14 August 2024

[redacted]

Via email: [redacted]

Dear [redacted]

Re: Beveridge Intermodal Precinct – Stage 1A – Victorian Grassland Earless Dragon *Tympanocryptis pinguicolla* habitat assessment
Our ref: 39673

We are writing to provide you with further information following the recent habitat assessment that was undertaken to determine the potential presence of the Critically Endangered Victorian Grassland Earless Dragon *Tympanocryptis pinguicolla* (VGED) within the area proposed to be impacted by the Beveridge Intermodal Precinct Stage 1A project (EPBC 2023/09693).

A Controlled Action decision was made under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 4 June 2024 concluding that the project was likely to have a significant impact on VGED and that the proposed action will be assessed by preliminary documentation.

Advice from the assessing officer [redacted] at the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW), confirmed that the assessment of VGED under Part 9 of the EPBC Act would be limited to those areas not previously approved under the Melbourne Strategic Assessment (MSA). As such, the following letter relates to those areas with potential to be impacted within the Herne Swamp buffer that was excluded from the MSA approval.

It is anticipated that the habitat assessment and the following letter of advice will inform the preliminary documentation assessment process.

Species background

The VGED had been presumed extinct in Victoria, with the last confirmed sighting in 1969, prior to the species being rediscovered west of Melbourne in early 2023. Since the rediscovery of the species it has been listed as Critically Endangered under the EPBC Act and the Commonwealth and Victorian Governments have been working with species experts to confirm the best approach to the ongoing conservation of the

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species. At this stage, any guidance regarding the assessment requirements for potential habitat and significant impacts are still in their infancy.

The Conservation Advice confirms that prior to the development of greater Melbourne that heavily impacted the species, the VGED was common on the plains near Sunbury and around the Melbourne CBD, with additional validated records from Sunbury, Maribyrnong River, the mouth of the Yarra River and Coode Island, Essendon, Moonee Ponds and Prahran.

Review of the DEECA NatureKit tool confirms that only one record has been documented within the vicinity of the Study Area, which occurs approximately 4 kilometres south of the southern boundary of the Beveridge Intermodal Precinct site on Merri Creek. While this sighting is documented in the Victorian Biodiversity Atlas as having an 'acceptable' reliability, the Conservation Advice for VGED states that this and four other records remain unvalidated, despite intensive survey effort immediately following the sightings and during subsequent years (DCCEEW 2023a). The next closest sightings include another unconfirmed sighting from Sunbury in 1990 and an 1884 record from Essendon.

At the time of lodgment of the EPBC Referral the modelled distribution for the species extended to Sunbury in Melbourne's west and as such although the species was considered in Biosis' flora and fauna assessment (Biosis 2023), it was concluded to have a low likelihood of occurrence in the Study Area due to its distance from the mapped distribution and a lack of records in the area.

However, in February 2024 the modelled distribution of 'species or species habitat known or likely to occur' for VGED was expanded significantly eastward (DCCEEW, 2024) and the Study Area (Figure 1) is now included in the outer reaches of the modelled distribution polygon.

VGED habitat values

The Conservation Advice (DCCEEW 2023a) and Draft National Recovery Plan (DCCEEW 2023b) outline that grasslands with the greatest likelihood of containing a remnant VGED population are likely to have:

- Native vegetation cover with open patches of bare earth and/or naturally short open swards due to low-level disturbance (e.g. managed fire, grazing);
- Presence of suitable refugia, particularly invertebrate burrows, surface rock cover and/or soil cracks;
- A functioning invertebrate community to provide appropriate prey, as well as invertebrates that engineer burrows for refuge, particularly araneae (spiders), coleoptera (beetles) and orthoptera (grasshoppers and crickets) order fauna;
- Minimal weed cover;
- Not been de-rocked, ploughed or fertilized to improve pasture quality.

The habitat assessment of the study area considered these documented habitat requirements.

Habitat assessment

Method

To assess and document the habitat within the study area in relation to the key VGED habitat values summarised above and within the Conservation Advice, a site-based qualitative habitat assessment was

undertaken on Friday 14 June 2024 by two experienced ecologists, including a Senior Zoologist [redacted]) and a Senior Botanist ([redacted]). The assessment focused on the area located within the Herne Swamp and associated buffer, which is excluded from the MSA approval area (study area). The ecologists spent one full day undertaking an on foot survey of the proposed footprint and adjacent areas surrounding the proposed footprint and the ARTC rail corridor (Figure 2).

Location and extent of habitat features relevant to VGED were assessed and noted during the site assessment, in particular habitat structure, floristics, biomass levels, land management, previous evidence of disturbance, invertebrate burrows, soil cracks and broader site context. Habitat features were described in a qualitative manner as there are currently no standard quantitative habitat assessment guidelines for the species. Geo-referenced note points and photographs were recorded using hand-held GPS-enabled tablets.

Appendix 1 contains further details regarding the habitat categories and guidance utilised by Biosis in defining habitat suitability for VGED, and how these inform our assessment of the likelihood of the species occurring within the study area. This qualitative habitat assessment guide has been developed using information provided in the Conservation Advice (DCCEEW 2023a) and Draft National Recovery Plan (DCCEEW 2023b) for VGED.

Findings

The features and habitat values documented within the study area during the habitat assessment were found to largely be influenced by topography, hydrology and land use. The low-lying areas within or adjacent to Herne Swamp were either inundated or had been recently inundated, which was evidenced by the presence of standing water or from heavily pugged black soils and the presence of flora species associated with wetlands (e.g. Plains Rush *Juncus semisolidus*, Water Plantain *Alisma Plantago-aquatica* and Swamp Billy-buttons *Craspedia paludicola*). These areas are considered to have a negligible likelihood of supporting VGED. Similarly, the vegetation within the existing rail corridor consisted of extremely high biomass levels dominated by Common Reed *Phragmites australis* and Toowoomba Canary-grass *Phalaris aquatica* and was therefore assessed as having a negligible likelihood of supporting VGED. Areas supporting a high biomass of exotic grasses, such as areas of Toowoomba Canary-grass and Common Reed found dominating the rail corridor, significantly alter grassland structure and function, smothering native species and reducing sunlight reaching the soil surface (Williams et al. 2015). Dense swards are typically sub-optimal for grassland fauna species that utilise bare ground for movement, foraging and basking (Williams et al. 2015) and this is believed to be the case for VGED, which are believed to be associated with more open and diverse grassland structure (DCCEEW 2023a; 2023b).

To the south and east of the Herne Swamp extent, the Stage 1A footprint and surrounds consists of slightly higher elevation grassy habitat that supports isolated stony rises and grassland habitat dominated by introduced vegetation. These areas are heavily grazed by cattle and pugging is evident, with no cracks or invertebrate burrows observed. The stony rises support a very high cover of embedded rock and scattered native grassland vegetation, however evidence of significant disturbance from rabbits, cattle grazing and weeds was observed. No soil cracks or invertebrate burrows were observed. Relatively, the stony rises represent the best potential VGED habitat within the vicinity of the Stage 1A footprint, however they lack soil cracks and/or invertebrate burrows and exist as relatively small, isolated occurrences within a broader extent of habitat that has been assessed as having negligible to low likelihood of supporting VGED, and for this reason they have also been assessed as having a low likelihood.

No soil cracks or invertebrate burrows were recorded during the site assessment that could provide shelter opportunities to VGED. Opportunistic active searching was undertaken to locate burrow-forming

invertebrates of the Araneae, Coleoptera and Orthoptera orders. No burrowing invertebrates were recorded. While survey coverage, vegetation cover and season may affect the detection of these features, the results of the assessment indicate that burrows and soil cracks are unlikely to occur at sufficient densities to support a population of VGED within the study area.

Table 1 contains a summary of the different habitat types occurring within the study area, along with representative photos. These areas are mapped in Figure 3.

Table 1 Summary of habitat types occurring within, and in the vicinity of, the Stage 1A footprint.

Habitat type	Description (see also Figure 3)	Representative photo
Existing rail corridor	The existing rail corridor within, and in the vicinity of, the proposed Stage 1A footprint is dominated by tall and dense swards dominated by Common Reed and Toowoomba Canary-grass. These areas were viewed from the adjacent paddock, as access within the rail corridor itself was not permitted. It is noted that the entirety of the rail corridor impact footprint was previously surveyed by Biosis in November 2023 and the vegetation observed throughout the corridor was as described above. Biomass levels are extremely high and for this reason these areas are considered to have a **negligible** likelihood of supporting VGED.	
Herne Swamp and adjacent water-logged and inundated areas (shown as current wetland and swamp on Figure 3)	Herne Swamp is a large DELWP wetland that occurs to the west of Merri Creek and forms a significant part of the Merri Creek Catchment. Its former extent has been substantially reduced. At the time of assessment, these areas were inundated and dominated by Common Tussock-grass *Poa labillardierei,* Poong'ort *Carex tereticaulis,* Knob Sedge *Carex inversa*, Brown-back Wallaby Grass *Rytidosperma duttonianum* and Spike Rush *Eleocharis acuta* Two farm dams and an east-west drainage channel have been cut into the extent of Herne Swamp at this location, affecting the hydrology of the site. The floristics, soil moisture and extensive areas of standing water suggest that this broad area is subject to significant and extensive seasonal inundation.	

Habitat type	Description (see also Figure 3)	Representative photo
	Likelihood of VGED occurrence is considered **negligible** due to inundation and/or water-logged soils, soil disturbance from cattle grazing, dense wetland-associated vegetation and absence of soil cracks or invertebrate burrow refugia.	
Low-lying areas prone to inundation	These areas did not support standing water at the time of assessment, however they are at a relatively low elevation and comprised of black soils that showed evidence of deep pugging from cattle grazing, indicating that they were once inundated or saturated. The presence of wetland-associated plants such as *Juncus* spp. also indicate that these areas are seasonally inundated, and form part of the broader Herne Swamp system. Vegetation is dense and largely dominated by introduced species. No VGED refugia (soil cracks/invertebrate burrows) were recorded. Likelihood of VGED occurrence is considered **negligible** due to evidence of seasonal inundation, soil disturbance from cattle grazing, weeds and lack of refuge.	

Habitat type	Description (see also Figure 3)	Representative photo
Higher elevation grassy habitat	These areas occur within the proposed Stage 1A footprint to the south of the current Herne Swamp mapped extent, where the land gains elevation. These areas are therefore less prone to seasonal inundation. Some scattered embedded rock is present, with no clear evidence of rock removal observed (e.g. no rock piles or rock walls present). Soil disturbance is evident in the form of cattle grazing, pugging and soil compaction. Vegetation is dominated by introduced pasture species and weeds such as Toowoomba Canary-grass, Couch *Cynodon dactylon* subsp. *dactylon* and Brown-top Bent *Agrostis capillaris*. No soil cracks or invertebrate burrows were observed, indicating very low density of this important habitat feature. Soils were dark brown in colour. An existing pipeline easement is located to the east of the proposed footprint. The likelihood of VGED occurrence is considered to be **low** due to dominance of weedy pasture grasses, soil disturbance from cattle grazing and lack of soil cracks and invertebrate burrows.	

Habitat type	Description (see also Figure 3)	Representative photo
Stony knolls	Several stony knolls occur around the edge of Herne Swamp. The stony knolls present were found to support a very high cover of embedded rock, though very little surface rock was noted. Scattered occurrences of native grasses and herbs were found to be present in these areas, including Kangaroo Grass *Themeda triandra* and Weeping Grass *Microlaena stipoides* var. *stipoides*. Disturbance as a result of cattle grazing and rabbit activity was noted, and no soil cracks or invertebrate burrows were recorded. Compared to other habitat types within the study area, the stony knolls represent relatively higher habitat value for VGED due to rock cover, structure and floristics, however they exist as small, isolated occurrences in areas assessed as otherwise unlikely to support VGED. The likelihood of VGED occurrence is considered to be **low** due to small size and isolation within the broader site context, as well as lack of soil cracks, invertebrate burrows or loose surface rock.	

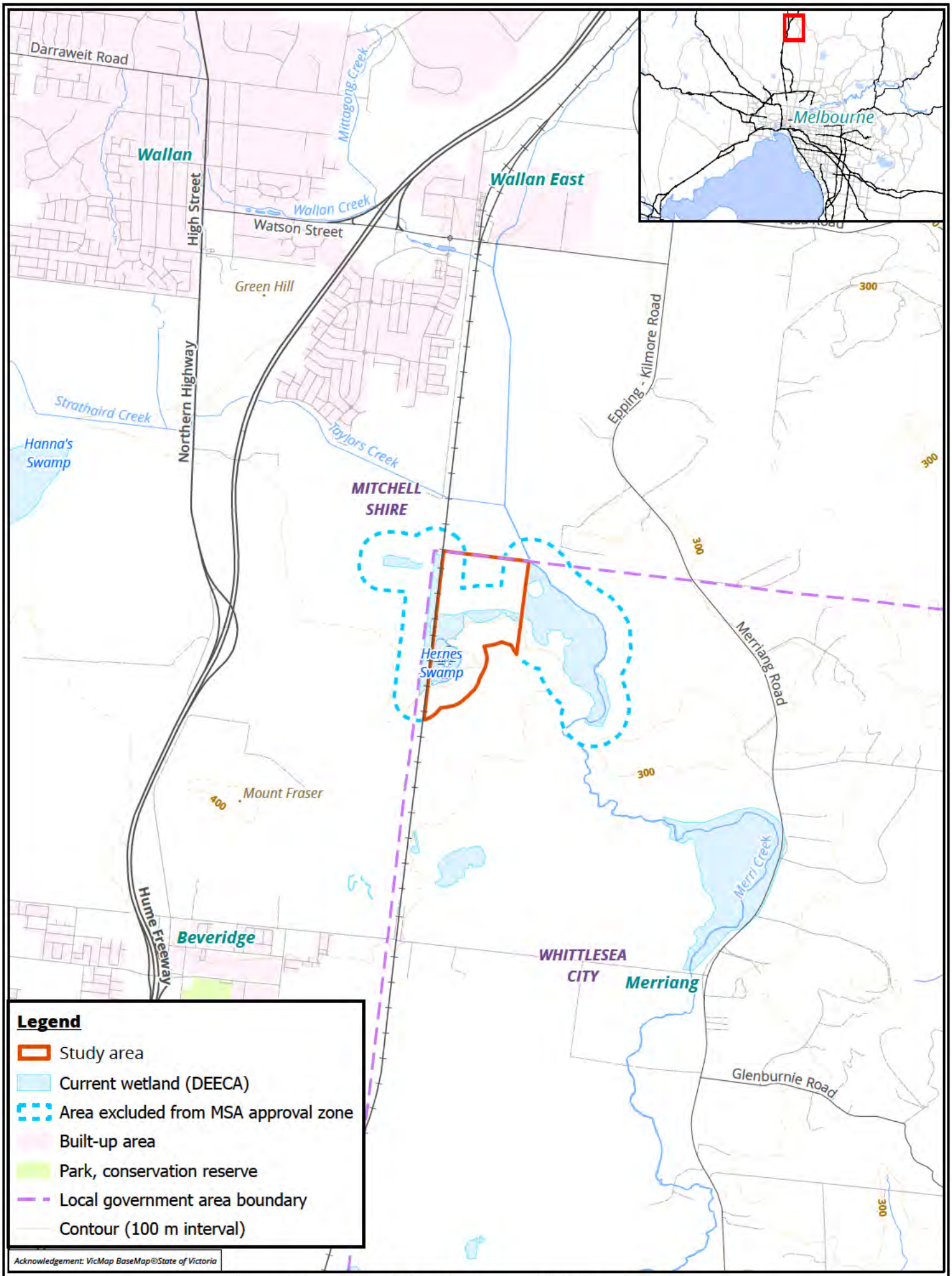

Figure 1 Location of the study area - 2025 Merriang Road, Beveridge, Victoria

Matter: 39673,
Date: 12 August 2024,
Prepared for: SAH, Prepared by: SP, Last edited by: smitchell
Layout: 39673_F1_Location
Project: P:\39600s\39673\Mapping\39673_EPBC_Ref_1A.aprx

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South Station Street

Epping - Kilmore Road

North Eastern

Legend

Study area

EPBC 2023/09693 assessment area

Impact area

Stage 1A boundary

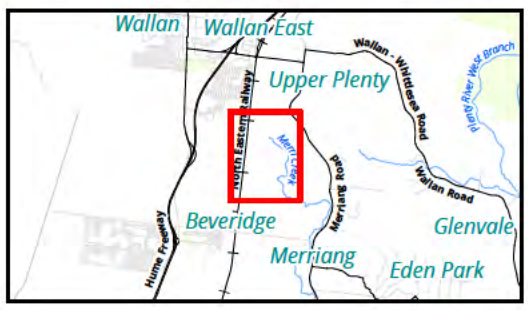

Figure 2 Assessment area

0 50 100 150 200

Metres

Scale 1:8,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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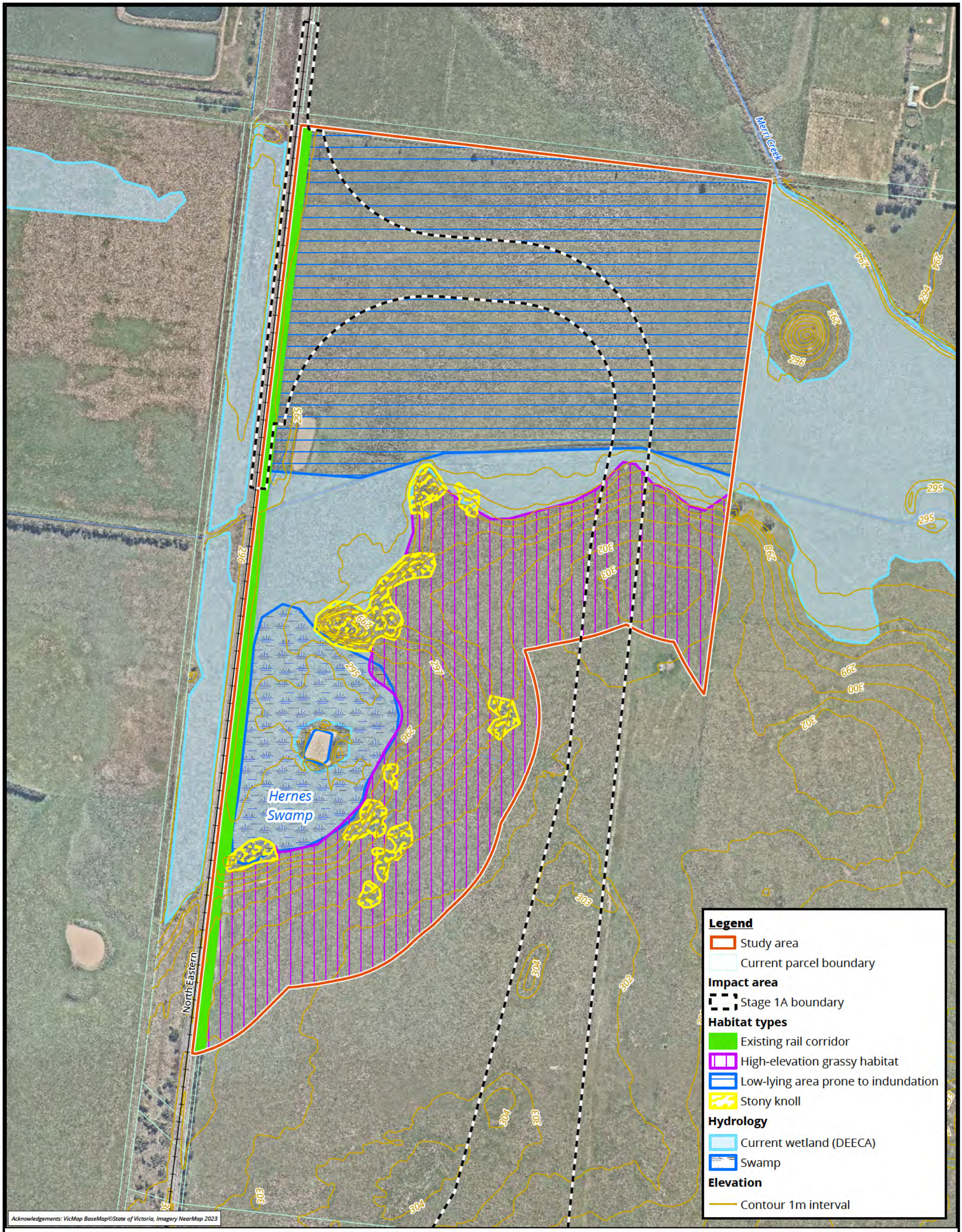
Matter: 39673,
Date: 14 August 2024,
Prepared for: SAH, Prepared by: SP, Last edited by: smitchell
Layout: 39673_F2_AssessmentArea
Project: P:\39600s\39673\Mapping\
39673_EPBC_Ref_1A.aprx



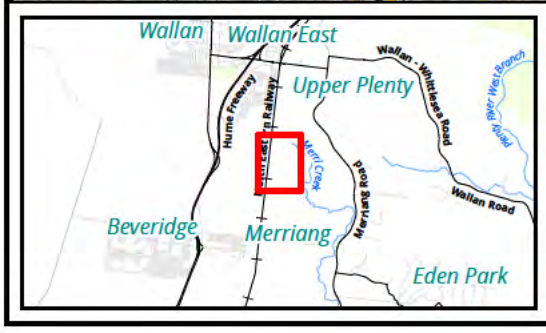


Figure 3 Habitat types in the study area

0 50 100 150 200

Metres

Scale 1:5,000 @ A3

Coordinate System: GDA2020 MGA Zone 55

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biosis

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Matter: 39673,
Date: 14 August 2024,
Prepared for: SAH, Prepared by: SP, Last edited by: smitchell
Layout: 39673_F3_habitat
Project: P:\39600s\39673\Mapping\
39673_EPBC_Ref_1A.aprx

Summary of habitat assessment

The field-based habitat assessment has confirmed our previous advice that the area of the Stage 1A footprint excluded from the MSA or the surrounding environment is unlikely to support VGED. The study area occurs at the edge of the VGED habitat distribution, with no confirmed records of the species within the broader area.

As detailed in this assessment, the lower elevation areas associated with Herne Swamp and the high biomass within the existing rail corridor are considered to have no capacity to support the species. Higher elevation grassy areas are also considered to have a low likelihood of supporting the species due to dominance of weedy pasture grasses, soil disturbance from cattle grazing and lack of soil cracks and invertebrate burrows. Small, isolated stony rises have a low likelihood of supporting the species due to site context and the absence of key habitat features such as soil cracks and/or invertebrate burrows. It is further noted that no stony rises in the area excluded from the MSA are within the Stage 1A footprint.

Based on the site assessment undertaken and the above assessment of negligible to low likelihood of occurrence, targeted surveys are not recommended for the study area.

We trust the above will assist in your understanding of the species in relation to the Stage 1A project. Please contact me if you have any queries.

[redacted]

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Appendices

Appendix 1

Table A1.1 Categories and guidance used for defining habitat suitability for Victorian Grassland Earless Dragon

VGED Habitat suitability category	Description	Likelihood of occurrence
Unsuitable	Areas that are clearly unsuitable as habitat for VGED as they do not support grassland habitat. • Paddocks currently subject to intensive ploughing and cropping. • Dams, wetlands, waterways, and extensive areas prone to periods of inundation. • Roads, buildings, and other permanent infrastructure. • Areas with high tree cover that do not support grasslands, including remnant woodlands, windbreaks, plantations, and orchards.	Negligible
Negligible	Grassy habitat that is unlikely to support VGED due to significant previous disturbance and absence of key habitat attributes as described in DCCEEW (2023a) and (2023b). • Evidence of historical mechanical soil disturbance such as ploughing, grading and/or cropping. • Evidence of ongoing disturbance from agricultural land use, such as stock tracks, vehicle tracks, stock pugging or soil compaction. • High cover of tall or dense exotic grass or weeds, such Toowoomba Canary-grass *Phalaris aquatica* and/or Serrated Tussock *Nassella trichotoma* • Negligible areas of bare ground and/or surface rock between grass tussocks. • High cover of shrubs or scattered trees, which shade grasslands and provide perches for predatory birds. • Negligible rock coverage, including evidence of de-rocking.	Negligible
Low	Areas of grassland that lack key habitat attributes as described in DCCEEW (2023a) and (2023b) and/or are significantly fragmented or degraded. This can include small patches which would be unlikely to support VGED due to their size, context and fragmentation. • Consistently high biomass (density and height of vegetation). • High weed cover, and/or low proportion of native vegetation. • Minimal areas of bare ground and/or surface rock between grass tussocks. • Areas has been subject to rock removal, may still contain low coverage of embedded rock, surface rock mostly absent. • Soil cracks and spider burrows absent, or very low numbers. • Relatively small and disconnected from larger areas that support medium or higher quality habitat.	Low

VGED Habitat suitability category	Description	Likelihood of occurrence
Medium	Areas of mostly natural grassland that contain all or most of the key habitat attributes described in DCCEEW (2023a) and (2023b), but do not occur in the vicinity or adjacent to the known location of a population (i.e. either the rediscovery site or any additional species detections since rediscovery). Key features might include: • Moderate proportion of native grassland vegetation. Any weeds present are not significantly altering the habitat structure. • Low to moderate biomass and areas of bare ground and/or surface rock between grass tussocks. • No significant rock removal. Some surface and embedded rock present. • Spider burrows and/or cracking soil present. • Diverse invertebrate community present.	Medium. Further assessment required.
High	Areas of natural grassland that have a high likelihood of supporting VGED by containing all identified key habitat attributes as described in DCCEEW (2023a) and (2023b) and occurring within the vicinity or adjacent to the known location of a population (i.e. either the rediscovery site or any additional species detections since rediscovery). Key features: • Native grassland with a diverse structure, supporting low biomass and areas of bare ground and/or surface rock. • Consistent long-term land management, no history of mechanical soil disturbance or rock removal. • Spider burrows and/or cracking soil present. • Diverse invertebrate community present. • Good landscape connectivity and proximity to known population/s.	High. Further assessment required.