**APPENDIX G** Wetland Assessment

### MEMORANDUM

# Bioresearches 🖘

1 October 2024

67045

A Babbage Company

Date:

Job No:

TO:WSPATTENTION:Melanya KingFROM:Treffery Barnett, Bioresearches

#### **BRYNDERWYN HILLS – WETLAND**

Bioresearches carried out an assessment of a wetland to inform the WSP Ecological Impact Assessment for the State Highway 1 improvements over the Brynderwyn Hills.

The wetland was part of a stream – wetland complex located in the base of a gully recently harvested for pine, designated site B1 (Figure 1).



Figure 1. Location of Site B1 (red circle) on the Brynderwyn Hills

The extent of wetland in 'B1 Upstream' Gully 2 was delineated on 21 December 2023, by a Senior Freshwater Ecologist, immediately prior to works commencing.

The wetland was delineated in accordance with the Ministry for the Environment's (MfE) wetland delineation protocols (MfE, 2020), primarily based on vegetation assessments and wetland hydrology to determine whether areas met the definition of a 'natural inland wetland' under the RMA and the National Policy Statement for Freshwater Management 2020 (NPS-FM).



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## Bioresearches

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The wetland formed a mosaic covering 95m<sup>2</sup> in area. The vegetation was dominated by early successional species, that had grown on the clay slip debris that had settled on the base of the gully after the pines were harvested. A stream with several braids had developed in the slip material and wetland vegetation was present either side of the stream and in the base of the gully just prior to where the water flowed into a large vertical manhole before flowing in a culvert under State Highway 1 (Figure 2).



Figure 2. Gully B1 Wetland Mozaic

The extent, values and general parameters of the wetland are presented in Table 1 with a summary presented as Table 2 The wetland plot data are presented as Appendix 1.

Parameter	Wetland 1
Total Size (m <sup>2</sup> )	95
Area of wetland to be	95
lost (m²)	
Percent of wetland to	100%
be lost (%)	
Hydrosystem	Palustrine
Hydrosystem	Palustrine

Table 1. Gully B1 wetland parameters





Wetland class	Seepage
Johnson & Gerbeaux	This is largely an induced wetland on slip surfaces with a cover of herbaceous plants, sedges
structural class	and rushes.
Area of primary	95
vegetation type (m <sup>2</sup> )	
Dominant wetland	Dominated by early colonising species found in disturbed areas: grass-leaved rush, Juncus
vegetation	planifolius (FACW); Isolepis prolifera (OBL); toad rush, Juncus bufonius (FACW); Isolepis
	sepulcralis (FAC); jointed rush, Juncus articulatus (FACW).
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Riparian buffer type,	Consists of recently harvested pine forest, with occasional native shrubs closer to SH1. No
extent and condition	buffering to the wetland in terms of shading or minimisation of edge effects (e.g., exposure to wind, temperature fluctuations).
Pest animal	None currently being undertaken, so presumed high pest animal burden.
Ecological Values	<i>Representativenessi</i> : <b>Very Low</b> . The wetland is largely induced by human activities. Due to
	<ul> <li>lack of connectivity and constant disturbance, the wetland lacks the flora and fauna characteristics of a robust wetland. The wetland appears to be intermittently saturated, and would have likely been very dry in summer months. The wetland buffer was highly disturbed.</li> <li><i>Rarity distinctiveness</i>: Very Low. The wetland is a mosaic totalling 95m<sup>2</sup>, and is a miniscule proportion of the wetlands in the ecological district. There are extensive areas of seepage wetlands in the landscape as evidence by the numerous seepage wetlands located at the base of the Brynderwyn Hills. No Threatened or At-Risk flora or fauna species were identified within the wetland. There was insufficient water within the wetland to support native fish.</li> <li><i>Diversity &amp; Pattern</i>: Very Low. The wetland has one dominant vegetation tier and a small species diversity, largely comprised of early colonising species of disturbed ground. The wetland also is very small and linear, which leaves it vulnerable to edge effects such as light, temperature, noise and wind.</li> <li><i>Ecological Context</i>: Low. The wetland is isolated by the gully and the SH1. The vegetation type was uniform throughout the wetland, with a low diversity of flora present, and a single herbaceous vegetation tier, with no trees or other structural tiers present. The wetland has no effective riparian buffer, and there is no buffering from edge effects.</li> </ul>





	<i>Potential:</i> <b>Low.</b> The wetland is comprised of small patches of herbaceous vegetation located within a gully head of a commercial forest, and is subject to regular commercial harvesting activities. There is no intention of protecting the habitat and it is likely that once the trees are re-established that the wetland and narrow intermittent stream will largely dry out.
Overall Ecological	Very Low
Value (as assigned in	
accordance with	
Table 6 in the EIANZ	
Guidelines (Roper	
Lindsay et al., 2018)	

#### Table 2. B1 Upstream wetland extent and values

Site	Ecological value	Ecological potential	Magnitude of impact	Level of impact
B1 Wetland	Very Low	Low	Very high	Low

Yours sincerely,

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## Appendix 1 – Wetland Plot Data

			PLOT DA	TA						
	Species Code	Scientific Name	Common Name	Biostatus	Wetland Rating	Pasture	Coverage (%)	Height (m)	Dominant Species (write	Past spec
									'Yes')*	e (9
	ISOsep	Isolepis sepulcralis	-	Exotic	FAC	No	50		Yes	
	JUNpla	Juncus planifolius	-	Non-Endemic	FACW	No	10			
	JUNbuf	Juncus bufonius	Toad rush	Exotic	FACW	No	5			
	LOTped	Lotus pedunculatus	Lotus	Exotic	FAC	Yes	5			
	ANAarv	Anagallis arvensis	Scarlet pimernel	Exotic	FACU	No	1			
	SCHdig	Schefflera digitata	Patē	Endemic	FACU	No	5			
	ISOpro	Isolepis prolifera	-	Non-Endemic	OBL	No	20		yes	
roundcover/Herh stratum										
	<u> </u>									
						-				
				В	are Ground	i				
roundcover/Herb stratum				Percent	plant cover	r	96	1		
					Total cover	r	96	1		
	Subcanopy Ground cover	50% cover is anything over: 20% cover is anything over: 50% cover is anything over: 20% cover is anything over:	0 0 48 19.2							
			NES-F PLOT CALC	ULATIONS						
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A (Number of dominar	nt species that ar	e FAC, FACW or OBL)	2	1	<u> </u>		is considere	ed hydrophyti	c)."	
B (Total nun	entage of dominant	species)	100	1	、		Test Wet?			Wetl
Dere	childee of dominian	6	100			Wentworth et	t al. (1988) caution	ned that vege	tation alone	was n
Perc				1	N					
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