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CRANBOURNE EAST

Native Vegetation Precinct Plan (NVPP): Background Report

Submitted to:
Growth Areas Authority (GAA)
Level 6, 35 Spring Street
Melbourne, Victoria 3000

REPORT

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1.0 INTRODUCTION

The Growth Areas Authority (GAA) commissioned Golder Associates Pty Ltd (Golder) to finalise the Native Vegetation Precinct Plan (NVPP) background technical report for Cranbourne East.

The Cranbourne East Precinct covers approximately 662ha (Appendix C). The Precinct Structure Plan (PSP) area is bounded in part by the Urban Growth Boundary (UGB) to the north, Berwick-Cranbourne/Clyde Fiveways Road to the east, and the South Gippsland Highway to the south west. Berwick-Cranbourne Road, which runs east-west, effectively divides the growth area into two distinct development areas.

This report provides background to the Cranbourne East Native Vegetation Precinct Plan and the Schedule to the proposed Environmental Significance Overlay.

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3.0 NATIVE VEGETATION – CONTEXT

3.1 Flora

3.1.1 Ecological Vegetation Classes (EVC) mapping

Extant EVC modelling identifies no remnant patch vegetation within the Precinct, however field surveys undertaken by Golder Associates (2007) identify several small patches of EVC 48 Heathy Woodland, EVC 175 Grassy Woodland and EVC 53 Swamp Scrub within the Precinct. Of the three extant EVCs occurring within the Precinct, EVC 48 Heathy Woodland has a conservation status of Least Concern within the Gippsland Plain Bioregion while EVC 175 Grassy Woodland and EVC 53 Swamp Scrub both have a conservation status of Endangered within the Gippsland Plain Bioregion.

3.1.2 Extant remnant vegetation of the Cranbourne East Precinct

Remnant indigenous vegetation occurs to varying degrees throughout the Precinct in the form of isolated, highly degraded remnant patches and scattered trees and shrubs, and is discussed below.

Remnant patch vegetation (EVCs)

Several highly degraded patches of EVC 48 Heathy Woodland occur on sandy soils in the south west of the Precinct (Appendix C). Habitat Zone 5 (Appendix C) displays characteristics of both EVC 175 Grassy Woodland and EVC 48 Heathy Woodland, and is likely an ecotone between these two communities. For the purpose of this study however, it has been dealt with as Heathy Woodland. If not managed, ongoing degradation processes (weed invasion, grazing, and vegetation clearance) will further degrade EVC 48 Heathy Woodland within the Precinct.

Highly degraded, artefactual remnants of EVC 175 Grassy Woodland occur along the disused train-line in the east of the Precinct (Appendix C).

One small patch of highly degraded EVC Swamp Scrub occurs in the south-west of the Precinct on the northern side of Ballarto Road (Appendix C). It is likely that this vegetation is an artefact of a historical woodland community.

Scattered trees

Remnant indigenous trees occur throughout the Precinct in roadsides, as isolated paddock trees or scattered amongst highly degraded patches of remnant vegetation. The health of many of these trees is sub-optimal and there is often little chance for recruitment due to hostile processes (e.g. grazing, slashing and competition from exotic species).

Degraded native vegetation

Occurring in small, highly degraded, linear patches along roadsides and train-lines, or as individual plants, this vegetation consists of remnant and regenerating indigenous species amongst a generally exotic ground flora. This vegetation does not quality as remnant patch vegetation, or scattered trees under the Guide for Assessment of Referred Planning Permit Applications (DSE 2006).

3.1.3 Plant species significance

A search of the Flora Information System (FIS) (DSE 2004a) and 'EPBC Protected Matters Search' databases within 5km of the Precinct (the flora Data Review Area, or DRA) was undertaken. The FIS database search returned 13 records of State or Nationally significant plant species within the DRA (Table 1), of which three were from within the Precinct. The inclusion of the Cranbourne Royal Botanic Gardens within the flora DRA is responsible for the large numbers of indigenous and significant taxa recorded on the FIS. A search of the EPBC database returned 6 species which may have a likelihood of occurrence within the DRA (Table 1), though this is negligible for all but one species (River- Swamp Wallaby-grass *Amphibromus fluitans*) due to a lack of suitable habitat. One species (Green Scentbark *Eucalyptus fulgens*) was not recorded within the FIS or EPBC databases, but was identified in the Precinct during fieldwork. Four

small Green Scentbark were recorded amongst stands of Swamp Gum (*E. ovata ssp. ovata*) along the disused train-line south of Berwick – Cranbourne Road.

A population of the nationally significant River- Swamp Wallaby-grass (*Amphibromus fluitans*) was recorded from the Precinct by Biosis Research Pty Ltd in April 2006 (Biosis Research 2006). This population was found to occur around the perimeter of a farm dam within a proposed golf course development at 220–280 Berwick–Cranbourne Road (Blue Hills Rise Golf Course), Cranbourne. In a targeted survey conducted by Biosis Research in May 2006, over 600 individuals of River- Swamp Wallaby-grass were recorded from the dam site (DEWR 2007). An EPBC 'referral of proposed action' was undertaken for this population of River-Swamp Wallaby-grass, and the referral decision states that the proposed action is not a controlled action under the Act. To conform with this decision, the construction of the golf course may take place providing the population of River- Swamp Wallaby-grass is retained and placed under conservation management. The location of this population of River- Swamp Wallaby-grass is mapped in Appendix C.

It should be noted that all remnant vegetation in the region is considered to be of at least Local conservation significance. It is calculated that only *circa* 7% of former vegetation remains in the City of Casey, and much of that which remains is severely degraded (Ecology Australia 2003).

Table 1: Significant plant species recorded within a 5 km radius Data Review Area (DRA) (source: 'Flora Information System' and 'EPBC Protected Matters Search Tool'), with their likelihood of regular occurrence (LRO).

Scientific Name	Common Name	Significance			LRO
Amphibromus fluitans	River Swamp Wallaby-grass	V			H
Caladenia aurantiaca	Orange-tip Finger-orchid			r	N
Caladenia fragrantissima ssp. *orientalis* ♦	Eastern Spider-orchid	E	*f*	e	N
Cardamine paucijuga s.s.	Annual Bitter-cress			v	N
Correa reflexa var. *lobata*	Powelltown Correa			r	N
Craspedia canens	Grey Billy-buttons			e	N
Dianella amoena ♦	Matted Flax-lily	E		e	N
Entolasia stricta	Upright Panic			k	L
Eucalyptus fulgens	Green Scentbark			r	H,C
Glycine latrobeana	Clover Glycine	V	*f*	v	N
Helichrysum aff. *rutidolepis* (Lowland Swamps)	Pale Swamp Everlasting			v	N
Lachnagrostis filiformis var. 2	Wetland Blown-grass			k	M
Lachnagrostis punicea subsp. filifolia	Purple Blown-grass		*f*	r	L
Microseris sp. 1	Plains Yam-daisy			v	N
Prasophyllum frenchii	Maroon Leek-orchid	E	*f*	e	N
Thelymitra circumsepta	Naked Sun-orchid			v	N
Thelymitra epipactoides ♦	Metallic Sun-orchid	E	*f*	e	N
Xerochrysum palustre ♦	Swamp Everlasting	V	*f*	v	N

Key:

EPBC:	National *Environment Protection and Biodiversity Conservation Act* 1999
FFG:	Victorian *Flora and Fauna Guarantee Act* 1988
DSE:	Department of Sustainability and Environment (Victoria)
CR:	Critically Endangered in Australia, listed under the EPBC Act
EN:	Endangered in Australia, listed under the EPBC Act
VU:	Vulnerable in Australia, listed under the EPBC Act
f:	Listed under the FFG Act
e:	Endangered in Victoria (DSE 2005b)
v:	Vulnerable in Victoria (DSE 2005b)
r:	Rare in Victoria (DSE 2005b)
k:	Poorly known in Victoria (DSE 2005b)
LRO:	Likelihood of regular occurrence
R:	Recorded
H:	High
M:	Moderate
L:	Low
N:	Negligible
♦:	Species not recorded in FIS search, only from EPBC Protected Matters database

3.1.4 Sites of Biological Significance

DSE BioSite mapping (DSE 2005a) identifies BioSite 8095 - Royal Botanic Gardens - Cranbourne Annexe as occurring adjacent to the southwest of the Cranbourne East Precinct (Appendix C). This BioSite is of State significance, and is only separated from the Precinct by the South Gippsland Highway. This is the only BioSite recorded by DSE (2005a) as occurring within or directly adjacent to the Cranbourne East Precinct.

3.1.5 Vegetation protection objectives

There are no specific land protection roles of native vegetation within the Precinct as outlined in Clause 52.17 of the Victorian Planning Provisions.

Vegetation on roadsides is important for land protection, flora and fauna habitat and landscape character. Vegetated roadsides can provide important links between larger areas of native vegetation, and where larger remnants no longer exist, roadside vegetation may provide the only functional habitat for native flora and fauna.

In a report undertaken by Ecology Australia for the City of Casey (Ecology Australia 2002), rural roadside vegetation within the municipality was documented and mapped according to its Conservation Value (Low, Moderate or High). One roadside patch occurring within the Cranbourne East Precinct was identified as containing remnant vegetation of Moderate Conservation Value. This patch accords with 'Habitat Zone 1' on the South Gippsland Highway (see Appendix C).

Remnant patches of native vegetation and scattered remnant trees are considered to have conservation value because they represent the genetic lineage of site-adapted local plant species and communities, because they provide existing habitat for indigenous fauna species, and because they function in part to link habitats across the landscape and provide a focus for revegetation activities.

3.2 Fauna

3.2.1 Introduction

There were 87 fauna species (11 exotic) recorded within the fauna DRA. This total consisted of 68 bird species, 11 mammal species, six reptile species, and two frog species.

An additional 12 fauna species (eight birds, two mammals, one frog; of these two were exotic) were recorded during field work for this project (Table 2).

Table 2: Fauna species recorded in Cranbourne East Precinct during July 2007

Common name	Scientific name
Australian Wood Duck	*Chenonetta jubata*
Pacific Black Duck	*Anas superciliosa*
White-necked Heron	*Ardea pacifica*
White-faced Heron	*Egretta novaehollandiae*
Australian White Ibis	*Threskiornis molucca*
Straw-necked Ibis	*Threskiornis spinicollis*
Yellow-billed Spoonbill	*Platalea flavipes*
Brown Goshawk	*Accipiter fasciatus*
Nankeen Kestrel	*Falco cenchroides*
Brown Falcon	*Falco berigora*
Silver Gull	*Croicocephalus novaehollandiae*
*Spotted Dove	*Streptopelia chinensis*
Crested Pigeon	*Ocyphaps lophotes*
Galah	*Eolophus roseicapillus*
Long-billed Corella	*Cacatua tenuirostris*
Little Corella	*Cacatua sanguinea*
Musk Lorikeet	*Glossopsitta concinna*
Eastern Rosella	*Platycercus eximius*
Red-rumped Parrot	*Psephotus haematonotus*
Fan-tailed Cuckoo	*Cacomantis flabelliformis*
Superb Fairy-wren	*Malurus cyaneus*
Striated Pardalote	*Pardalotus striatus*
White-browed Scrubwren	*Sericornis frontalis*
Brown Thornbill	*Acanthiza pusilla*
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*
Yellow Thornbill	*Acanthiza nana*
White-plumed Honeyeater	*Lichenostomus penicillatus*
Noisy Miner	*Manorina melanocephala*
Red Wattlebird	*Anthochaera carunculata*
Magpie-lark	*Grallina cyanoleuca*
Willie Wagtail	*Rhipidura leucophrys*
Grey Fantail	*Rhipidura fuliginosa*

Common name	Scientific name
Dusky Woodswallow	*Artamus cyanopterus*
Grey Butcherbird	*Cracticus torquatus*
Australian Magpie	*Cracticus tibicen*
Little Raven	*Corvus mellori*
*Eurasian Skylark	*Alauda arvensis*
Australasian Pipit	*Anthus novaeseelandiae*
*House Sparrow	*Passer domesticus*
Red-browed Finch	*Neochmia temporalis*
*European Goldfinch	*Carduelis carduelis*
Welcome Swallow	*Hirundo neoxena*
Tree Martin	*Petrochelidon nigricans*
Silvereye	*Zosterops lateralis*
*Common Blackbird	*Turdus merula*
*Common Myna	*Sturnus tristis*
*Common Starling	*Sturnus vulgaris*
Black Wallaby	*Wallabia bicolor*
*Fox	*Vulpes vulpes*
*Brown Hare	*Lepus capensis*
*Rabbit	*Oryctolagus cuniculus*
Common Eastern Froglet	*Crinia signifera*
Spotted Grass Frog	*Limnodynastes tasmaniensis*
Pale-flecked Garden Sunskink	*Lampropholis guichenoti*

3.2.2 Species of conservation significance

Of the 87 species in the database search, there were four fauna species (Table 3) listed under either the Commonwealth *Environment Protection & Biodiversity Conservation* (EPBC) *Act* 1999, the Victorian *Flora & Fauna Guarantee* (FFG) *Act* 1988, or as threatened in Victoria by DSE (2007b). In addition to these, an additional (one) species is regarded as at least moderately likely to occur in the Cranbourne East Precinct, due to the presence of suitable habitat and proximity to other known occurrences.

Table 3: Conservation significant fauna recorded in, or regarded as likely to occur in, the Cranbourne East Precinct

Common name	Scientific name	EPBC	FFG	DSE	LRO
Southern Brown Bandicoot	*Isoodon obesulus obesulus*	EN		NT	L
Grey-headed Flying-fox	*Pteropus poliocephalus*	VU	L	VU	M
Pacific Gull	*Larus pacificus*			NT	H
Swamp Skink	*Egernia coventryi*		L	VU	N
Growling Grass Frog	*Litoria raniformis*	VU	L	EN	N - L

Southern Brown Bandicoot (Isoodon obesulus obesulus) – National significance

The highly significant regional 'hot spot' for this nationally threatened species is the Royal Botanic Gardens – Cranbourne Annexe immediately adjacent to the south-west corner of the Precinct, separated from it by the South Gippsland Highway. Despite this close proximity to the Cranbourne East Precinct, there are no recent survey or anecdotal records from the Precinct (DSE 2004b; David Nichols, Chisholm Institute, pers. comm., 23 August 2007), and little suitable or connected habitat remains.

Despite an apparent lack of suitable habitat in the Precinct under current conditions, potential exists to create and link suitable habitat for bandicoots in habitat corridors across the landscape. Establishment of *Melaleuca* scrub along drainage lines and Heathy Woodland vegetation in linear reserves on Cranbourne Sands would have potential to be used by dispersing bandicoots. If of sufficient quality and size, revegetation would have potential to provide ongoing habitat for the species, potentially contributing to an increase in the regional population size, and by dispersing animals over a wider area, lead to a slight diminution of the extinction risk to the local population.

Grey-headed Flying-fox (Pteropus poliocephalus) – National significance

The Grey-headed Flying-fox ranges widely throughout the Port Phillip – Western Port region from a large colony on the Yarra River at Kew. Though much of the species' foraging occurs within parks, gardens and street trees of the metropolitan areas, individuals or small groups are known to regularly range as far away from Kew as Geelong to the west and parts of the Mornington and Bellarine Peninsulas to the south and east (DSE 2004b). The flying-fox camp at Kew is the only established one currently known from Victoria, since the colony was relocated from South Yarra. No other temporary or permanent camps of flying-foxes are known from the Cranbourne East Precinct, or from the broader Port Phillip – Western Port region.

Grey-headed Flying-foxes feed primarily on nectar and fruit from Australian flowering trees (*Eucalyptus, #Corymbia, Banksia*, etc.) and exotic fruit trees *(*Ficus, *Prunus,* etc.). Mature, potential, flying-fox food tree species within the Cranbourne East Precinct are relatively few, and clustered. Remnant indigenous trees such as Coast Manna Gums (*E. viminalis ssp pryoriana*), Mealy Stringybarks (*E. cephalocarpa*) and River Red Gums (*E. camaldulensis*) are also not noted nectar-producing species; though Swamp Gums (*E. ovata* s.l.) can occasionally be important in larger stands.

The Grey-headed Flying-fox may be observed passing through the area regularly as part of wider movements through the region, but there are no food or roosting resources available for anything other than itinerant visits. It is unlikely that the small groups of non-indigenous flowering trees such as Sugar Gums (**Eucalyptus cladocalyx*) and Spotted Gums (*#Corymbia maculata*) or back-yard fruit trees provide anything other than intermittent and ephemeral food resources. Most surviving indigenous trees are not suitable nectar-producing species, and do not occur in sufficient numbers to provide a useful foraging resource.

Growling Grass Frog (Litoria raniformis) – National significance

Though the most recent record from the area surrounding Cranbourne East Precinct in the State database for this species is given as 1980 (DSE 2004b), indicating a relatively old record, there are more recent records from immediately outside the Precinct in the City of Casey (DSE 2004b; Aaron Organ, Ecology Partners Pty Ltd, pers. comm., 23 August 2007).

Although suitable habitat for this species exists within and immediately adjacent to the Precinct, the extent and connectivity of these habitats is considered too small and fragmented to support Growling Grass Frogs (Aaron Organ, pers. comm.). In agricultural landscapes intersected by linear waterways (creeks and irrigation channels) and with a network of vegetated dams separated by distances of no more than 500m, Growling Grass Frogs can sustain metapopulation structure, with numerous small habitat nodes in an otherwise hostile matrix (Ecology Australia 2006; A. Organ, pers. comm.).

As suitable habitat conditions are absent from the Cranbourne East Precinct, the likelihood that the area sustains an important population of the Growling Grass Frog is considered negligible – low.

Dwarf Galaxias (Galaxiella pusilla) – National significance

Dwarf Galaxias typically occur in the slow-flowing waters of the middle and lower reaches of waterways. The Precinct contains the headwaters of several minor waterways, including Clyde Creek, which are ephemeral and degraded in nature, and from which there are no known records of this fish (DSE 2004b). There is no evidence of suitable habitat for this species within the Precinct, or immediately adjacent areas; and the Precinct is unlikely to receive flood-borne fish from other areas due to its position at the head of these streams. Consistent with the assessment for Growling Grass Frogs (see above), the likelihood of important populations of the Dwarf Galaxias occurring in the Cranbourne East Precinct is considered negligible.

Swamp Skink (Egernia coventryi) – State significance

The records of this species from the DRA come from the Royal Botanic Gardens Cranbourne Annexe (DSE 2004b). The vegetated swamp and stream habitats that this species requires are not present in the Precinct, and therefore the likelihood that Swamp Skinks occur there is negligible.

3.2.3 Fauna habitat values

The habitats of the Cranbourne East Precinct can be broadly defined as a predominantly agricultural landscape containing small, widely-separated pockets of degraded remnant vegetation. The area is highly modified and has undergone a substantial loss of habitat and biodiversity values. The rural and rural residential habitats of the Precinct support a suite of abundant, generalist fauna species typical of urban fringe and rural areas.

Some of the remaining scattered old trees may develop hollows, and though these will to some extent be monopolised by aggressive, exotic hollow-nesting birds such as *Common Starling (*Sturnus vulgaris*) and *Common Myna (*S. tristis*), they are also likely to used by native hollow-nesting birds such as Galahs (*Eolophus roseicapillus*), cockatoos (*Cacatua* spp.), smaller parrots and lorikeets (*Glossopsitta, Trichoglossus, Psephotus* and *Platycercus* spp.) and owls (*Tyto* and *Ninox* spp.), as well as hollow-dependent mammals such as Common Brushtail Possum (*Trichosurus vulpecula*) and small insectivorous bats (Chiroptera: Microchiroptera).

4.0 SUMMARY OF HABITAT HECTARE AND SCATTERED TREE ASSESSMENT

4.1 Habitat Hectare assessment

Habitat zone scoring sheets are appended at the end of the report (Appendix D).

Table 4: Habitat Hectare scores for remnant vegetation within The Cranbourne East Precinct, April 2009.

Habitat Zone			**HZ2**	**HZ5**	**HZ6**	**HZ7**	**HZ8**	**HZ9**
EVC Name (Initials)			HW	HW	GW	GW	SS	HW
EVC Number			48	48	175	175	53	48
		Max Score	Score	Score	Score	Score	Score	Score
Site	Large Old Trees	10	9	9	0	0	n/a	2
Condition	Canopy Cover	5	4	4	3	0	5	2
	Understorey	25	5	10	5	5	0	5
	Lack of Weeds	15	0	4	0	0	0	0
	Recruitment	10	5	0	3	1	5	5
	Organic Matter	5	0	3	2	2	3	4
	Logs	5	3	0	0	2	n/a	5
	Total Site Score	**75**	**26**	**30**	**13**	**10**	**13**	**23**
	*Multiplier		n/a	n/a	n/a	n/a	75/60	n/a
	Adjusted Site Score	**75**	**26**	**30**	**13**	**10**	**16.25**	**23**
Landscape	Patch Size	10	1	1	1	1	1	1
value	Neighbourhood	10	0	0	0	0	0	0
	Distance to core	5	3	3	1	1	3	3
Habitat Score		**100**	**30**	**34**	**15**	**12**	**20.25**	**27**
Habitat Score		1	0.3	0.34	0.15	0.12	0.20	0.27
Habitat Zone area (ha)		(#.#)	0.21	0.4	0.89	0.75	0.024	1.22
Habitat hectares		(#.#)	**0.06**	**0.14**	**0.13**	**0.09**	**0.00**	**0.33**
Bioregion			GP	GP	GP	GP	GP	GP
EVC Conservation Status			LC	LC	E	E	E	LC
Conservation Significance			Low	Low	High	High	High	Low

HW	EVC 48 Heathy Woodland	GP	Gippsland Plain Bioregion
GW	EVC 175 Grassy Woodland	LC	Least Concern
E	Endangered	*	For non-forest or woodland vegetation or other vegetation types

4.2 Scattered tree assessment

Table 5: Scattered Trees to be retained, Cranbourne East Precinct

Lot No.	Tree ID	Species	EVC No. and initials	Conservation Status	Conservation Significance	X - latitude	Y - longitude	Vegetation protection objective
Lot 1 TP599870	1	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.6	E145 19 01.9	Protect
Lot 1 TP599870	2	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.3	E145 19 01.7	Protect
Lot 1 TP599870	3	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.6	E145 19 01.3	Protect
Lot 1 TP599870	4	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.2	E145 19 00.7	Protect
Lot 1 TP599870	5	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.2	E145 19 00.6	Protect
Lot 1 TP599870	6	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.2	E145 19 00.8	Protect
Lot 1 TP599870	7	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.1	E145 19 00.7	Protect
Lot 1 TP599870	8	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.1	E145 19 00.7	Protect
Lot 1 TP599870	9	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.1	E145 19 00.4	Protect
Lot 1 TP599870	10	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.1	E145 19 00.4	Protect
Lot 1 TP599870	11	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.1	E145 19 00.4	Protect
Lot 1 TP599870	12	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.1	E145 19 00.4	Protect
Lot 1 TP599870	13	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.1	E145 19 00.3	Protect
Lot 1 TP599870	14	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 17.0	E145 19 00.2	Protect
Lot 1 TP599870	15	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.8	E145 19 00.0	Protect
Lot 1 TP599870	16	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.8	E145 19 00.1	Protect
Lot 1 TP599870	17	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.7	E145 19 00.0	Protect
Lot 1 TP599870	18	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.7	E145 19 00.1	Protect
Lot 1 TP599870	19	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.8	E145 19 00.0	Protect
Lot 1 TP599870	20	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.8	E145 18 59.6	Protect
Lot 1 TP599870	21	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.7	E145 18 59.4	Protect
Lot 1 TP599870	22	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.6	E145 18 59.5	Protect
Lot 1 TP599870	23	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.0	E145 18 58.5	Protect
Lot 1 TP599870	24	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 16.0	E145 18 58.3	Protect
Lot 1 TP599870	25	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 14.1	E145 18 55.4	Protect
Lot 1 TP599870	26	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 14.1	E145 18 55.4	Protect
Lot 1 TP599870	27	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 14.0	E145 18 55.1	Protect
Lot 1 TP599870	28	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 14.0	E145 18 55.0	Protect
Lot 1 TP599870	29	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 11.8	E145 18 51.5	Protect
Lot 1 TP599870	30	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 11.8	E145 18 51.5	Protect
Lot 1 TP599870	31	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 11.0	E145 18 50.3	Protect

Lot No.	Tree ID	Species	EVC No. and initials	Conservation Status	Conservation Significance	X - latitude	Y - longitude	Vegetation protection objective
Lot 1 TP599870	32	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 10.7	E145 18 50.3	Protect
Lot 1 TP599870	33	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 10.5	E145 18 50.0	Protect
Lot 1 TP599870	34	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 10.3	E145 18 49.7	Protect
Lot 1 TP599870	35	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 10.0	E145 18 49.5	Protect
Plan PC360550	37	*Eucalyptus camaldulensis*	175 GW	Endangered	High	S38 07 37.1	E145 18 10.8	Protect
Ballarto Rd reserve	38	*Eucalyptus cephalocarpa*	48 HW	Least Concern	Low	S38 07 47.3	E145 17 46.5	Protect
Ballarto Rd reserve	39	*Eucalyptus cephalocarpa*	48 HW	Least Concern	Low	S38 07 47.3	E145 17 46.0	Protect
Ballarto Rd reserve	46	*Eucalyptus cephalocarpa*	48 HW	Least Concern	Low	S38 07 47.2	E145 17 45.2	Protect
Ballarto Rd reserve	47	*Eucalyptus cephalocarpa*	48 HW	Least Concern	Low	S38 07 47.2	E145 17 45.3	Protect
Ballarto Rd reserve	49	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 48.4	E145 17 54.0	Protect
Ballarto Rd reserve	50	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 46.7	E145 17 41.7	Protect
Ballarto Road reserve	51	*Eucalyptus viminalis ssp. pryoriana*	48HW	Least Concern	Low	S38 07 46.3	E145 17 38.5	Remove
Ballarto Road reserve	52	*Eucalyptus viminalis ssp. pryoriana*	48HW	Least Concern	Low	S38 07 46.1	E145 17 37.7	Remove
Ballarto Road reserve	53	*Eucalyptus viminalis ssp. pryoriana*	48HW	Least Concern	Low	S38 07 46.1	E145 17 37.4	Remove
Ballarto Rd reserve	55	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 46.8	E145 17 42.7	Protect
Ballarto Rd reserve	61	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 47.0	E145 17 43.9	Protect
Ballarto Rd reserve	62	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 47.0	E145 17 43.1	Protect
Lot 1 TP599870	63	*Eucalyptus fulgens*	175 GW	Endangered	High	S38 07 16.4	E145 18 59.1	Protect
Lot 1 TP599870	64	*Eucalyptus fulgens*	175 GW	Endangered	High	S38 07 16.4	E145 18 59.0	Protect
Lot 1 TP599870	65	*Eucalyptus fulgens*	175 GW	Endangered	High	S38 07 16.4	E145 18 59.3	Protect
Lot 1 TP599870	66	*Eucalyptus fulgens*	175 GW	Endangered	High	S38 07 16.4	E145 18 59.4	Protect
Lot 1 PS303219	67	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 10.6	E145 19 03.3	Protect
Lot 1 PS303219	68	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 10.9	E145 19 03.3	Protect
Lot 1 PS303219	69	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 11.2	E145 19 03.2	Protect
Lot 1 PS303219	70	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 11.7	E145 19 03.0	Protect
Lot 1 PS303219	84	*Eucalyptus pauciflora ssp. pauciflora*	175 GW	Endangered	High	S38 07 21.3	E145 19 12.5	Protect
Lot 1 TP107088	85	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 52.2	E145 17 47.5	Remove
Lot 1 TP107088	86	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 52.2	E145 17 47.5	Remove
Lot 1 TP107088	87	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 51.0	E145 17 44.7	Remove
Lot 1 TP107088	88	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 52.2	E145 17 44.3	Remove
Lot 1 TP107088	89	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 53.9	E145 17 46.2	Remove
Lot 1 TP112757	90	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 53.4	E145 17 45.4	Remove
Lot 2 LP91344	91	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 06 36.1	E145 19 43.9	Protect
Lot 1 LP91344	92	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 06 20.3	E145 19 35.9	Remove
Lot 1 LP1344	93	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	38 06 14.7	E145 19 47.5	Remove
Lot 1 TP854043	94	*Eucalyptus ovata ssp. ovata*	175 GW	Endangered	High	S38 07 01.3	E145 19 24.5	Protect

Lot No.	Tree ID	Species	EVC No. and initials	Conservation Status	Conservation Significance	X - latitude	Y - longitude	Vegetation protection objective
Lot 1 TP830754	95	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Least Concern	Low	S38 07 22.2	E145 17 31.4	Protect

5.0 NET GAIN TARGETS

All offsets can be achieved within the Cranbourne East Precinct within the nominated Offset Site within 'Habitat Zone 5' at 1240 Ballarto Road (Lot 1, TP112755) (Figure 1) through the protection, management and enhancement of extant remnant vegetation of the same EVC as that being lost.

Offsets will be achieved within the Offset Site by securing the property for conservation purposes through the placement of an on-title agreement (e.g. s173 agreement under the *Planning and Environment Act* 1987) on the property, and the planting of 90 locally indigenous plants.

By securing both patches of remnant vegetation on the Offset Site, additional remnant vegetation (exceeding that required for offsets) will be protected. This additional vegetation comprises: one Very Large, 16 Large and two Medium old trees and c. 0.7 ha of remnant patch vegetation (Note: all trees occur within the remnant patch vegetation; no scattered trees occur on the property).

Several management activities are outlined within this report that exceed the required offset obligations. These activities (introduction of logs and increased levels of revegetation and weed control) combined with the afore-mentioned site security, may result in gains in the order of 30% per hectare within remnant patches on the site over the 10 year management period (if undertaken in accordance with the Department of Sustainability and Environment's *Vegetation Gain Approach* – DSE 2006).

All six Habitat Zones identified within the Cranbourne East Precinct are to be retained (Table 6, Appendix C). Habitat Zones 2, 5 and 9 are comprised of EVC 48 Heathy Woodland and have a Conservation Significance of Low. Habitat Zone 6 is comprised of EVC 175 Grassy Woodland and Habitat Zone 8 is comprised of EVC 53 Swamp Scrub, both of which have a Conservation Significance of High.

Habitat Zones 1, 3 and 4 existed in earlier iterations of this study (Golder Associates 2007), but the HZs are now numbered 2, 5 – 9 (Appendix C).

Table 6: Habitat Zones to be protected

Land parcel or property	Habitat Zone	Ecological Vegetation Class (EVC)	Conservation Significance	Conservation Status
Lot 1 TP122982	Habitat Zone 2	EVC 48 Heathy Woodland	Low	Least Concern
Lot 1 TP112755	Habitat Zone 5	EVC 48 Heathy Woodland	Low	Least Concern
(Pt) Parish of Cranbourne	Habitat Zone 6	EVC 175 Grassy Woodland	High	Endangered
Lot 1 TP548555	Habitat Zone 7	EVC 175 Grassy Woodland	High	Endangered
Lot 7 LP51886	Habitat Zone 8	EVC 53 Swamp Scrub	High	Endangered
Lot 1 TP122982	Habitat Zone 9	EVC 48 Heathy Woodland	Low	Least Concern

Of the 74 scattered trees identified within the Cranbourne East Precinct, a maximum of eleven are to be removed (Table 7). The size classes of these trees are: one Large, nine Medium and one Small. The nine Medium trees belong to EVC 48 Heathy Woodland within the Gippsland Plain bioregion and have a Conservation Significance of Low. The Large and Small trees belong to EVC 175 Grassy Woodland within the Gippsland Plain bioregion and have a Conservation Significance of High.

Table 7: Scattered Trees which can be removed, destroyed and lopped

Lot No.	Tree ID	Species	EVC no. and initials	Conservation Significance	No. of VLOTs	NO. of LOTs	No. of MOTs	No. of small trees	X - latitude	Y - longitude
Ballarto Rd reserve	51	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Low			1		S38 07 46.3	E145 17 38.5
Ballarto Rd reserve	52	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Low			1		S38 07 46.1	E145 17 37.7
Ballarto Rd reserve	53	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Low			1		S38 07 46.1	E145 17 37.4
Lot 1 TP107088	85	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Low			1		S38 07 52.2	E145 17 47.5
Lot 1 TP107088	86	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Low			1		S38 07 51.0	E145 17 44.7
Lot 1 TP107088	87	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Low			1		S38 07 52.2	E145 17 44.3
Lot 1 TP107088	88	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Low			1		S38 07 53.9	E145 17 46.2
Lot 1 TP107088	89	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Low			1		S38 07 53.4	E145 17 45.4
Lot 1 TP112757	90	*Eucalyptus viminalis ssp. pryoriana*	48 HW	Low			1		S38 07 55.3	E145 17 49.8
Lot 1 LP91344	92	*Eucalyptus ovata ssp. ovata*	175 GW	High		1			S38 06 20.3	E145 19 35.9
Lot 1 LP91344	93	*Eucalyptus ovata ssp. ovata*	175 GW	High				1	S38 06 14.7	E145 19 47.7

Table 8: Scattered trees to be Protected

Address	EVC No. & name	Conservation Significance	Loss of VLOTs	Loss of LOTs	Loss of MOTs	Loss of Small Trees	Offset to be achieved Recruitment/Revegetation	Offset to be achieved Protection of Trees
1635 South Gippsland Highway, Cranbourne East Lot 1 TP107088	Heathy Woodland (48)	Low	0	0	5 (Tree # 85, 86, 87, 88, 89)	0	150	
1645 South Gippsland Highway, Cranbourne East Lot 1 TP112757	Heathy Woodland (48)	Low	0	0	1 (Tree # 90)	0	30	
Ballarto Road Reserve, Cranbourne East	Heathy Woodland (48)	Low	0	0	3 (Tree # 51, 52, 53)	0	90	
305 Berwick-Cranbourne Road, Clyde North Lot 1 LP91344	Grassy Woodland (175)	High	0	1 (Tree # 92)	0	1 (Tree # 93)	150	
TOTALS			**0**	**1**	**8**	**1**	**420**	

6.0 STRATEGY FOR ACHIEVING GAIN

This section recommends a strategy for achieving gain within the Cranbourne East Precinct. Offset Plans will be produced and approved prior to the approval of permits for subdivision. An appropriate offset site within the precinct is Habitat Zone 5.

6.1 Security

An on-title agreement (e.g. s173 agreement under the *Planning and Environment Act* 1987) should be placed on the title of the Offset Site. This agreement will address the requirement for this offset management plan to be implemented, and that all gains are of an ongoing and secure nature.

6.2 Fencing and access

Fencing of the Offset Site should be enhanced and maintained to ensure that the site is utilised for conservation purposes only. The existing post-and-wire fence on the Ballarto Road frontage is suitable to retain (with some maintenance) and the remainder of the site should be fenced to this standard.

Public access to the Offset Site (e.g. via a walking track) is considered suitable providing that the area of track is kept to a minimum, and that pedestrians are advised of the conservation nature of the reserve (e.g. through signage). Path alignments should not fall within patches of remnant vegetation, and should utilise the existing walkway where possible.

6.3 Weed management

The weed flora of the Offset Site comprises four noxious weed species (as listed under the *Catchment and Land Protection Act* 1994 for the Port Phillip and Western Port Catchment Management Authority (CMA) region), one Weed of National Significance (WONS), and numerous other environmental weed species. The weed flora is dominated by ubiquitous annual and perennial herbaceous weeds, with occasional woody weeds.

Table 10 lists 14 weed species identified for elimination or control within the Precinct. These are a small proportion of the weed flora, but have been identified as species/populations that should be managed because of their seriousness as invaders, and/or are required to be managed under the *Catchment and Land Protection Act* 1994. Numerous other species will require management in certain circumstances (e.g. small populations in remnant patches or to allow for revegetation), but full-scale management would be untenable. Additionally, woody weed species occurring in the Ballarto Road reservation should be controlled to reduce the likelihood of these species re-colonising the Offset Site post weed-control. The weeds listed for control in Table 10 should not be seen as exhaustive and regular monitoring should be undertaken to identify new weed species and populations requiring management on the site.

There is also a number of exotic tree and shrub species planted on the site. While few of these species are likely to become seriously invasive in the Precinct (an exception being Willow Myrtle, **Agonis flexuosa*) they should be removed to enhance natural-landscape amenity within the Offset Site.

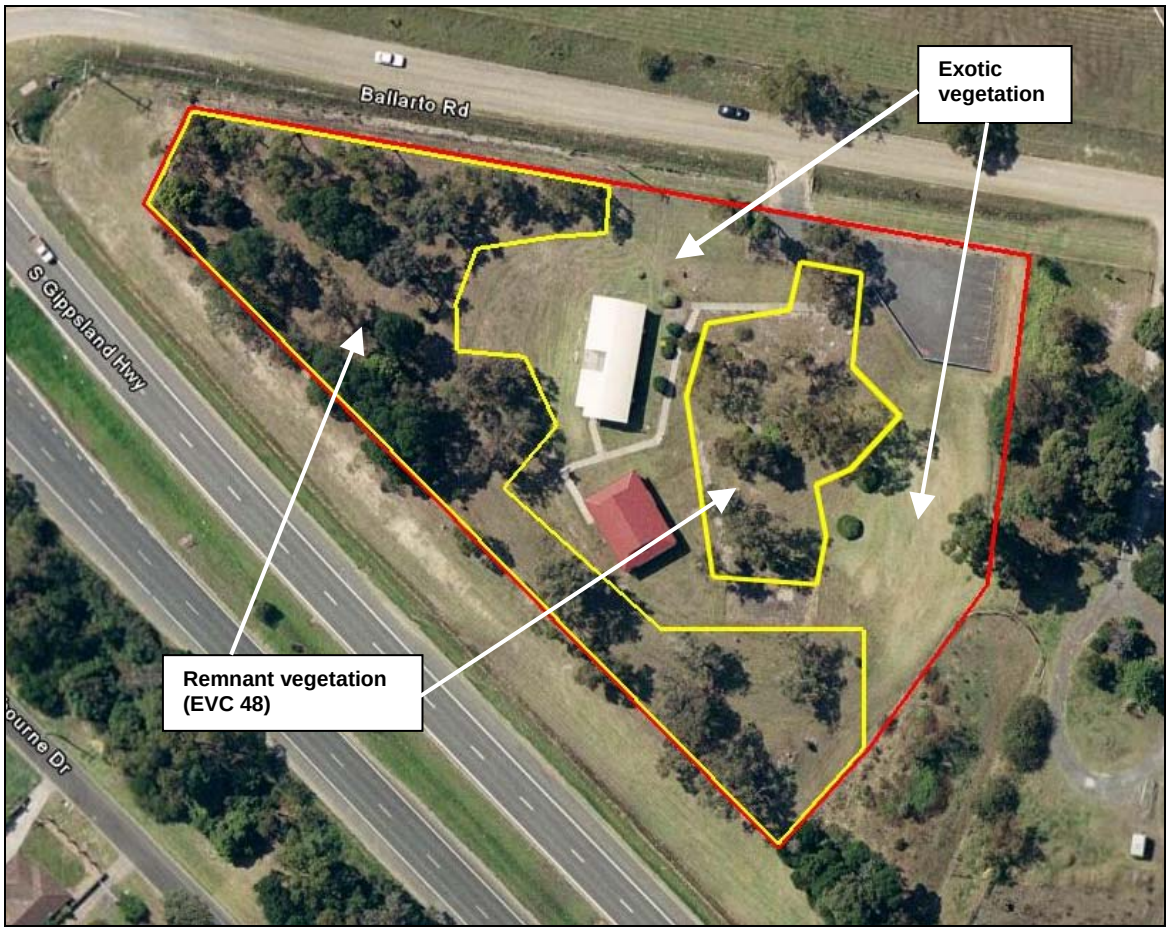

Figure 1: Remnant vegetation patches of EVC 48 Heathy Woodland (yellow polygons) within the proposed Ballarto Road Offset Site (red polygon), Habitat Zone 5

Table 9: Weed species requiring elimination or control within Habitat Zone 5

Species	Common name	Control/ Eliminate	Control methods	Priority
Acacia longifolia ssp. sophorae	Coast Wattle	E	2	1
Acacia oxycedrus x *longifolia*	Spike/Coast Wattle	E	2	1
Acetosella vulgaris	Sheep Sorrel	E	1	1
Agonis flexuosa	Willow Myrtle	E	2	1
Allium triquetrum	Three-corner Garlic	E	1	2
Carduus tenuiflorus/pycnocephalus **C**	Slender/Shore Thistle	E	1	1
Cirsium vulgare **C**	Spear Thistle	E	1	1
Corymbia maculata	Spotted Gum	E	2	1
Leptospermum laevigatum	Coast Tea-tree	E	2	1
Oxalis pes-caprae **R**	Soursob	C	1	1
Phytolacca octandra	Red-ink Weed	E	1,2,4	1
Pittosporum undulatum	Sweet Pittosporum	E	2	1
Rubus anglocandicans **C**, **W**	Blackberry	E	1,2	1
Solanum nigrum	Black Nightshade	E	1,4	1

Control method(s)

A Herbicide treatments
1 Herbicide applied to foliage with spray, wick applicator, etc.; annuals must be sprayed well before seed ripening.
2 Cut down and concentrated herbicide immediately applied to stump or stems, or bark "frilled" and herbicide applied.
3 Stem drilled and injected with concentrated herbicide.
B Physical treatments
4 Physical removal – most plants can be physically removed by hand-weeding or with tools when small and/or isolated but soil disturbance is kept to a minimum.
5 Cut off at ground level (species that will not resprout from basal buds).
6 Cut leaves and flowering stems below water to starve rhizome of oxygen (*Typha* ssp.).
7 Cut off near ground level then spray vigorous regrowth with herbicide
8 Ringbarking

Control priority (for existing populations and future colonisation)

1 – high priority, 1-3 year time frame
2 – moderate to low priority, >3 year time frame
E – eliminate species from site
C – control weed species within site

Noxious weeds and WONS

C – listed as Regionally Controlled under the *Catchment and Land Protection Act 1994*
R – listed as Restricted under the *Catchment and Land Protection Act 1994*
W – Listed as a Weed of National Significance (http://www.weeds.org.au/)

6.4 Revegetation

Revegetation of the Offset Site will be required to achieve offsets and to ameliorate disturbances to remnant vegetation resulting from weed management activities.

6.4.1 Revegetation zones

Two zones, 'remnant vegetation (EVC 48 Heathy Woodland)' and 'exotic vegetation' (Figure 1), amenable to revegetation have been identified and are discussed below.

Zone 1 – Remnant vegetation

Revegetation is to be restricted to supplementary planting of understorey species (shrubs and robust graminoids) within remnant patches, and should be undertaken with the intent of increasing species diversity, and 'infilling' non-vegetated areas where weed control has taken place. Due to the occurrence of geophytic and cryptic indigenous species within the site (e.g. orchids, lilies), great care should be taken not to damage these whilst planting.

Zone 2 – Exotic vegetation

Revegetation of this zone is limited to the creation of a canopy and shrub layer. Due to the dominance of highly competitive exotic herbaceous species, the revegetation of an indigenous field-layer is not recommended except where soil rehabilitation works have taken place (see Section 6.1.8). Where soil rehabilitation has taken place, bare ground should be mulched and planted densely with Weeping Grass (*Microlaena stipoides*) as well as tree and shrub species. Care should be taken not to disturb any natural recruitment of indigenous species.

6.4.2 Stages of revegetation

The process of revegetation requires planning, documentation, implementation, monitoring and maintenance, all of which are essential in ensuring success. Each of these stages is discussed below in relation to the Offset Site:

1) **Site preparation**: Site preparation will be necessary to varying degrees. This will involve weed control and possibly the provision of tree guards and jute-matting. While weed control is generally limited to species listed in Table 10, slashing/cutting or spraying of ubiquitous herbaceous species may be required in revegetation plots. Tree-guarding may be necessary should grazing pressure (from Rabbits/Hares) be found to significantly increase mortality of plants. The application of fertiliser is not necessary.

2) **Sourcing propagation material**: All plants utilised in revegetation should accord with the following:

   - Propagation material (seeds, cuttings, divisions) should be from indigenous species sourced from the nearest natural population(s) locally or regionally that can sustain a level of collection of material.
   - Sources of propagation material should be recorded by the contractor(s) or other parties involved in revegetation.
   - Plants (tubestock is recommended) are to be of high quality (all plants should appear healthy, roots-systems should be well developed, plants should not be 'root-bound'). Ensure contractors are given sufficient time to undertake collection and growing-on of the tubestock before the projected planting time. The Client reserves the right to reject poor-quality tubestock. All plants and propagation material must be correctly identified and named before being utilised in revegetation.

3) **Species placement**: It is important to plant species in the correct ecological situation for several practical and philosophical reasons, viz.:

- Revegetation of this kind requires that plantings make ecological sense, i.e. species 'belong' in particular environments and in plant species associations (or ecological communities).
- Plants placed in the incorrect physical environment (e.g. too shady or dry) may not perform well or die.

Similarly, it is also important to utilise plant material in the correct structural way, i.e. place species in ecologically plausible population sizes and densities (spacing) distributed in the landscape in a 'natural' way.

4) **Documentation**: By documenting the various components of a revegetation program (e.g. locations and dates of seed collection, provenance of revegetated plants used at a particular site, weed control measures, monitoring, etc.) the success rates of future revegetation can be increased as a greater understanding of 'what works' is achieved and communicated to future practitioners.

5) **Planting**: Planting can be undertaken as soon as the Autumn break (cessation of hot Summer weather) has occurred. Plants should be watered at the time of planting (to reduce air pockets around the root zone), and follow-up watering should only be undertaken in the event of drought stress.

6) **Monitoring and maintenance**: It is of utmost importance that all revegetation plots be monitored. Effectively timed monitoring will allow various degradation processes (e.g. weed invasion, grazing) to be managed before they adversely affect the revegetation. Maintenance timing should coincide with ecological timelines (e.g. undertake weed control before seed-set). All plant losses should be replaced unless mortality has been the result of unmanageable site conditions (e.g. prolonged drought).

Table 10: Plant species suitable for use in revegetation, in Habitat Zone 5

Species	Common name	Planting zone	Structural role of plants	No. to be planted	Propagation method
Trees					
Banksia marginata	Silver Banksia	1,2	C	8	S,(C)
Eucalyptus cephalocarpa	Mealy Stringybark	2	B	5	S
Eucalyptus viminalis ssp. pryoriana	Coast Manna-gum	2	B	5	S
Large and medium shrubs					
Acacia oxycedrus	Spike Wattle	1,2	C	Combined total of 250 plants	S,(C)
Acacia suaveolens	Sweet Wattle	1,2	C		S
Acacia ulicifolia	Juniper Wattle	1,2	C		S,(C)
Daviesia leptophylla	Narrow-leaf Bitter-pea	1,2	C		S,C
Dillwynia glaberrima	Smooth Parrot-pea	1,2	C		S,C
Dillwynia sericea	Showy Parrot-pea	1,2	C		S,C
Epacris impressa	Common Heath	1,2	C		S,C
Hakea ulicina	Furze Hakea	1,2	C		S
Leptospermum myrsinoides	Heath Tea-tree	1,2	B		S,C
Leucopogon virgatus	Common Beard-heath	1,2	C		C
Monotoca scoparia	Prickly Broom-heath	1,2	C		C
Ozothamnus ferrugineus	Tree Everlasting	1,2	C		S,C
Persoonia juniperina	Prickly Geebung	1,2	C		C
Ricinocarpos pinifolius	Wedding Bush	1,2	C		S,C
Small shrubs					
Amperea xiphoclada var. *xiphoclada*	Broom Spurge	1	C	10	S,C

Species	Common name	Planting zone	Structural role of plants	No. to be planted	Propagation method
Isopogon ceratophyllus	Horny Cone-bush	1	C	10	S,C
Robust graminoids					
Lepidosperma concavum▲	Sandhill Sword-sedge	1	C	Combined total of 100 plants	S,D
Lepidosperma laterale var. *laterale*▲	Variable Sword-sedge	1	C		S,D
Lepidosperma semiteres▲	Wire Rapier-sedge	1	C		S,D
Xanthorrhoea minor ssp. *lutea*	Small Grass-tree	1	C		S
Grasses					
Microlaena stipoides var. *stipoides*	Weeping Grass	2†	B	12 per m^2	S

† - Only where soil rehabilitation has taken place (see Sections 3.4.1 and 3.6)

▲ – The feasibility of commercial production of these species to be determined by the contractor

Planting Zones

Zone 1 Remnant vegetation patches (EVC 48 Heathy Woodland)
Zone 2 Exotic vegetation

Structural Role of Plants

A Structural dominant of the vegetation stratum – the sole or predominant species locally or across broader expanses or the whole vegetation zone; with high overall cover within particular location
B Localised structural co-dominant (with other species) in vegetation stratum
C Scattered thinly or discontinuously as small groups or isolated individuals (trees/shrubs and perennial herbs); with low overall cover.
D Scattered and infrequent across a wide area
E Localised stands/aggregates in defined environment

Propagation Method

C Cuttings
D Division
S Seed
R Root suckers
Note: Method in Brackets is least preferred

6.5 Habitat augmentation

Logs (> 10 cm diameter) from any indigenous trees being removed within the Precinct should be placed within the Offset Site. These logs will provide habitat for a range of indigenous fauna species. The placement of these logs should be completed before any revegetation is undertaken, and the logs must not be placed on top of existing native vegetation. Similarly, care must be taken not to disturb indigenous vegetation during the placement of the logs. No more than a *circa* 100m combined-length of logs should be introduced to the site.

6.6 Soil rehabilitation

The Offset Site contains a number of concrete slabs (former display home foundations) and a tarmac car-park. It is recommended that these be removed and the underlying soil be 'ripped' to ameliorate any compaction. The status of the soil should then be assessed to determine if any additives or top-soil is required. Should the addition of top-soil be necessary, soil used must be free of plant propagules. Revegetation of bare ground can then be undertaken.

6.7 Recommended 10 Year Management Plan for Habitat Zone 5

Table 12 outlines the management requirements over a ten year period. The majority of works would occur within the first three years and include revegetation activities, weed control and habitat augmentation. On-going maintenance works and monitoring will be required for all revegetation and weed management actions.

This 10 Year Management Plan is based on the assessment of the vegetation and site at May 2009. It is subject to change and future assessment.

Table 11: Proposed 10 Year Management Plan for Habitat Zone 5

Year number	Action No	Required preceding action	Activity Description	Timing of activity – month(s)	Quantity	Units
ASAP	1.1		Implement s173 Agreement	ASAP	-	-
1	1.2		Control weed species listed in Table 4	Ongoing	c.1	ha
1	1.3		Soil rehabilitation	Anytime	c. 0.1	ha
1			Revegetation preparation (e.g. weed control of ubiquitous species)	Winter	c.1	ha
			Habitat augmentation - placement of logs in Offset Site (if available)	Pre-revegetation	c.1	ha
		1.3, 1.4	Fence Offset Site	Anytime	280	m
			Source plants/seed for use in revegetation	Pre-Spring	400	plant
		1.2, 1.3,	Revegetation as outlined in Table 3.	Autumn-	c.1	ha

Year number	Action No	Required preceding action	Activity Description	Timing of activity – month(s)	Quantity	Units
		1.4, 1.5, 1.6, 1.7		break		
			Monitor effectiveness of Year 1 weed control and follow up. Control any 'new' weed species and undertake maintenance of plantings	Ongoing	c.1	ha
			Monitor effectiveness of Year 1 revegetation (pre-Spring). Replace any plant losses	Autumn-break		
			Monitor effectiveness of Year 2 weed control and follow up. Control any 'new' weed species and undertake maintenance of plantings	Ongoing		
			Monitor effectiveness of Year 2 revegetation (pre-Spring). Replace any plant losses	Autumn-break		
			Report to council on works undertaken and condition of offsets for Years 1 - 3	December	c.1	ha
			Monitor effectiveness of Year 3 weed control and follow up. Control any 'new' weed species and undertake maintenance of plantings	Ongoing	c.1	ha
			Monitor effectiveness of Year 4 weed control and follow up. Control any 'new' weed species and undertake maintenance of plantings	Ongoing	c.1	ha

Year number	Action No	Required preceding action	Activity Description	Timing of activity – month(s)	Quantity	Units
			Report to council on works undertaken and condition of offsets for Years 3 - 5	December	c.1	ha
			Monitor effectiveness of Year 5 weed control and follow up. Control any 'new' weed species and undertake maintenance of plantings	Ongoing	c.1	ha
			Monitor effectiveness of Year 6 weed control and follow up. Control any 'new' weed species and undertake maintenance of plantings	Ongoing	c.1	ha
			Monitor effectiveness of Year 3 revegetation (pre-Spring). Replace any plant losses	Autumn-break	c.1	ha
			Monitor effectiveness of Year 7 weed control and follow up. Control any 'new' weed species and undertake maintenance of plantings	Ongoing	c.1	ha
			Monitor effectiveness of any Year 7 revegetation (pre-Spring). Replace any plant losses	Autumn-break	c.1	ha
			Monitor effectiveness of Year 8 weed control and follow up. Control any 'new' weed species and undertake maintenance of plantings	Ongoing	c.1	ha
			Monitor effectiveness of Year 9 weed control and follow up. Control any	Ongoing	c.1	ha

Year number	Action No	Required preceding action	Activity Description	Timing of activity – month(s)	Quantity	Units
			'new' weed species and undertake maintenance of plantings			
			Report to council on works undertaken and condition of offsets for Years 6 – 10, and on overall success of offset management plan	December	c.1	ha

7.0 ACKNOWLEDGMENTS

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APPENDIX A

Remnant canopy trees (medium-size and larger) located within the Ballarto Road Offset Site, Cranbourne East, September 2008.

Species	DBH (cm)	Size-class	Coordinates
Eucalyptus viminalis ssp. pryoriana	39	Medium	55 H 350367 5778435
E. viminalis ssp. pryoriana	44.5	Medium	55 H 350367 5778442
E. viminalis ssp. pryoriana	41	Medium	55 H 350406 5778432
E. cephalocarpa	49	Medium	55 H 350382 5778402
E. cephalocarpa	41	Medium	55 H 350434 5778426
E. cephalocarpa	48	Medium	55 H 350449 5778428
E. viminalis ssp. pryoriana	43	Medium	55 H 350430 5778404
E. viminalis ssp. pryoriana	38	Medium	55 H 350437 5778406
E. viminalis ssp. pryoriana	38	Medium	55 H 350463 5778382
E. viminalis ssp. pryoriana	41	Medium	55 H 350463 5778386
E. viminalis ssp. pryoriana	51	Large	55 H 350366 5778434
E. cephalocarpa	56.5	Large	55 H 350388 5778442
E. cephalocarpa	56	Large	55 H 350389 5778413
E. cephalocarpa	58	Large	55 H 350367 5778409
E. cephalocarpa	53	Large	55 H 350345 5778418
E. cephalocarpa	54	Large	55 H 350402 5778379
E. cephalocarpa	62.35	Large	55 H 350402 5778394
E. cephalocarpa	60	Large	55 H 350456 5778423
E. viminalis ssp. pryoriana	55	Large	55 H 350453 5778397
E. viminalis ssp. pryoriana	40	Large	55 H 350450 5778389
E. viminalis ssp. pryoriana	57	Large	55 H 350440 5778370
E. cephalocarpa	63	Large	55 H 350417 5778361
E. cephalocarpa	56	Large	55 H 350432 5778344
E. cephalocarpa	56	Large	55 H 350437 5778325
E. cephalocarpa	68	Large	55 H 350440 5778324
E. cephalocarpa	58	Large	55 H 350467 5778337
E. cephalocarpa	75	Very Large	55 H 350437 5778343

APPENDIX B

Amended losses and retentions

NATIVE VEGETATION TO BE PROTECTED

Remnant patch vegetation

All nine Habitat Zones identified within the Cranbourne East Precinct are to be protected (Table 6) (Appendix C). Habitat Zones 1 – 5 and 9 are comprised of EVC 48 Heathy Woodland and have a Conservation Significance of Low. Habitat Zone 6 is comprised of EVC 175 Grassy Woodland and Habitat Zone 8 is comprised of EVC 53 Swamp Scrub, both of which have a Conservation Significance of High.

No remnant patch vegetation is to be removed from the Cranbourne East Precinct without a permit.

Property Details	EVC Description	Habitat Zone Id	Size	Conservation Significance	Conservation Status
Lot No. 1 TP830754 1555 South Gippsland Highway Cranbourne East	Heathy Woodland (48)	HZ 2	0.21 ha	Low	Least Concern
		HZ9	1.22 ha	Low	Least Concern
Lot 1, TP112755; 1240 Ballarto Road, Cranbourne East	Heathy Woodland (48)	HZ 5	0.4 ha	Low	Least Concern
Lot 1 TP599870 Parish of Cranbourne 365 Tooradin Station Road, Tooradin (Leongatha Rail Reserve)	Heathy Woodland (48)	HZ 6	0.89 ha	High	Endangered
Lot 1, TP548555; 365 Tooradin Station Road, Tooradin	Grassy Woodland (175)	HZ 7	0.75 ha	High	Endangered
Lot 7, LP51866; 1 Adrian Street, Cranbourne East	Swamp Scrub (53)	HZ 8	0.24 ha	High	Endangered

Scattered trees

Of the 74 scattered trees identified within the Cranbourne East Precinct, 63 are to be retained.

Property details	Tree ID	Species	EVC	Conservation Status	Conservation Significance	X - latitude	Y - longitude
Ballarto Rd reserve, Cranbourne East	38	*Eucalyptus cephalocarpa*	48 Heathy woodland	Least Concern	Low	S38 07 47.3	E145 17 46.5
	39	*Eucalyptus cephalocarpa*	48 Heathy woodland	Least Concern	Low	S38 07 47.3	E145 17 46.0
	46	*Eucalyptus cephalocarpa*	48 Heathy woodland	Least Concern	Low	S38 07 47.2	E145 17 45.2
	47	*Eucalyptus cephalocarpa*	48 Heathy woodland	Least Concern	Low	S38 07 47.2	E145 17 45.3
	49	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy woodland	Least Concern	Low	S38 07 48.4	E145 17 54.0
	50	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy woodland	Least Concern	Low	S38 07 46.7	E145 17 41.7
	55	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy woodland	Least Concern	Low	S38 07 46.8	E145 17 42.7
	61	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy woodland	Least Concern	Low	S38 07 47.0	E145 17 43.9
	62	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy woodland	Least Concern	Low	S38 07 47.0	E145 17 43.1
Lot 1 PS600134 280 Berwick Cranbourne Road, Clyde.	67	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 10.6	E145 19 03.3
	68	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 10.9	E145 19 03.3
	69	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 11.2	E145 19 03.2
	70	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 11.7	E145 19 03.0
	84	*Eucalyptus pauciflora ssp. pauciflora*	175 Grassy woodland	Endangered	High	S38 07 21.3	E145 19 12.5
Lot 1 TP599870 365 Tooradin Station Road, Tooradin	1	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.6	E145 19 01.9
	2	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.3	E145 19 01.7
	3	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.6	E145 19 01.3
	4	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.2	E145 19 00.7
	5	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.2	E145 19 00.6
	6	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.2	E145 19 00.8
	7	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.1	E145 19 00.7
	8	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.1	E145 19 00.7
	9	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.1	E145 19 00.4
	10	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.1	E145 19 00.4
	11	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.1	E145 19 00.4
	12	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.1	E145 19 00.4

Property details	Tree ID	Species	EVC	Conservation Status	Conservation Significance	X - latitude	Y - longitude
	13	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.1	E145 19 00.3
	14	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 17.0	E145 19 00.2
	15	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.8	E145 19 00.0
	16	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.8	E145 19 00.1
	17	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.7	E145 19 00.0
	18	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.7	E145 19 00.1
	19	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.8	E145 19 00.0
	20	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.8	E145 18 59.6
	21	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.7	E145 18 59.4
	22	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.6	E145 18 59.5
	23	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.0	E145 18 58.5
	24	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 16.0	E145 18 58.3
	25	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 14.1	E145 18 55.4
	26	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 14.1	E145 18 55.4
	27	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 14.0	E145 18 55.1
	28	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 14.0	E145 18 55.0
	29	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 11.8	E145 18 51.5
	30	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 11.8	E145 18 51.5
	31	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 11.0	E145 18 50.3
	32	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 10.7	E145 18 50.3
	63	*Eucalyptus fulgens*	175 Grassy woodland	Endangered	High	S38 07 16.4	E145 18 59.1
	64	*Eucalyptus fulgens*	175 Grassy woodland	Endangered	High	S38 07 16.4	E145 18 59.0
	65	*Eucalyptus fulgens*	175 Grassy woodland	Endangered	High	S38 07 16.4	E145 18 59.3
	66	*Eucalyptus fulgens*	175 Grassy woodland	Endangered	High	S38 07 16.4	E145 18 59.4
	33	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 10.5	E145 18 50.0
	34	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 10.3	E145 18 49.7
	35	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 10.0	E145 18 49.5
Lot 1 TP830754 1555 South Gippsland Highway,	95	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	Least Concern	Low	S38 07 22.2	E145 17 31.4

Property details	Tree ID	Species	EVC	Conservation Status	Conservation Significance	X - latitude	Y - longitude
Cranbourne East							
Lot 1 TP854043 305 Berwick Cranbourne road, Clyde North (Lot 1)	94	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 07 01.3	E145 19 24.5
Lot 2 LP91344 305 Berwick Cranbourne Road, Clyde North (Lot 2)	91	*Eucalyptus ovata ssp. ovata*	175 Grassy woodland	Endangered	High	S38 06 36.1	E145 19 43.9
Plan PC360550 11 Nelson Street,	37	*Eucalyptus camaldulensis*	175 Grassy woodland	Endangered	High	S38 07 37.1	E145 18 10.8

NATIVE VEGETATION WHICH CAN BE REMOVED, DESTROYED AND LOPPED

Scattered trees

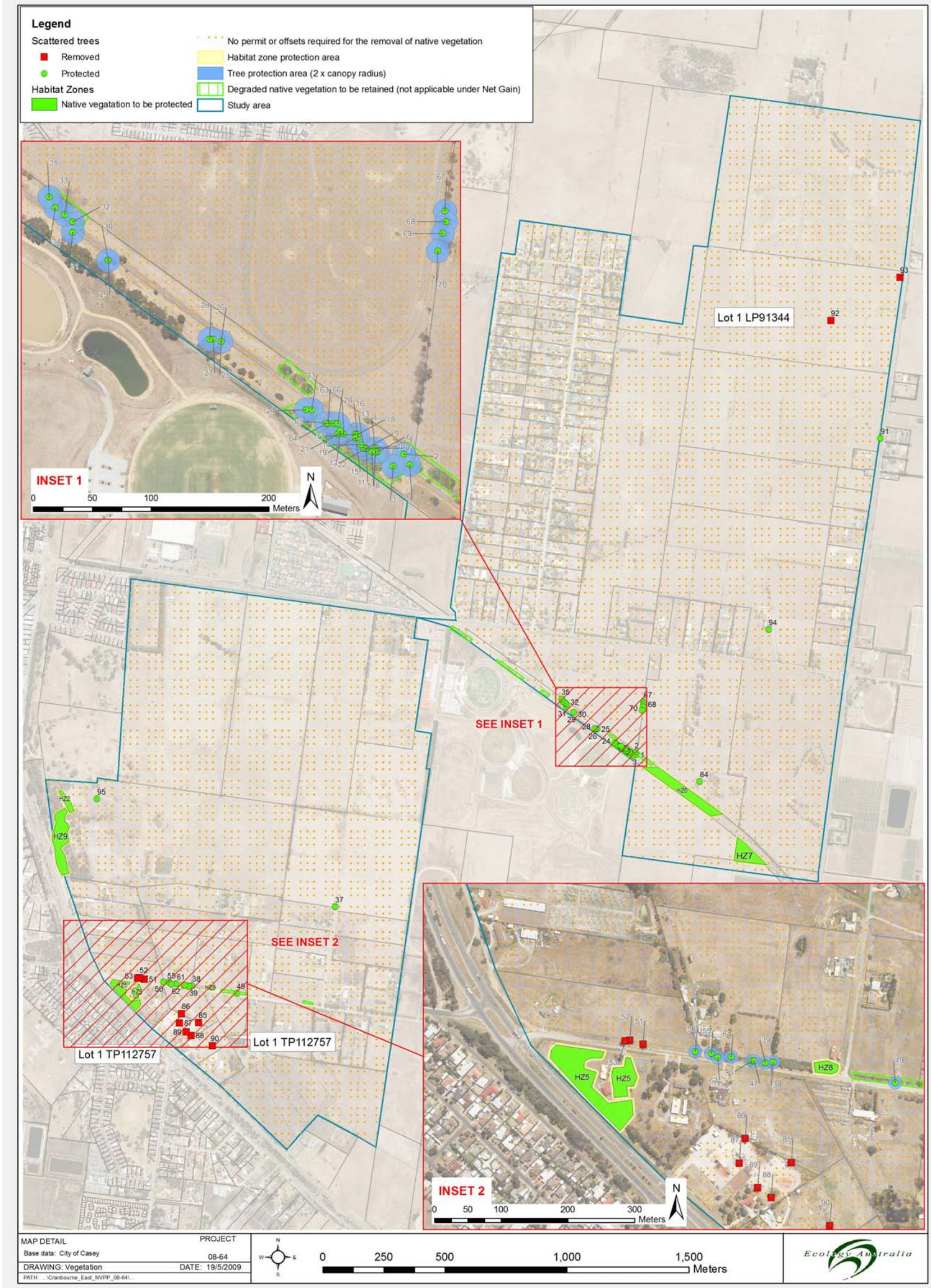
Of the 74 scattered trees identified within the Cranbourne East Precinct, a maximum of eleven are to be removed (Table 1). The size classes of these trees are: one Large, nine Medium and one Small. The nine Medium trees belong to EVC 48 Heathy Woodland within the Gippsland Plain bioregion and have a Conservation Significance of Low. The Large and Small trees belong to EVC 175 Grassy Woodland within the Gippsland Plain bioregion and have a Conservation Significance of High.

Property Details	Tree ID	Species	EVC no & name	Co-ordinate X latitude	Co-ordinate Y longtitude
Ballarto Road Reserve	51	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	S38 07 46.3	E145 17 38.5
	52	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	S38 07 46.1	E145 17 37.7
	53	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	S38 07 46.1	E145 17 37.4
Lot 1 TP107088 1635 south Gippsland Highway, Cranbourne east	85	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	S38 07 52.2	E145 17 47.5
	86	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	S38 07 51.0	E145 17 44.7
	87	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	S38 07 52.2	E145 17 44.3
	88	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	S38 07 53.9	E145 17 46.2
	89	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	S38 07 53.4	E145 17 45.4
Lot 1 TP112757 1645 South Gippsland Highway, Cranbourne East	90	*Eucalyptus viminalis ssp. pryoriana*	48 Heathy Woodland	S38 07 55.3	E145 17 49.8
Lot 1 LP91344 305 Berwick Cranbourne Road, Clyde North (lot 2)	92	*Eucalyptus ovata ssp. ovata*	175 Grassy Woodland	S38 06 20.3	E145 19 35.9
	93	*Eucalyptus ovata ssp. ovata*	175 Grassy Woodland	S38 06 14.7	E145 19 47.7

APPENDIX C

Map of the Cranbourne East Precinct, showing locations of remnant patch native vegetation and scattered trees

Map of the Cranbourne East Precinct, showing Precinct (Precinct) boundary; remnant patch native vegetation and scattered trees; habitat protection areas; tree protection areas; scattered trees to be protected or removed.



APPENDIX D

Habitat zone scoring sheets

Vegetation Quality Field Assessment Sheet

Version 1.3 - October 2004

Department of Sustainability and Environment

Site Name/No. HZ1 Location Cranbourne East Date 13/8/07

Assessor(s) JK Map Name/No. AMG

Tenure EVC 48 H.W Bioregion

'Site Condition Score'

Large Trees — Score 5

Category & Description	% Canopy Health*		
	> 70%	30-70%	< 30%
None present	0	0	0
> 0 to 20% of the benchmark number of large trees/ha	3	2	1
> 20% to 40% of the benchmark number of large trees/ha	4	3	2
> 40% to 70% of the benchmark number of large trees/ha	6	(5)	4
> 70% to 100% of the benchmark number of large trees/ha	8	7	6
≥ the benchmark number of large trees/ha	10	9	8

Large trees are defined by diameter at breast height (dbh) - see EVC benchmark.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Tree Canopy Cover — Score 4

Category & Description	% Canopy Health *		
	> 70%	30-70%	< 30%
< 10% of benchmark cover	0	0	0
< 50% or > 150% of benchmark cover	3	2	1
≥ 50% or ≤ 150% of benchmark cover	5	(4)	3

Tree canopy is defined as those canopy tree species reaching ≥ 80% of mature height - see EVC benchmark description.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Lack of Weeds — Score 0

Category & Description	'high threat' weeds*		
	None	≤ 50%	> 50%
> 50% cover of weeds	4	2	(0)
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** if total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
IT	1 —	1 1 5	✓	✓
MS	3 1 5	15 1 30	✓	
SS	2 1 5	1 1 20	✓	✓
MH	2 1 2	1 1 5	✓	✓
SH	1 1 2	<1 1 5	✓	✓
LTT	— 1 1	— 1 5		
LNG	— 1 1	— 1 1		
MTG	2 1 1	2·5 1 5	✓	✓
MNG	1 1 2	<1 1 5	✓	✓
GF	1 1 1	1 5	✓	
BL	— 1 n/a	— 1 10		
S/C	— 1 n/a	— 1 10		
	/	/		
	/	/		
	/	/		
	/	/		

Present — For life forms with benchmark cover of < 10%, considered 'present' if
- any specimens are observed.

For life forms with benchmark cover of ≥ 10%, considered 'present' if
- the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present') — For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either:
- < 50% of the benchmark species diversity; or
- no reproductively-mature specimens are observed.

For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either:
- < 50% of benchmark cover; or
- < 50% of benchmark species diversity; or
- ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey — Score 10

Category & Description		
All strata and lifeforms effectively absent		0
Up to 50% of life forms present		5
≥ 50% to 90% of lifeforms present	• of those present, ≥ 50% substantially modified	(10)
	• of those present, < 50% substantially modified	15
≥ 90% of lifeforms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

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Vegetation Quality Field Assessment Sheet

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Recruitment

Score: 1

Category & Description			High diversity*°	Low diversity*°
No evidence of a recruitment 'cohort'+	within EVC not driven by episodic events		0	0
	within EVC driven by episodic events^	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life-form	proportion of native woody species present that have adequate recruitment°	< 30%	3	(1)
		30 - 70%	6	3
		≥ 70%	10	5

+ 'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals).

^ refer to EVC benchmark for clarification.

° treat multiple eucalypt canopy species as one species.

* high diversity defined as ≥ 50% of benchmark woody species diversity.

Species Recruitment

Woody species recorded in habitat zone	Adequate Recruitment (✓)
Eucalypt canopy (combined species)	✓
Ric. pin:	
↓	
see notes	
number of woody spp. in EVC benchmark (SS and taller)	

Organic Litter

Ex. Lit

Score: 2

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	3	(2)
≥ 50% or ≤ 150% of benchmark cover	5	4

Logs

Score: 3

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	(3)	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

* present if large log length is ≥ 25% of EVC benchmark log length.

absent if large log length is < 25% of EVC benchmark log length.

'Landscape Context Score'

Patch Size

Score: 1

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
≥ 20 ha, but not 'significantly disturbed'*	10

* 'significantly disturbed' defined as per RFA 'Old Growth' analyses eg. roading, coupes, grazing etc. – effectively most patches within fragmented landscapes.

Distance to Core Area

Score: 3

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Neighbourhood

Score: 0

Radius from site	% Native vegetation*	Weighting	
100 m	20	0.03	0.6
1 km	0	0.04	0
5 km	20	0.03	0.6
subtract 2 if the neighbourhood is 'significantly disturbed'			-2
		Add Values and 'round-off'	0

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Final Habitat Score

	'Site Condition Score'							'Landscape Context Score'			
Component	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	Distance to Core Area	Total
Score	5	4	0	10	1	2	3	1	0	3	29
											100

Vegetation Quality Field Assessment Sheet

Version 1.3 - October 2004

Department of Sustainability and Environment

Site Name/No. HZR Location 1555 SH Gipp Hwy Date 7/4/09

Assessor(s) JSKershaw Map Name/No. AMG

Tenure EVC 48 HW Bioregion

'Site Condition Score'

Large Trees — Score: 9

Category & Description	% Canopy Health*		
	> 70%	30-70%	< 30%
None present	0	0	0
> 0 to 20% of the benchmark number of large trees/ha	3	2	1
> 20% to 40% of the benchmark number of large trees/ha	4	3	2
> 40% to 70% of the benchmark number of large trees/ha	6	5	4
> 70% to 100% of the benchmark number of large trees/ha	8	7	6
≥ the benchmark number of large trees/ha	10	(9)	8

Large trees are defined by diameter at breast height (dbh) - see EVC benchmark.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Tree Canopy Cover — Score: 4

Category & Description	% Canopy Health *		
	> 70%	30-70%	< 30%
< 10% of benchmark cover	0	0	0
< 50% or > 150% of benchmark cover	3	2	1
≥ 50% or ≤ 150% of benchmark cover	5	4	3

Tree canopy is defined as those canopy tree species reaching ≥ 80% of mature height - see EVC benchmark description.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Lack of Weeds — Score: 0

Category & Description	'high threat' weeds*		
	None	≤ 50%	> 50%
> 50% cover of weeds	4	2	0
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** If total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
IT	✓ 1 —	✓ 15	✓	✓
MS	— 15	— 130		
SS	— 15	— 120		
MH	— 12	— 15		
SH	— 12	— 15		
LTG	— 11	— 15		
LWG	11	11		
MTG	✓ 11	✓ 15	✓	✓
MWG	1 12	✓ 15	✓	✓
FF	1 11	10 15	✓	✓
BL	✓ 1 n/a	<1 1 10	✓	✓
S/C	1 n/a	1 10		
	1	1		
	1	1		
	1	1		
	1	1		

Present

For life forms with benchmark cover of < 10%, considered 'present' if
- any specimens are observed.

For life forms with benchmark cover of ≥ 10%, considered 'present' if
- the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present')

For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either:
- < 50% of the benchmark species diversity; or
- no reproductively-mature specimens are observed.

For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either:
- < 50% of benchmark cover; or
- < 50% of benchmark species diversity; or
- ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey — Score: 5

Category & Description		
All strata and lifeforms effectively absent		0
Up to 50% of life forms present		5
≥ 50% to 90% of lifeforms present	• of those present, ≥ 50% substantially modified	10
	• of those present, < 50% substantially modified	15
≥ 90% of lifeforms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

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Vegetation Quality Field Assessment Sheet

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Recruitment — *Score* 5

Category & Description			High diversity*°	Low diversity*°
No evidence of a recruitment 'cohort'+	within EVC not driven by episodic events		0	0
	within EVC driven by episodic events^	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life-form	proportion of native woody species present that have adequate recruitment°	< 30%	3	1
		30 - 70%	6	3
		≥ 70%	10	5

+ 'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals).

^ refer to EVC benchmark for clarification.

° treat multiple eucalypt canopy species as one species.

* high diversity defined as ≥ 50% of benchmark woody species diversity.

Species Recruitment

Woody species recorded in habitat zone	Adequate Recruitment (✓)
Eucalypt canopy (combined species)	✓
number of woody spp. in EVC benchmark (SS and taller)	

Logs — *Score* 3

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	3	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

* present if large log length is ≥ 25% of EVC benchmark log length.

absent if large log length is < 25% of EVC benchmark log length.

Organic Litter — *Score* 0

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	3	2
≥ 50% or ≤ 150% of benchmark cover	5	4

'Landscape Context Score'

Patch Size — *Score* 1

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
≥ 20 ha, but not 'significantly disturbed'*	10

* 'significantly disturbed' defined as per RFA 'Old Growth' analyses eg. roading, coupes, grazing etc. – effectively most patches within fragmented landscapes.

Distance to Core Area — *Score* 3

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Neighbourhood — *Score* 0

Radius from site	% Native vegetation *	Weighting	
100 m		0.03	
1 km		0.04	
5 km		0.03	
	subtract 2 if the neighbourhood is 'significantly disturbed'		
		Add Values and 'round-off'	

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Final Habitat Score

	'Site Condition Score'							'Landscape Context Score'			
Component	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	Distance to Core Area	Total
Score	9	4	0	5	5	0	3	1	0	3	30
											100

0.04 ha

Vegetation Quality Field Assessment Sheet

Version 1.3 - October 2004

Department of Sustainability and Environment

Site Name/No. HZ3 Location Cranbourne East Date 13/8/07

Assessor(s) JK Map Name/No. ..... AMG .....

Tenure ..... EVC 48. H.W Bioregion .....

'Site Condition Score'

Large Trees — Score 10

Category & Description	% Canopy Health*		
	> 70%	30-70%	< 30%
None present	0	0	0
> 0 to 20% of the benchmark number of large trees/ha	3	2	1
> 20% to 40% of the benchmark number of large trees/ha	4	3	2
> 40% to 70% of the benchmark number of large trees/ha	6	5	4
> 70% to 100% of the benchmark number of large trees/ha	8	7	6
≥ the benchmark number of large trees/ha	(10)	9	8

Large trees are defined by diameter at breast height (dbh) - see EVC benchmark.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Tree Canopy Cover — Score 5

Category & Description	% Canopy Health *		
	> 70%	30-70%	< 30%
< 10% of benchmark cover	0	0	0
< 50% or > 150% of benchmark cover	3	2	1
≥ 50% or ≤ 150% of benchmark cover	(5)	4	3

Tree canopy is defined as those canopy tree species reaching ≥ 80% of mature height - see EVC benchmark description.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Lack of Weeds — Score 2

Category & Description	'high threat' weeds*		
	None	≤ 50%	> 50%
> 50% cover of weeds	4	(2)	0
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** if total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
IT	– / 1 / –	– / 1 / 5	—	—
MS	21 / 5	30 / 130	✓	
SS	1 / 1 / 5	10 / 120	✓	
MH	1 / 1 / 7	1 / 1 / 5	✓	✓
SH	– / 1 / 2	– / 1 / 5	—	—
LTG	– / 1 / 1	– / 1 / 5		
LNG	– / 1 / 1	– / 1 / 1		
MTG	– / 1 / 1	– / 1 / 5		
MNG	1 / 1 / 2	1 / 1 / 5	✓	✓
GF	1 / 1 / 1	15 / 1 / 5	✓	
PL	– / 1 / n/a	– / 1 / 10	—	—
S/C	– / 1 / n/a	– / 1 / 10	—	—
	/ 1	/ 1		
	/ 1	/ 1		
	/ 1	/ 1		
	/ 1	/ 1		

Present

For life forms with benchmark cover of < 10%, considered 'present' if
- any specimens are observed.

For life forms with benchmark cover of ≥ 10%, considered 'present' if
- the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present')

For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either:
- < 50% of the benchmark species diversity; or
- no reproductively-mature specimens are observed.

For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either:
- < 50% of benchmark cover; or
- < 50% of benchmark species diversity; or
- ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey — Score 5

Category & Description		
All strata and lifeforms effectively absent		0
Up to 50% of life forms present		(5)
≥ 50% to 90% of lifeforms present	• of those present, ≥ 50% substantially modified	10
	• of those present, < 50% substantially modified	15
≥ 90% of lifeforms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

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Vegetation Quality Field Assessment Sheet

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Recruitment

Score 1

Category & Description			High diversity*°	Low diversity*°
No evidence of a recruitment 'cohort'+	within EVC not driven by episodic events		0	0
	within EVC driven by episodic events^	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life-form	proportion of native woody species present that have adequate recruitment°	< 30%	3	(1)
		30 - 70%	6	3
		≥ 70%	10	5

+ 'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals).

^ refer to EVC benchmark for clarification.

° treat multiple eucalypt canopy species as one species.

* high diversity defined as ≥ 50% of benchmark woody species diversity.

Species Recruitment

Woody species recorded in habitat zone	Adequate Recruitment (✓)
Eucalypt canopy (combined species)	
Ric i pini	✓
number of woody spp. in EVC benchmark (SS and taller)	

Logs

Score 0

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	3	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

* present if large log length is ≥ 25% of EVC benchmark log length.

absent if large log length is < 25% of EVC benchmark log length.

Organic Litter

Score 2

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	3	(2)
≥ 50% or ≤ 150% of benchmark cover	5	4

'Landscape Context Score'

Patch Size

Score 1

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
≥ 20 ha, but not 'significantly disturbed'*	10

* 'significantly disturbed' defined as per RFA 'Old Growth' analyses eg. roading, coupes, grazing etc. – effectively most patches within fragmented landscapes.

Distance to Core Area

Score 3

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Neighbourhood

Score 0

Radius from site	% Native vegetation *	Weighting	
100 m		0.03	
1 km		0.04	
5 km		0.03	
		subtract 2 if the neighbourhood is 'significantly disturbed'	
		Add Values and 'round-off'	

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Final Habitat Score

	'Site Condition Score'							'Landscape Context Score'			
Component	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	Distance to Core Area	**Total**
Score	10	5	2	5	1	2	0	1	0	3	**29** / **100**

0·06 ha

Vegetation Quality Field Assessment Sheet

Version 1.3 - October 2004

Department of Sustainability and Environment

Site Name/No. MHZ4 Location Gran. East Date 13/8/07

Assessor(s) SK Map Name/No. ..... AMG .....

Tenure ..... EVC 48 H.W Bioregion .....

'Site Condition Score'

Large Trees — Score: 9

Category & Description	% Canopy Health* > 70%	30-70%	< 30%
None present	0	0	0
> 0 to 20% of the benchmark number of large trees/ha	3	2	1
> 20% to 40% of the benchmark number of large trees/ha	4	3	2
> 40% to 70% of the benchmark number of large trees/ha	6	5	4
> 70% to 100% of the benchmark number of large trees/ha	8	7	6
≥ the benchmark number of large trees/ha	10	(9)	8

Large trees are defined by diameter at breast height (dbh) - see EVC benchmark.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Tree Canopy Cover — Score: 4

Category & Description	% Canopy Health * > 70%	30-70%	< 30%
< 10% of benchmark cover	0	0	0
< 50% or > 150% of benchmark cover	3	2	1
≥ 50% or ≤ 150% of benchmark cover	5	(4)	3

Tree canopy is defined as those canopy tree species reaching ≥ 80% of mature height - see EVC benchmark description.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Lack of Weeds — Score: 0

Category & Description	'high threat' weeds* None	≤ 50%	> 50%
> 50% cover of weeds	4	2	(0)
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** if total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
IT	1 —	<1 1 5	✓	✓
MS	15	1 70		
SS	15	1 20		
MH	12	1 5		
SH	12	1 5		
LTG	1 1	1 5		
LNG	1 1	1 1		
MTG	1 1	1 5		
MNG	1 1 2	1 1 5	✓	✓
GF	1 1 1	30 1 5	✓	
BL	1 n/a	1 10		
S/C	1 n/a	1 10		
	1	1		
	1	1		
	1	1		
	1	1		

Present

For life forms with benchmark cover of < 10%, considered 'present' if
- any specimens are observed.

For life forms with benchmark cover of ≥ 10%, considered 'present' if
- the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present')

For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either:
- < 50% of the benchmark species diversity; or
- no reproductively-mature specimens are observed.

For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either:
- < 50% of benchmark cover; or
- < 50% of benchmark species diversity; or
- ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey — Score: 5

Category & Description		
All strata and lifeforms effectively absent		0
Up to 50% of life forms present		5
≥ 50% to 90% of lifeforms present	• of those present, ≥ 50% substantially modified	10
	• of those present, < 50% substantially modified	15
≥ 90% of lifeforms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

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Vegetation Quality Field Assessment Sheet

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Recruitment

Score 0

Category & Description			High diversity*°	Low diversity*°
No evidence of a recruitment 'cohort'+	within EVC not driven by episodic events		0	0
	within EVC driven by episodic events^	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life-form	proportion of native woody species present that have adequate recruitment°	< 30%	3	1
		30 - 70%	6	3
		≥ 70%	10	5

+ 'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals).

^ refer to EVC benchmark for clarification.

° treat multiple eucalypt canopy species as one species.

* high diversity defined as ≥ 50% of benchmark woody species diversity.

Species Recruitment

Woody species recorded in habitat zone	Adequate Recruitment (✓)
Eucalypt canopy (combined species)	
number of woody spp. in EVC benchmark (SS and taller)	

Logs

Score 0

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	3	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

* present if large log length is ≥ 25% of EVC benchmark log length.

absent if large log length is < 25% of EVC benchmark log length.

Organic Litter

Score 2

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	3	2
≥ 50% or ≤ 150% of benchmark cover	5	4

'Landscape Context Score'

Patch Size

Score 1

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
≥ 20 ha, but not 'significantly disturbed'*	10

* 'significantly disturbed' defined as per RFA 'Old Growth' analyses eg. roading, coupes, grazing etc. – effectively most patches within fragmented landscapes.

Distance to Core Area

Score 3

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Neighbourhood

Score 0

Radius from site	% Native vegetation *	Weighting	
100 m		0.03	
1 km		0.04	
5 km		0.03	
	subtract 2 if the neighbourhood is 'significantly disturbed'		
		Add Values and 'round-off'	

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Final Habitat Score

	'Site Condition Score'							'Landscape Context Score'			
Component	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	Distance to Core Area	Total
											100
Score	9	4	0	5	0	2	0	1	0	3	24

Vegetation Quality Field Assessment Sheet

Version 1.3 - October 2004

Department of Sustainability and Environment

Site Name/No. HZ5 Location Gm Eagle Date 13/8/07

Assessor(s) JK Map Name/No. AMG

Tenure EVC 48 4.W Bioregion

'Site Condition Score'

Large Trees — Score: 9

Category & Description	% Canopy Health* > 70%	30-70%	< 30%
None present	0	0	0
> 0 to 20% of the benchmark number of large trees/ha	3	2	1
> 20% to 40% of the benchmark number of large trees/ha	4	3	2
> 40% to 70% of the benchmark number of large trees/ha	6	5	4
> 70% to 100% of the benchmark number of large trees/ha	8	7	6
≥ the benchmark number of large trees/ha	10	(9)	8

Large trees are defined by diameter at breast height (dbh) - see EVC benchmark.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Tree Canopy Cover — Score: 4

Category & Description	% Canopy Health * > 70%	30-70%	< 30%
< 10% of benchmark cover	0	0	0
< 50% or > 150% of benchmark cover	3	2	1
≥ 50% or ≤ 150% of benchmark cover	5	(4)	3

Tree canopy is defined as those canopy tree species reaching ≥ 80% of mature height - see EVC benchmark description.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Lack of Weeds — Score: 4

Category & Description	'high threat' weeds* None	≤ 50%	> 50%
> 50% cover of weeds	4	2	0
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** if total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
T	1 –	1 5		
MS	3 / 5	<5 / 30	✓	✓
SS	– / 5	– / 20	—	—
MH	3 / 2	1 / 5	✓	✓
SH	1 / 2	1 / 5	✓	✓
LTG	1 / 1	1 / 5	✓	✓
LNG	1 / 1	1 / 1	✓	
MTG	2 / 1	1 / 5	✓	✓
MNG	1 / 2	20 / 5	✓	
GF	1 / 1	2.5 / 5	✓	
BL	– / nil	5 / 10	✓	—
S/C	1 / nil	1 / 10	—	—
	/	/		
	/	/		
	/	/		
	/	/		

Present

For life forms with benchmark cover of < 10%, considered 'present' if
- any specimens are observed.

For life forms with benchmark cover of ≥ 10%, considered 'present' if
- the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present')

For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either:
- < 50% of the benchmark species diversity; or
- no reproductively-mature specimens are observed.

For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either:
- < 50% of benchmark cover; or
- < 50% of benchmark species diversity; or
- ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey — Score: 10

Category & Description		
All strata and lifeforms effectively absent		0
Up to 50% of life forms present		5
≥ 50% to 90% of lifeforms present	• of those present, ≥ 50% substantially modified	(10)
	• of those present, < 50% substantially modified	15
≥ 90% of lifeforms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

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Recruitment

Score 1

Category & Description			High diversity*°	Low diversity*°
No evidence of a recruitment 'cohort'+	within EVC not driven by episodic events		0	0
	within EVC driven by episodic events^	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life-form	proportion of native woody species present that have adequate recruitment°	< 30%	3	1
		30 - 70%	6	3
		≥ 70%	10	5

+ 'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals).

^ refer to EVC benchmark for clarification.

° treat multiple eucalypt canopy species as one species.

* high diversity defined as ≥ 50% of benchmark woody species diversity.

Species Recruitment

Woody species recorded in habitat zone	Adequate Recruitment (✓)
Eucalypt canopy (combined species)	
See Notes	
number of woody spp. in EVC benchmark (SS and taller)	

Logs

Score 0

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	3	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

* present if large log length is ≥ 25% of EVC benchmark log length.

absent if large log length is < 25% of EVC benchmark log length.

Organic Litter

Score 3

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	3	2
≥ 50% or ≤ 150% of benchmark cover	5	4

'Landscape Context Score'

Patch Size

Score 1

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
≥ 20 ha, but not 'significantly disturbed'*	10

* 'significantly disturbed' defined as per RFA 'Old Growth' analyses eg. roading, coupes, grazing etc. – effectively most patches within fragmented landscapes.

Distance to Core Area

Score 3

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Neighbourhood

Score 0

Radius from site	% Native vegetation*	Weighting	
100 m		0.03	
1 km		0.04	
5 km		0.03	
	subtract 2 if the neighbourhood is 'significantly disturbed'		
		Add Values and 'round-off'	

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Final Habitat Score

	'Site Condition Score'							'Landscape Context Score'			
Component	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	Distance to Core Area	Total
Score	9	4	4	10	0	3	0	1	0	3	100

35

0.89 ha

Vegetation Quality Field Assessment Sheet

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Department of Sustainability and Environment

Site Name/No. HZ6 Location Gra. East Date 13/5/07

Assessor(s) JK Map Name/No. AMG

Tenure EVC 175 G.W Bioregion

'Site Condition Score'

Large Trees — Score: 0

Category & Description	% Canopy Health* > 70%	30-70%	< 30%
None present	0	0	0
> 0 to 20% of the benchmark number of large trees/ha	3	2	1
> 20% to 40% of the benchmark number of large trees/ha	4	3	2
> 40% to 70% of the benchmark number of large trees/ha	6	5	4
> 70% to 100% of the benchmark number of large trees/ha	8	7	6
≥ the benchmark number of large trees/ha	10	9	8

Large trees are defined by diameter at breast height (dbh) - see EVC benchmark.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Tree Canopy Cover — Score: 3

Category & Description	% Canopy Health * > 70%	30-70%	< 30%
< 10% of benchmark cover	0	0	0
< 50% or > 150% of benchmark cover	3	2	1
≥ 50% or ≤ 150% of benchmark cover	5	4	3

Tree canopy is defined as those canopy tree species reaching ≥ 80% of mature height - see EVC benchmark description.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Lack of Weeds — Score: 0

Category & Description	'high threat' weeds* None	≤ 50%	> 50%
> 50% cover of weeds	4	2	0
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** if total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
IT	— / 1 / —	1 / 15	✓	✓
T	2 / 12	20 / 110	✓	
MS	— / 16	— / 115	—	—
SS	— / 12	— / 15	—	—
PS	— / 12	— / 11	—	—
LH	1 / 12	<1 / 15	✓	✓
MH	3 / 18	<1 / 110	✓	✓
SH	1 / 13	<1 / 15	✓	✓
LTG	/ 12	/ 110	—	
LNG	/ 11	/ 110	—	
MTG	2 / 16	1 / 120	✓	✓
MNG	1 / 12	<1 / 110	✓	✓
GF	— / 11	— / 15	—	—
SC	— / 12	— / 15	—	—
FL	— / n/a	— / 110	—	—
	/ 1	/ 1		

Present

For life forms with benchmark cover of < 10%, considered 'present' if
- any specimens are observed.

For life forms with benchmark cover of ≥ 10%, considered 'present' if
- the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present')

For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either:
- < 50% of the benchmark species diversity; or
- no reproductively-mature specimens are observed.

For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either:
- < 50% of benchmark cover; or
- < 50% of benchmark species diversity; or
- ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey — Score: 5

Category & Description		
All strata and lifeforms effectively absent		0
Up to 50% of life forms present		5
≥ 50% to 90% of lifeforms present	• of those present, ≥ 50% substantially modified	10
	• of those present, < 50% substantially modified	15
≥ 90% of lifeforms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

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Recruitment

Score 3

Category & Description			High diversity*°	Low diversity*°
No evidence of a recruitment 'cohort'+	within EVC not driven by episodic events		0	0
	within EVC driven by episodic events^	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life-form	proportion of native woody species present that have adequate recruitment°	< 30%	3	1
		30 - 70%	6	(3)
		≥ 70%	10	5

+ 'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals).

^ refer to EVC benchmark for clarification.

° treat multiple eucalypt canopy species as one species.

* high diversity defined as ≥ 50% of benchmark woody species diversity.

Species Recruitment

Woody species recorded in habitat zone	Adequate Recruitment (✓)
Eucalypt canopy (combined species)	✓
A. mol.	✓
number of woody spp. in EVC benchmark (SS and taller)	

Organic Litter

Score 2

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	3	(2)
≥ 50% or ≤ 150% of benchmark cover	5	4

Logs

Score 0

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	3	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

* present if large log length is ≥ 25% of EVC benchmark log length.

absent if large log length is < 25% of EVC benchmark log length.

'Landscape Context Score'

Patch Size

Score 1

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
≥ 20 ha, but not 'significantly disturbed'*	10

* 'significantly disturbed' defined as per RFA 'Old Growth' analyses eg. roading, coupes, grazing etc. – effectively most patches within fragmented landscapes.

Distance to Core Area

Score 1

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Neighbourhood

Score 0

Radius from site	% Native vegetation *	Weighting	
100 m		0.03	
1 km		0.04	
5 km		0.03	
	subtract 2 if the neighbourhood is 'significantly disturbed'		
		Add Values and 'round-off'	

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Final Habitat Score

	'Site Condition Score'							'Landscape Context Score'			
Component	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	Distance to Core Area	Total
Score	0	3	0	5	3	2	0	1	0	1	15
											100

Vegetation Quality Field Assessment Sheet

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Department of Sustainability and Environment

Site Name/No. H27 Location Crm. East Date 13/9/07

Assessor(s) JK Map Name/No. AMG

Tenure EVC 175 G W Bioregion

'Site Condition Score'

Large Trees — Score: 0

Category & Description	% Canopy Health*		
	> 70%	30-70%	< 30%
None present	0	0	0
> 0 to 20% of the benchmark number of large trees/ha	3	2	1
> 20% to 40% of the benchmark number of large trees/ha	4	3	2
> 40% to 70% of the benchmark number of large trees/ha	6	5	4
> 70% to 100% of the benchmark number of large trees/ha	8	7	6
≥ the benchmark number of large trees/ha	10	9	8

Large trees are defined by diameter at breast height (dbh) - see EVC benchmark.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Tree Canopy Cover — Score: 0

Category & Description	% Canopy Health *		
	> 70%	30-70%	< 30%
< 10% of benchmark cover	0	0	0
< 50% or > 150% of benchmark cover	3	2	1
≥ 50% or ≤ 150% of benchmark cover	5	4	3

Tree canopy is defined as those canopy tree species reaching ≥ 80% of mature height - see EVC benchmark description.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Lack of Weeds — Score: 0

Category & Description	'high threat' weeds*		
	None	≤ 50%	> 50%
> 50% cover of weeds	4	2	0
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** if total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
IT	1 -	1 5	—	—
T	2 1 2	60 1 10	✓	
MS	1 6	1 15	—	—
SS	1 2	1 5	—	—
PS	1 2	1 1	—	—
CH	1 2	1 5	✓	✓
MH	1 8	1 10	✓	✓
SH	1 3	1 5	—	—
LTG	1 2	1 10	—	—
LNG	1 1	1 10	—	—
MTG	1 1	1 20	✓	✓
MNG	1 2	1 10	—	—
GF	1 1	1 5	✓	✓
SC	1 2	15	—	—
BL	1 n/a	1 10	—	—
	1	1		

Present

For life forms with benchmark cover of < 10%, considered 'present' if
- any specimens are observed.

For life forms with benchmark cover of ≥ 10%, considered 'present' if
- the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present')

For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either:
- < 50% of the benchmark species diversity; or
- no reproductively-mature specimens are observed.

For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either:
- < 50% of benchmark cover; or
- < 50% of benchmark species diversity; or
- ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey — Score: 5

Category & Description		
All strata and lifeforms effectively absent		0
Up to 50% of life forms present		5
≥ 50% to 90% of lifeforms present	• of those present, ≥ 50% substantially modified	10
	• of those present, < 50% substantially modified	15
≥ 90% of lifeforms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

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Recruitment

Score 1

Category & Description			High diversity*°	Low diversity*°
No evidence of a recruitment 'cohort'+	within EVC not driven by episodic events		0	0
	within EVC driven by episodic events^	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life-form	proportion of native woody species present that have adequate recruitment°	< 30%	3	1
		30 - 70%	6	3
		≥ 70%	10	5

+ 'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals).

^ refer to EVC benchmark for clarification.

° treat multiple eucalypt canopy species as one species.

* high diversity defined as ≥ 50% of benchmark woody species diversity.

Species Recruitment

Woody species recorded in habitat zone	Adequate Recruitment (✓)
Eucalypt canopy (combined species)	✓
Amelk	
number of woody spp. in EVC benchmark (SS and taller)	

Logs

Score 2

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	3	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

* present if large log length is ≥ 25% of EVC benchmark log length.

absent if large log length is < 25% of EVC benchmark log length.

Organic Litter

Score 2

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	3	2
≥ 50% or ≤ 150% of benchmark cover	5	4

'Landscape Context Score'

Patch Size

Score 1

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
≥ 20 ha, but not 'significantly disturbed'*	10

* 'significantly disturbed' defined as per RFA 'Old Growth' analyses eg. roading, coupes, grazing etc. – effectively most patches within fragmented landscapes.

Distance to Core Area

Score 1

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Neighbourhood

Score 0

Radius from site	% Native vegetation *	Weighting	
100 m		0.03	
1 km		0.04	
5 km		0.03	
	subtract 2 if the neighbourhood is 'significantly disturbed'		
		Add Values and 'round-off'	

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Final Habitat Score

	'Site Condition Score'							'Landscape Context Score'			
Component	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	Distance to Core Area	Total
											100
Score	0	0	0	5	1	2	2	1	0	1	12

0.024 ha

Vegetation Quality Field Assessment Sheet

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Department of Sustainability and Environment

Site Name/No. #28 Location Crabtree East Date 18/07

Assessor(s) JK Map Name/No. ..... AMG .....

Tenure ..... EVC 53.5.5 Bioregion .....

'Site Condition Score'

Large Trees — Score N/A

Category & Description	% Canopy Health*		
	> 70%	30-70%	< 30%
None present	0	0	0
> 0 to 20% of the benchmark number of large trees/ha	3	2	1
> 20% to 40% of the benchmark number of large trees/ha	4	3	2
> 40% to 70% of the benchmark number of large trees/ha	6	5	4
> 70% to 100% of the benchmark number of large trees/ha	8	7	6
≥ the benchmark number of large trees/ha	10	9	8

Large trees are defined by diameter at breast height (dbh) - see EVC benchmark.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Tree Canopy Cover — Score 5

Category & Description	% Canopy Health *		
	> 70%	30-70%	< 30%
< 10% of benchmark cover	0	0	0
< 50% or > 150% of benchmark cover	3	2	1
≥ 50% or ≤ 150% of benchmark cover	5	4	3

Tree canopy is defined as those canopy tree species reaching ≥ 80% of mature height - see EVC benchmark description.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Lack of Weeds — Score 0

Category & Description	'high threat' weeds*		
	None	≤ 50%	> 50%
> 50% cover of weeds	4	2	0
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** if total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		
	/	/		

Present

For life forms with benchmark cover of < 10%, considered 'present' if
- any specimens are observed.

For life forms with benchmark cover of ≥ 10%, considered 'present' if
- the life form occupies at least 10% of benchmark cover.

Modified (apply only where life form is 'present')

For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either:
- < 50% of the benchmark species diversity; or
- no reproductively-mature specimens are observed.

For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either:
- < 50% of benchmark cover; or
- < 50% of benchmark species diversity; or
- ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey — Score 0

Category & Description		
All strata and lifeforms effectively absent		0
Up to 50% of life forms present		5
≥ 50% to 90% of lifeforms present	• of those present, ≥ 50% substantially modified	10
	• of those present, < 50% substantially modified	15
≥ 90% of lifeforms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

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Recruitment

Score 5

Category & Description			High diversity*°	Low diversity*°
No evidence of a recruitment 'cohort'+	within EVC not driven by episodic events		0	0
	within EVC driven by episodic events^	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	5	5
Evidence of at least one recruitment 'cohort' in at least one life-form	proportion of native woody species present that have adequate recruitment°	< 30%	3	1
		30 - 70%	6	3
		≥ 70%	10	(5)

+ 'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals).

^ refer to EVC benchmark for clarification.

° treat multiple eucalypt canopy species as one species.

* high diversity defined as ≥ 50% of benchmark woody species diversity.

Species Recruitment

Woody species recorded in habitat zone	Adequate Recruitment (✓)
~~Eucalypt canopy (combined species)~~	
Mela eric	✓
number of woody spp. in EVC benchmark (SS and taller)	

Organic Litter

Score 3

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	(3)	2
≥ 50% or ≤ 150% of benchmark cover	5	4

Logs

Score

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	3	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

* present if large log length is ≥ 25% of EVC benchmark log length.

absent if large log length is < 25% of EVC benchmark log length.

'Landscape Context Score'

Patch Size

Score 1

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
≥ 20 ha, but not 'significantly disturbed'*	10

* 'significantly disturbed' defined as per RFA 'Old Growth' analyses eg. roading, coupes, grazing etc. – effectively most patches within fragmented landscapes.

Distance to Core Area

Score 3

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	(3)
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Neighbourhood

Score 0

Radius from site	% Native vegetation *	Weighting	
100 m		0.03	
1 km		0.04	
5 km		0.03	
	subtract 2 if the neighbourhood is 'significantly disturbed'		
		Add Values and 'round-off'	

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Final Habitat Score

	'Site Condition Score'							'Landscape Context Score'			
Component	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	Distance to Core Area	Total
											100
Score	N/A	5	0	0	5	3	N/A	1	0	3	20.3

× 75/60 = 16.25

Vegetation Quality Field Assessment Sheet

Version 1.3 - October 2004

Department of Sustainability and Environment

Site Name/No. HZ9 Location Cran East Date

Assessor(s) JGK Map Name/No. AMG

Tenure EVC 48 H.W. Bioregion

'Site Condition Score'

Large Trees

Score 2

Category & Description	*% Canopy Health**		
	> 70%	*30-70%*	*< 30%*
None present	0	0	0
> 0 to 20% of the benchmark number of large trees/ha	3	2	1
> 20% to 40% of the benchmark number of large trees/ha	4	3	2
> 40% to 70% of the benchmark number of large trees/ha	6	5	4
> 70% to 100% of the benchmark number of large trees/ha	8	7	6
≥ the benchmark number of large trees/ha	10	9	8

Large trees are defined by diameter at breast height (dbh) - see EVC benchmark.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Tree Canopy Cover

Score 2

Category & Description	*% Canopy Health **		
	> 70%	*30-70%*	*< 30%*
< 10% of benchmark cover	0	0	0
< 50% or > 150% of benchmark cover	3	2	1
≥ 50% or ≤ 150% of benchmark cover	5	4	3

Tree canopy is defined as those canopy tree species reaching ≥ 80% of mature height - see EVC benchmark description.

* Estimate proportion of an expected healthy canopy cover that is present (i.e. not missing due to tree death or decline, or mistletoe infestation).

Lack of Weeds

Score 0

Category & Description	*'high threat' weeds**		
	None	*≤ 50%*	*> 50%*
> 50% cover of weeds	4	2	0
25 - 50% cover of weeds	7	6	4
5 - 25% cover of weeds	11	9	7
< 5% cover of weeds**	15	13	11

* proportion of weed cover due to 'high threat' weeds - see EVC benchmark for guide.

'High threat' weed species are defined as those introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.

The EVC benchmark lists typical weed species for the EVC in the bioregion and provides an estimate of their 'invasiveness' and 'impact'. In general, those weed species considered to have a *high impact* are considered *high threat* regardless of their invasiveness.

** if total weed cover is negligible (<1%) and high threat weed species are present then score '13'.

Understorey Life forms

LF Code from EVC benchmark	# spp observed / Benchmark spp.	% cover observed / Benchmark % cover	Present (✓)	Modified (✓)
IT	✓ / -	<1 / 5	✓	✓
MS	4 / 5	3 / 30	✓	✗
SS	1 / 5	<1 / 20	✗	
MH	/ 2	/ 5		
SH	/ 2	/ 5		
LTG	/ 1	/ 5		
LNG	/ 1	/ 1		
MTG	1 / 1	<1 / 5	✓	✓
MNG	1 / 2	/ 5	✓	✓
GF	1 / 1	<1 / 5	✓	✓
BL	✓ / n/a	<1 / 10	✗	
S/C	/ n/a	/ 10		
	/	/		
	/	/		
	/	/		
	/	/		

Present	For life forms with benchmark cover of < 10%, considered 'present' if • any specimens are observed. For life forms with benchmark cover of ≥ 10%, considered 'present' if • the life form occupies at least 10% of benchmark cover.
Modified (apply only where life form is 'present')	For life forms with benchmark cover of <10%, then considered substantially 'modified' if the life form has either: • < 50% of the benchmark species diversity; or • no reproductively-mature specimens are observed. For life forms with benchmark cover of ≥ 10%, then considered substantially 'modified' if the life form has either: • < 50% of benchmark cover; or • < 50% of benchmark species diversity; or • ≥ 50% of benchmark cover due largely to immature canopy specimens but the cover of reproductively-mature specimens is < 10% of the benchmark cover.

Understorey

Score 5

Category & Description		
All strata and lifeforms effectively absent		0
Up to 50% of life forms present		5
≥ 50% to 90% of lifeforms present	• of those present, ≥ 50% substantially modified	10
	• of those present, < 50% substantially modified	15
≥ 90% of lifeforms present	• of those present, ≥ 50% substantially modified	15
	• of those present, < 50% substantially modified	20
	• of those present, none substantially modified	25

Victoria
The Place To Be

Vegetation Quality Field Assessment Sheet

Version 1.3 October 2004

Recruitment

Score 5

Category & Description			High diversity*°	Low diversity*°
No evidence of a recruitment 'cohort'+	within EVC not driven by episodic events		0	0
	within EVC driven by episodic events^	clear evidence of appropriate episodic event	0	0
		no clear evidence of appropriate episodic event	(5) A 5	
Evidence of at least one recruitment 'cohort' in at least one life-form	proportion of native woody species present that have adequate recruitment°	< 30%	3	1
		30 - 70%	6	3
		≥ 70%	10	5

+ 'cohort' refers to a group of woody plants established in a single episode (can include suppressed canopy species individuals).

^ refer to EVC benchmark for clarification.

° treat multiple eucalypt canopy species as one species.

* high diversity defined as ≥ 50% of benchmark woody species diversity.

Species Recruitment

Woody species recorded in habitat zone	~~Adequate~~ Recruitment (✓)
Eucalypt canopy (combined species)	✓
Rici plus	✓
Mono scop	✓
Kunz oric	✓
Lept myrs	X
Not adequate recruitment (for individuals for each spp.)	
number of woody spp. in EVC benchmark (SS and taller)	

Logs

Score 5

Category & Description	Large logs present*	Large logs absent#
< 10% of benchmark length	0	0
< 50% of benchmark length	3	2
≥ 50% of benchmark length	5	4

Large logs defined as those with diameter ≥ 0.5 of benchmark large tree dbh.

* present if large log length is ≥ 25% of EVC benchmark log length.

absent if large log length is < 25% of EVC benchmark log length.

Organic Litter

Score 4

Category & Description	Dominated by native organic litter	Dominated by non-native organic litter
< 10% of benchmark cover	0	0
< 50% or > 150% of benchmark cover	3	2
≥ 50% or ≤ 150% of benchmark cover	5	4

'Landscape Context Score'

Patch Size

Score 1

Category & Description	
< 2 ha	1
Between 2 and 5 ha	2
Between 5 and 10 ha	4
Between 10 and 20 ha	6
≥ 20 ha, but 'significantly disturbed'*	8
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Distance to Core Area

Score 3

Distance	Core Area not significantly disturbed*	Core Area significantly disturbed*
> 5 km	0	0
1 to 5 km	2	1
< 1 km	4	3
contiguous	5	4

* defined as per RFA 'Old Growth' analyses.

Neighbourhood

Score 0

Radius from site	% Native vegetation *	Weighting	
100 m		0.03	
1 km		0.04	
5 km		0.03	
	subtract 2 if the neighbourhood is 'significantly disturbed'		
		Add Values and 'round-off'	

* to nearest 20%.

Multiply % native vegetation x Weighting for each radius from the zone (eg. 40% x 0.03 = 1.2); then add values to obtain final Neighbourhood Value.

Final Habitat Score

	'Site Condition Score'							'Landscape Context Score'			
Component	Large Trees	Tree Canopy Cover	Lack of Weeds	Understorey	Recruitment	Organic Litter	Logs	Patch Size	Neighbourhood	Distance to Core Area	Total
Score	2	2	0	5	5	4	5	1	0	3	27
											100

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