Our ref: PS211316-ECO-LTR-001-RevB

By email
[redacted]

26 June 2024

[redacted]

Dear [redacted],

Assessments of native grasslands within airfields of Melbourne Airport, Tullamarine

WSP Australia Pty Limited (WSP) was engaged by Australia Pacific Airports (Melbourne) (APAM) to undertake vegetation quality assessments (VQAs) of previously mapped patches of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) community Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) in airside and landside areas in Melbourne Airport.

1. PROJECT BACKGROUND

APAM has previously commissioned VQAs of these grassland areas within airside and landside locations at Melbourne Airport approximately 6 years ago. As a result of the VQA, multiple patches of NTGVVP were mapped. To support a referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the EPBC Act, these patches of NTGVVP and potential NTGVVP require updated mapping and identification. VQAs are required to be undertaken on specified patches of NTGVVP as part of the mapping exercise.

APAM has therefore engaged WSP to update previously mapped grassland patches to determine whether they still meet the benchmark criteria for NTGVVP under DCCEEW's guidelines (DSEWPaC 2011).

2. SCOPE

In order to determine the vegetation condition within the Study Area, the scope of works covered the following points:

- Undertake a site assessment to undertake VQAs under the Department of Environment, Energy and Climate Action's (DEECA) *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines) and GIS mapping of NTGVVP extents.
  - Assess patches mapped as potential NTGVVP:
    - Transect data was used to assess patches of native vegetation against assessment / qualification criteria for NTGVVP, to determine presence or absence of the threatened community.
    - The surveys were undertaken during seasonally appropriate times for assessment as per the Commonwealth assessment guidelines and Conservation and Listing advice for these communities.

- All mapping was undertaken using handheld GIS tablet with accuracy of approximately 1 – 3 metres. Outputs are in the ESRI-compatible shapefile format.

2.1 STUDY AREA

The study area is split across seven airside and landside locations within Melbourne Airport (Figure 1). The study area is situated within the Hume City Council municipality and the Victorian Volcanic Plain Bioregion.

3. METHODS

3.1 SITE ASSESSMENT

A site assessment was undertaken on 15 February and 15 March 2024 by [redacted] (DEECA-accredited vegetation quality assessors) to identify Ecological Vegetation Communities (EVCs), flora species and Threatened Ecological Communities (TECs) present, and possible impacts of the project on biodiversity values. The site assessment involved two ecologists traversing the areas where works are planned to occur.

The following activities were undertaken:

- Field validation of vegetation communities – the extent and condition of mapped EVCs were verified using the following methods:
  - Native vegetation was mapped across the study area. The locations of all vegetation were recorded with handheld GPS devices with integrated GNSS receivers providing 1-3m accuracy. Data was collected using the ESRI program Field Maps on which all project relevant data was displayed on a project-specific GIS for the ecologists' reference. Data displayed on the GIS included: wetlands; NV2005 EVC modelling (DEPI 2009) and VBA (DELWP 2021) significant flora and fauna records.
  - Native vegetation was assessed via the VQA methodology (DSE 2004). Native vegetation patches were attributed to the most appropriate EVC (DELWP 2016) as assessed on the ground.
- Any other incidental discussions, observations or evidence of flora or fauna were recorded to inform a species inventory of the project area.
- The likely presence of threatened species was determined through the database search results and presence of suitable potential habitat in the project area following the site assessment.

3.1.1 CATEGORISING VEGETATION WITHIN THE STUDY AREAS

Field validation (or ground-truthing) of modelled extant vegetation (DEPI 2009) was undertaken to determine the site-specific classification of the vegetation structure, any wetland formations, dominant canopy species, native diversity and condition.

Under the Guidelines (DELWP 2017), a remnant patch of native vegetation is either:

- An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native, or
- Any area with three or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy, or
- Any modelled wetland included in the Current Wetlands layer, available in NatureKit.

A canopy tree is:

- a mature tree (i.e., it is able to flower) that is greater than 3 metres in height and is normally found in the upper layer of the relevant vegetation type and meets the EVC thresholds (height and DBH) to qualify as a Canopy tree under the Guidelines.

A scattered tree is a native canopy tree that does not form part of a patch.

The locations of scattered trees were recorded with a handheld GPS where they did not meet the criteria for a patch. Any wetland formations and general biodiversity values were also recorded as incidentally observed.

Native vegetation is defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses' (Clause 72). An EVC is a unit of consistent vegetation displaying broadly similar botanical characteristics reflecting consistent environmental and structural conditions (Oates & Taranto 2001). EVCs include a benchmark for the characteristics of the vegetation type in its mature, natural (pre-1750) state.

Habitat Hectare assessments were undertaken to determine the condition of the vegetation in the context of the local area and the relevant bioregions. This methodology is outlined in *Vegetation Quality Assessment Manual - Guidelines for applying the Habitat Hectares scoring method* (DSE 2004). The Habitat Hectare method involves making visual qualitative and quantitative assessments on various characteristics of native vegetation according to established criteria that are set against an optimum benchmark.

3.1.2 ASSESSMENT OF NATURAL TEMPERATE GRASSLAND OF THE VICTORIAN VOLCANIC PLAIN

NTGVVP is listed as a critically endangered ecological community under the Commonwealth EPBC Act. The community is dominated by a ground layer of native tussock-forming perennial grasses along with a number of herbs and small shrubs or subshrubs. Trees and large shrubs are sparse to absent (TSSC 2008).

There are several diagnostic characteristics and condition thresholds which are generally based on features which apply all year round. Further details on the determination criteria can be found in sections 3 and 4 of the Approved Conservation Advice for the Natural Temperate Grassland of the Victorian Volcanic Plain (TSSC 2008). These were assessed against native vegetation in the study area. One of the main condition thresholds is the *"total perennial tussock cover represented by the native grass genera* Themeda, Rytidosperma, Austrostipa *or* Poa *is at least 50%"*.

To assess this condition threshold, 50 m long 'point intercept' transects were undertaken across areas which were considered likely to meet the criteria for the community. Six transects were completed across different patches. Coverage measurement was undertaken by the point intercept method, with points taken every metre along a 50 m tape. The number of points (out of a maximum of 50) for each category were multiplied by two to obtain a percentage of cover from that category. Patches with over 50% perennial native tussock grass cover and over 0.05 ha were considered to be part of the community.

The following categories were used for the point sampling:

- Perennial indigenous tussock
- Perennial indigenous herb
- Annual indigenous grass
- Non-target indigenous perennial grass
- Exotic annual grass
- Exotic annual herb
- Chilean Needle Grass *Nassella neesiana*

- Exotic perennial grass
- Litter or dead vegetation
- Bare ground
- Lichen/Moss

3.2 LIMITATIONS

The brevity of field survey required for an assessment such as this does not allow for an extensive or exhaustive flora and fauna survey. Some of the more cryptic flora species are only observable during favourable seasonal windows or following disturbance events to which they have adapted. Some cryptic flora species may be present around works areas that have not been recorded during surveys. The results are indicative of the environmental conditions at the time of assessment, including the presence or otherwise of species. Surveys were conducted within the optimal survey window for detecting NTGVVP.

4. RESULTS

4.1.1 GENERAL SITE CONDITION

The study area is moderately to highly modified from its pre-European condition, which would have been a diverse native grassland and possibly grey box grassy woodland. Remaining patches are highly fragmented, and some landside sites are subject to regular grazing by cattle, an overabundant kangaroo population and weed invasion following historic ground disturbance.

Currently, there is moderate to high cover of introduced grass and herb species and low diversity of native species throughout the current native grassland patches. There are areas of native grassland which meet key diagnostic criteria to be considered NTGVVP however these appear to have transitioned along a sequence of decline as per TSSC (2008) from typically warm-season grasses dominated by Kangaroo-grass to cool-season grass dominated by wallaby-grasses, with few native herbs present and higher proportions of more readily-colonising species such as Red-leg Grass *Bothriochloa macra* and Silky Blue-grass *Dichantheum sericeum* which do not contribute to the NTGVVP listing criteria. This significant decline in quality is likely due to a range of factors including ploughing, derocking, slashing, previous ground disturbances and weed invasion. The majority of tree canopy within the study area is dominated by planted non-indigenous species.

Existing development/infrastructure surrounding the study area has also fragmented the habitat including car parks, landing strips, industrial development and roads, as seen in comparison with aerial photography from 1945 to the present (Photo 4.1).

Photo 4.1 Aerial Imagery

Photo 3 *1945 aerial photo (VDLA 1945)*

Photo 4 *Current aerial photo*

4.1.2 FLORA SPECIES

A total of 44 vascular plant species were recorded in the study area during the field assessment survey, of which 20 were indigenous (45%) and 24 introduced species (55%). See list in Attachment A. No significant flora species were recorded in the study area.

4.1.3 VEGETATION

ECOLOGICAL VEGETATION CLASSES

Native vegetation, mostly mapped as Plains Grassland (EVC 125), covers an area of 3.98 ha with 1.82 ha determined as NTGVVP. There is also a small area of Plains Grassy Wetland (EVC 125).

Understorey vegetation in the study area outside mapped native grassland is predominantly exotic covered by introduced species such as Chilean Needle-grass **Nassella neesiana*, Couch **Cynodon dactylon* var. *dactylon*, Ribwort **Plantago lanceolata*, Paspalum **Paspalum dilatatum* and Serrated Tussock **Nassella trichotoma*.

Plains Grassland (EVC 132)

Native grassland mapped as Plains Grassland (EVC 132) in the study area were typically dominated by Bristly Wallaby-grass *Rytidosperma setaceum*, Common Wallaby-grass *Rytidosperma caespitosum*, Copper-awned Wallaby-grass *Rytidosperma fulvum*, Kneed Spear-grass *Austrostipa bigeniculata*, Berry Saltbush *Atriplex semibaccata*, Grassland Wood-sorrel *Oxalis perennans* and Windmill Grass *Chloris truncata*. In some areas, grassland was dominated by colonist grasses including Silky Blue-grass *Dichanthium sericeum* subsp. *Sericeum* and/or Red-Leg Grass *Bothriochloa macra*.

The total projected foliage cover percentage of perennial understorey cover of these patches of Plains Grassland (EVC 125) are approximately 30-60% total cover with a higher proportion of introduced annual grasses, broad-leaf herbs and perennial grasses such as Chilean Needle-grass **Nassella neesiana*, Serrated Tussock **Nassella trichotoma*, Kikuyu **Cenchrus clandestinus*, Galenia **Galenia pubescens* var. *pubescens*, Couch **Cynodon dactylon*, Ribwort **Plantago lanceolata* and African Love-grass **Eragrostis curvula*. The condition of the understorey is broken up into five quality zones and was assessed accordingly in Table 4.1. Patches that met the threshold of 25% native understory cover with higher weed levels and lower cover of perennial native tussocks were not considered as NTGVVP but still mapped as Plains Grassland.

Plains Grassy Wetland (EVC 125)

One small patch of wetland vegetation occurs in Area 2, which is dominated by Brown-back Wallaby-grass *Rytidosperma duttonianum*, Hollow Rush *Juncus amabilis*, Common Blown-grass *Lachnagrostis filiformis* s.l., and Small Loosestrife *Lythrum hyssopifolia.* The most dominant weeds in this patch include Paspalum **Paspalum dilatatum*, Toowoomba Canary-grass **Phalaris aquatica* and Curled Dock **Rumex crispus.*

HABITAT HECTARE SCORES

Patches of native vegetation were split into five habitat zones comprising Plains Grassland and Plains Grassy Wetland EVCs. The habitat hectare scores are displayed in the table below.

Table 4.1 Habitat Hectare Scores

HABITAT ZONE			HZ1	HZ2	HZ3	HZ4	HZ5
Bioregion			VVP	VVP	VVP	VVP	VVP
EVC Name (initials)			Plains Grassland	Plains Grassland	Plains Grassland	Plains Grassland	Plains Grassy Wetland
EVC Number			132_61	132_61	132_61	132_61	125
		Max Score	Score	Score	Score	Score	Score
Site Condition	Large Old Trees	10	N/A	N/A	N/A	N/A	N/A
	Canopy Cover	5	N/A	N/A	N/A	N/A	N/A
	Understorey	25	5	5	5	5	5
	Lack of Weeds	15	2	2	4	4	2
	Recruitment	10	3	3	6	9	3
	Organic Litter	5	3	2	5	5	5
	Logs	5	N/A	N/A	N/A	N/A	N/A
	EVC Standardiser		1.36	1.36	1.36	1.36	1.36
	Standardised Score	75	17.68	16.32	27.2	31.28	20.4
Landscape value	Patch Size	10	1	1	1	1	1
	Neighbourhood	10	2	2	2	2	2
	Distance to Core	5	1	1	1	1	1
Habitat points		100	21.68	20.32	31.2	35.28	24.4
Habitat Score (habitat points/100)		0.##	0.22	0.20	0.31	0.35	0.24

4.1.4 THREATENED ECOLOGICAL COMMUNITIES

The following threatened ecological communities (TEC) were assessed to determine their presence within the study area:

EPBC Act:

- Natural Temperate Grassland of the Victorian Volcanic Plain

FFG Act threatened communities:

- Western (Basalt) Plains Grasslands Community

As there was no indigenous canopy of River Red Gums present, neither Grassy Eucalypt Woodland or Western Plains (River Red Gum) Grassy Woodland was considered to be present. Western (Basalt)

Plains Grasslands Community is present generally where Plains Grassland (EVC 132) was mapped, in accordance with the description with (Scientific Advisory Committee 2013).

NATURAL TEMPERATE GRASSLAND OF THE VICTORIAN VOLCANIC PLAIN

The EPBC Act TEC '*Natural Temperate Grassland of the Victorian Volcanic Plain'* was recorded within the study area. Natural Temperate Grassland is a critically endangered ecological community found in the Victorian Volcanic Plains bioregion. It is a treeless community dominated by native tussock forming grasses including Kangaroo Grass *Themeda triandra*, Wallaby Grasses *Rytidosperma* spp., Spear Grasses *Austrostipa* spp. and Tussock Grass *Poa* spp. A variety of native herb species are also present (DSEWPaC 2011).

The community can be synonymous with EVC 132_61 Plains Grassland where it meets certain condition thresholds including:

1. Minimum 50% cover of native perennial tussock grass species OR 50% cover of native wildflowers during spring/summer
2. Patch size must be a minimum of 0.05 ha

Transect surveys were undertaken to determine whether the patches met the minimum cover of native species required to be considered part of the community. See Figure 2 for locations of the transects. Fifty points were recorded along the tape, the number of hits for each category was then doubled to obtain the cover as a percentage. Then the total native perennial tussock cover is calculated as out of the total perennial tussock cover. Where the cover of perennial native tussock species was over 50% and the minimum size is over 0.05ha, the patch was considered part of the community. Transect data is provided in Attachment B.

Based on the transect data, four areas where transects were undertaken were considered to meet the minimum cover of native vegetation to be considered part of the community. These patches also met the minimum size requirement. Assessment against the full criteria is found in Table 4.2.

Although the patches met the criteria for inclusion as part of the community, the condition is highly modified. The patches consist of spear grasses and wallaby grasses, and a few herbs. The diversity of species is low but it is the coverage of perennial native grasses which define the TEC.

Table 4.2 Natural Temperate Grassland criteria

SCIENTIFIC DETERMINATION CRITERIA	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
	TRANSECT 6	TRANSECT 5	TRANSECT 4	TRANSECT 1	N/A	TRANSECT 2	TRANSECT 3
KEY DIAGNOSTIC CHARACTERISTICS							
The grassland is mainly associated with Quaternary basalt soils within the Victorian Volcanic Plain IBRA bioregion.	Yes - patch is located within the VVP Bioregion	Yes - patch is located within the VVP Bioregion	Yes - patch is located within the VVP Bioregion	Yes - patch is located within the VVP Bioregion	Yes - patch is located within the VVP Bioregion	Yes - patch is located within the VVP Bioregion	Yes - patch is located within the VVP Bioregion
At least one of the following grass genera is the dominant native species in the ground layer: *Themeda* (Kangaroo-grass), *Austrodanthonia* (Wallaby-grass), *Austrostipa* (Spear-grass) and/or *Poa* (Tussock-grass).	Yes - wallaby grasses and spear grasses were the dominant native species	Yes - wallaby grasses and spear grasses were the dominant native species	Yes - wallaby grasses and spear grasses were the dominant native species	Yes - wallaby grasses and spear grasses were the dominant native species	Yes - wallaby grasses and spear grasses were the dominant native species	Yes - wallaby grasses and spear grasses were the dominant native species	Yes - wallaby grasses and spear grasses were the dominant native species

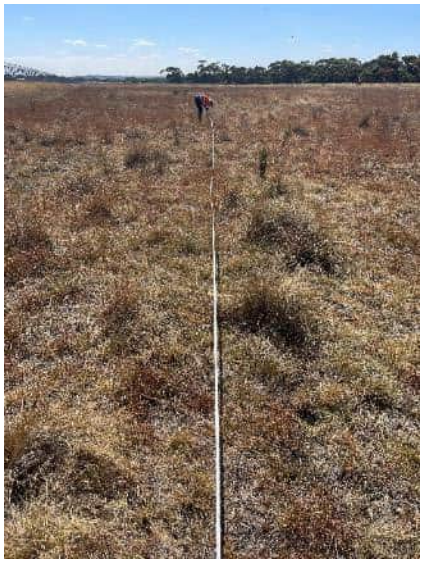
SCIENTIFIC DETERMINATION CRITERIA	AREA 1 TRANSECT 6	AREA 2 TRANSECT 5	AREA 3 TRANSECT 4	AREA 4 TRANSECT 1	AREA 5 N/A	AREA 6 TRANSECT 2	AREA 7 TRANSECT 3
The minimum size of the grassland patch and the maximum cover of woody vegetation depends on the native vegetation remnant within which the grassland patch occurs. For a native vegetation remnant ≤1 hectare in size, the minimum contiguous size of the grassland patch is 0.05 hectare and the crown cover of shrubs and trees over one metre tall within the grassland patch should not exceed 5%; For a native vegetation remnant >1 hectare in size, the minimum contiguous size of a grassland patch is 0.5 hectare and the density of mature trees within the grassland patch should not exceed 2 trees per hectare.	Yes Largest patch is 1.08 ha	Yes Largest patch is 1.79 ha	Yes Patch is 0.40 ha	No All patches are <0.05 ha	Yes Patch is 0.058 ha	No All patches are <0.05 ha	Yes Patch is 0.088 ha
Condition Thresholds							
The total perennial tussock cover represented by the native grass genera *Themeda*, *Rytiodosperma*, *Austrostipa* or *Poa* is at least 50%; or	No Total perennial native cover is 23%	Yes Total perennial native cover is 92%	No Total perennial native cover is 39%	Yes Total perennial native cover is 61%	Yes Total perennial native cover is >50%	No Total perennial native cover is 13%	Yes Total perennial native cover is 60%

SCIENTIFIC DETERMINATION CRITERIA	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
	TRANSECT 6	TRANSECT 5	TRANSECT 4	TRANSECT 1	N/A	TRANSECT 2	TRANSECT 3
If the total perennial tussock cover represented by the above 4 native grass genera is less than 50%, then the ground cover of native forbs (wildflowers) is at least 50% of total vegetation cover during spring-summer (September to February); and	N/A	N/A	N/A	N/A	N/A	N/A	N/A
The cover of non-grass weeds is less than 30% of total vegetation cover at any time of the year.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Summary							
Does the patch meet criteria for listed threatened community	No	Yes	No	Yes	Yes	No	Yes

Photo 4.2 Site photos

	
Photo A. T1 Start	Photo B. T1 End
	
Photo C. T2 Start	Photo D. T2 End

	
Photo E. T3 Start	Photo F. T3 End
	
Photo G. T4 Start	Photo H. T4 End

	
Photo I. T5 Start	Photo J. T5 End
	
Photo K. T6 Start	Photo L. T6 End

5. CONCLUDING REMARKS

The study area is moderately to highly modified from its pre-European condition, which would have been a diverse native grassland and possibly grey box grassy woodland based on historic modelling. Remaining patches are highly fragmented, subject to regular grazing, weed invasion following historic ground disturbance, and repeated slashing in airside locations.

Native vegetation. mostly mapped as Plains Grassland (EVC 125) covers an area of 3.98 ha with 1.82 ha determined as NTGVVP. There is also one small patch of Plains Grassy Wetland (EVC 125).

Based on the transect data, four areas where transects were undertaken were considered to meet the minimum cover of native vegetation to be considered part of the NTGVVP community. These patches also met the minimum size requirement. Although the patches met the criteria for inclusion as part of the community, the condition is highly modified. The patches consist of spear grasses and wallaby grasses, and a few herbs as detailed in A.1. The diversity of species is low but it is the coverage of perennial native grasses which define the TEC.

Yours sincerely,

[redacted]

[redacted]

[redacted]

Senior Ecologist

[redacted]

Principal Ecologist & Ecology Team Leader - Victoria

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ATTACHMENT A
FLORA SPECIES RECORDED ONSITE

A.1 FLORA LIST

STATUS	SCIENTIFIC NAME	COMMON NAME	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	FFG STATUS	CALP ACT
	Acacia implexa	Lightwood	X							P	
	Asperula conferta	Common Woodruff						X			
	Atriplex semibaccata	Berry Saltbush				X		X	X		
	Austrostipa bigeniculata	Kneed Spear-grass	X	X	X	X					
*	*Avena spp.*	Oat	X				X				
	Bothriochloa macra	Red-Leg Grass	X	X	X				X		
*	*Bromus catharticus*	Prairie Grass	X					X			
#	*Carex inversa*	Knob Sedge				X					
*	*Cenchrus clandestinus*	Kikuyu	X	X	X		X	X	X		
*	*Centaurium tenuiflorum*	Slender Centaury	X	X	X	X		X			
	Chloris truncata	Windmill Grass	X	X	X	X	X	X	X		
	Convolvulus angustissimus subsp.	Slender Bindweed			X						
*	*Cynara cardunculus subsp. flavescens*	Artichoke Thistle	X	X	X	X			X		C
*	*Cynodon dactylon*	Couch	X	X	X	X		X	X		
*	*Cyperus eragrostis*	Drain Flat-sedge	X	X		X		X	X		
*	*Dactylis glomerata*	Cocksfoot	X	X	X	X	X		X		
#	*Dichanthium sericeum subsp. sericeum*	Silky Blue-grass	X	X	X	X		X	X		

STATUS	SCIENTIFIC NAME	COMMON NAME	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	FFG STATUS	CALP ACT
*	*Echium plantagineum*	Paterson's Curse	X								C
	Eleocharis acuta	Common Spike-sedge									
*	*Eragrostis curvula*	African Love-grass	X	X			X	X			C
*	*Erigeron spp.*	Fleabane	X					X			
*	*Galenia pubescens var. pubescens*	Galenia	X	X	X		X	X	X		
*	*Helminthotheca echioides*	Ox-tongue	X	X	X	X	X	X			
	Juncus australis	Austral Rush				X					
	Lachnagrostis filiformis s.l.	Common Blown-grass		X				X			
*	*Leontodon saxatilis subsp. saxatilis*	Hairy Hawkbit					X				
	Lythrum hyssopifolia	Small Loosestrife						X			
*	*Nassella neesiana*	Chilean Needle-grass	X	X	X	X	X	X	X		R
*	*Nassella trichotoma*	Serrated Tussock	X	X	X	X		X	X		C
*	*Paspalum dilatatum*	Paspalum	X	X	X	X	X	X	X		
*	*Phalaris aquatica*	Toowoomba Canary-grass	X	X	X			X			
*	*Phalaris minor*	Lesser Canary-grass							X		
*	*Plantago coronopus*	Buck's-horn Plantain	X	X	X	X		X	X		
*	*Plantago lanceolata*	Ribwort	X	X	X	X	X	X	X		
*	*Rumex crispus*	Curled Dock	X	X	X			X	X		

STATUS	SCIENTIFIC NAME	COMMON NAME	AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7	FFG STATUS	CALP ACT
	Rytidosperma caespitosum	Common Wallaby-grass	X	X	X	X					
	Rytidosperma carphoides	Short Wallaby-grass						X			
	Rytidosperma duttonianum	Brown-back Wallaby-grass		X				X			
	Rytidosperma fulvum	Copper-awned Wallaby-grass			X	X	X	X	X		
	Rytidosperma setaceum	Bristly Wallaby-grass	X	X	X	X	X	X	X		
*	*Sporobolus africanus*	Rat-tail Grass					X	X			
	Themeda triandra	Kangaroo Grass				X					

Origin

* = Introduced, # = native but some strands may be alien

ATTACHMENT B
TRANSECT DATA

B.1 TRANSECT DATA

Transect: T1 **Site:** Area 4 **Date:** 15/02/2024 **Personnel:** NM, IM **Transect:**

Point (m)	Exotic annual grass	Exotic annual broadleaf	Exotic perennial broadleaf	Chilean Needlegrass	Other exotic perennial grass	Native perennial grass	Native perennial forb	Native annual forb	Native annual grass	Native perennial non-target spp	Litter/dead veg	Bare earth	Cryptogam	Rock	Other (if required)
1						1									
2						1									
3						1									
4											1				
5						1									
6			1												
7						1									
8											1				
9			1												
10					1										
11			1												
12											1				
13			1												
14			1												
15											1				
16						1									
17						1									
18						1									
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21						1									
22			1												
23			1												
24						1									
25											1				
26											1				
27			1												
28						1									
29						1									
30						1									
31											1				
32											1				
33						1									
34											1				
35											1				
36											1				

Transect:	**T1**	**Site:** Area 4		**Date:**	**15/02/2024**	**Personnel:**	**NM, IM**							**Transect:**
37						1								
38						1								
39						1								
40									1					
41					1									
42						1								
43						1								
44									1					
45			1											
46										1				
47			1											
48						1								
49			1											
50			1											
Totals	0	0	12	0	2	22	0	0	0	0	13	1	0	0	0

Transect:	**T2**	**Site:** Area 6			**Date:**	**15/02/2024**	**Personnel:**	**NM IM**						
Point (m)	**Exotic annual grass**	**Exotic annual broadleaf**	**Exotic perennial broadleaf**	**Chilean Needlegrass**	**Other exotic perennial grass**	**Native perennial grass**	**Native perennial forb**	**Native annual forb**	**Native annual grass**	**Native perennial non-target spp**	**Litter/dead veg**	**Bare earth**	**Cryptogam**	**Rock**	**Other (if required)**
1			1												
2															
3											1				
4															
5															
6															
7															
8															
9															
10															
11						1									
12															
13						1									
14			1												
15											1				
16					1										
17					1										
18			1												
19					1										
20					1										

Transect: **T2** **Site:** Area 6 **Date:** **15/02/2024** **Personnel:** **NM IM**

21					1								
22					1								
23					1								
24									1				
25					1								
26					1								
27					1								
28					1								
29			1										
30													
31									1				
32									1				
33					1								
34					1								
35					1								
36									1				
37						1							
38			1										
39					1								
40					1								
41						1							
42									1				
43					1								
44			1										
45					1								
46					1								
47									1				
48									1				
49									1				
50			1										
Totals	0	0	7	0	19	4	0	0	1	0	9	0	0	0	0

Transect: **T3** **Site: Area 7** **Date: 15/03/24** **Personnel:** **NM, IM**

Point (m)	Exotic annual grass	Exotic annual broadleaf	Exotic perennial broadleaf	Chilean Needlegrass	Other exotic perennial grass	Native perennial grass	Native perennial forb	Native annual forb	Native annual grass	Native perennial non-target spp	Litter/dead veg	Bare earth	Cryptogam	Rock	Other (if required)
1									1						
2						1									
3						1									

Transect: T3 **Site:** Area 7 **Date:** 15/03/24 **Personnel:** NM, IM

4						1							
5						1							
6										1			
7			1										
8						1							
9						1							
10						1							
11						1							
12						1							
13						1							
14						1							
15									1				
16			1										
17			1										
18									1				
19										1			
20			1										
21						1							
22						1							
23			1										
24									1				
25			1										
26									1				
27					1								
28					1								
29						1							
30						1							
31						1							
32					1								
33									1				
34			1										
35			1										
36			1										
37			1										
38			1										
39			1										
40			1										
41										1			
42						1							
43						1							
44						1							

Transect:	T3	Site: Area 7			Date: 15/03/24		Personnel:	NM, IM							
45						1									
46						1									
47						1									
48						1									
49									1						
50						1									
Totals	0	0	13	0	3	24	0	0	3	0	4	3	0	0	0

Transect:	T4	Site: Area 3			Date:	15/03/2024	Personnel:	IM NM							Transect:
Point (m)	**Exotic annual grass**	**Exotic annual broadleaf**	**Exotic perennial broadleaf**	**Chilean Needlegrass**	**Other exotic perennial grass**	**Native perennial grass**	**Native perennial forb**	**Native annual forb**	**Native annual grass**	**Native perennial non-target spp**	**Litter/dead veg**	**Bare earth**	**Cryptogam**	**Rock**	**Other (if required)**
1			1												
2										1					
3							1								
4							1								
5							1								
6			1												
7					1										
8										1					
9									1						
10										1					
11										1					
12			1												
13					1										
14						1						1			
15															
16			1												
17					1										
18						1									
19					1										
20						1									
21						1									
22					1										
23			1												
24												1			
25										1					
26						1									
27										1					

Transect:	T4	Site: Area 3		Date:	15/03/2024	Personnel:	IM NM						Transect:
28									1				
29		1											
30		1											
31		1											
32		1											
33						1							
34			1										
35		1											
36		1											
37										1			
38		1											
39		1											
40		1											
41		1											
42		1											
43		1											
44						1							
45		1											
46		1											
47										1			
48										1			
49		1											
50		1											
Totals	0	16	6	0	5	7	3	0	1	7	0	5	0	0	0

Transect:	T5	Site: Area 2			Date: 15/03/24		Personnel:	NM, IM						
Point (m)	**Exotic annual grass**	**Exotic annual broadleaf**	**Exotic perennial broadleaf**	**Chilean Needlegrass**	**Other exotic perennial grass**	**Native perennial grass**	**Native perennial forb**	**Native annual forb**	**Native annual grass**	**Native perennial non-target spp**	**Litter/dead veg**	**Bare earth**	**Cryptogam**	**Rock**	**Other (if required)**
1						1									
2										1					
3									1						
4										1					
5									1						
6												1			
7												1			
8						1									
9										1					
10						1									

Transect: T5 **Site:** Area 2 **Date:** 15/03/24 **Personnel:** NM, IM

11						1							
12						1							
13						1							
14									1				
15						1							
16									1				
17		1											
18										1			
19						1							
20									1				
21									1				
22									1				
23										1			
24										1			
25						1							
26						1							
27									1				
28									1				
29						1							
30						1							
31						1							
32						1							
33						1							
34						1							
35						1							
36									1				
37					1								
38						1							
39					1								
40						1							
41						1							
42						1							
43										1			
44									1				
45						1							
46						1							
47									1				
48						1							
49						1							
50						1							
Totals	0	1	0	0	2	26	0	0	9	6	0	6	0	0	0

Transect: T6 **Site:** Area 1 **Date:** 15/03/24 **Personnel:** NM, IM

Point (m)	Exotic annual grass	Exotic annual broadleaf	Exotic perennial broadleaf	Chilean Needlegrass	Other exotic perennial grass	Native perennial grass	Native perennial forb	Native annual forb	Native annual grass	Native perennial non-target spp	Litter/dead veg	Bare earth	Cryptogam	Rock	Other (if required)
1						1									
2					1										
3					1										
4					1										
5										1					
6						1									
7				1											
8					1										
9					1										
10					1										
11					1										
12											1				
13											1				
14				1											
15					1										
16						1									
17					1										
18					1										
19					1										
20						1									
21					1										
22									1						
23					1										
24					1										
25						1									
26					1										
27											1				
28						1									
29											1				
30					1										
31					1										
32					1										
33						1									
34		1													
35						1									
36											1				

Transect:	T6	Site: Area 1			Date: 15/03/24		Personnel:	NM, IM						
37									1					
38					1									
39					1									
40					1									
41					1									
42									1					
43					1									
44						1								
45					1									
46									1					
47					1									
48					1									
49					1									
50									1					
Totals	0	1	0	2	27	9	0	0	1	3	7	0	0	0	0

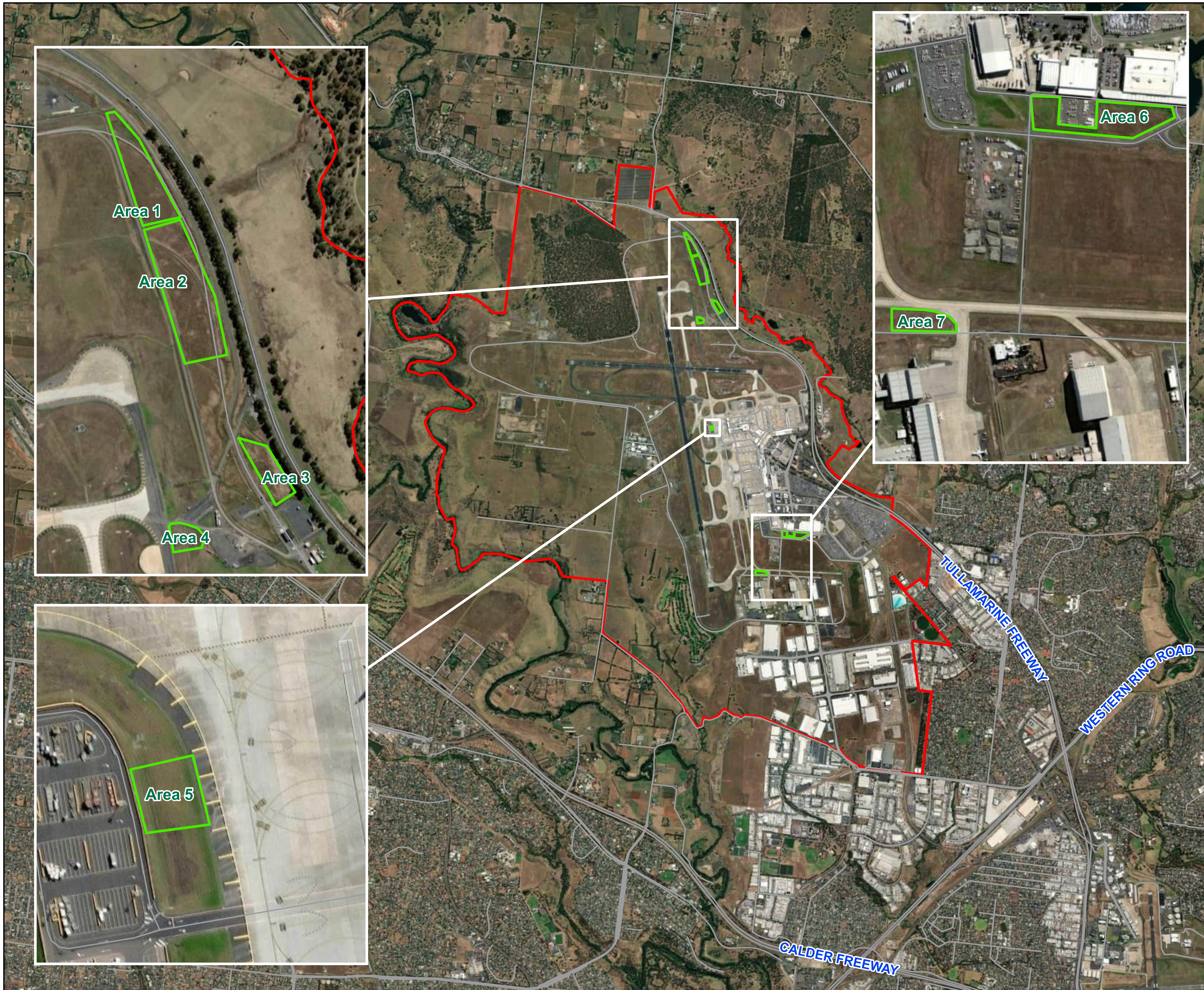
B.2 SUMMARY OF TRANSECT DATA

	Exotic annual grass	Exotic annual broadleaf	Exotic perennial broadleaf	Chilean Needlegrass	Other exotic perennial grass	Native perennial grass	Native perennial forb	Native annual forb	Native annual grass	Native perennial non-target spp	Litter/dead veg	Bare earth	Cryptogam	Rock	Other (if required)	Total all	Total native	Total veg	Total perennial	Total perennial tussock	Native % of all veg	Native % of total ground layer	Native tussock % of perennial tussock	EPBC TEC
T1	0	0	12	0	2	22	0	0	0	0	13	1	0	0	0	50	22	36	36	36	61.11111	44	61.11111	NTGVVP
T2	0	0	7	0	19	4	0	0	1	0	9	0	0	0	0	50	4	30	30	30	13.33333	8	13.33333	Not NTGVVP
T3	0	0	13	0	3	24	0	0	3	0	4	3	0	0	0	50	24	40	40	40	60	48	60	NTGVVP
T4	0	16	6	0	5	7	3	0	1	7	0	5	0	0	0	50	10	37	21	18	27.02703	20	38.88889	Not NTGVVP
T5	0	1	0	0	2	26	0	0	9	6	0	6	0	0	0	50	26	29	28	28	89.65517	52	92.85714	NTGVVP
T6	0	1	0	2	27	9	0	0	1	3	7	0	0	0	0	50	9	39	38	38	23.07692	18	23.68421	Not NTGVVP

ATTACHMENT C
MAPS

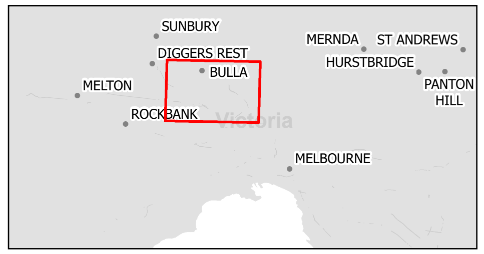
PS211316 NTGVVP SURVEYS

Figure 1
Study Area



Legend

- Melbourne Airport Boundary
- Study Areas
- Road



0 1,000 2,000
Meters

Coordinate system: GDA2020 MGA Zone 55
Scale ratio correct when printed at A3

1:45,000 Date: 28/03/2024

Data sources: DELWP, Geoscience Australia
World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

wsp

PS211316 NTGVVP SURVEYS

Figure 2
Previous Vegetation Mapping
(Area 1 to 4)

Legend

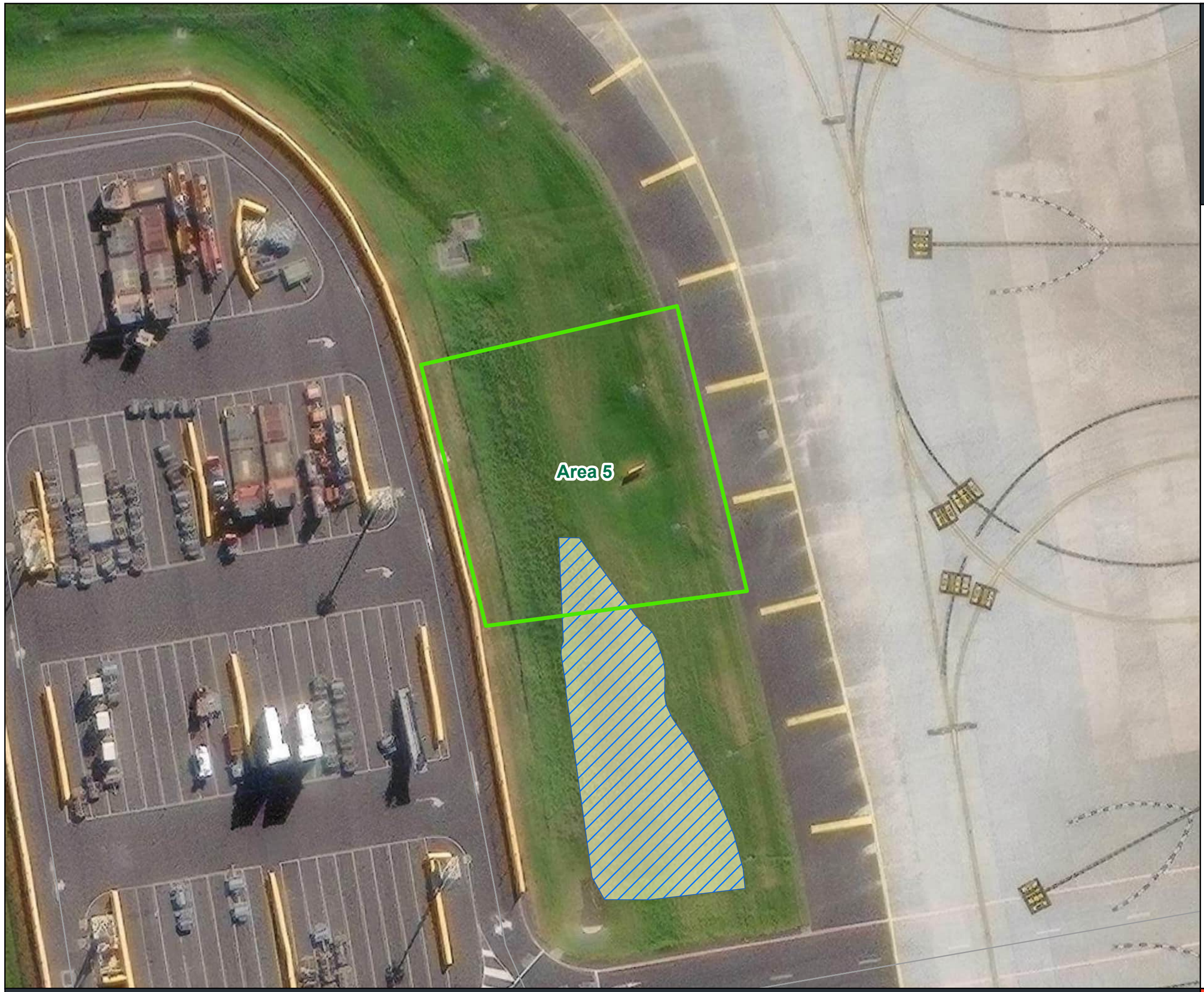
- Melbourne Airport Boundary
- Study Areas
- Previously Mapped EVC
- Previously Mapped NTGVVP
- Road

Coordinate system: GDA2020 MGA Zone 55
Scale ratio correct when printed at A3

1:4,500 Date: 28/03/2024

GDA 2020

Data sources: DELWP, Geoscience Australia
World Imagery: Maxar



wsp

PS211316 NTGVVP SURVEYS

Figure 2
Previous Vegetation Mapping
(Area 1 to 4)

Legend

- Melbourne Airport Boundary
- Study Areas
- Previously Mapped EVC
- Previously Mapped NTGVVP
- Road

0 10 20
Meters

Coordinate system: GDA2020 MGA Zone 55
Scale ratio correct when printed at A3

1:483 Date: 28/03/2024

GDA 2020

Data sources: DELWP, Geoscience Australia
World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

wsp

PS211316 NTGVVP SURVEYS

Figure 2
Previous Vegetation Mapping
(Area 1 to 4)

Legend

- Melbourne Airport Boundary
- Study Areas
- Previously Mapped EVC
- Previously Mapped NTGVVP
- Road

Coordinate system: GDA2020 MGA Zone 55
Scale ratio correct when printed at A3

1:2,500 Date: 28/03/2024

GDA 2020

Data sources: DELWP, Geoscience Australia
World Imagery: Maxar

PS211316 NTGVVP SURVEYS

Figure 3a
Updated Vegetation Mapping

(Areas 1 to 4)

Legend

- Melbourne Airport Boundary
- Study Areas
- Field Transacts
- Road

Updated Vegetation Mapping (March 2024)

- NTGVVP
- Plains Grassland
- Plains Grassy Wetland
- African Lovegrass Patch

0 110 220
Meters

Coordinate system: GDA2020 MGA Zone 55
Scale ratio correct when printed at A3

1:4,500 Date: 9/04/2024

GDA 2020

Data sources: DELWP, Geoscience Australia
World Imagery: Maxar

PS211316 NTGVVP SURVEYS

Figure 3b
Updated Vegetation Mapping

(Area 5)

Legend

- Melbourne Airport Boundary
- Study Areas
- Field Transacts
- Road

Updated Vegetation Mapping (March 2024)

- NTGVVP
- African lovegrass Eragrostis Curvula
- Plains Grassland
- African Lovegrass Patch

0 10 20
Meters

Coordinate system: GDA2020 MGA Zone 55
Scale ratio correct when printed at A3

1:483 Date: 9/04/2024

GDA 2020

Data sources: DELWP, Geoscience Australia
World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

PS211316 NTGVVP SURVEYS

Figure 3c
Updated Vegetation Mapping

(Areas 6 and 7)

Legend

- Melbourne Airport Boundary
- Study Areas
- Field Transacts
- Road

Updated Vegetation Mapping (March 2024)

- NTGVVP
- Plains Grassland
- African Lovegrass Patch

Coordinate system: GDA2020 MGA Zone 55
Scale ratio correct when printed at A3

1:2,500 Date: 9/04/2024

GDA 2020

Data sources: DELWP, Geoscience Australia
World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community