



02/04/2024

Brian Ruschmeyer
60 Watts Road,
Yan Yean, Victoria 3755
Phone: 0419 155 734

Dear Brian,

RE: Year 3 & 4 Offset Site Management Report – 60 Watts Road, Yan Yean.

Wildlife and Ecology was commissioned by Brian Ruschmeyer (the landowner) to complete an assessment of the ecological condition and land management works completed in accordance with the Offset Management Plan for 60 Watts Road, Yan Yean (EHP, 2019) after four years of management.

The purpose of the Offset Site Management Report is to assess the current condition of remnant native vegetation and the impact of land management works to guide future management. This report presents the results of the field assessment, discusses potential management interventions and details relevant land management issues requiring consideration.

BACKGROUND

Sixty (60) Watts Road, Yan Yean (the study site) was set up as an offset site to compensate for impacts to remnant native vegetation associated with the construction by Major Transport Infrastructure Authority of an eight kilometre (km) dual track railway line running from South Morang to Mernda (EPBC 2016/7674). Ecology and Heritage Partners Pty Ltd was initially engaged by Level Crossing Removal Authority to prepare an Offset Management Plan (OMP) for the study site. The purpose of the OMP was to detail a strategy to offset the loss of 1.64 hectares of the Federally listed Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP) ecological community removed from the rail development area. The OMP specified offset completion criteria and outlined management actions for the protection and enhancement of 12 hectares of GEWVVP at a site located at the study site.

STUDY AREA

The study site is a large irregular shaped property, approximately 51ha in size that is located on the western side of Watts Road between Arthurs Creek Road in the north and Hazel Glen Road in the south. It is bound by Watts Road to the east and the Plenty River to the west and located in the suburb of Doreen within the municipality of Whittlesea. The study site occurs within Schedule 1 to the Rural Conservation Zone and is partially covered by the Rural Floodway Overlay (RFO).

The study site lies in an area where two broad Geomorphological Units converge (VRO 2023), with the majority of the study site located within the 'Eastern Uplands' and a small section in the south located within the 'Western Plains'. Similarly, the study site is also divided by the bioregion boundary, with a small area in the north located within the Highlands Southern Fall Bioregion and the majority of the study site located within the Victorian Volcanic Plain (VVP) Bioregion. The vegetation that occurs upon the study site

appears to have greater affinity to that typically found on the volcanic geology of the VVP, however this vegetation likely occurs upon alluvial/colluvial soils derived from slow natural erosion of the nearby Plenty River. The majority of the study site is modelled as supporting vegetation representative of the Grassy Riverine Forest Ecological Vegetation Class (DECCA 2023), however the vegetation present within the study site is currently more representative of the Plains Grassy Woodland EVC.

The study site, is located immediately east of the Plenty River, a key waterway of northern Melbourne that drains an area running from the southern slopes of Mount Disappointment, located at the southern end of the Great Dividing Range, to the river's confluence with the Yarra River in Melbourne's inner northern suburbs.

The areas immediately around the study site are relatively flat, however approximately 1.5km north-west of the study site, as well as, a short distance to the north and east, these flat plains begin to rise, forming the foothills of the Great Dividing Range. The topography of the study site itself displays an approximate 4m decrease in elevation from north to south, with areas on the western boundary of the site also falling slightly more sharply west to the Plenty River. No drainage lines or waterways occur within the study site, however a small ephemeral wetland occurs at the south-western corner of the offset area. No ridges, crests or hilltops occur within the bounds of the study site and only minor areas of erosion along the edge of the internal track network were noted.

OFFSET SITE

The offset site is approximately 12 hectares in size, occurs within an area containing a mature River Red Gum canopy and is located centrally along a north to south axis within the study site. The offset was established in 2019 and is currently being managed under the conditions of the OMP written for the site (EHP, 2019) in accordance with Condition 9 of the EPBC Act permit approval EPBC 2016/7674. The OMP specifies that the site will be managed for the purposes of conservation. The protection of the GEWVVP, the control of pest animals and environmental weeds, biomass management and general maintenance and improvement of the quality of the GEWVVP is also specified within the OMP. It is further specified within the OMP that the landholder will adopt an adaptive management approach to allow flexibility to respond appropriately and effectively to uncertainties involved in ecological restoration.

SITE ASSESSMENT

The study area was visited on the 18th of March 2024 to complete an assessment of the site condition, management works completed and flora and fauna values present. The study area was assessed by a Senior Botanist and accredited DELWP Vegetation Quality Assessment (VQA) assessor with a good knowledge of the GEWVVP ecological community. At this time an assessment against the diagnostic criteria and condition thresholds was completed with the results documented alongside a similar assessment completed by EHP in the 2018 (Table 1). The nominated condition thresholds provided within Table 1 are as documented within the sites OMP and broadly in line with those contained within the EPBC Act. listing advice for the Grassy Eucalypt Woodland of the Victorian Volcanic Plain ecological community. During the assessment a VQA 'Habitat Hectare' assessment was also completed within the offset area to document the current offset site condition. Prior to the site assessment Wildlife and Ecology viewed the work records and notes made by the land management contractor (Bushland Recovery) and has been in regular contact with a representative of the land management contractor (Brad Oliver) to discuss site condition. Discussion with the landowner have also been ongoing since the completion of the Years 1 and 2 Offset Site Report to ensure the site continues to be managed adaptively. As specified within the sites OMP biomass monitoring

was completed during the site assessment and the extent, severity, trend and presence of any new and emerging weed species has been documented in Table 4.

GEVVVP DIAGNOSTIC CRITERIA AND CONDITION THRESHOLDS

Table 1. Diagnostic Criteria and Condition Thresholds for GEVVVP (DSEWPaC, 2011)

Condition Threshold	2019 Assessment	2022 Assessment	2024 Assessment
Does the patch occur within or near the Victorian Volcanic Plain?	Yes. The study area is located within the Victorian Volcanic Plain.	Yes. The study area is located within the VVP Bioregion and while the geomorphology is mapped as being associated with the Eastern Uplands, the vegetation present has closer affinity to that found on volcanic geology within the 'Western Plains'.	Yes. The study area is located within the VVP Bioregion and while the geomorphology is mapped as being associated with the Eastern Uplands, the vegetation present has closer affinity to that found on volcanic geology within the 'Western Plains'.
Is the site dominated by native vegetation, i.e a native vegetation remnant.	The Woodland are to the south of the access track leading to the trotting track is predominantly native. North of the access track the understorey is dominated by exotic grasses.	The canopy is dominated by River Red Gum, however apart from a small area (approximately 50m x 50m) south of the access track that is dominated by native grass, the remaining areas south of the access track are identical to those north of the track.	The canopy is dominated by River Red Gum, and while a significantly higher cover of indigenous species are present in the understorey when compared to the 2022 assessment, areas south of the access track are still not dominated by native vegetation in the understorey.
Are the trees present such that the projective foliage cover of native grasses is more than 5%?	Yes. Projective foliage cover is approximately 25-30% south of the access track to the trotting track.	No. Projective foliage cover is approximately 40-50% within the small area dominated by native grasses, outside of this area the understorey is dominated by exotic pasture grasses with indigenous grasses accounting for less than 1% projective foliage cover. The overall projective foliage cover of indigenous grasses across the entire offset area is less than 10%.	Potentially, a greater projective foliage cover of indigenous grass is present than what was recorded during the 2022 assessment. While the overall projective foliage cover of indigenous grass is significantly less than the 25-30% assessed in 2019 it is significantly higher than what was present during the 2022 assessment.
Is the tree canopy generally dominated by River Red Gum (Eucalyptus camaldulensis) or associated eucalypts?	Yes. River Red Gum is the dominant species. One Manna Gum Eucalyptus viminalis subsp. viminalis was also recorded on site.	Yes, the canopy is dominated by River Red Gum.	Yes, the canopy is dominated by River Red Gum.
Is the ground vegetation layer dominated by native grasses, native forbs, other herbs, seasonal geophytes or small native shrubs?	Yes. South of the access track to the trotting track, where the understorey vegetation is predominantly native consisting of wallaby grasses <i>Rytidosperma</i> spp. and Weeping Grass <i>Microlaena stipoides</i> .	No. Apart from a small area (approximately 50m x 50m) south of the access track that is dominated by native grass, the remaining areas of the offset site are dominated by exotic pasture grasses within the understorey.	No. While significantly more native grass is present across the offset site than was present during the 2022 assessment, the ground vegetation layer is not dominated by native grasses, native forbs, other herbs, seasonal geophytes or small native shrubs.
Is the patch bigger than or equal to 0.5 hectares?	Yes. South of the access track to the trotting track there is approximately 10 ha of native vegetation that meets the definition of GEVVVP. The patch is	No. The areas where the ground layer vegetation is dominated by native grass equate to approximately 0.2ha	Yes, the areas where the ground layer vegetation is dominated by native grass is approximately 0.78ha, with an additional 0.797ha dominated by indigenous sedges and rushes.

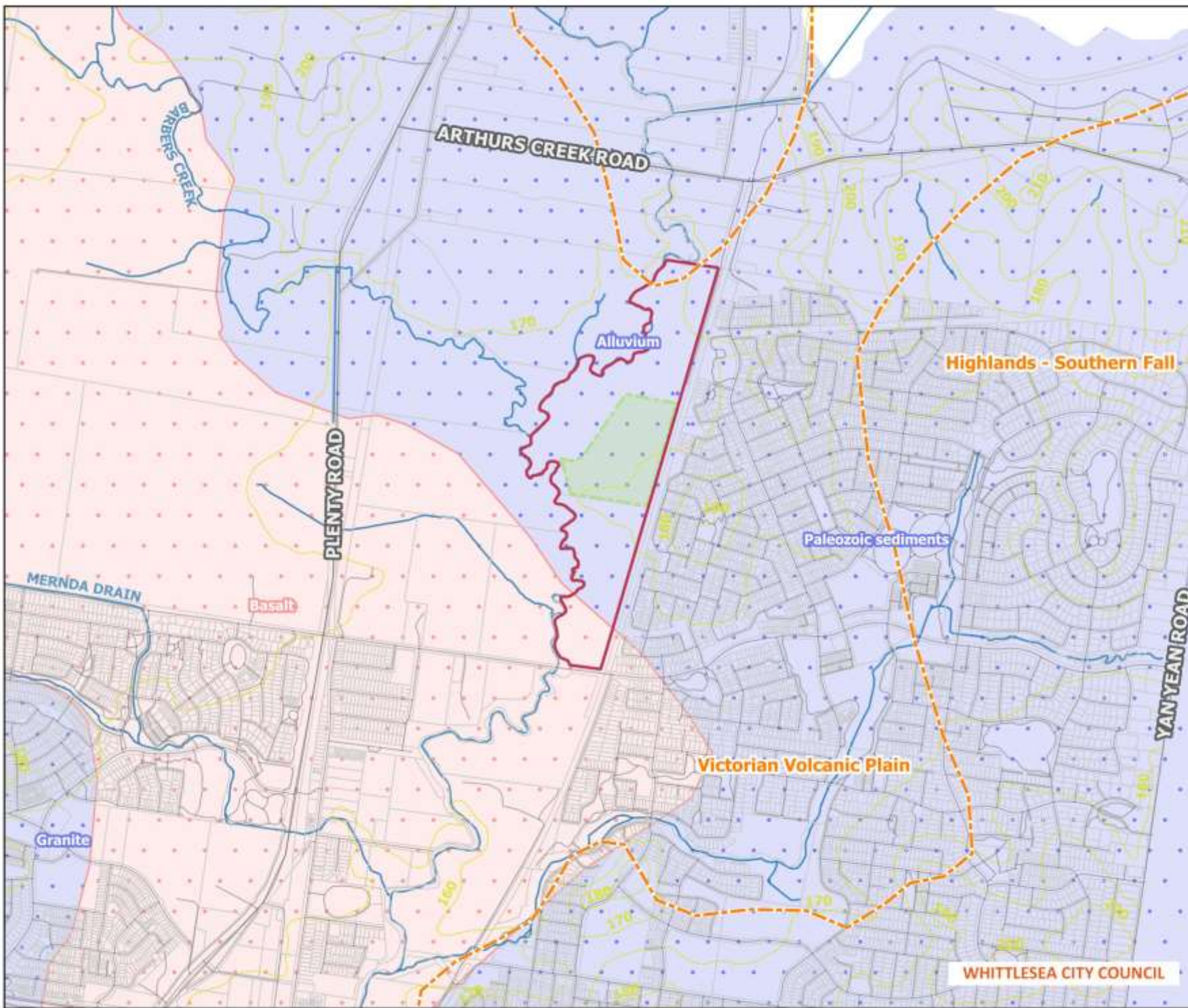
	continuous with approximately 30 ha of lower quality woodland.		
Does 50% or more of perennial ground layer vegetation comprise native species? OR are there more than ten native perennial species AND at least three big trees per hectare?	Yes. South of the access track to the trotting track the dominant species are native perennial grasses, i.e. Wallaby Grass and Weeping Grass.	No. The area where 50% of the ground layer vegetation is dominated by native species is limited and only equates to approximately 0.2ha. No areas of the offset site have more than 10 native perennial species per hectare and the understorey across the majority of the offset site is dominated by exotic pasture grasses.	No. Areas where 50% of the ground layer vegetation is dominated by native species equates to approximately 1.577ha (approximately 13% of the total offset area). No areas of the offset site have more than 10 native perennial species per hectare.

VQA ASSESSMENT

Table 2. Habitat Hectare Assessment Results for 60 Watts Road, Doreen.

Habitat Zone PGW1					
Benchmark criteria		Max. Score	2018	2022	2024
			PGW (EVC 55_61)	PGW (EVC 55_61)	PGW (EVC 55_61)
Site condition	Large Old Trees	10	7	6	6
	Canopy cover	5	4	5	5
	Understorey	25	10	10	15
	Lack of weeds	15	6	2	2
	Recruitment	10	5	5	5
	Organic litter	5	5	5	5
	Logs	5	2	3	3
			39	36	41
Patch Size			?	8	8
Neighbourhood			?	2	2
Distance to Core			?	1	1
			12	11	11
Habitat quality score		100	54	47	52
Habitat score as above = #/100		0.##	0.54	0.47	0.52

Map 1.
Study Site, Offset Site,
Surrounding Landscape and
Context, 60 Watts Road,
Doreen



LEGEND

- Cadastre
- Study Site
- Offset Site
- Bioregion Boundary
- Geomorphology**
- Eastern Uplands
- Western Plains



GDA94 : A4
 1:20,000



Map created: 27 March 2024
 Author: A. Lamande



WHITTLESEA CITY COUNCIL

VicMap Data: The information in this map has been sourced from the State of Victoria. No responsibility or liability is given for the accuracy of this data.

OFFSET MANAGEMENT

Table 3. Offset Management Table and Notes.

Year	Site and Zone(s) (e.g. 001/A)	Management Actions to be completed (These actions are found listed in the Offset Management Plan appended to your Deed of Covenant)	Actions completed this year (yes/no) (if no state % done & give reasons)	Timing (What time of year?)	Description of Action (What method of control did you use?)	Supporting Documents (e.g. photos, receipts)	Comments and Observations (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/ decreased/ remained the same?)
Fencing							
1-10	All	Maintain fencing in good condition around entire boundary of all sites where fencing exists or is required. Maintain fencing to DELWP fencing standards in 'Managing standards for native vegetation offset sites' document.	Yes	Ongoing	Fence boundary walked and condition observed by Bushland Recovery twice in 2023 and once by Wildlife and Ecology during the 2024 assessment.		The fence has been observed to have been maintained without any breaches.
1-10	All	If a threat arises erect an additional fence immediately around the entire boundary of the offset site. Erect fencing to DELWP fencing standards in 'Managing standards for native vegetation offset sites' document.	Yes	Immediately on identification of threat	No threats identified that would require additional fencing.		N/A
1	All	Establish posts to mark the boundary of the offset site in accordance with advice from a qualified ecologist and land surveyor	Yes	Immediately on approval of Year 1 of management works	Offset boundary fence checked against nominated offset boundary by Wildlife and Ecology December 2024.		The offset site is completely fenced and the boundary is obvious.
Woody Weeds							
1-10	All	Eliminate all new and emerging woody weeds Standard to be achieved: All woody weeds to be eradicated by the end of 2029.	Yes	Ongoing	Spot spray completed by Bushland Recovery in 2023		

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1-10	All	Blackberry (<i>Rubus fruticosus sp. agg.</i>)	Yes	November-March	Spot spray completed by Bushland Recovery in Summer 2023/4.		Bushland Recovery noted that Blackberry required treatment and it was treated in summer 2023. Evidence of Blackberry control was noted in March 2024, with many dead canes present. Follow up work on the Blackberry is however still required and should be completed as soon as possible.
Herbaceous Weeds							
1-10	All	Control all herbaceous weeds as listed below. Standard to be achieved : No increase in cover beyond current level at inception as listed below	Yes	As listed below			
1-10	All	Spear Thistle <i>Cirsium vulgare</i> Control method: Hand chip and spot spray Cover at inception:<1%	Yes	Spring/summer	Spot spray completed in 2023.		Dead Spear Thistles noted during the 2024 site assessment. No Artichoke Thistles noted in 2024. <1% cover of Artichoke Thistle and living Speat Thistle was noted during the 2024 site assessment.
1-10	All	Ribwort <i>Plantago lanceolata</i> Control method: Hand chip and spot spray Cover at inception:<1%	Yes	Spring/summer	Minor spot spraying completed during each site visit in 2023.		It was noted that some Ribwort was present, however other potentially more invasive broadleaf weeds have been targeted as a priority. Slashing and crash grazing has been used to keep Ribwort, as well as, other weeds short and prevent seeding. The species was noted to be at <1% cover across the offset site during the 2024 assessment.

Year	Site and Zone(s) (e.g. 001/A)	Management Actions to be completed (These actions are found listed in the Offset Management Plan appended to your Deed of Covenant)	Actions completed this year (yes/no) (if no state % done & give reasons)	Timing (What time of year?)	Description of Action (What method of control did you use?)	Supporting Documents (e.g. photos, receipts)	Comments and Observations (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/ decreased/ remained the same?)
1-10	All	Buck's-horn Plantain <i>Plantago coronopus</i> Control method: Hand chip and spot spray Cover at inception: 5%	Yes	Spring/summer	Minor spot spraying completed at each visit.		It was noted that some Buck's-horn Plantain was present, however other potentially more invasive broadleaf weeds have been targeted as a priority. Slashing and crash grazing has been used to keep this species, as well as, other weeds short and prevent seeding. The species was noted to be at <1% cover across the offset site during the 2024 assessment.
1-10	All	Capeweed <i>Arctotheca calendula</i> Control method: Hand chip and spot spray Cover at inception:<1%	Yes	Spring/summer	Spot spray completed across the site in 2023.		Capeweed has been a species that has been a treatment focus within the offset site. Treatment of this species has occurred across the offset site during 2023/24. Species noted to be at <1% cover in March 2024, however the amount of treatment effort suggests that the initial cover of this species may have been higher than the <1% attributed at offset site inception.
1-10	All	Chickweed <i>Stellaria media</i> Control method: spot-spraying with appropriate herbicide Cover at inception:<1%	Yes	Spring/summer	Slashing and crash grazing has kept the weed short and prevented most seeding.		The offset site weed control has focused on higher threat species. <1% cover of the species was noted during the March 2024 site assessment.
1-10	All	Barley Grass <i>Hordeum leporinum</i> Control method: spot-spraying with appropriate herbicide Cover at inception: 5%	No Weedy grass patches with the exception of Nassella sp.	Spring/summer	Slashing, and crash grazing have kept the weed short and attempted to prevent seeding. This looks to have been an effective control		The species attained approximately 2% projective foliage cover during the March 2024 site assessment. Some of this can likely to attributed to a crash grazing regime that has been very effective at

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			were left untreated to prevent creating bare ground allowing potentially greater invasive weeds to colonise.		for this species as it has decreased in abundance significantly.		controlling annual grassy weeds, while some is likely the timing of the assessment.
1-10	All	Chilean Needle-grass <i>Nassella neesiana</i> Control method: spot-spraying with appropriate herbicide Cover at inception: 5%	Yes	Spring/summer	Spot Spray completed in 2023.		Treatment of CNG was noted during the 2024 assessment with dead CNG observed across the offset area. Scattered pockets of CNG do occur throughout the offset area, however cover of living examples of the species was noted to be at <1% during the March 2024 site assessment.
1-10	All	Common Nettle <i>Urtica dioica</i> Control method: spot-spraying with appropriate herbicide Cover at inception:<1%	Yes	Spring/summer	Not noted during treatment visits.		The species was not seen during the March 2024 site assessment.
1-10	All	Cocksfoot <i>Dactylis glomerata</i> Control method: spot-spraying with appropriate herbicide Cover at inception: 5%	Yes. Weedy grass patches with the exception of <i>Nassella</i> sp. were left untreated to prevent creating bare ground allowing potentially	Spring/summer	Slashing, and crash grazing has been used to keep weeds short and to prevent seeding. Crash grazing looks to have been effective in minimising seed drop.		The species does not appear to be invading areas of the offset site where a good cover of indigenous understorey is present. Management continues to leave weedy grasses untreated within the 'wet zone' while no good replacements exist within these areas. March 2024 site assessment noted ~5% cover of the species.

Year	Site and Zone(s) (e.g. 001/A)	Management Actions to be completed (These actions are found listed in the Offset Management Plan appended to your Deed of Covenant)	Actions completed this year (yes/no) (if no state % done & give reasons)	Timing (What time of year?)	Description of Action (What method of control did you use?)	Supporting Documents (e.g. photos, receipts)	Comments and Observations (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/decreased/ remained the same?)
			greater invasive weeds to colonise.				
1-10	All	Deadly Nightshade <i>Atropa belladonna</i> Control method: spot-spraying with appropriate herbicide Cover at inception:<1%	Yes	Spring/summer	Spot spray in 2023.		A moderate amount of Nightshade throughout the offset area, concentrated centrally and within the drip line of River Reg Gum. March 2024 site assessment noted the species present at <1% cover.
1-10	All	Fat Hen <i>Chenopodium album</i> Control method: spot-spraying with appropriate herbicide. Cover at inception: Not recorded	Yes	Spring/summer	Spot Spray completed in 2023.		Treatment of this species has continued to be completed with the treatment of Nightshade, with these species noted to be located in similar areas. March 2024 Assessment noted the species at <1% cover.
1-10	All	Hare's-foot Clover <i>Trifolium arvense</i> Control method: Spot-spray Cover at inception:<1%	Yes Initial treatments have focused on high threat broadleaf weeds only.	Spring/summer	Slashing, and crash grazing has kept many weeds short and looks to have been effective at preventing seeding.		As yet the species has remained untreated as higher threat species are present in more sensitive areas of the offset site. March 2024 Assessment noted the species at <1% cover.
1-10	All	Mallow <i>Malva neglecta</i> Control method: spot-spray with appropriate herbicide Cover at inception:<1%	Yes	Spring/summer	Spot Spray completed in 2023.		Bushland Recovery noted that the species is only present in low numbers. It has continued to be treated with other Broadleaf Weeds. March 2024 Assessment noted the species at <1% cover.

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1-10	All	Bristly Ox-tongue <i>Helminthotheca echioides</i> Control method: spot-spray with appropriate herbicide Cover at inception:<1%	Yes	Spring/summer	Spot Spray completed in 2023.		Bushland Recovery noted a general low abundance of this species across 2023 and that they had treated small amounts throughout the offset site in conjunction with other Broadleaf Weeds. March 2024 Assessment noted the species at <1% cover.
1-10	All	Onion Grass <i>Romulea rosea</i> Control method: spot-spray with appropriate herbicide Cover at inception:<1%	No. Only small amounts present with Grazing keeping the species at low abundance.	Spring/summer			Only small amounts noted by Bushland Recovery in 2023 and during the March site assessment it was noted occur at <1% cover.
1-10	All	Panic Veldt-grass <i>Erharta erecta</i> var. <i>erecta</i> Control method: spot-spray with appropriate herbicide Cover at inception: 30%	No Weedy grass patches with the exception of <i>Nassella</i> sp. were left untreated to prevent creating bare ground allowing potentially greater invasive weeds to colonise	Spring/summer			Bushland Recovery noted that the species does not appear to be impacting or invading the areas of indigenous grassy understorey. Management is leaving weedy grasses untreated within the 'wet zone' while no good replacements exist within these areas. March 2024 site assessment noted ~10% cover of the species with crash grazing appearing to be effective at limiting seed set of the species and many areas this has provided as advantage to indigenous Weeping Grass..

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1-10	All	Paterson's Curse <i>Echium plantagineum</i> Control method: spot-spray with appropriate herbicide Cover at inception:<1%	Yes	Spring/summer	Spot spray completed in: 2023.		Bushland Recovery noted very limited amounts throughout the site and what was noted was treated while targeting other broadleaf weeds. March 2024 Assessment noted the species at <1% cover.
1-10	All	Smooth Cat's-ear <i>Hypochaeris glabra</i> Control method: spot-spray with appropriate herbicide Cover at inception: 5%	Yes	Spring/summer	Spot spray completed in: 2023.		March 2024 Assessment noted combined <i>H. radicata</i> and <i>H. glabra</i> at <5% cover. Treatment of this species should be completed in areas of high indigenous grass cover.
1-10	All	Cat's Ear <i>Hypochaeris radicata</i> Control method: spot-spray with appropriate herbicide Cover at inception:<1%	Yes	Spring/summer	Spot spray completed in: 2023.		March 2024 Assessment noted combined <i>H. radicata</i> and <i>H. glabra</i> at <5% cover.
1-10	All	Sheep's Sorrell <i>Acetosella vulgaris</i> Control method: spot-spray with appropriate herbicide Cover at inception:<1%	Yes	Spring/summer	Spot and Rig spray completed in: 2023.		Bushland Recovery noted that work on this species has been completed while spraying Cape Weed. This species is present at a moderate abundance but has not been the main focus of treatment at this time. March 2024 assessment noted the species at <2% cover and combined with the ongoing cover noted by Bushland Recovery suggests that the initial abundance at inception was higher than noted.
1-10	All	Rapeseed <i>Brassica rapa</i> Control method: spot-spray with appropriate herbicide Cover at inception: Not recorded	Yes	Spring/summer	Spot spray completed in: 2023.		Small areas of the species noted in 2023 by Bushland Recovery who treated what was present while focusing on other broadleaf weeds.

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							March 2024 Assessment noted the species at <1% cover.
1-10	All	Hair grass <i>Aira</i> spp. Control method: spot-spray with appropriate herbicide. Pulse-grazing can occur when annual weed cover is equal to or exceeds 25%. Cover at inception:<1%	Yes	Spraying: October-January Grazing: January-October	Crash grazing initiated in late summer 2022/23		Bushland Recovery has noted that the species is not invading high quality grassy areas. Management is leaving weedy annual grasses untreated while no good replacements exist. March 2024 site assessment noted <2% cover of the species with crash grazing looking to have been beneficial in controlling the species.
1-10	All	Large Quaking-grass <i>Briza major</i> Control method: spot-spray with appropriate herbicide. Pulse-grazing can occur when annual weed cover is equal to or exceeds 25%. Cover at inception:<1%	Yes	Spraying: October-January Grazing: January-October	Crash grazing initiated in late summer 2022/23		Bushland Recovery has noted that the species is not invading high quality grassy areas. Management is leaving weedy annual grasses untreated while no good replacements exist. March 2024 site assessment noted <2% cover of the species with crash grazing looking to have been beneficial in controlling the species.
1-10	All	Perennial Rye-grass <i>Lolium perenne</i> Control method: spot-spray with appropriate herbicide. Pulse-grazing can occur when annual weed cover is equal to or exceeds 25%. Cover at inception:<1%	Yes	Spraying: October-January Grazing: January-October	Crash grazing initiated in late summer 2022/23		Bushland Recovery has noted that the species is not invading high quality grassy areas. Management is leaving weedy annual grasses untreated while no good replacements exist. March 2024 site assessment noted <2% cover of the species with crash grazing

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							looking to have been beneficial in controlling the species.
1-10	All	Soft Brome <i>Bromus hordeaceus</i> Control method: spot-spray with appropriate herbicide. Pulse-grazing can occur when annual weed cover is equal to or exceeds 25%. Cover at inception:<1%	Yes	Spraying: October-January Grazing: January-October	Crash grazing initiated in late summer 2022/23		Bushland Recovery has noted that the species is not invading high quality grassy areas. Management is leaving weedy annual grasses untreated while no good replacements exist. March 2024 site assessment noted <2% cover of the species with crash grazing looking to have been beneficial in controlling the species.
1-10	All	Toowoomba Canary-grass <i>Phalaris aquatica</i> Control method: spot-spray with appropriate herbicide. Pulse-grazing can occur when annual weed cover is equal to or exceeds 25%. Cover at inception: 5%	No Weedy grass patches with the exception of <i>Nassella</i> sp. were left untreated to prevent creating bare ground allowing potentially greater invasive weeds to colonise	Spraying: October-January Grazing: January-October	Crash grazing initiated in late summer 2022/23, however the species is a perennial grass and while grazing may reduce biomass it is unlikely to control the species.		The species is not invading the good grassy areas. Management is leaving weedy grasses untreated within the 'wet zone' while no good replacements exist within these areas. March 2024 site assessment noted ~20% cover of the species, however the reduction is likely to be the result of reduced biomass not reduced abundance. The noted cover of the species suggest that the cover at inception may have been higher than recorded.

Year	Site and Zone(s) (e.g. 001/A)	Management Actions to be completed (These actions are found listed in the Offset Management Plan appended to your Deed of Covenant)	Actions completed this year (yes/no) (if no state % done & give reasons)	Timing (What time of year?)	Description of Action (What method of control did you use?)	Supporting Documents (e.g. photos, receipts)	Comments and Observations (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/ decreased/ remained the same?)
1-10	All	Yorkshire Fog <i>Holcus lanatus</i> Control method: spot-spray with appropriate herbicide. Pulse-grazing can occur when annual weed cover is equal to or exceeds 25%. Cover at inception: 5%	Yes	Spraying: October-January Grazing: January-October	Crash grazing initiated in late summer 2022/23		Bushland Recovery has noted that the species is not invading high quality grassy areas. Management is leaving weedy annual grasses untreated while no good replacements exist. March 2024 site assessment noted <15% cover of the species with crash grazing looking to have been beneficial in controlling the species. The noted cover of the species suggest that the cover at inception may have been higher than recorded.
1-10	All	Eliminate all new & emerging herbaceous weeds. Standard to be achieved: All new and emerging herbaceous weeds to be eradicated (<1%) at the end of year 10	Yes	Ongoing	Spot spray completed in: 2023.		No significant new and emerging weeds noted during the March 2024 site assessment.
Pest Animals							
1-10	All	Monitor rabbit activity and any impacts on the native vegetation in the offset site. Standard to be achieved: Reduction in the abundance of pest animals, and no detectable impacts to the NTGVVP ecological community	Yes	Ongoing	Landowner treated		No obvious increase in rabbit population or activity
1-10	All	When required, control rabbits. Baiting. When baiting, collect all carcasses to avoid off-target poisoning of native predators. Fumigation and	Yes	Ongoing	Landowner treated		No rabbit activity, scats or burrows noted during March 2024 site assessment.

Year	Site and Zone(s) (e.g. 001/A)	Management Actions to be completed (These actions are found listed in the Offset Management Plan appended to your Deed of Covenant)	Actions completed this year (yes/no) (if no state % done & give reasons)	Timing (What time of year?)	Description of Action (What method of control did you use?)	Supporting Documents (e.g. photos, receipts)	Comments and Observations (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/ decreased/ remained the same?)
		collapse of rabbit warrens. Remove or disperse artificial surface harbour. Standard to be achieved: No surface disturbance within the offset site; No active rabbit warrens to be present, No rubbish/artificial harbour present; Minimal artificial piles of logs and rock.					
1-10	All	Monitor fox activity within the offset site. Standard to be achieved: Reduction in the abundance of pest animals, and no detectable impacts to the NTGVVP ecological community	Yes	Ongoing	Landowner treated		Not seen within offset site.
1-10	All	When required, control foxes. Fumigation and collapse of fox dens if identified. Remove or disperse artificial surface harbour. Standard to be achieved: No surface disturbance within the offset site; No active fox dens to be present, No rubbish/artificial harbour present; Minimal artificial piles of logs and rock.	Yes	Ongoing	Landowner treated		
1-10	All	Monitor and control all new and emerging pest animals. Standard to be achieved: Control number so any new and emerging pest animals.	Yes	Ongoing	N/A		No new pest species identified.
Annual Reporting and Vegetation Monitoring							

Year	Site and Zone(s) (e.g. 001/A)	Management Actions to be completed (These actions are found listed in the Offset Management Plan appended to your Deed of Covenant)	Actions completed this year (yes/no) (if no state % done & give reasons)	Timing (What time of year?)	Description of Action (What method of control did you use?)	Supporting Documents (e.g. photos, receipts)	Comments and Observations (Have you noticed any changes in the vegetation, fauna or other features of the site e.g. have you found new species, have the weed/pest increased/ decreased/ remained the same?)
1-10	All	Prepare and submit this annual report and photo monitoring to Trust for Nature and DoEE Five permanent photopoints will be established across the offset site. These points will be shown on a map of the offset site. Four photos will be taken per photopoint from each directions (ie N, S, E, W) and clearly labelled.	Yes	Submit annual report and photopoint photos in January each year Photos to be taken annually in October			
<p>Detailed Vegetation Monitoring as per below (Section 7.2 of the OMP) will be conducted by a qualified ecologist in year 1-4, 6, 8 & 10</p>							
1-4 (2021-2024)	All	Detailed Vegetation Monitoring will be conducted by a qualified ecologist see above and section 7.2 of the OMP	Yes	Yearly for years 1 to 4 2021-2024	This report details the results of this monitoring below and suggests adaptive land management in line with the results of this monitoring.		

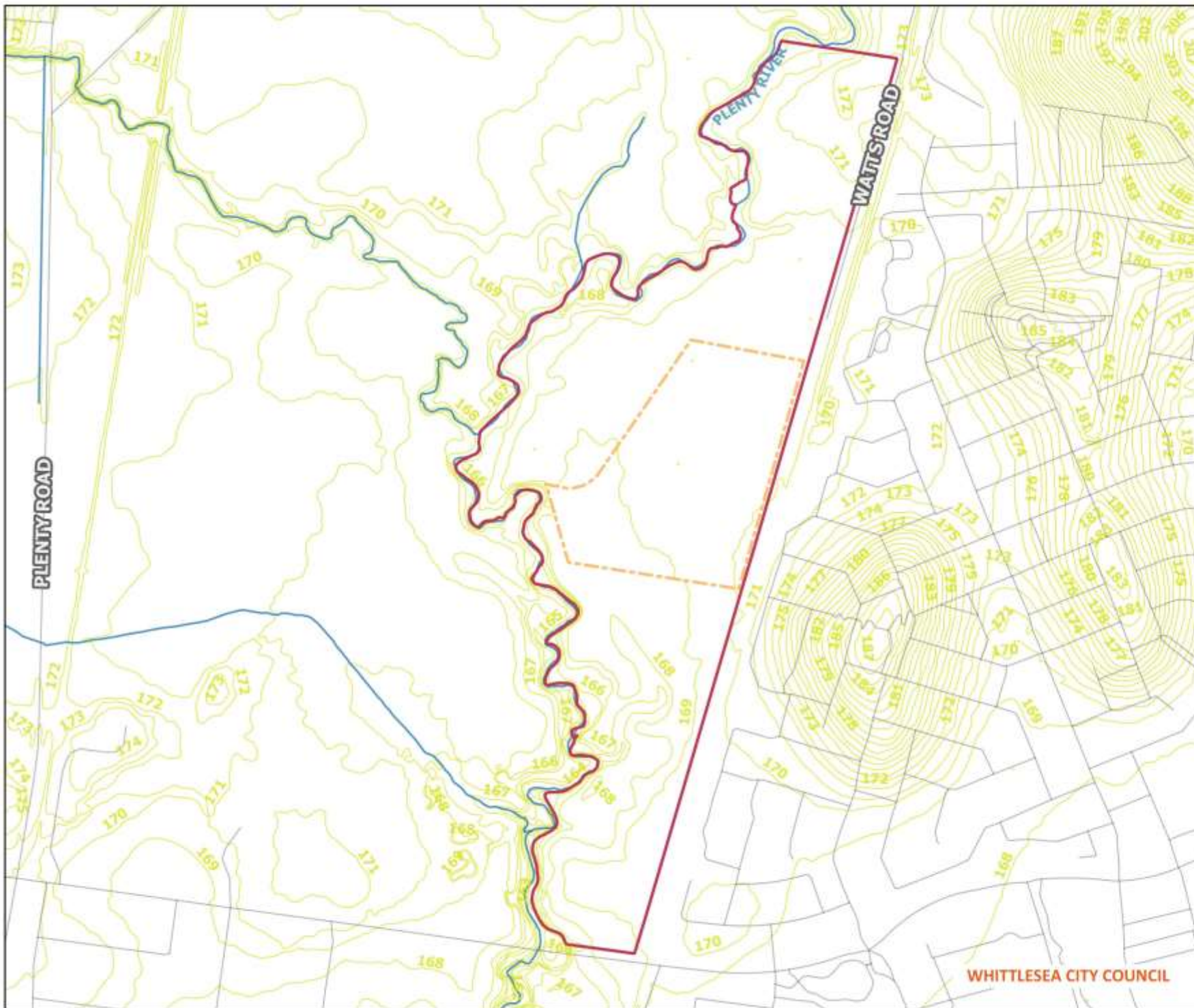
BIOMASS ASSESSMENT

Table 4. Results of Biomass Assessment

Species	Common Name	Cover 2018	Cover 2022	Cover 2024	Notes
Indigenous Species					
<i>Rytidosperma</i> spp.	Wallaby Grass	-	<5%	<7%	Combined all indigenous grasses would account for ~10% projective foliage cover. While it does not show in monitoring the improvement in indigenous grass cover since the 2022 assessment is significant. This is likely the result of well implemented crash grazing and weed control.
<i>Austrostipa</i> spp.	Spear Grass	-	<1%	<1%	
<i>Microlaena stipoides</i>	Weeping Grass	-	<5%	<5%	
<i>Carex tereticaulis</i>	Basket Sedge	-	<0.1%	<5%	Combined cover of indigenous sedges and rushes has improved as a result of a recent wet summers, successful crash grazing and weed control.
<i>Juncus subsecundus</i>	Finger Rush	-	<0.5%	~1%	
Exotic Broadleaf Weeds					
<i>Plantago lanceolata</i>	Ribwort	<1%	<1%	<1%	
<i>Plantago coronopus</i>	Bucks Horn Plantain	5%	1%	<1%	Treatment has likely been effective.
<i>Arctotheca calendula</i>	Capeweed	<1%	<1%	<1%	Land management work suggests that the species had a higher cover at inception.
<i>Hypochaeris radicata</i>	Cats Ear	<1%	<5%	<5%	Combined cover of <i>H. glabra</i> and <i>H. radicata</i> was <5% in 2024.
<i>Hypochaeris glabra</i>	Smooth Cats Ear	5%			
<i>Stellaria media</i>	Chickweed	<1%	<1%	<1%	
<i>Urtica dioica</i>	Common Nettle	<1%	0%	0%	
<i>Atropa belladonna</i>	Deadly Nightshade	<1%	<1%	<1%	Assumed misidentification, cover in 2024 is of <i>Solanum nigrum</i> .
<i>Chenopodium album</i>	Fat Hen	0%	<1%	<1%	
<i>Trifolium arvensis</i>	Hare's Foot Clover	<1%	<1%	<1%	
<i>Malva neglecta</i>	Mallow	<1%	<1%	<1%	Assumed misidentification, cover in 2024 is of <i>Malva parviflora</i> .
<i>Helminthotheca echinoides</i>	Prickly Ox Tongue	<1%	<1%	<1%	
<i>Echium plantagineum</i>	Pattersons Curse	<1%	<1%	<1%	
<i>Brassica rapa</i>	Rapeseed	0%	<0.1%	<0.1%	None noted in 2018 cover in 2024 for similar <i>Brassica fruticulosa</i>
<i>Acetosella vulgaris</i>	Sheep Sorrel	<1%	<1%	<1%	Management work suggests that this species had a slightly higher cover at inception than indicated.
<i>Cirsium vulgare</i>	Spear Thistle	<1%	<0.1%	<0.1%	
<i>Cynara cardunculus</i>	Artichoke Thistle	0%	<0.1%	0%	None noted at inception only 2 small plants present in 2022 and none noted in 2024.
Exotic Perennial Grasses					
<i>Nassella neesiana</i>	Chilean Needle Grass	5%	<1%	<1%	Current cover demonstrates ongoing land management actions.
<i>Dactylis glomerata</i>	Cocksfoot	5%	~5%	<5%	
<i>Ehrharta erecta</i>	Panic Veldt Grass	30%	25%	10%	Crash grazing looks to have been effective at controlling this species and providing an advantage to indigenous Weeping Grass.
<i>Holcus lanatus</i>	Yorkshire Fog	5%	15%	10%	Current cover suggests the species attained a higher cover at inception. Crash grazing looking to have been effective at controlling the species.
<i>Lolium perenne</i>	Perennial Rye Grass	<1%	~5%	<5%	Current cover suggests the species attained a higher cover at inception. Crash grazing looking to have been effective at controlling the species.
<i>Phalaris aquatica</i>	Toowoomba Canary Grass	5%	25%	20%	Current cover suggests the species attained a higher cover at inception. Crash grazing has reduced biomass but is unlikely to have provided effective at control.

Species	Common Name	Cover 2018	Cover 2022	Cover 2024	Notes
Exotic Annual Grasses					
<i>Bromus hordeaceus</i>	Soft Brome	<1%	~5%	<5%	Current cover suggests the species attained a higher cover at inception. Crash grazing looking to have been effective at controlling the species.
<i>Aira</i> spp.	Hair Grass	<1%	<5%	<5%	Current cover suggests the species attained a higher cover at inception. Crash grazing looking to have been effective at controlling the species.
<i>Hordeum lepronium</i>	Barley Grass	5%	~15%	<10%	Current cover suggests the species attained a higher cover at inception. Crash grazing looking to have been effective at controlling the species.
<i>Briza major</i>	Large Quaking Grass	<1%	<5%	<5%	Current cover suggests the species attained a higher cover at inception.
<i>Vulpia bromoides</i>	Rats Tail Fescue	-	~10%	~5%	Cover not noted at offset site inception. Crash grazing looking to have been effective at controlling the species.

Map 2.
Study Site and Offset Site, 60
Watts Road, Doreen

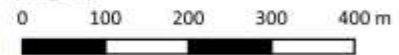


LEGEND

-  Cadastre
-  Study Site
-  Offset Site Boundary



GDA94 : A4
1:9,000



Map created: 27 March 2024
Author: A. Lamande



VicMap Data: The information in this map has been sourced from the State of Victoria. No responsibility or liability is given for the accuracy of this data.



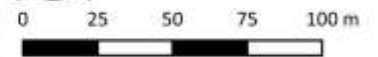
Map 3.
Study Site, Offset Site and
Photo Points, 60 Watts Road,
Doreen

LEGEND

-  Cadastre
-  Study Site
-  Photo Points
- OffsetSite**
-  Offset Site
-  >50% Native Understorey (2022)
-  >50% Native Understorey (2024)



GDA94 : A4
 1:2,500



Map created: 27 March 2024
 Author: A. Lamande



VicMap Data: The information in this map has been sourced from the State of Victoria. No responsibility or liability is given for the accuracy of this data.

DISCUSSION AND RECOMMENDATIONS

The results of the site assessment combined with discussions with both the land management contractor and landowner indicate that management at the offset site has been detailed, responsive and ongoing. The initial assessment of the offset site (December 2022) indicated that land management works were progressing and the obvious lack of broadleaf weeds within the offset area when compared to the surrounding landscape suggested that the works were completed regularly. In 2022 woody weeds were almost absent from the site and this continues to be the case with those that are present consisting of small recently germinated individuals.

In 2022 the offset site contained a small approximately 50m x 50m section of dense indigenous Wallaby Grass, a health canopy of River Red Gum and an occasional Acacia (including seedlings). At the time of the 2022 assessment localised standing water could be observed across the offset site and in these areas scattered individuals of species including Brown Back Wallaby Grass *Rytidosperma duttonianum*, Basket Sedge *Carex tereticaulis* and Finger Rush *Juncus subsecundus* could be found. A small ephemeral wetland was present in the south-west corner of the offset area, that supported further species with wetland affinities. The offset area however appeared to contain almost no herb or shrub diversity with only Kidney Weed *Dichondra repens*, and a single Cotton Fireweed *Senecio quadridentatus* noted during the 2022 site assessment.

The assessment in March 2024, identified a significantly larger area within which indigenous grasses including Common *Rytidosperma caespitosum* and Bristly *Rytidosperma setaceum* Wallaby Grass, Kneed Spear Grass *Austrostipa bigeniculata* and Weeping Grass *Microlaena stipoides* var. *stipoides* provided the dominant understorey cover. A healthy canopy of River Red Gum and the occasional Acacia was also still observed to be present. As well as a significant increase in indigenous grass cover, a large number of indigenous Sedges and Rushes including Basket Grass *Carex tereticaulis* and Finger Rush *Juncus subsecundus*, as well as a number of Common Tussock Grass *Poa labillardierei* var. *labillardierei* were observed to be present within the areas that contained standing water during the 2022 assessment. The small ephemeral wetland was not observed to be holding water and many of the species present within it during the 2022 assessment appeared to have senesced. A small number of additional hardy indigenous herbs and prostrate shrubs including Berry Saltbush *Atriplex semibaccata*, Common Cudweed *Euchiton involucreatus*, Soft Cranes Bill *Geranium potentilloides*, and Shining Pennywort *Hydrocotyle sibthorpioides* were also present in conjunction with Kidney Weed and Cotton Fireweed at very low densities.

The initial diagnostic criteria and threshold assessment for GEWVVP was identified in the previous assessment report to present information that appears to be in contrast to the condition observed at the study site. While this still appears to be the case across large areas of the site ongoing management looks to have improved the overall site condition considerably. The moderately sized patch of indigenous grass identified within the south-west corner of the offset area during the 2022 assessment, looked to have significantly increased in size and many exotic annual pasture grasses had decreased in cover. This looks to be a result of strategic grazing. In many areas where Panic Veldt Grass dominated, grazing has removed biomass and limited seeding, which has provided an advantage to the indigenous Weeping Grass, now significantly more common within these areas than it was previously. The 2024 assessment of the offset site identified approximately 0.78ha that was noted to contain an understorey dominated by indigenous grass species with an additional 0.797ha containing an understorey dominated by indigenous sedges and rushes. The remaining areas of the study site however still contained an understorey dominated by a mix of exotic perennial pasture species and widely scattered indigenous grass.

The VQA completed during the site assessment showed a considerable improvement in the understorey score over that assessed in 2022. This was a result of recruitment in, Large Tufted Graminoids, which were almost non-existent in 2022, Prostrate Shrubs, none of which were identified in 2022 and Small Herbs. The remaining VQA assessment categories remained consistent between the 2022 and 2024 assessments.

A number of errors in the initial inception offset assessment were identified during the 2022 assessment. These errors make the attainment of the required gain in habitat hectare score more difficult to achieve. It is however expected that with small modification to the OMP recommendations, that the overall gain in habitat hectare score can be achieved. Given the lack of indigenous grassy structure across much of the site, land management has to date focused on removing broadleaf weeds while leaving exotic pasture grasses in the understorey, until some indigenous structure is present to replace them. This strategy combined with intelligent crash grazing has resulted in an improvement in understorey cover and abundance and should continue moving forward.

Some additional gain in understorey score can be made via planting. While planting of 300 tubes and cells was recommended for April/May 2023, this has yet to be completed and will need to be completed in April/May 2024 addition to the 200 plants required for 2024 (Table 5). Further gains could be achieved by similar follow up plantings of between 200-300 plants in years 5, 6 and 7. While the site has achieved the required understorey score (15) specified within the OMP, much of the understory is still dominated by exotic species and the site still does not meet many of the requirements of an EPBC Act offset. Planting will help to ensure that all of the EPBC Act offset requirements are met and that the site is able to maintain moving forward.

Additional management actions suggested to be completed within the 2023/24 management period (year 3) include:

- Continued weed control
- Pulse grazing when biomass levels (particularly annual grasses) are high
- Cutting up any fallen trees (both within and outside of the offset area) into lengths of between 2-10m and redistributing them within and across the offset area.
- Thinning of areas of dense Eucalypt recruitment so that between 2-5 saplings remain in each 10mx10m (0.1ha) area, with the aim of eventually thinning this to 1 per 10mx10m area.
- Reestablishment of the 5 photo point monitoring pegs, this should be completed by installing single 1200mm or higher, capped star pickets.

These management actions will help the site to achieve the required gains in Habitat Hectare score.



Images of typical understorey vegetation across much of the offset site.

Table 5. Planting Guide 2023/24.

Scientific Name	Common Name	Number Planted	Area	Attainment Goals
Medium Shrubs				
<i>Acacia paradoxa</i>	Prickly Moses	Total of 100 in April/May 2023	Dryer weedy areas	A total of 3 species established totalling no more than 10% cover of the offset area
<i>Banksia marginata</i>	Silver Banksia		Weedy areas	
<i>Acacia pycnantha</i>	Golden Wattle		Wetter weedy areas	
<i>Cassinia longifolia</i>	Shiny Cassinia			
<i>Goodenia ovata</i>	Hop Goodenia			
<i>Melicytus dentatus</i>	Tree Violet			
Small and Prostrate Shrubs				
<i>Pimelea humilis</i>	Dwarf Rice Flower	Total of 25 in April/May 2023	Within or immediately adjacent to the indigenous grassland area in the south-east.	A total of at least 3 species established and surviving.
<i>Pimelea glauca</i>	Smooth Rice Flower			
<i>Chrysocephalum apiculatum</i>	Common Everlasting			
<i>Eutaxia microphylla</i> var. <i>microphylla</i>	Common Eutaxia			
<i>Enchylaena tomentosa</i>	Ruby Saltbush			
<i>Maireana enchylaenoides</i>	Wingless Bluebush	Total of 25 in April/May 2023		A total of at least 2 species established and surviving.
<i>Acrotriche serrulata</i>	Honeypots			
<i>Astroloma humifusum</i>	Cranberry Heath			
<i>Kennedia prostrata</i>	Running Postman			
<i>Bossiaea prostrata</i>	Creeping Bossiaea	Total of 50 in April/May 2023	Within less weedy areas of the offset area.	At least 20 of each species surviving by the next report.
<i>Einardia nutans</i>	Nodding Saltbush			
<i>Atriplex semibracatta</i>	Berry Saltbush			
Grasses				
<i>Poa labillardierei</i>	Common Tussock Grass	Total of 100 in April/May 2023	Established as a dense sward in semi wet ground.	Survival of a dense sward of Tussocks in a wetter area of the site.

Note: Additional or substitute species suitable to the GEVVVP ecological community or the Plains Grassy Woodland EVC can be provided as long as they are like for like life forms.

I trust this offset monitoring letter provides you with the necessary information to proceed. Please do not hesitate to call me on 0402 759 140 or email at adrian@wildlifeandecology.com.au should you require further information.

Kind Regards



Adrian Lamande

Senior Botanist

Wildlife and Ecology

REFERENCES

- DELWP (2017). *Guidelines for the removal, destruction or lopping of native vegetation*. Version 1.0, December 2017. Department of Environment, Land, Water and Planning, East Melbourne.
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- EHP (2019). Offset Management Plan: 60 Watts Road, Yan Yean, Victoria (EPBC 2016/7674). Prepared by Ecology and Heritage Partners for the Level Crossing Removal Authority.
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https://vro.agriculture.vic.gov.au/dpi/vro/vrosite.nsf/pages/landform_geomorphology

PHOTO POINTS

Photo Point 1

North



South



East



West



Photo Point 2

North



South



East

West



**Photo Point 3
North**



South



East



West



Photo Point 4

North



East



Photo Point 5

North



East

South



West

