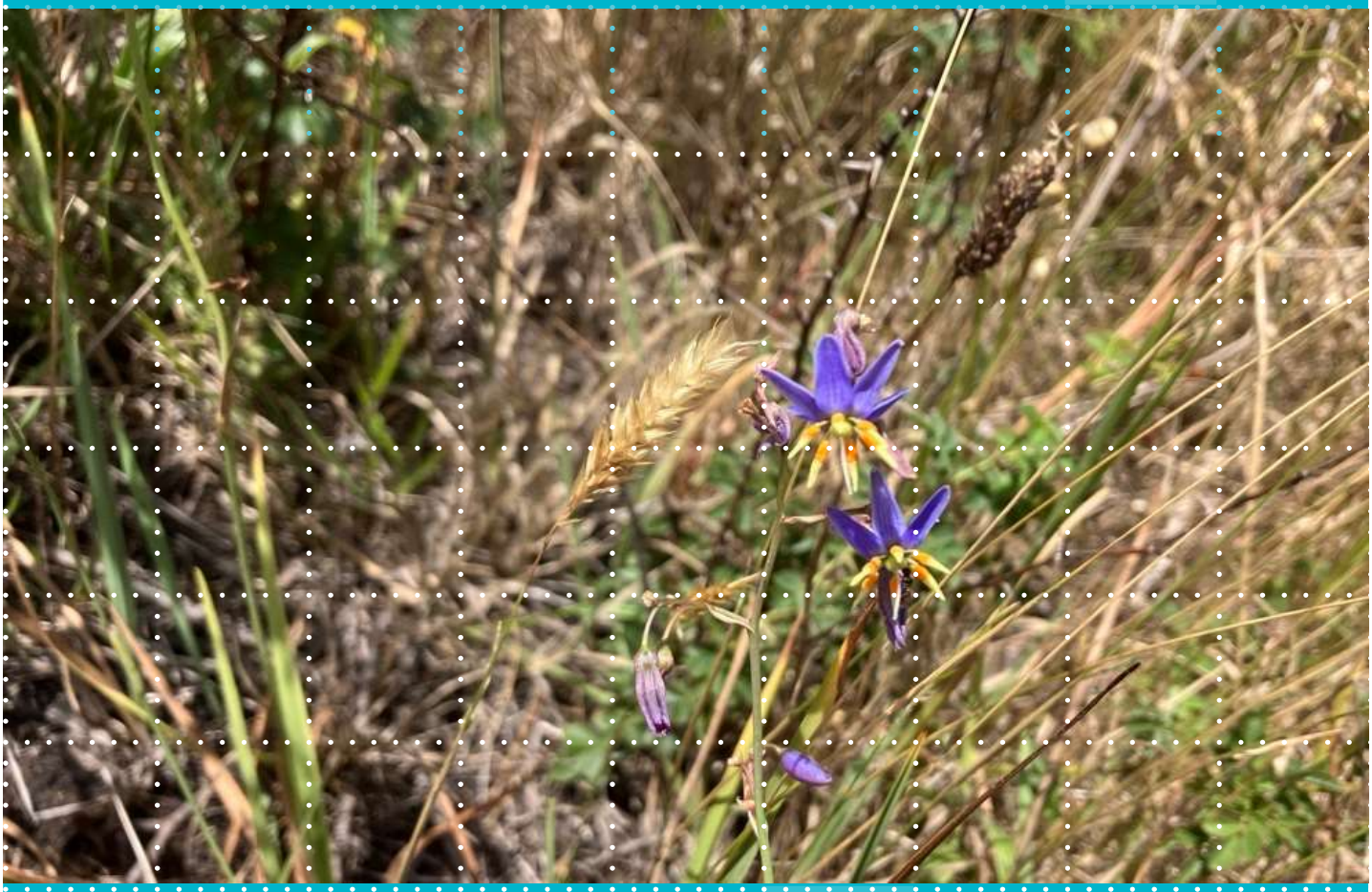

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Ecology and Heritage Partners acknowledge the Traditional Owners of the country we live and work on, and we pay our respect to Elders past, present and emerging.

CONTENTS

1 INTRODUCTION

1.1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by YourLand Developments (herein referred to as 'YourLand') to undertake the Year 2 ecological monitoring and oversee management works for the Barry Road offset site, located at 135-161 Barry Road, Thomastown, Victoria (Figure 1).

The offset site (Conservation Reserve) was established as a part of the approval conditions issued for EPBC 2014/7364 (date of decision 20/06/2018). The project was referred to the Department of Climate Change Energy, the Environment and Water (DCCEEW) (formerly the Department of the Environment and Energy [DoEE]) due to impacts proposed to one nationally significant ecological community, *Natural Temperate Grassland of the Victorian Volcanic Plain* (NTGVVP) and 36 Matted Flax-lily (MFL) *Dianella amoena* plants. The project was deemed a Controlled Action due to the significant impact on 'Listed threatened species and communities (Section 18 & Section 18A). In line with Condition 2 of the EPBC Approval 2014/7364, 5.01 hectares of NTGVVP was offset in accordance with the Melbourne Urban Development (MUD) Policy. The MFL offset obligation is to be achieved via the retention of 74 MFL plants, with 38 retained in-situ and 36 translocated to an area of non-native vegetation within the now established Conservation Reserve. The translocation process was undertaken in accordance with Condition 3 of the EPBC Approval 2014/7364 as per the approved and implemented Matted Flax-lily Translocation Plan (MTP) contained within the Environmental Management Plan (EMP) (Ecology and Heritage Partners 2024).

The EPBC Approval 2014/7364 was varied on 14 February 2024 to allow for the removal of an additional 0.02 hectares of NTGVVP. To compensate for the loss of the additional 0.02 hectares of NTGVVP, an additional 0.13 hectares of native grassland vegetation which qualifies as NTGVVP is to be created within an area of predominately non-native vegetation within the existing Barry Road Conservation Reserve (Figure 2). As part of the variation, Conditions 1 and 2 were updated and Conditions 2A, 2B and 2C were added. Further, in accordance with Condition 2A-d the EMP was updated to include the commitments to achieve on-site offset area outcomes by 1 January 2034 and thereafter maintained in perpetuity. The updated EMP (Ecology and Heritage Partners 2024) and Annexure A and Annexure B of the varied EPBC Approval 2014/7364 provide a consolidated set of management actions to guide the management of the Barry Road Offset site and ensure the relevant on-site offset targets are achieved.

The established Conservation Reserve, as secured by a Section 173 agreement, also achieves the required state offsets and satisfies the Conditions of the Development Plan Overlay – Schedule 35 of the City of Whittlesea Planning Scheme. An additional third-party offset was established for the remaining State offset requirement.

The management, monitoring and auditing works required to be undertaken within the offset site are detailed in the EMP (Ecology and Heritage Partners 2024). Specifically, the works relate to the protection and ecological monitoring of the quality of the native vegetation and significant ecological values present within the offset site, including two matters of National Environmental Significance (NES); NTGVVP and MFL.

Ecology and Heritage Partners subcontracted Aus Eco Solutions Pty Ltd (AES) to implement pest plant and animal control, biomass reduction and revegetation for the ecological management works for the Year 2 works.

This report outlines the results of the Year 2 annual monitoring and addresses all undertaken management actions, in accordance with the EMP, MTP and Year 1 Annual Report.

1.2 State Offset Strategy

To meet the State offset obligation and Condition 16 of Planning Permit 716769 PLN-38153 issued by the City of Whittlesea for the removal of 5.01 hectares of native Plains Grassland vegetation in support of the residential development, 0.731 General BEU's are required to be secured. 0.248 General BEU's, with an SBS of 0.268, are to be achieved via Security gain, Maintenance gain and Improvement gain as detailed by the EMP. The Security gain (and as per Condition 9 of the City of Whittlesea Planning Permit 716769 PLN-38153, required by Development Plan Overlay – Schedule 35) has been achieved via the implementation of a Section 173 agreement under the *Planning and Environment Act 1987*. The Maintenance and Improvement gains will be met via the enhanced management of at least 3.062 hectares of Plains Grassland vegetation within the now established 4.151 hectare Conservation Reserve (1.833 hectares within private land and 2.318 hectares within Crown Land). The remaining 0.483 General BEU's required to fulfill the remaining offset obligation were achieved via securing third-party offsets of 0.106 General BEU's (City of Whittlesea) and 0.377 (Port Phillip and Western Port CMA).

Public Reserve Offset Strategy

The offset obligation of 0.016 General BEUs associated with the removal of 5.157 hectares of native vegetation (including 5.01 of past removals) to facilitate the stormwater pipeline installation was satisfied via securing existing credits registered with DEECA's Native Vegetation Credit register. The proposed retarding basins will be located outside areas of native vegetation and will therefore generate no offset requirement.

1.3 Objectives

The overall objective of the EMP is to protect and improve the quality and extent of native vegetation and significant ecological values present within the on-site offset. This includes the nationally significant species listed under the EPBC Act, Matted Flax-lily (MFL) *Dianella amoena*, as well as the Critically Endangered ecological community, *Natural Temperate Grassland of the Victorian Volcanic Plain*.

1.4 Offset Site Security

Condition 9 of the Planning Permit approval specifies that the land identified as the on-site offset (Conservation Reserve) identified in the Environmental Management Plan (Ecology and Heritage Partners 2024) adjacent to the clearing site must be secured. A Section 173 Agreement was entered into to fulfill the requirement of Section 3.0 of Schedule 35 to the Development Plan Overlay (DPO35) in the Whittlesea Planning Scheme (title secured and registered 27 September 2022).

1.5 Relevant Reports

A summary of past reports prepared for the study area are provided below, and were used to understand the original condition of the offset site and to inform the current Year 2 monitoring report. The reports included:

- Environmental Management Plan (Ecology and Heritage Partners 2024a): Barry Road Development, Thomastown, Victoria. The associated EMP outlines the initial survey conditions of the onsite vegetation and details the ongoing management requirements over the 10 Year management period.
- Matted Flax-lily *Dianella amoena* Translocation Plan (Ecology and Heritage Partners 2018a): 135-161 Barry Road, Thomastown. The MTP outlines the MFL population within the Offset site and construction footprint and details the translocation and monitoring procedure over the 5 year monitoring period. It also outlines contingency measures for low survivorship within the transplanted cohort.
- EPBC 2014/7364: Construction Environmental Management Plan (Ecology and Heritage Partners 2018b): Barry Road Development Thomastown, Victoria. The CEMP proscribes mitigation measures throughout the construction phase of the proposed development to ensure that construction activities do not impact on environmental values present within the Conservation Reserve or in surrounding areas, and that appropriate environmental protection measures are implemented during construction works.
- Barry Road Offset Land Management 2023-24 – Quarter 4 report completed by contracted land manager Aus Eco Solutions. The report outlines the actions undertaken during Year 2 of management.
- Annual Report (Year 1): Barry Road Offset Site, Thomastown, Victoria (Ecology and Heritage Partners 2023). This report was the previous years annual monitoring report and outlines the condition of the offset site following Year 1 of management.
- Remediation Plan for the Northern Boundary of the Barry Road Conservation Reserve, Victoria (Ecology and Heritage Partners 2024b). This report was prepared to remediate damage caused by the installation of the northern boundary fence line at the direction of the Whittlesea City council and the Department of Transport and Planning.

2 MONITORING METHODS

Monitoring of the condition of native vegetation within the offset site, as well as the population status of MFL within the offset site was undertaken on the 14 June 2019 to inform the CEMP (Ecology and Heritage Partners 2019) and EMP (Ecology and Heritage Partners 2024). Subsequent baseline data was undertaken on the 17 January 2023 to determine the extent and quality of Plains Grassland and NTGVVP within the offset site prior to the commencement of Year 1 management in accordance with the EMP. Ecological management and monitoring is actively undertaken annually (and will continue over a period of 10 years) to ensure that the quality conditions outlined within the EMP are met.

Ecological monitoring in Year 2 was undertaken to monitor the quality and extent of PG and NTGVVP, as well monitor the health and progress of the transplanted population of MFL residing within the offset site. The following section outlines the methods used to undertake the monitoring in Year 2, in accordance with the EMP (Ecology and Heritage Partners 2024) and MFL Translocation Plan therein.

2.1 Native Vegetation

The following methods have been undertaken in accordance with the EMP (Ecology and Heritage Partners 2024) and associated federal policy documents, *Nationally Threatened Ecological Communities of the Victorian Volcanic Plain: Natural Temperate Grassland & Grassy Eucalypt Woodland* (Commonwealth of Australia 2011a) and *Commonwealth Listing Advice on Natural Temperate Grassland of the Victorian Volcanic Plain* (Threatened Species Scientific Committee 2008):

- To assess changes in quality and extent of PG and NTGVVP, the following monitoring was undertaken:
    - The extent of PG and NTGVVP was mapped and a Habitat Hectare assessment (as per the *Vegetation Quality Assessment Manual: Guidelines for applying the habitat hectares scoring method* (DSE 2004) was undertaken to determine the overall quality (i.e. condition). In Year 2, detailed vegetation monitoring was undertaken on 16th February, 24th of April, 24th of June, 28th of August, 23rd of October, and 2nd of December 2024.
    - Photo point monitoring was undertaken at photo points established within the Offset site, NTGVVP Offset area and the northern boundary fence line area. Photo points were established in the first year of management prior to the commencement of management.
    - Photo point monitoring was also undertaken at points established throughout Year 2, including along the western boundary in the additional NTGVVP Offset area, and along the northern boundary within the scraping incident area (Figure 1).
- Weed Monitoring to determine the effectiveness of management:
    - Record of cover, extent and composition (i.e. herbaceous, grassy, woody) of weeds within the offset site; and,
    - The cover and extent of all high threat weeds, as per the EMP, were recorded.

2.2 Matted Flax-lily

During 2016 Matted Flax-lily (MFL) targeted surveys were undertaken by suitably qualified botanists during the species flowering period (November – December). A population (74) of MFL was recorded within the site. Of these, 36 were located within the construction area and 38 were located within the Barry Road Offset Site. To mitigate the impacts to MFL within the site, the MTP was produced detailing the translocation of the 36 MFL within the construction area to within the conservation area (Ecology and Heritage Partners 2018a). This translocation took place on the 25th and 26th of October 2022, prior to construction. During this translocation, 32 of the 36 MFL within the construction area were located and one third of each plant translocated into the recipient site, with the other two thirds being sent to a nursery to act as a reserve population. Four of the MFL could not be located despite intense search efforts and were presumed no longer present. The translocated MFL were subsequently monitored to ensure adequate survivorship.

The following methods have been undertaken in Year 2 in accordance with the EMP (Ecology and Heritage Partners 2024):

- Monitoring was completed by suitably qualified botanists (i.e. botanists with prior survey experience and the ability to identify MFL);
- Monitoring looked for drought stress, pest plant and animal impacts, biomass and other site disturbances;
- Monitoring was conducted every three months;
- Water provided when required during monitoring and management visits;
- Survey Monitoring data taken consisted of:
    - Dimensions of the plants;
    - Number of “leaflets” or “tillers” associated with each plant;
    - Average tiller height; and,
    - If any, the number of flowering spikes or culms from that season present.

Monitoring will continue every 3-6 months for the remainder of the five-year monitoring period as per the Translocation Plan (Ecology and Heritage Partners 2018a).

A detailed survey of the MFL population was also conducted, with the offset site surveyed in approximately 5-meter transects. All previously known locations of MFL individuals were also searched for persisting individuals.

3 MONITORING RESULTS

3.1 Native Vegetation

In Year 2, detailed vegetation monitoring was undertaken on 16th February, 24th of April, 24th of June, 28th of August, 23rd of October, and 2nd of December 2024 by a suitably qualified Botanist. A habitat hectare assessment was undertaken during the 2nd December assessment to quantify any changes in the vegetation quality and/or extent within the Offset site. Three Plains Grassland (PG) habitat zones were identified during the Year 2 vegetation monitoring, PG1, PG2 and PG3. A description is provided below for each habitat zone and the habitat hectare scores from the most recent site visit (2nd December 2024) for each zone are provided in Appendix 1.

Plains Grassland 1 (PG1)

The patch of PG1 covers the majority of the offset site. It remained in a similar condition when compared with Year 1, however a small increase in native species diversity was noted within the patch, resulting in a slight increase in the Habitat Hectare score achieved. However, a small reduction in the cover of woody weeds was observed. This area remained in moderate condition with a high cover of indigenous tussock grasses such as Kangaroo Grass *Themeda triandra*, Wallaby-grasses *Rytidosperma* spp. and Common Tussock-grass *Poa labillardierei*. A high diversity of native herbs and graminoids were also present and included Yellow Rush Lily *Tricoryne elatior,* Blue Devil *Eryngium ovinum*, Milkmaids *Burchardia umbellata*, Common Onion Orchid *Microtis unifolia*, Cottony Fireweed *Senecio quadridendatus*, and Chocolate Lily *Arthropodium strictum* (Plate 1 - Plate 4).

Plate 1. Area dominated by Kangaroo Grass within PG1 (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 2. Chocolate Lily (purple) flowering within PG1 (Ecology and Heritage Partners Pty Ltd 24/10/2024).

Plate 3. Milkmaids flowering within PG1 (Ecology and Heritage Partners Pty Ltd 24/10/2024).

Plate 4. Cottony Fireweed within PG1 (Ecology and Heritage Partners Pty Ltd 24/10/2024).

Plate 1

Biomass varied throughout these patches as areas dominated by larger grasses such as Common Tussock Grass and/or Toowoomba Canary Grass *Phalaris aquatica* containing a higher relative biomass. Areas dominated by Kangaroo Grass and Wallaby Grasses generally had a moderate amount of biomass with greater inter tussock spacing.

Grassy weeds were abundant throughout PG1, with a seasonally higher cover of annual grasses such as Soft Brome *Bromus hordeaceus* and Squirrel-tail fescue *Vulpia bromoides* observed throughout spring, followed by a reduction in cover as the annual species die off throughout summer. Sweet Vernal-grass *Anthoxanthum odoratum* remained the highest cover perennial grassy weed, present throughout the entire offset site. Chilean Needle-grass *Nassella neesiana* and Lobed Needle-grass *Nassella charruana* increased in cover throughout Year 2, and now dominate a large portion of the southern section, including much of the MFL translocation site. Scattered individuals of Lobed Needle-grass were also present throughout the PG1, with individuals noted along the northern boundary (Plate 5; Plate 6). Woody weeds continue to pose an active threat to native vegetation. Intensive weed control works, primarily the cut and paint removal of Sweet Briar *Rosa rubiginosa,* were undertaken by Aus Eco Solutions throughout Year 2. These works further reduced woody weed cover throughout Year 2, resulting in a reduction from approximately 10% cover to 6% cover. Remaining individuals occur in localised thickets (up to 75% cover) within the central untreated areas of PG1 (Figure 1), and as resprouting individuals from previously treated thickets (Plate 7: Plate 8). Several clusters of Fennel *Foeniculum vulgare* also persist within PG1, mainly occurring as resprouting individuals from previously treated stands.

Due to the intensive control works, a reduction in woody weed cover was noted compared to Year 1. However, given the high cover of other high threat perennial weeds such as Sweet Vernal-grass, this reduction in woody weed cover did not result in a change in the Habitat Hectare scores achieved. Woody weeds are still present at high cover throughout the central portions of PG1. Perennial grassy weeds are still abundant throughout PG1, with an increase in the coverage and extent of Lobed Needlegrass noted throughout the offset site. Ongoing removal works will be required in subsequent years to achieve the

control targets for woody weeds and ensure that high threat grassy weeds do not proliferate throughout the offset site.

Plate 5. High cover of Lobed Needle-grass in the southern area of the Offset Site (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 6. Lobed Needle-grass adjacent to the northern boundary of the site (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 7. Thickets of Sweet Briar persisting within central areas of PG1 (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 8. Sweet Briar re-emerging from areas of treated thickets (north-western portion of PG1) (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plains Grassland 2

PG2 remains as one small patch on the eastern edge of the offset site. In Year 1, another PG2 patch was recorded in the north-west corner. However, due to the high emergence rate of Kangaroo Grass and Wallaby Grass within and adjoining this area, the north-western extent is now connected with the adjacent PG1 patches (Figure 1). PG2 was less diverse than PG1, and was primarily dominated by Kangaroo Grass with fewer native herbs present. This habitat zone remained separate from the larger PG1 habitat zones due to moderately dense swathes of perennial grassy weeds such as Toowoomba Canary-grass and Chilean Needle-grass. It is expected that future weed control works will reduce the coverage of grassy weed species in this

area and enable PG2 to connect with PG1, forming a contiguous patch. Weed cover, primarily from the high threat grassy weeds, remained high (60%), consistent with the Year 1 condition.

Plains Grassland 3

The vegetation within the southern area of the offset site saw several changes compared to Year 1 with a high rate of emergence of Wallaby Grasses and Spear Grasses in areas previously not recorded as native vegetation, as well as the spread of Lobed Needle-grass and Chilean Needle-grass now dominating areas recorded as native vegetation in Year 1.

Patches of PG3 were recorded in moderate condition, with lower diversity than PG1 (Figure 1). They were dominated by Wallaby Grasses such as Common Wallaby Grass *Rytidosperma caespitosum*, and Spear Grasses *Austrostipa* spp., and occasional swathes of Kangaroo Grass (Plate 9; Plate 10). Native herbs were less abundant than in PG1, however, several species such as the Blue Devil and Sheep's Burr *Acaena echinata* were present throughout. Weed cover was moderate to high in these patches and primarily consisted of the grassy weeds Lobed Needle-grass, Chilean Needle-grass, and Sweet Vernal Grass, due to the spread of the Needle-grass species throughout Year 2 and the generally high cover of Sweet Vernal Grass throughout the offset site. No PG3 patches also constituted NTGVVP.

Due to ongoing woody weed control management activities within PG3 undertaken by AES, woody weeds were no longer present within the patches of PG3. In the absence of woody weeds, high threat grassy weeds have colonised these areas and have become the primary threat to native vegetation in this area.

Plate 9. PG3b (Figure 1) dominated by Wallaby Grass (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 10. Swathe of Kangaroo Grass within PG3b (Ecology and Heritage Partners Pty Ltd 02/12/2024).

3.2 Matted Flax Lily

3.2.1 Monitoring Cohort

The MFL monitoring cohort remained unchanged from Year 1. The cohort includes 32 salvaged and translocated MFL from the proposed impact area. Each of these salvaged MFL was divided, with one third

being directly planted into the recipient site (i.e. without nursery care), and the remaining 2/3rds of each plant relocated to a nursery for care. The overall cohort includes a further eight MFL which were subject to, or potentially subject to, off-target weed spray damage during Year 1, and an additional four MFL which were planted into the translocated population within the southwest of the Conservation area (Figure 1). The additional four MFL specimens were sourced from the reserve stock held at Western Plains Flora to compensate for the potential removal of two MFL during the soil scraping of the northern boundary in Year 1, and the loss of MFL#2 and MFL#39. Thus, a total of 44 MFL were monitored throughout Year 2, the data from the most recent check (2nd December 2024) is provided in appendix 2.

3.2.2 Monitoring Results

Matted Flax-lily monitoring of the 36 translocated MFL was undertaken by a suitably qualified botanist following the schedule outlined in the Translocation Plan. These checks occurred on undertaken on 16th February, 24th of April, 24th of June, 28th of August, 23rd of October, and 2nd of December 2024.

The translocated MFL continued to perform well throughout Year 2 (Plate 11). One translocated MFL (Plant ID #2 in Appendix 2), which was absent throughout Year 1 failed to resprout throughout Year 2. One additional MFL (MFL#5) could not be located during the most recent monitoring event in December 2024, however it was recorded from a single ramet during the October monitoring event. Given the recency of its die-off, it is not yet presumed dead and will continue to be monitored for resprouting. Most of the cohort were recorded in good condition throughout the year, and ten were recorded flowering in the December monitoring event. However, many experienced high levels of leaflet die-off throughout the hotter months, and were recorded in moderate condition in December 2024 (Plate 12 to plate 14).

The translocation cohort maintained its 97% survival rate and remains on track to meet the 70% requirement by the end of Year 5, as specific in the MTP (Ecology and Heritage Partners 2018a).

The eight MFL impacted by the off target weed control works varied in health, with three recorded in moderate condition, two in good condition, two in poor condition, and one (#39) still not present. Only two of the eight were recorded flowering during the December monitoring event (Plate 15). The lower flowering rate and generally lower health condition (Plate 16), compared to Year 1, were attributed to environmental conditions. Spring of 2024 was hotter and drier than the spring of Year 1, likely resulting in the lower health condition recorded. The location of the presumed dead MFL#39 was monitored throughout Year 2, however the plant was not observed resprouting.

A comprehensive survey of the remnant MFL population was also conducted on the 16th of February 2024, to monitor the progress of the remnant population. The offset site was walked in approximately 5 meter transects, and the locations of all previously recorded MFL were searched. Forty (40) remnant MFL were located within the offset site (Figure 1), seven of which were part of the monitoring cohort. Thus, 33 remnant MFL which were not impacted by off-target damage were recorded in good health, representing an increase of 3 MFL since Year 1. Given these additional remnant MFL, and discounting the losses of MFL#2 and MFL#39, a total of 75 MFL are present within the offset site, currently meeting the target population of 74 MFL as detailed in the EMP.

Plate 11. Translocated population of MFL in the study areas south (Figure 1) (Ecology and Heritage Partners 02/12/2024).

Plate 12. MFL#24 Flowering within the offset site (Ecology and Heritage Partners 02/12/2024).

Plate 13. MFL#9 Flowering within the offset site (Ecology and Heritage Partners 02/12/2024).

Plate 14. MFL#1.1 showing moderate die-off of foliage during the December monitoring event (Ecology and Heritage Partners 02/12/2024).

Plate 15. Healthy remnant MFL (#35) flowering after being damaged by off-target herbicide spray (Ecology and Heritage Partners 02/12/2024).

Plate 16. Moderate condition remnant MFL (#37) during the December monitoring check (Ecology and Heritage Partners 02/12/2024).

3.2.3 *Contingency Measures Triggered*

The translocated cohort of MFL have good survivorship after Year 2. However, as per the Translocation Plan, any failed translocations are recommended to be replaced by a genetically identical clone from the reserve plants. Similarly, it was recommended that an additional MFL from reserve stock should be transplanted into the recipient site to account for the one dead MFL from the off-target damage (#39). Four MFL were translocated into the recipient site during Year 1 to account for these losses and the potential loss of two MFL from the northern scraping incident. These newly translocated MFL remain in good condition and account for the potential four losses. MFL#5 is not yet presumed dead, and future monitoring will check if it resprouts in later months. However, if it fails to resprout, as per the translocation plan, it will be replaced with a genetically identical clone from the reserve plants between April and August 2025 to facilitate establishment during the wetter months.

3.3 Weeds

Weed cover throughout the Offset site remained moderate within mapped patches of native vegetation, and high outside. Grassy and woody weeds are abundant throughout most of the site, with the dominant perennial species including Sweet Briar, Lobed Needle-grass, Chilean Needle-grass, Sweet Vernal-grass, Fennel, and Toowoomba Canary-grass.

Overall weed cover has decreased throughout Year 2, largely from the ongoing woody weed control works undertaken by Aus Eco Solutions. One newly recorded species (Lobed Needle-grass) was observed proliferating in the southern portion of the offset site, and now dominates a large portion of this area (Figure 1). It was also recorded as scattered individuals throughout the offset site, threatening to spread throughout. African Weed Orchid *Disa bracteate* and Yorkshire Fog *Holcus lanatus* were also newly recorded within the offset site from scattered individuals. Weed cover remains highest in the central portions of PG1 where no woody weed control works have taken place, and within the southern area dominated by Lobed Needle-grass and Chilean Needle-grass.

The overall cover (%) of all weeds recorded throughout the offset site is provided below in Table 1.

Table 1. Weed Cover throughout the Barry Road Offset Site (December 2024). Total covers exceed 100% due to layering habit of species.

Scientific Name	Common Name	Existing / Emerging	Current Cover % within the offset site	EMP Target E (<1%) C (<5%)	EMP Target Achieved (Y/N)
WOODY WEEDS					
Lycium ferocissimum	African Box-thorn	Not observed	0%	E	N
Rosa rubigonsa	Sweet Briar	Existing and Emerging	6%	E	
Broom spp.	Brooms	Not observed	0%	E	
HERBACEOUS WEEDS					
Anagallis arvensis	Pimpernel	Existing	1%	C	Y

Scientific Name	Common Name	Existing / Emerging	Current Cover % within the offset site	EMP Target E (<1%) C (<5%)	EMP Target Achieved (Y/N)
Arctotheca calendula	Cape Weed	Existing	<1%	C	Y
Brassica spp.	Mustards	Existing	1%	C	Y
Centaurium Spp.	Common Centaury / Slender Centaury	Existing	1%	C	Y
Cirsium vulgare	Spear Thistle	None observed	0%	E	Y
Cynara cardunculus	Artichoke Thistle	None observed	0%	E	Y
Disa bracteata	African Weed Orchid	Existing	<1%	C	Y
Echium plantagineum	Paterson's Curse	Existing	<1%	C	Y
Foeniculum vulgare	Fennel	Existing and Emerging	3%	C	Y
Helminthotheca echioides	Ox-tongue	Existing	4%	C	N
Hypochaeris spp. and *Brassica* spp. *etc*	Flat Weeds and Mustards	Existing	5%	C	N
Plantago spp.	Ribwort	Existing	15%	C	N
Romulea rosea	Onion Grass	Exisitng	2%	C	Y
Sonchus spp.	Sow-thistle	Existing	2%	C	N
Trifolium spp.	Clovers	Existing	5%	C	N
Vicia sativa	Common Vetch	Existing	1%	C	Y
Xanthium spinosum	Bathurst Burr	Not observed	0%	C	Y
GRASSY WEEDS					
Aira caryophyllea	Silvery Hair Grass	Emerging	3%	C	Y
Avena spp.	Oats	Existing	5%	C	N
Anthoxanthum odoratum	Sweet Vernal Grass	Existing	30%	C	N
Briza spp.	Quaking Grass	Existing	5%	C	N
Brome spp.	Brome	Existing	3%	C	Y
Dactylis glomerata	Cocksfoot	Existing	4%	C	Y
Holcus lanatus	Yorkshire Fog	Existing	2%	C	Y
Lolium rigidum / *Lolium perenne*	Wimmera Rye-grass / Perennial Rye-grass	Existing	3%	C	N
Nassella Charruana	Lobed Needle-grass	Existing/ Emerging	6%	E	N

Scientific Name	Common Name	Existing / Emerging	Current Cover % within the offset site	EMP Target E (<1%) C (<5%)	EMP Target Achieved (Y/N)
Nassella neesiana	Chilean Needle-grass	Existing/ Emerging	5%	E	N
Nassella trichotoma	Serrated Tussock	Not observed	0%	E	Y
Paspalum dilatatum	Paspalum	Existing/ Emerging	1%	C	Y
Phalaris aquatica	Toowoomba Canary-grass	Existing	5%	C	N

Notes: C = Control (<5% Cover), E = Eliminate (<1% Cover)

3.3.1 Woody Weeds

The total coverage of woody weeds across the offset site remains high, however a relative reduction was observed when compared with Year 1. Woody Weed cover comprises entirely of Sweet Briar, with the single individuals of African Boxthorn *Lycium ferocissimum* and Cape Broom *Genista monspessulana* removed during Year 2. Sweet Briar remains at approximately 6% cover of mature and re-sprouting plants. Mature individuals are largely confined to the central portions of PG1, where AES have yet to undertake control works, and dense thickets persist (Plate 17).

Large thickets of Sweet Briar were treated via cut and paint removal, with dead stems manually removed from the offset site. Similar to Year 1, control efforts sought to control the extent of Sweet Briar by systematically prioritising the fringe areas before working inwards toward the dense thicket areas within the sites centre.

Mature woody weeds have mostly been eliminated within treated areas. However, Sweet Briar was observed densely resprouting from areas of previously treated thickets (Plate 18). As such, woody weed management targets were still not achieved in Year 2, and a high cover of woody weeds persists within the offset site. Ongoing intensive woody weed control works are required in Year 3 to eliminate Sweet Briar from presently untreated thickets and resprouting areas.

Plate 17. Remaining thickets of Sweet Briar in PG1 (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 18. High rate of resprouting of Sweet Briar from previously treated thickets (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Table 2 provides a summary of the management targets detailed by the EMP and the recommended management measures to be undertaken in Year 3 to ensure Year 3 targets are met.

Table 2. Year 1 and 2 Woody weed targets, as per the EMP.

Target to be achieved*	Action Completed	Recommendation
<1% cover of all listed woody weeds, with no mature plants present at the end of Year 1	No	Continue intensive woody weed control works to eliminate Sweet Briar in Year 3.
Ensure woody weed cover remains <1% at the end of Year 1	No	Continue intensive woody weed control works to eliminate Sweet Briar in Year 3.

*EMP (Ecology and Heritage Partners 2024).

3.3.2 Grassy Weeds

The cover of grassy weeds (perennial and annual) was high within the offset site in Year 2. As weed control works throughout Year 2 primarily focused on the removal of woody weeds from the offset site, high threat grassy weeds remained in high cover with little noticeable relative to Year 1. However, a large increase in cover was noted in the southern portion of the offset site where Chilean Needle-grass and the newly recorded Lobed Needle-grass have proliferated, now dominating much of this area (Figure 1) (Plate 19 to Plate 21). These grasses now dominate much of the areas not mapped as native vegetation and have scattered individuals throughout mapped patches of native vegetation. The dominant grass species throughout the largest patch within the offset site (PG1 on Figure 1) remained Sweet Vernal-grass, Toowoomba Canary-grass, and annual grasses such as Soft Brome and Quaking-grasses (approximately 40% combined cover throughout the entire site). Throughout the central and western extents of PG1, thickets of untreated Sweet Briar continue to harbour grassy weeds, with much of the Toowomba Canary-grass and Cocksfoot coverage attributed to these areas.

Smaller patches in the south (PG2 and PG3 patches on Figure 1) were largely defined in extent by the high cover of Lobed Needle-grass and Chilean Needle-grass in the surrounding areas, with scattered individuals of both species noted within patches. Scattered occurrences of other high threat perennial grasses such as Yorkshire Fog *Holcus lanatus* and Paspalum *Paspalum dilatatum* were also noted in low cover throughout the offset site (Plate 22).

Serrated Tussock *Nassella trichotoma* was recorded as scattered individuals throughout the offset site in Year 1, however spot spray works appear to have been successful in eliminating the species from the offset site as no individuals were observed in Year 2. Ongoing monitoring will check for reoccurrence throughout future years and treat when required to prevent incursion into the offset site.

Plate 19. High cover of Chilean Needle-grass within the southern area (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 20. High cover of Lobed Needle-grass within the southern area (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 21. MFL translocation site largely dominated by Lobed Needle-grass (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 22. Yorkshire Fog flowering within PG1 (Ecology and Heritage Partners Pty Ltd 24/10/2024).

Table 3 contains a summary of the management targets as set out by the EMP and the corresponding management recommendations to ensure Year 3 targets are achieved.

Table 3. Year 2 Grassy Weed Targets as per EMP.

Target to be achieved	Action Completed	Recommendation
Eliminate (<1% cover) high threat grassy weeds within vegetation patches;	No	High threat grassy weed control throughout Year 3.
Reduce perennial grass cover to <40% by end of Year 1; and	No	Grassy weed control throughout Year 3.
Reduce annual grasses to <5% by the end of Year 1.	No	Grassy weed control throughout Year 3.

3.3.3 Herbaceous Weeds

The overall cover of herbaceous weeds was low-moderate in Year 2. Most high threat broad leaf species such as Artichoke Thistle *Cynara cardunculus* and Spear Thistle *Cirsium vulgare* were not observed within the offset site during Year 2. However, several mature individuals of Patersons Curse *Echium plantagineum* were recorded flowering within the offset site (Plate 23). While the overall cover of high threat herbaceous weeds remains negligible (<1%), high threat herbaceous weeds should be controlled throughout the offset site to prevent proliferation during Year 3.

Overall herbaceous weed cover remains low-moderate (<25%) within the offset site, with lower cover observed throughout high quality patches of native vegetation such as NTGVVP. The dominant herbaceous weed species remain consistent with previous years and include Ribwort, Ox-tongue *Helminthotheca echioides*, Clovers *Trifolium* spp. Flatweed *Hypochaeris radicata* and Fennel, with one new species (African Weed Orchid) noted within the offset site (Plate 24).

Plate 23. Paterson's Curse flowering within PG1 (Ecology and Heritage Partners Pty Ltd 24/10/2024).

Plate 24. Dying African Weed Orchid within PG1 (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Table 4 contains a summary of the management targets as set out by the EMP and the corresponding management recommendations to ensure Year 3 targets are achieved.

Table 4. Year 2 Herbaceous weeds targets, as per EMP.

Target to be achieved	Action Completed	Recommendation
Undertake exotic herbaceous broadleaf control, at least four visits per year.	Yes	Eliminate emerging high threat herbaceous weeds and continue to monitor for emerging high threat herbaceous weeds throughout Year 3.
Reduce herbaceous board leaves to <5% by the end of Year 2;	No	Ongoing herbaceous broad leaf weed control throughout Year 3.

3.3.4 Biomass Management

An Ecological Burn was undertaken by Aus Eco Solutions in June 2024.

The offset site was burnt in a patchy mosaic within the north-eastern edge of the offset site (Figure 1) (Plate 25). The burn area was spot sprayed for herbaceous and grassy weeds prior to the burn. Many remnant Matted Flax-lilies were present within the proposed burn area. Prior to the burn, any MFL identified had the surrounding area brush cut, and were wet down immediately prior to the burn (Plate 26). Areas of dead exotic vegetation were then targeted, including previously cut Sweet Briar stems and dead grassy weeds, to remove dead weedy biomass, opening up additional inter-tussock space to support indigenous flora species recruitment (Plate 27)

Despite pre-burn weed control works being undertaken, germination and establishment of exotic grasses and broadleaf species was common within the burn sites (Plate 28). However, high winds forecast throughout August and September prevented follow up spot-spraying in these areas as there would have been an unacceptable risk of off-target damage to the high number of remnant MFL within this area.

Follow up weed control works should be undertaken to ensure that grassy and herbaceous weeds do not become established within the burn area.

Plate 25. June mosaic burn in the study areas north-western corner (Ecology and Heritage Partners Pty Ltd 24/06/2024).

Plate 26. Remnant MFL avoided where possible during burn (Ecology and Heritage Partners Pty Ltd 24/06/2024).

Plate 27. Cut Sweet Briar stems targeted during burn (Ecology and Heritage Partners Pty Ltd 24/06/2024).

Plate 28. Recovering burn area in August reserve check (Ecology and Heritage Partners Pty Ltd 28/08/2024).

Table 5 contains a summary of the management targets as set out by the EMP and the corresponding management recommendations to ensure Year 3 targets are achieved.

Table 5. Year 1 Biomass targets, as per EMP.

Target to be achieved	Action Completed	Recommendation
Undertake biomass reduction (weeding or mosaic burn) in select areas.	Yes	Monitor biomass in Year 3 and perform further hand weeding or mosaic ecological burns as required.
Burn in early spring to avoid seed set of exotic species;	Yes	Monitor biomass in Year 3 and perform further hand weeding or mosaic ecological burns as required.

Target to be achieved	Action Completed	Recommendation
No loss of native plant diversity as a result of burning regimes; and	Yes	Monitor biomass in Year 3 and perform further hand weeding or mosaic ecological burns as required.
Low intensity and patchy burns to avoid damage to MFL.	Yes	Monitor biomass in Year 3 and perform further hand weeding or mosaic ecological burns as required.

3.4 Fencing / Stock Exclusion

The offset sites perimeter fencing remained in relatively good condition throughout Year 2. After Year 1, several areas of rabbit proofing were peeling up off the ground, leaving gaps for pest species to enter the offset site. However, these issues were rectified during Year 2, and no further gaps persist. The fence generally stayed in good condition throughout Year 2, and external signage remained in place and in good condition along the offset site fences (Plate 29; Plate 30). However, one panel along the northern fence line was noted as bent out of shape during the December monitoring event. This was likely caused by the ongoing movement of Eastern Grey Kangaroos *Macropus giganteus* between the offset site and the surrounding landscape and should be repaired in Year 3 (Plate 31; Plate 32)

Plate 29. Good condition perimeter fencing along the western boundary (Ecology and heritage Partners 02/12/2024).

Plate 30. Good condition signage along the northern boundary (Ecology and heritage Partners 02/12/2024).

Plate 31. Warped fence along the northern boundary (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 32. Warped fence along the northern boundary (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Table 6 contains a summary of the management targets as set out by the EMP and the corresponding management recommendations to ensure Year 3 targets are achieved.

Table 6. Year 1 Fencing/Stock exclusion targets, as per EMP.

Target to be achieved	Action Completed	Recommendation
Maintain perimeter fence. Fence is maintained and fixed if broken.	Yes	Monitor fences and repair or replace as required throughout Year 2.

3.5 Pest Animals

At several points throughout Year 1, pest species (e.g. European rabbit) could likely gain access to the offset site where the rabbit proof fencing was not adequately pegged down. However, no evidence of pest animals was recorded during the ongoing monitoring throughout Year 2, and the fencing issues observed throughout Year 1 have been rectified and the fence has remained rabbit proof throughout Year 2. The offset site is presumed pest animal free, however the ongoing monitoring for evidence of pest animals within the offset site will continue throughout Year 3.

Table 7 contains a summary of the management targets as set out by the EMP and the corresponding management recommendations to ensure Year 3 targets are achieved.

Table 7. Year 2 pest animal targets, as per EMP.

Target to be achieved	Action Completed	Recommendation
Conduct rabbit control if required.	Yes	No rabbit control required. Continue to monitor offset site for pest animals and control as required throughout Year 3.
Significant reduction in the number/signs of rabbits.	Yes	No rabbit sign noted. Continue to monitor offset site for pest animals and control as required throughout Year 3.

3.6 Rubbish

Rubbish within the offset site is low. While rubbish is largely windblown from the surrounding landscape, several bottles and cans are also present long the eastern boundary which are likely thrown in from the adjacent residential development (Plate 33 to Plate 35). Occasional dumping into the offset area was also noted along the eastern fence line throughout Year 2 (Plate 36), however this was cleared by Aus Eco Solutions once noted. Rubbish is continually removed by Aus Eco Solutions as required, with ongoing monitoring required to identify rubbish as it occurs within the offset site.

Plate 33. Glass bottle likely thrown into the offset site (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 34. Windblown rubbish drifting through offset site (Ecology and Heritage Partners Pty Ltd 328/08/2024).

Plate 35. Engine Oil bottle likely thrown into the offset site (Ecology and Heritage Partners Pty Ltd 24/06/2024).

Plate 36. Chairs dumped into offset site (Ecology and Heritage Partners Pty Ltd 24/06/2024).

Table 8 contains a summary of the management targets as set out by the EMP and the corresponding management recommendations to ensure Year 3 targets are achieved.

Table 8. Year 2 rubbish targets, as per EMP.

Target to be achieved	Action Completed	Recommendation
Removal of all existing rubbish from the offset site.	Yes	Continue to monitor for new rubbish that is blown/dumped into the offset site and remove as required throughout year 3.
Rubbish removed immediately if dumping occurs.	Yes	Continue to monitor for new rubbish that is blown/dumped into the offset site and remove as required throughout year 3.

3.7 Off-target Damage to Remnant Matted Flax-lily

In January of Year 1, the City of Whittlesea (CoW) notified YourLand Developments that they had undertaken a site inspection and observed off-target damage to native vegetation from inappropriate weed control works within the offset site. AES had removed large areas of woody weeds (primarily Sweet Briar) by brush cutting and spraying the stems with a non-selective herbicide. The non-selective herbicide was applied to a large area, damaging the surrounding vegetation within a radius of 1-2 metres from the target plant.

Seven MFL specimens were recorded as impacted by this event, with one additional MFL unimpacted but near the damaged area. These plants were added to the monitoring schedule and regularly checked throughout Year 1, and this monitoring continued throughout Year 2, the results of which are presented in Appendices 2 and 3. Seven of the eight plants monitored remained in good health throughout Year 2, however one plant (#39) which could not be located during Year 1 did not resprout during Year 2. It is assumed dead and a replacement MFL from nursery stock will be translocated into the offset site. The remaining seven plants will continue to be included in the ongoing monitoring schedule.

3.8 Damage to Offset Site During Construction Works

3.8.1 Soil Scraping Incident

Throughout construction of the rabbit proof fence along the northern boundary of the offset site, the topsoil of 0.011 hectares of Plains Grassland within the north-western corner of the offset site was scraped away by civil contractors in June 2023. To remediate this, seed collection and direct seeding of native grasses was carried out by AES in the damaged area in August 2023 using a seed mix of Kangaroo Grass, Wallaby-grasses and Spear-grass species present within the offset area.

After a low uptake of native species throughout Year 1, follow-up weed control works, site preparation, and direct seeding were conducted by AES throughout Year 2, with seed once more sown into the area on 3rd October 2024. This resulted in a higher recruitment of native species in late spring of Year 2, with this area now being dominated by Wallaby Grasses.

Herbaceous and grassy weeds still remain in relatively high cover in this area and consist primarily of annual grasses such as Quaking Grasses *Briza* spp., Sweet Vernal Grass, and Ribwort *Plantago lanceolata*. The eastern portion of the impact area remains dominated by perennial exotic grasses such as Toowoomba Canary-grass and Sweet Vernal Grass and prevent this portion of the impact area from being considered Plains Grassland again (Figure 1) (Plate 37). However, due to the high cover of Wallaby Grasses within the westernmost portion of the scraped depression, and the recruitment of Kangaroo Grass either side of this area, much of the western end of the scraped area is now considered contiguous with the adjoining PG1 habitat zone and part of the NTGVVP community (Plate 38).

Plate 37. Eastern portion of scraped area dominated by Toowoomba Canary-grass and Sweet Vernal Grass (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 38. Western portion of the scraped area dominated by Wallaby Grass and Kangaroo Grass (Ecology and Heritage Partners Pty Ltd 02/12/2024).

3.8.2 Erosion Along Eastern Fence Line

Throughout Year 1, groundworks occurred for the residential development outside the south-eastern edge of the offset site. The removal of large rocks from this boundary caused the erosion of soil from within the offset site, resulting in some loss of native species and mapped Plains Grassland from within the offset site (Plate 39).

After levelling the ground with kerb placement, weed free soil was placed within any holes remaining from the erosion to level the soil along this edge within the offset site. During year 2, native grass species effective in binding soil, such as Common Tussock Grass *Poa labillardierei,* were direct planted into impacted areas. Additional weed control was also undertaken by AES to prevent the incursion of weeds and promote the establishment of native species within these areas.

These areas generally recovered well. The Common Tussock Grass tube stock helped the establishment of native species within the erosion impacted areas (Plate 40). These areas recovered well throughout Year 2, while common herbaceous weeds and annual grasses as Ribwort and Greater Quaking Grass emerged, the establishment of native grass species such as Kangaroo Grass was also noted. These areas are generally now homogenous with the surrounding vegetation and are considered contiguous with the adjacent PG1b patch again.

Plate 39. Erosion of offset site adjoining construction area during Year 1 (Ecology and Heritage Partners Pty Ltd 31/05/2023).

Plate 40. AES Planting Common Tussock Grass into erosion impacted areas (Aus Eco Solutions).

4 NTGVVP OFFSET AREA

The NTGVVP Offset area was established in February 2024 and has been subject to all relevant management actions in accordance with the Management Actions table (Table 11) of the updated EMP (Ecology and Heritage Partners 2024). Additionally, to guide the management of this area and to establish NTGVVP as required by the varied EPBC Approval, Section 3.9 was added to the EMP and additional management actions for the NTGTVVP Offset area were established (Ecology and Heritage Partners 2024).

The EPBC Approval requires the NTGVVP Offset area;

1. Meet the NTGVVP Community Description and Condition Thresholds (TSSC 2008) to qualify as NTGVVP;
2. Achieve a Habitat Hectare quality score of at least 0.45 (45/100); and,
3. A ground layer comprising at least 70% coverage of native grass genera characteristic of the NTGVVP ecological community.

The vegetation condition of the supplementary NTGVVP regeneration area saw improvements throughout Year 2, with the regeneration of native vegetation in two areas along the western edge of the offset site. Throughout Year 2, several swathes of Kangaroo Grass emerged along this boundary (Figure 1). These areas are generally species poor and comprise primarily of Kangaroo Grass with occasional individuals of native Wallaby Grasses. As these swathes adjoin the adjacent native vegetation from PG1, they are considered contiguous with patch PG1b (Plate 41).

Weed cover remains high within this area outside mapped patches of native vegetation. Weed cover largely comprises of perennial grassy weeds. Toowoomba Canary-grass dominates the northern portion of the area, with the central weedy portions dominated by Sweet Vernal Grass and Chilean Needle-grass (Figure 1). A high cover of Sweet Briar also persists west of the NTGVVP offset area where several large thickets remain (Plate 42)

Plate 41. High cover of Kangaroo Grass in a recovering portion of the NTGVVP offset area (Ecology and Heritage Partners Pty Ltd 02/12/2024).

Plate 42. Untreated thickets of Sweet Briar adjacent the NTGVVP offset area (Ecology and Heritage Partners Pty Ltd 02/12/2024).

An assessment of the current quality and extent of native vegetation within the NTGVVP Offset area against the management objectives as described by table 11 of the EMP (Ecology and Heritage Partners 2024) has been provided in Table 9 below.

Table 9. Objectives to be achieved by 1 January 2034 (Varied EPBC Approval 2014/7364) for NTGVVP Offset area.

Objective	Management Action and Timing	Target Achieved (Y/N)	Comments and Corrective Action
At least 50% of life forms present.	Plant native species tube stock in year 4 and year 5 (if required).	NA in Year 2	Few lifeforms are present, with the vegetation comprising entirely of Medium Tufted Graminoid species, representing one of seven total lifeforms (14%) for the EVC. Native seeding and tube stock planting have not occurred yet. Reseed with a mixture of the four key grass genera characteristic of NTGVVP and MNG life forms. Replace native species by planting additional tube stock.
Total perennial tussock cover represented by at least one of *Themeda, Rytidosperma, Austrostipa* or *Poa* is at least 50%.	Reseed with a mixture of the four key characteristic grass genera in year 4 and year 5.	NA in Year 2	Increases in the cover of Kangaroo Grass were observed throughout Year 2, however the total cover is approximately 15%. Native seeding and tube stock planting have not occurred yet. Reseed with a mixture of the four key characteristic grass genera (if required).
Total perennial weed cover less than 25%.	Control weeds as per the EMP	**N**	Expectedly, this target has not been achieved in the first year of additional management. Continued weed control in accordance with the EMP
Minority cover of High Threat weeds.			

Objective	Management Action and Timing	Target Achieved (Y/N)	Comments and Corrective Action
5-20% cover of bare ground, soil crust and/or bryophytes/lichens.	Control weeds and biomass as per the EMP	N	Biomass of introduced weed species remains high. Continue to reduce weed species biomass (i.e. brush cutting), undertake weed control in accordance with the EMP.
1-4% cover of organic litter predominately originating from native species.	Ensure establishment of native grasses and reduction of weed cover.	N	

4.5 Management Action Plan

An assessment of completed actions to date against the Management Actions for the Conservation Reserve as outlined in Table 10 of the EMP. Most management targets for Year 2 were successfully completed, with the maintenance of the permanent fencing preventing pest animal access to the offset site and ongoing rubbish and biomass management completed by Aus Eco Solutions. However, the offset site has not achieved the targets for weed control, particularly with the cover of woody weeds and perennial grassy weeds remaining high throughout the offset site. Table 10 provides a summary of the actions required from the EMP, the key performance targets and the actions undertaken within Year 2.

Table 10. Summary of Management Actions and Targets for Year 2 of Monitoring.

Year		Action No.	Land use and management actions to be completed	Resource/ personnel required	Timing of action	Key performance target	Target Achieved (Y/N)	Comments and Actions Required in Year 3
		Year 2						
NTGVVP Offset Area	2	*2.0*	Establish NTGVVP Offset Area and collect baseline monitoring data.	VQA-accredited ecologist	Immediately after acceptance of Offset Management Plan.	Establish four photo points and confirm the quality and extent of ecological values present within the NTGVVP Offset Area.	Y	A VQA-accredited ecologist completed a site assessment on 20 September 2023 and established the NTGVVP Offset Area achieved a habitat hectare score of 13/100.
	2	*2.01*	Complete 2 visits to control woody weeds.	Bushland Mgt Contractor/Landowner	Before seed heads mature in spring/summer.	Control woody weeds in preparation for direct seeding in Year 4.	**N**	AES undertook woody weed control within the NTGVVP Offset area on 13 and 25 September 2024. Several thickets of Sweet Briar remain within this area. Continue intensive woody weed control throughout Year 3 to eliminate woody weeds from this area.
	2	*2.02*	Complete 4 visits to control exotic grasses and herbaceous broadleaves.	Bushland Mgt Contractor/Landowner	Before seed heads mature in spring/summer.	Control exotic grasses and herbaceous broadleaves in	**N**	AES undertook exotic grass and herbaceous broadleaf control within the NTGVVP Offset area on 13 September 2024 and ad-

Year	Action No.	Land use and management actions to be completed	Resource/ personnel required	Timing of action	Key performance target	Target Achieved (Y/N)	Comments and Actions Required in Year 3
					preparation for direct seeding in Year 4.		hoc on numerous days in September – October in addition to treating Briar Rose. Continued follow up works are required in Year 3 to ensure the site is adequately prepared for seeding in Year 4.
2	*2.03*	Complete 2 visits to reduce biomass and create open space (brush cutting).	Bushland Mgt Contractor/Landowner	Autumn	Reduction in biomass in preparation for direct seeding in Year 4.	Y	Some brush cutting occurred within the area as part of the Briar Rose removal. However, follow up work in year 3 is required to ensure the area is adequately prepared for seeding in year 4.
2	*2.1*	Undertake control of woody weeds.	Bushland Mgt Contractor/ Landowner.	Before seed heads mature in spring/summer.	Ensure cover of woody weeds is <1%	**N**	Woody weed (Sweet Briar) cover remains high, with a many mature thickets and several areas of resprouting from cut thickets. Intensive weed control works required in Year 3 to reduce cover to <1%.
2	*2.2*	Undertake control of exotic grasses and herbaceous broadleaves. Four visits per year	Bushland Mgt Contractor/ Landowner.	Before seed heads mature in spring/summer	Reduce perennial grass cover to <40% and annual grasses/broadleaves to <5%	**N**	Perennial grasses (primarily Sweet Vernal, Toowoomba Canary-grass, and Lobed Needle-grass) remain at >40% within the offset site. Annual grasses and broadleaves remain at >5%. Ongoing weed control works required to reduce weed cover throughout the site.
2	*2.3*	Conduct rabbit control if required.	Pest Mgt Contractor/ Landowner	After peak breeding season -	Significant reduction in	Y	No signs of rabbits within the offset site. Continue to monitor

Year	Action No.	Land use and management actions to be completed	Resource/ personnel required	Timing of action	Key performance target	Target Achieved (Y/N)	Comments and Actions Required in Year 3
				late summer/early autumn.	number/signs of rabbits.		and undertake control as required.
2	*2.4*	Maintain Perimeter Fence	Bushland Mgt Contractor/ Landowner.	Ongoing	Fence is maintained and fixed if broken	Y	Permanent fence installed and in good condition, warping on the northern boundary should be repaired. Continue to monitor and undertake repairs as required.
2	*2.5*	Undertake biomass reduction either weeding/mosaic burns in selected areas	Bushland Mgt Contractor/ Landowner.	Autumn	Areas of intertussock space opened up to allow recruitment	Y	An ecological burn was conducted in the north-eastern corner by AES in June 2024..
2	*2.6*	Undertake direct seeding with native grasses in bare areas.	Bushland Mgt Contractor/ Landowner.	Spring/Summer	Areas prepared in year 1 are direct seeded	Y	Native grass seed was sown into the bare impact area in the north-western corner bye AES on 3rd October 2024.
2	*2.7*	Undertake collection of seeds (herbs) for planting in Year 3 and provided to nursery to grow	Bushland Mgt Contractor/ Nursery/ Landowner.	Summer	Seed collected to allow nursery to grow plants for year 3 planting	Y&N	Native grass seeds were collected and spread in the northwestern corner, however seed could not be collected from the herbs present within the site. Instead, herb seeds of local provenance will be sourced and utilised in Year 3.
2	*2.8*	Monitor status of vegetation condition, and the status Matted Flax-lily and the condition of habitat within the reserves and provide annual report to relevant authorities.	Landowner/ Qualified Ecologist	Early Summer	Progress report to satisfaction of relevant authorities	Y	Progress reports prepared by Ecology and Heritage Partners.
2	*2.9*	Removal of all existing rubbish from site and rubbish removed immediately if further dumping occurs.	Landowner/ Contractor	At least every 2 months	All rubbished removed, and removed immediately if dumping occurs.	Y	Rubbish removed throughout the Year by Aus Eco Solutions

4.6 Recommended Actions from year 1

Follow Year 1 of management, several additional measures were recommended to ensure that the native vegetation and habitat for MFL continued to improve within Year 2. These actions included:

- Pin down rabbit proof fencing where it has lifted along the eastern boundary;
- Follow up weed control and direct seeding of areas impacted by the northern scraping and eastern edge erosion incidents;
- Remove all piles of cut woody weed stems from within the offset site;
- Transplant two (2) new MFL from reserve stock into the recipient location if MFL #2 and #39 do not re-emerge; and,
- Continue intensive woody weed control works to achieve the target of <1% cover.

Most of these targets were achieved within Year 2. The rabbit proof fencing was secured and the large piles of cut woody weed stems were removed from the offset site. The losses of MFL#2 and MFL #39 were accounted for by the transplanting of four new MFL into the recipient site and follow up weed control and rehabilitation works were undertaken in the eastern erosion area and northern scraping area. While intensive woody weed control works continued within the offset site, due to the high amount of Sweet Briar present the over all cover does not meet the target of <1% cover.

5 CONCLUSION AND RECOMENDATIONS

Year 2 monitoring was undertaken as outlined in the EMP (Ecology and Heritage partners 2024) to ensure compliance with the EPBC Act approval conditions. The offset site has improved in overall condition since Year 1, however ongoing intensive weed control measures are required to achieve the high threat weed targets.

Most native vegetation patches saw slight improvements in quality (extent and condition) compared to year 1, with slight decreases in woody weed cover resulting from management works by AES, and a high diversity of native species. Large changes in condition were noted within the southern area due to the expansion of Lobed Needle-grass and Chilean Needle-grass in the southern portion of the offset site, where they now dominate (Figure 1). Large areas previously mapped as Plains Grassland were dominated by these species, and no longer constituted patches. However, three additional areas contained an increased abundance of Wallaby Grass and Spear Grass and are now considered Plains Grassland. The total Plains Grassland on site is now 3.249 hectares, an increase of approximately 0.09 hectares since Year 1. Of this, 0.573 hectares now qualify as NTGVVP, an increase of approximately 0.23 hectares.

The overall cover of herbaceous and grassy weed species did not increase throughout the offset site, however a change in weedy species composition was observed within the southern area of the offset site with grassy weeds such as Lobed Needle-grass and Chilean Needle-grass now dominant in this area. Woody weed cover and species diversity decreased across the offset site due to the intensive weed control works undertaken by AES. Sweet Briar was observed to be the single woody weed species remaining within the offset site. However, Sweet Briar cover remains relatively high (approximately 6%) within the offset site, largely localised within the central parts of PG1 where control works are yet to occur, and as resprouting individuals in previously cleared thickets. The Key Performance target (reduce woody weed cover <1%) has not been met and intensive woody weed control works are required in Year 3 to eliminate woody weeds.

Biomass is generally moderate throughout the offset site, with biomass highest within PG1 where dense thickets of untreated Sweet Briar harbour large grassy weeds such as Toowomba Canary-grass and Cocksfoot. Biomass is also relatively high in areas dominated by Lobed Needle-grass within the south of the offset site. A large mosaic burn was undertaken in June of Year 2 within the north-eastern corner. This burn targeted exotic grasses and opened up inter-tussock space, supporting the recruitment of indigenous flora species.

Survivorship of the translocated MFL was high and suggests translocation was successful. Of the 44 MFL monitored (from both transplanted cohorts and in-situ MFL), 42 were reported in good-moderate health, 16 of which were flowering during the 2 December 2024 monitoring. Two individuals (one from the initial transplant cohort, and one in-situ MFL impacted during the off-target spray damage event) were recorded as dead during Year 1. These individuals were monitored throughout Year 2 and did not resprout. They were replaced with individuals from the contingency population which were planted into the recipient area and added to the monitoring schedule.

Remediation works for the incidents that occurred during Year 1 were undertaken throughout Year 2. Impacted areas were spot sprayed and direct seeded with native grass species. The north-western scraped area saw vast improvement throughout Year 2, and a large portion of this area is now considered contiguous with the adjacent PG1a patch and qualifies as NTGVVP.

To ensure that the native vegetation and habitat for MFL continues to improve within Year 3, the following works should be incorporated into the Year 3 land management and monitoring in addition to EMP management requirements (Ecology and Heritage Partners 2024: Table 10):

- Repair the warped fence panel along the northern boundary;
- Continue weed control works within the northern scraping area where native vegetation has not yet recovered;
- Continue intensive woody weed control works to achieve the target of <1% cover.

REFERENCES

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FIGURES

Figure 1
Ecological values
135-161 Barry Road, Thomastown

Legend

- Conservation Area
- 135-161 Barry Road Construction boundary
- Ecological burn 2024
- Translocated Matted Flax-lily 2023
- Translocated Matted Flax-lily 2022
- Remnant Matted Flax-lily
- Photo point
- Matted Flax-lily recipient site
- Proposed Natural Temperate Grassland of the Victorian Volcanic Plain offset area
- Needle-grass

Ecological Vegetation Class

- Plains Grassland (EVC 132)

EPBC Act Listed Community

- Natural Temperate Grassland of the Victorian Volcanic Plain

N

0 15 30
Metres

Map Scale: 1:1,500 @ A4
Coordinate System:
GDA 1994 MGA Zone 55

ecology & heritage partners

15695_Fig01_EcoFeatCA 18/12/2024 mrashidi

15695_Fig01_EcoFeatCA 18/12/2024 mrashidi

Aerial source: Nearmap 2023

APPENDICES

Appendix 1. Habitat Hectare Assessment

Table A1.1. Habitat hectare assessment for Year 2 (02/12/2024).

Vegetation Zone		PG1	PG2	PG3
Bioregion		Victorian Volcanic Plain	Victorian Volcanic Plain	Victorian Volcanic Plain
EVC		Plains Grassland (Heavier Soils)	Plains Grassland (Heavier Soils)	Plains Grassland (Heavier Soils)
EVC Number		132_61	132_61	132_61
EVC Conservation Status		Endangered	Endangered	Endangered
Site Condition /75	Large Trees /10	NA	NA	NA
	Tree Canopy Cover /5	NA	NA	NA
	Lack of Weeds /15	4	4	4
	Understorey /25	20	5	10
	Recruitment /10	6	3	3
	Organic Matter /5	2	3	3
	Logs /5	NA	NA	NA
	Treeless EVC Multiplier	1.36	1.36	1.36
	Subtotal =	43.52	20.40	27.20
Landscape Context /25	Patch Size /10	4	1	1
	Neighbourhood /10	3	1	1
	Distance to Core Area /5	3	3	3
	Subtotal =	10	5	5
Habitat Points /100		54	25	32
Habitat Score		**0.54**	**0.25**	**0.32**

Appendix 2. *Dianella amoena* (MFL) Monitoring Sheet Data (02/12/2024)

Table A1. MFL Monitoring Data Sheet and Monitoring Results.

Plant No.	Alive (Y/N)	Length (cm)	Width (cm)	Height (cm)	No. Flower Spikes	No. Leaflets/tillers	No. ramets	Overall Health (G/M/P)	Grazing damage (Y/N)
Initial 32 MFL Translocation Cohort									
1	Y	20	30	20	-	14	6	M	N
2	**N**	**-**	**-**	**-**	**-**	**-**	**-**	-	**-**
3	Y	1	1	17	-	3	1	G	N
4	Y	15	20	20	-	9	5	G	N
5	N	-	-	-	-	-	-	-	-
6	Y	1	1	18	-	3	2	G	N
7	Y	30	35	25	2	16	4	G	N
8	Y	1	1	7	-	2	1	M	N
9	Y	40	40	25	1	50+	10+	G	N
10	Y	15	30	30	4	7	3	M	N
11	Y	40	30	23	-	9	4	M	N
12	Y	1	1	10	-	2	1	M	N
13	Y	17	10	22	-	4	2	M	N
14	Y	30	45	20	2	50	10+	G	N
15	Y	30	35	27	9	11	3	M	N
16	Y	20	25	16	-	7	3	M	N
17	Y	5	15	15	-	2	2	M	N
18	Y	5	5	11	-	2	2	M	N

Plant No.	Alive (Y/N)	Length (cm)	Width (cm)	Height (cm)	No. Flower Spikes	No. Leaflets/tillers	No. ramets	Overall Health (G/M/P)	Grazing damage (Y/N)
19	Y	3	7	22	-	3	2	G	N
20	Y	30	25	12	-	3	3	M	N
21	Y	15	5	15	-	4	2	G	N
22	Y	10	14	25	-	8	4	G	N
23	Y	15	15	23	-	9	3	G	N
24	Y	40	50	30	1	20	6	G	N
25	Y	25	35	25	1	22	9	G	N
26	Y	30	30	24	-	18	8	G	N
27	Y	10	10	5	-	2	2	M	N
28	Y	15	10	8	-	4	3	M	N
29	Y	15	20	13	-	11	4	G	N
30	Y	1	1	14	1	1	1	M	N
31	Y	30	25	20	-	14	4	G	N
32	Y	10	8	9	-	3	2	M	N
Off-target Damage affected MFL									
33	Y	35	35	10	-	5	3	M	N
34	Y	1	1	8	-	1	1	P	N
35	Y	100+	100+	20	4	100+	30+	G	N
36	Y	1	1	10	1	1	1	P	N
37	Y	35	50	19	-	4	4	M	N
38	Y	40	40	20	-	40+	10+	G	N
39	**N**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Plant No.	Alive (Y/N)	Length (cm)	Width (cm)	Height (cm)	No. Flower Spikes	No. Leaflets/tillers	No. ramets	Overall Health (G/M/P)	Grazing damage (Y/N)
40	Y	2	2	18	1	2	1	M	N
Remediation MFL for Scraping and MFL lost during Year 1									
41 (6.1)	Y	30	30	22	-	14	4	M	N
42 (23.1)	Y	30	30	28	-	30	9	G	N
43 (1.1)	Y	19	11	18	1	40+	10+	G	N
44 (10.1)	Y	35	35	20	2	40+	10+	G	N

Notes: MFL#40 intermingled with many chocolate lilies, in good health but unable to accurately determine complete extent.

Appendix 3. Photo Points (December 2024)

A3.1 Year 2 Photo Points (Offset Site)

A3.1. Photo point 1 (Ecology and Heritage Partners 02/12/2024).

A3.2 Photo point 2 (Ecology and Heritage Partners 02/12/2024).

A3.3. Photo point 3 (Ecology and Heritage Partners 02/12/2024).

A3.4. Photo point 4 (Ecology and Heritage Partners 02/12/2024).

A3.5. Photo point 5 (Ecology and Heritage Partners 02/12/2024).

A3.6. Photo point 6 (Ecology and Heritage Partners 02/12/2024).

A3.7. Photo point 7 (Ecology and Heritage Partners 02/12/2024).

A3.8. Photo point 8 (Ecology and Heritage Partners 02/12/2024).

A3.9. Photo point 9 (Ecology and Heritage Partners 02/12/2024).

A3.2 Year 2 Photo Points (NTGVVP Offset Area)

A3.10. Photo point NTGVVP1 (Ecology and Heritage Partners 02/12/2024).

A3.11. Photo point NTGVVP2 (Ecology and Heritage Partners 02/12/2024).

A3.12. Photo point NTGVVP3 (Ecology and Heritage Partners 02/12/2024).

A3.13. Photo point NTGVVP4 (Ecology and Heritage Partners 02/12/2024).

A3.3 Year 2 Photo Points (Northern Scraping Rehabilitation Area)

A3.14. Photo point RA1 (Ecology and Heritage Partners 02/12/2024).

A3.15. Photo point RA2 (East) (Ecology and Heritage Partners 02/12/2024).

A3.16. Photo point Ra2 (West) (Ecology and Heritage Partners 02/12/2024).

A3.17. Photo point RA3 (East) (Ecology and Heritage Partners 02/12/2024).

A 3.18. Photo point RA3 (West) (Ecology and Heritage Partners 02/12/2024).

A 3.19. Photo point RA4 (Ecology and Heritage Partners 02/12/2024).

A.3.2 Photo Point Data

Table A3.2.1. General site photo point data.

Date	Photo Point ID	Direction
02/12/2024	1	South-west
02/12/2024	2	South
02/12/2024	3	South-east
02/12/2024	4	East
02/12/2024	5	North
02/12/2024	6	North-west
02/12/2024	7	North-west
02/12/2024	8	West
02/12/2024	9	South

Table A3.2.2. NTGVVP Offset area photo point data.

Date	Photo Point ID	Direction
02/12/2024	NTGVVP1	South-east
02/12/2024	NTGVVP2	East
02/12/2024	NTGVVP3	East
02/12/2024	NTGVVP4	North-west

Table A3.2.3. Northern scraping rehabilitation area photo points.

Date	Photo Point ID	Direction
02/12/2024	RA1	West
02/12/2024	RA2 (East)	East
02/12/2024	RA2 (West)	West
02/12/2024	RA3 (East)	East
02/12/2024	RA3 (West)	West
02/12/2024	RA4	East

Appendix 4. Summary of Year 2 Monitoring Activities within the Offset Site

Table A4.1. Summary table of the Year 2 Monitoring Activities under by Ecology and Heritage Partners.

Date	Activity
16/02/2024	Detailed Remnant MFL Monitoring MFL Monitoring Check
24/04/2024	Autumn Site Assessment MFL Monitoring Check
24/06/2024	Winter Site Assessment MFL Monitoring Check
28/08/2024	Site Walkover MFL Monitoring Check
24/10/2024	Spring Reserve Check MFL Monitoring Check
02/12/2024	MFL Monitoring Check Summer Site Assessment PG and NTGVVP Monitoring