AVINGTON LIFESTYLE VILLAGE - STAGE A ONMENTAL PLAN (EP)

ENVIRONMENTAL PLAN (EP)



PREPARED FOR:



HALLMARC

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Avington Lifestyle Village Stage A – Environmental Plan			
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- assures the minimum standards of competency for consultants performing regulatory functions
- develops guidelines and codes of practice
- improves confidence in the quality, reliability and accountability of environmental reports and documentation provided to government agencies by environmental practitioners

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1. Introduction

DM Ecological was engaged by Hallmarc to develop an Environmental Plan (EP) for Stage A of the Avington Lifestyle Village, part of the Elloura Estate in Nagambie, Victoria. The EP will address the requirements of the Strathbogie Planning Scheme, detailed in Clause 37.02 Schedule 1 relating to Comprehensive Development previous studies or reports or will be satisfied in other plans developed for the Elloura Estate development rather than in in this EP. Table 1 (below) lists the planning scheme requirements and identifies if they will be satisfied by this EP or in other documents. Table 1: mechanisms for satisfying planning scheme requirements pertaining to Environmental Plans Planning Scheme requirement for Environmental Plan A Flora and Fauna assessment of the land that is to be

	Planning Scheme requirement for Environmental Plan	Mechanism to satisfy requirement
	A Flora and Fauna assessment of the land that is to be undertaken at an appropriate time of year	Appendix B to this EP: Avington Lifestyle Village Stage A - Ecological Assessment (DM Ecological, 2023)
	An assessment of any impact on Lake Nagambie and its foreshore	Section 3.3.1 of Appendix B to this EP: Avington Lifestyle Village Stage A - Ecological Assessment (DM Ecological, 2023)
	Details of the layout of the land including proposed tree plantations, drainage systems, irrigation systems, works related to the roads, car parking, pedestrian links; and proposed buildings	Appendix A to this EP: Stage A Development Plan
	 Details of how the development will manage and enhance native vegetation on the site, including an assessment of how the plan addresses: a) "Victoria's Native Vegetation Management – A Framework for Action" and the achievement of net gain outcomes as defined in the framework, including any offset. b) the native vegetation strategy in any relevant regional catchment management strategy. 	 a) Section 3.2.2 of Appendix B to this EP: Avington Lifestyle Village Stage A - Ecological Assessment (DM Ecological, 2023). b) Section 3.2.3 of Appendix B to this EP: Avington Lifestyle Village Stage A - Ecological Assessment (DM Ecological, 2023).
	Details of the micro-siting of buildings and infrastructure to ensure that trees identified in the Lake Nagambie Resort Master Plan and/or Flora and Fauna assessment for retention and permanent	Section 3.6 of this document Appendix A to this EP: Stage A Development Plan
	Details of how the development will address surface water management, the stream system on site and upstream and downstream of the development, including the protection of flows and enhancement of water quality including treatments required to accommodate staged construction.	Section 3.10 of this document
	Details of how the development of the land will address sediment control, salinity, nutrient control, and pollution control.	Section 3.10 of this document
	Management of stormwater from the development based on Best Practice Environmental Management Guidelines (CSIRO, 1999).	Stormwater Management Plan (SWMP) prepared by Incitus Pty Ltd.
	Details of on-going maintenance.	Section 3.12 of this document Landscape Plan by CDA Design
, ilo	Any other information required by the reconcretible sythesity	I o be implemented by Hallmarc
10 %	Before approving or amending (other than by a minor variation) the Environmental Plan, the responsible authority must have regard to the comments of:	None identified
	 Goulburn Valley Water; Environment Protection Authority; Department of Sustainability and Environment; Goulburn Broken Catchment Management Authority; and Goulburn-Murray Water 	The project will await any feedback from interested agencies to be delivered via Council and will respond accordingly

1.1 Document scope

This Environmental t Plan (EP) has been developed by DM Ecological on behalf of Hallmarc for use on the Avington Lifestyle Village Stage A project (the Project). This Plan describes the environmental protocols and management strategies to be implemented to ensure that Hallmarc establishes and maintains best practice controls to manage potential environmental impacts and, wherever practicable, realise opportunities for enhanced environmental outcomes. These environmental management strategies and mitigation measures within this Plan have been established to meet the recommendations and requirements contained within the Planning Scheme requirements, Australia and New Zealand Standards, State and Commonwealth Legislative requirements and Industry Guidelines.

This EP prescribes all environmental requirements so that all employees, contractors and sub-contractors understand and comply with these requirements for the project and that the environmental risks are properly managed. The document is intended to be used as an overarching document and is further structured to address the key environmental aspects encountered during the life of the work activities being controlled for the duration of the Project. This EP will be routinely reviewed every six months as a minimum or as required by the Project Manager as a result of Legislative/Statutory changes, change in scope of works, risks/hazards identified or due to Regulatory requirements as directed.

1.2 Project location

Stage A of the Avington Lifestyle Village is proposed at a ~20ha site located along Vickers Rd and Elloura Drive in Nagambie Victoria (Figure 1). The identified land is bordered by the Nagambie Sport and Recreation Reserve to the east, Vickers Road to the south, Elloura Drive to the West and remnant vegetation to the north. The Project area encompasses three parcels of land (\$11\PS543359, S6\PS543359 and \$17\PS543359).



Figure 1: Project location

2. Objectives

Hallmarc has defined specific, measurable and objective goals (Objectives) which are linked to Policy and Procedural requirements for assessing the project. Overall, the Project will:

- ind Environment Act 1987 Minimise the impact of its business activities, products and services on the environment and surrounding communities;
- Endeavour to realise opportunities for enhanced environmental outcomes; and
- Promote and create an environmentally sustainable business.

The key Project Environmental Objectives for the project are to:

- Comply and enforce the Project policy and guidelines, meet regulatory, legislative, industry standard and guideline requirements subscribed relating to the specific environmental aspects;
- Meet all relevant approval, permit and license requirements;
- Ensure environmentally sound construction planning, acquisition, design and construction of all related activities through adequate resourcing to ensure work activities do not present a risk to the environment;
- Promote practices, systems, values and behaviours that contribute towards responsible environmental practices, sustainability and reduced environmental impact;
- Minimise, where under our control, the production of pollutants and prevent the release of pollution to the environment from all related construction activities;
- To ensure that effective and appropriate procedures are developed and implemented that identify and document potential environmental hazards, risks and aspects and in turn implementing control measures to minimise or prevent environmental incidents and non-compliances from occurring associated with the site works;
- Prescribe effective environmental objectives and management strategies pertaining to a range of applicable environmental aspects and risks;
- Communicate and develop environmental training and awareness that will enable all employees and contractors to undertake their work in an environmentally friendly manner and increase environmental awareness;
- To implement monitoring programs to ensure effectiveness of the environmental control measures;
- Actively communicate to all project employees, subcontractors and suppliers the environmental management requirements and hold them accountable for their actions accordingly;
- Maintain effective communication and liaison with relevant stakeholders, government bodies and the general community regarding effective environmental strategies;
- Provide expert advice and guidance to the Project and Construction Management regarding environmental management in all aspects of the works;
- Achieve best practice environmental management on the project as assessed by internal/external audit, compliance checks, inspections and reviews which will ultimately ensure continual improvement;
- Implement strategies and initiatives to minimise greenhouse gas emissions and energy production/consumption levels;
- Contribute towards implementing appropriate waste management protocols through the principals of reduce, reuse, recycle and appropriate disposal to increase overall sustainability; and
- Recognise and celebrate initiatives and performance by those who make a positive contribution to the environment.

3. Environmental Aspects

Project activities have the pot aspects if not managed appro	ential to impact on the surrounding environment and associated environmental priately. Environmental aspects applicable during the construction phase include:	
Air quality man	agement	
Construction no	pise and vibration management	
Construction tr	affic management	
Hazardous subs	stances management	
Heritage impac	t management	
Native vegetati	on management	
Native fauna m	anagement	
Pollution and w	vaste management	
Salinity manage	ement	
Sediment, erosi	ion and water quality management	
 Soil and stockpi 	ile management	
 Sewage and wa 	istewater management	
 Weed, pest and 	d pathogen management	
Construction re	habilitation	
Management plans are provid objectives and management r 3.1 Air quality m Table 2: Air quality management Values to be protected	Air quality management Air quality management The values (beneficial uses) to be protected include: life, health and well-being of humans life, health and well-being of other forms of life, including the protection of ecosystems and biodiversity local amenity and aesthetic enjoyment visibility the useful life and aesthetic appearance of buildings, structures, property and materials climate systems that are consistent with human development, the 	
No.	life, health and well-being of humans, and the protection of	
Objectives	The objectives of the management and mitigation measures are to:	
	minimise the on- and off-site impacts to air quality that may affect local recidents	
	 minimise the on- and off-site impacts to air quality that may affect 	
	local businesses	

Air quality management				
	minimise the on- and off-site impacts to air quality that may directly affect the			
	ecology and/or habitat at the site.			
Management measures	 all vehicles and machinery will be fitted with appropriate emission control equipment, maintained frequently and serviced to the manufacturers' specifications Vegetation (non-native only) clearing activities will be staged so that areas of exposed soil are minimised. This will minimise the potential for dust-blown sediment. whilst transporting excavated material on public roads, vehicle loads will be covered. appropriate speed limits will be established and enforced on site for all vehicles to minimise wheel-generated dust a regime of water spraying, particularly on road and hardstand surfaces and stockpiles, will be implemented during periods when the generation of dust is observed from the construction site Stockpiles will: be low in height (i.e. approximately 2m or less) have dust control measures implemented such as covering, seeding, watering as required be monitored on a monthly basis to ensure dust control measures are effective and to introduce other measures as necessary 			

3.2 Construction noise and vibration management measures

			0				
			Construction noise	and vibration mana	gement		
	Values to be	The value	es to be protected inclu	ıde:			
	protected	• r	nearby residential pren	nises from unreasona	ble noise and vib	oration	
		• (commercial and other	premises affected by i	noise are also co	nsidered and	
			reasonable measures ir	nplemented to reduce	e impact on thes	se premises.	
	Objectives	The objective of noise and vibration management is to protect those values listed above.					
		This will	be done by ensuring:				
		2 months	works that have the po	tential to generate no	oise and vibratio	n are planned and	
	1	10 . 10 . 04 10 . 10 . 04	designed appropriately	o provided to protect	cito porconnol a	nd mombors of the	
	ile a		oublic the impacts of n	oise and vibration are	minimised	nu members of the	
	Managemen	EDA Dublication 1254 has been supercooled by EDA Dublication 1224 Civil					
	t measures	• EPA Publication 1254 has been superseded by EPA Publication 1834, Civil res					
	5 5 1 80 mg	guidance on scheduling noisy works to minimise the likelihood of noise and					
, the second sec	nut or disse	v	vibration causing harm. Under Publication 183 the working hours in below Table				
in on the		apply. These limits will apply at nearby dwellings (sensitive receptors)				eceptors)	
40°CL MA	COX AND	Period		Day of the week	Time Period	Noise Limit	
This into no	0 the	Normal	working hours	Monday-Friday	0700-	No specific targets.	
	8		-		1800hrs	Implement	
87,040				Saturday	0700-	reasonable measures	
9.				· ·	1300hrs	to manage	
		construction noise.					
		The Guide to noise and vibration control on construction, demolition and					
		r	naintenance sites, AS2-	436:2010 presents a r	iumber of stand	ard mitigation	
			neasures.				

Co	nstruction noise and vibration management
0	Regular reinforcement (such as at toolbox talks) of the need to
	minimise noise and vibration
0	Regular identification of noisy activities and adoption of movement
	techniques
0	Avoiding the use of portable radios, public address systems or other
	methods of site communication that may unnecessarily impact upon
	nearby residents
0	Developing routes for the delivery of materials and parking of vehicles
	to minimise noise
0	Where possible, avoiding the use of equipment that generates
	impulsive noise
0	Minimising the need for vehicle reversing. For example, by arranging for
	one-way site traffic routes
0	Use of broadband audible alarms on vehicles and elevating work
	platforms use on site
0	Minimising the movement of materials and plant and unnecessary
	metal-on-metal contact
0	Minimising truck movements
0	Scheduling respite periods.

Construction traffic management 3.3

		0 0	Minimising true Scheduling resp	ck movements bite periods.	cet out red	22
	3.3 Co Table 4: Construct	nstruction traf	ffic managem ent measures	nent poces	Prohibited.	
	Values to be pr	rotected The	values to be pro Native veg Tree Prote Known cu Project bo Dust Noise and Environm Designate	traffic manager tected include: getation ection Zones ltural heritage sit undaries vibration ental protection I d "No-go Zones".	es boundaries	
is documenting	Objectives	a meany dock The	 objectives of ti plan for a with the r site set access creation c minimise visual among minimise and huma 	ne management a nd mitigate any u novement of peo routes for vehicl of unnecessary tra- the potential for dust generation t enity exhaust emission in health.	and mitigation mea Innecessary traffic i ple and goods to, fr les to and within sit acks traffic accidents to reduce impacts o as to reduce impact:	sures are to: mpacts associated rom and around the e to eliminate the n human health and s to the environment
The "shines	Management r	neasures Th	 be acquai be acquai direct actiant and exit p ensure ve occur dur ensure all site and h 	will: nted with and act vities to restrict v oints; hicle movements ing designated pe construction veh ave clear turning	t in accordance with /ehicular traffic to c (e.g. deliveries) to eriods of the day; nicles (light and hea circles provided:	n the Projects TMP; lesignated site entry and from the site only vy) are parked on the

Construction traffic management				
	 ensure that no construction vehicles are left idling with their engine running in any streets adjacent to residential properties; ensure all over-dimensional vehicles have the approvals required and, where required, will schedule all over-dimensional vehicles works to minimise disruption to local traffic. ensure that following construction of access tracks and lay down areas: vehicular traffic is restricted to constructed site access roads; ensure soil deposited on the surrounding public roads is minimised (utilise rumble grids if required); the maximum speed limit for all construction vehicles on site is enforced; and liaise with Contractors and others to ensure that dust blown from access tracks is minimised by regular spraying of water. 			
3.4 Hazardous substances management				
Table 5: Hazardous substances management measures				
	Hazardous substances management			
Values to be protected	The values to be protected include:			

Hazardous substances management 3.4

		Hazardous substances management
	Values to be protected	The values to be protected include:
		members of the public
		site personnel
		• property
		fauna and flora
		• habitat
	Objectives	The objectives of the management and mitigation measures are to:
		minimise the safety and health risks to workers
		 minimise the safety and health risks to the public
		Prevent undesirable environmental impacts arising from the
	in the second	handling, use, storing and transporting and disposal of hazardous
	10 m	substances and dangerous goods substances and,
	all other	ensure regulatory compliance.
	Management measures	• The manufacturer's information on the storage and handling of all
	A St. 40 , no . 10	hazardous substances/dangerous goods is essential to ensure the
	ie ed d'istri	health and safety of workers and protection of the environment.
	COK 12 All CO	Hallmarc will ensure:
	Sent to the still	• That a current safety data sheet (SDS) is available at each
	So the Car info	storage location, and or in vehicles for all chemicals and
, V	AND OF SOL	Substances used on site.
all's c	C , 0, 0, 0,	• An up-to-date copy of the hazardous substances/dangerous
Chill Still	20° 30°	goods register is present at each storage location and at the
90,011,3		Principal Contractor's site office.
This in ing	6	Chemical storage and handling on site will be undertaken in
LL BL B		accordance with Chapter 7.3 of EPA Victoria Publication 1834
87,010		(which replaces Publication 480).
9.4		 Spill management controls on site will be implemented in
		accordance with Chapter 7.4 of EPA Publication 1834 (previously
		480):
		 Spill kits must be located within 10 m of hazardous
		substance/dangerous goods storage locations.

	Hazardous substances management			
	 mobile spill kits must be present at all hazardous substance/dangerous goods storage and use areas and in all vehicles used for the transport of Substances spill kits must contain the spill media suitable for the types of hazardous substance/dangerous goods stored or decanted spill kits must be relocated to progressive work areas when the scope of work changes. 			
3.5 Heritage impact management				
Table 6: Heritage impact manage	ement measures			
Hazardous substances management				
Values to be protected The values to be protected include both historical heritage values and aboriginal cultural heritage values. 				

Heritage impact management 3.5

Hazardous substances management				
Values to be protected	• The values to be protected include both historical heritage values			
	and aboriginal cultural heritage values.			
Objectives	The objectives of the management and mitigation measures are to:			
	 manage historical heritage impacts to the satisfaction of the 			
	Planning Permit and Council requirements			
	 manage aboriginal cultural heritage impacts as agreed to in the 			
	Cultural Heritage Management Plan (CHMP).			
Management measures	The Site Manager/ Project Manager will:			
	 be acquainted with and act in accordance with relevant CHMP; 			
	 ensure all crews, including contractors, will undertake an induction 			
	to ensure they are aware of cultural heritage issues			
	 ensure personnel will not enter "no-go zones" that are established 			
	to protect cultural heritage.			

	to protect cultural heritage.
3.6 Native veget	ation management
Table 7: Native vegetation managed	gement measures
20° 10°	
and the states of the states o	Native vegetation management
Values to be protected	The values to be protected include native vegetation.
Objectives Start Company	^D The objectives of the management and mitigation measures are to:
all set in a wet	 manage risk of impact to native vegetation to the satisfaction of the
C C C C C C C C C C C C C C C C C C C	Planning Approval, Council requirements and DEECA;
COLOTION NO STIL	 implement measures to protect any threatened or endangered
S to the town with	vegetation species or communities from project impacts.
Management measures	• Plans (Figure 2 and Table 8) clearly identifying the following features
net of job dis	will be readily available:
Chi Att OC AN	 All habitat to be retained
a both of the office	 Non - native vegetation to be removed
This in ing dri	 Any current mapped wetlands that are present on the site
All the second	 Any native vegetation to be retained that is within the
83 01°	permissible micro-siting envelope or ancillary infrastructure
<i>₽</i>	 The location of any detected threatened flora and fauna
	species
	Retained native vegetation adjacent to construction areas will be
	temporarily fenced or marked with bunting, and appropriately
	signposted as 'no go' zones

	Native vegetation management
	Machinery, earthworks, lay-down areas and stockpiles will be
	located in areas that do not support native vegetation
	Ensuring the risk of weed and/or pathogen invasion into areas of
	vulnerable vegetation by following the measures set out in Weed,
	Pest and Pathogen Management Aspect
	 Phor to entering the site for the first time, an personnel will participate in a site induction. The induction will include information.
	relating to the protection of native vegetation including no-go zones
	and weed and pathogen control.
	All native vegetation and habitat to be retained will be clearly
	marked on construction drawings as 'no-go' zones.
	When working in or adjacent to areas of native vegetation, all
	vehicles and plant are to remain within the defined project footprint
	at all times.
	 Prior to construction, fencing, flagging or similar will be erected
	around patches of native vegetation that occur within 5 metres of
	least 2 metres outside the perimeter of each patch and he clearly
	signed No-Go Zone. Additional fencing or flagging is not required
	where existing fencing provides suitable protection for native
	vegetation.
	Where ground disturbance works are proposed within 10m of a "No
	Go Zone", and where runoff from a works area may impact a
	protected area, the protected area(s) will be protected from
	sediment and erosion through the use of temporary sediment and
	erosion controls such as sediment barriers or coir logs (see Figure 4
	 No ground disturbance works will be undertaken in "no-go" zones
	Access to "No-Go Zones" will be limited to zero-impact activities
	including but not limited to flora and fauna surveys,
	topographic/feature surveys, visual inspections and use of taglines
	during crane operations. Access to "No-Go Zones" will be limited to
	approved personnel only, and controlled/approved by the Site
	Manager.
	No turning points are to be created in the "No-Go Zones". Turning
	points will take advantage of existing driveways of roads of will be
	No parking areas are to be created in the "No-Go Zones". Parking
	areas will be established away from areas of native vegetation.
	Rubbish/construction waste will be stored away from areas of
	native vegetation. Regular monitoring will confirm that no
	rubbish/construction waste is being stored adjacent to areas of
, Y	native vegetation.
ent	Works, vehicle parking or stockpiling of materials outside the
CUL Att	project footprint may be required on an ad-noc basis during
20 toll 3	construction. This will only be permitted where halive vegetation is
This in ing	A program of spot spraving of any noxious weeds inside the project
111, tor 03	footprint will be implemented throughout construction.
87,001	To prevent the spread of weeds and pathogens, all vehicles, plant
° <i>0</i> °	and machinery will be washed down to remove soil, seed and plant
	material before being taken to and from the works site, during and
	on completion of the project.
	Any pruning to the canopy or major structural branches of any tree
	to be retained will be undertaken in accordance with Australian
	11

Native vegetation management

Standard 4347-2007 – Pruning of Amenity Trees.

	Tree ID	Tree Type	Species	Diameter at Breast Height (cm)	Hollows	Origin	Status	Tree Protection Zone (m)
	0	Scattered Tree	River Red Gum	210	Yes	Native	Retain	15
	1	Patch Tree	Long-leaf Box	170	No	Native	Retain	15
	2	Patch Tree	Long-leaf Box	154	Yes	Native	Retain	15 0
	3	Patch Tree	Yellow Box	70	No	Native	Retain	8.4
	4	Scattered Tree	River Red Gum	51	No	Native	Retain	6.1
	5	Patch tree	Grey Box	30	No	Native	Retain	3.6
	6	Patch tree	Grey Box	45	No	Native	Retain	5.4
	7	Patch Tree	Grey Box	55	No	Native	Retain	6.6
	8	Patch tree	Grey Box	60	No	Native	Retain	7.2
	9	Patch Tree	Stag	45	Noss	Native	Retain	5.4
	10	Patch Tree	Yellow Box	113	Yes	Native	Retain	13.6
	11	Patch Tree	Grey Box	96	Yes on	Native	Retain	11.5
	12	Patch Tree	Yellow Box	120,00	Yesthoite	Native	Retain	14.4
	13	Patch Tree	Stag	87	Yes	Native	Retain	10.4
	14	Patch Tree	Grey Box	~~ ⁸⁶	No	Native	Retain	10.3
	15	Patch Tree	Yellow Box	91 6 3	Yes	Native	Retain	10.9
	16	Patch Tree	Grey Box	58	Yes	Native	Retain	7
	17	Patch Tree	Grey Box	<u>35</u>	No	Native	Retain	4.2
	18	Patch Tree	Stag	31	Yes	Native	Retain	3.7
	19	Patch Tree	Stag Contract	\$ 37	No	Native	Retain	4.4
	20	Patch Tree	Yellow Box	87	No	Native	Retain	10.4
	21	Patch tree	Stag	64	Yes	Native	Retain	7.7
	22	Patch Tree	Stag	37	No	Native	Retain	4.4
	23	Scattered tree	Yellow Box	150	Yes	Native	Retain	15
	24	Patch tree	River Red Gum	200	Yes	Native	Retain	15
	25	Patch tree	Yellow Box	67	Yes	Native	Retain	8
	26 0	Patch tree	Yellow Box	92	Yes	Native	Retain	11
	270	Patch tree	Yellow Box	85	Yes	Native	Retain	10.2
2	280	Scattered tree	Grey Box	80	Yes	Native	Retain	9.6
neni	129 101	Scattered Tree	Grey Box	99	Yes	Native	Retain	11.9
YOCHIMAT.	د ² 30	Patch tree	Yellow Box	75	Yes	Native	Retain	9
	31	Patch tree	Grey Box	62	No	Native	Retain	7.4
Co Sty St	32	Patch tree	Grey Box	82	Yes	Native	Retain	9.8
87,040	33	Patch tree	Yellow Box	107	Yes	Native	Retain	12.8
9.r	34	Patch tree	Yellow Box	65	Yes	Native	Retain	1.3
	35	Patch tree	Yellow Box	85	Yes	Native	Retain	10.3
	36	Patch tree	Grey Box	87	Yes	Native	Retain	10.4
	37	Patch tree	Grey Box	75	No	Native	Retain	9

Table 8: Tree identification, status and protection information

	Tree ID	Tree Type	Species	Diameter at Breast Height (cm)	Hollows	Origin	Status	Tree Protection Zone (m)	
	38	Patch tree	Grey Box	55	Yes	Native	Retain	6.6	
	39	Patch tree	Grey Box	85	No	Native	Retain	10.2	1
	40	Patch Tree	Grey Box	79	No	Native	Retain	9.5	190
	41	Patch Tree	Grey Box	82	Yes	Native	Retain	9.8	Č.
	42	Patch tree	Grey Box	60	No	Native	Retain	7.2	
	43	Patch tree	Grey Box	107	Yes	Native	Retain	12.8	ecific
	44	Patch tree	Grey Box	135	No	Native	Retain	M 15 5	5
	45	Patch tree	Grey Box	125	Yes	Native	Retain	150	
	46	Patch tree	Yellow Box	60	No	Native	Retain	7.2	
	47	Patch tree	Stag	65	No	Native	Retain	7.8	
	48	Non-native Tree	Oak	N/A	No	Introduced	Remove	0	
	49	Patch tree	Yellow Box	88	No	Native	Retain	10.6	
	50	Patch tree	Yellow Box	106	Yes	O ^{UN} Native 200	Retain	12.7	
	51	Patch tree	Yellow Box	112	Yes	Native	Retain	13.4	
	52	Patch tree	Yellow Box	86	No	Native	Retain	10.3	
	53	Scattered Tree	Yellow Box	122	Yes	Native	Retain	14.6	
	54	Patch tree	Grey Box	94 00	Yesi	Native	Retain	11.3	
	55	Scattered Tree	Grey Box	103	Yes nil	Native	Retain	12.4	
	56	Non-native Tree	Magnolia	N/A	NO	Introduced	Remove	0	
	57	Non-native Tree	Magnolia	N/A C	No	Introduced	Remove	0	
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Figure 2: Tree Retention Plan

3.6.1 Retained vegetation ongoing management commitments

The project has made significant design changes to allow for the retention of all native trees which satisfies the avoid, minimise, offset approach detailed in the guidelines. Tree removal/ retention is clearly identified in Figure 2, Tree Retention Plan. In order to retain the trees, the project has committed to adhering to the requirements set out in the following documents:

- Guidelines for the removal, destruction or lopping of native vegetation (DELWP, 2017);
- AS 4373-2007, Australian Standard, Pruning of amenity trees (Standards Australia); and
- AS 4970-2009, Australian Standard, Protection of trees on development sites (Standards Australia)

These requirements include:

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- Any pruning of retained native trees must remain less than 1/3 of overall canopy cover;
- Any pruning work is to be carried out by qualified arborists with removed branches limbs finished 90C) with collar cuts (Figure 3); and
- Tree Protection Zones (TPZ) must be installed around each retained tree. Impact to the TPZ must be <10% and outside of the Structural Root Zone (SRZ), unless impact is supervised, assessed and certified by the project arborist as not being significant to the tree's health or structural integrity in the long term. Any area of the TPZ lost to encroachment must be compensated for elsewhere and contiguous with the TPZ (Figure 4).



Figure 3: Final cut location for branch/limb removal (AS4373-2007 Pruning of amenity trees)

1-24/19 2 001 TPZ's are calculated in accordance with AS4970-2009 by measuring 12 times the trunk diameter at breast height, 1.4m above the ground (DBH) and should be no less than 2m and no greater than 15m unless additional crown protection is required.

The SRZ is the minimum volume of roots required by the tree to remain stable in the ground. According to AS4970-2009 the SRZ of the trees has been calculated using the equation:

$$R_{srz} = (D \times 50)^{0.42} \times 0.64$$



The TPZ radius and SRZ radius for each tree in the study area has been calculated and is detailed in Table 8.

Figure 4: Minor TPZ encroachment and compensatory contiguous offset (AS4970-2009) anda

Inent Hallmarc is committed to the ongoing protection and maintenance of all retained native vegetation on the project site, including post construction and into operations of the lifestyle village. Measures taken to achieve the ongoing health of retained native vegetation into operations of the village will include:

- The retained native vegetation will be the primary consideration in undertaking amenity landscaping works. Hallmare will look to increase the connectivity of existing patches and scattered trees through supplementary planting and where required, may consider engineered solutions (fauna bridges, gliding poles etc.); and
- Hallmarc will employ a gardener at a minimum 0.6FTE to maintain the grounds including the retained native vegetation at the lifestyle village.

Many of the retained trees will be utilised as the basis for landscaped areas, which may include understory plantings within the TPZ of all retained mature trees. Plantings could include small trees, shrubs, sedges or grasses. Plantings of this nature carry multiple purposes, e.g. increased flora and fauna diversity within an area is well known to benefit environmental health. Most importantly within an urban context pedestrian access within the TPZ is generally restricted as ground cover vegetation deters movement, reducing the target rating of the area below the canopy.

Hard surfaces, including walkways, bike paths and outdoor areas will be designed to be permeable (paving, decking, porous concrete etc) in the vicinity of trees, whenever possible. Permeable materials reduce runoff, allow for water to penetrate down to the soil and encourage exchange of air with the atmosphere, thereby maintaining a high soil oxygen level.

Underground services within Tree Protection Zones have been considered at the design stage, and prior to the commencement of works.

- All underground services (including water, electricity, gas and telephone) have been located outside • of the TPZ of trees to be retained as first priority.
- If underground services are to be routed within an established TPZ, they will be installed by • directional boring with the top of the bore to be a minimum depth of 600mm below the existing grade.

3.7 Native fauna management

Bore pits should be located ou Project Arborist.	Itside of the TPZ or manually excavated under the direct supervision of the
3.7 Native fauna	management
Tuble 5. Native Juana manageme	the sures
Values to be systemated	Native fauna management
Objectives	 The objectives of the management and mitigation measures are to: manage risk of impact to native fauna to the satisfaction of the Planning Approval, Council requirements and DEECA; implement measures to protect any threatened or endangered fauna species from project impacts.
Management measures	 All trees identified as hollow-bearing (Table 8, Figure 2) are to be retained. Where minor pruning works may be required, hollow limbs are to be retained as a priority. If hollow limb removal is unavoidable, pre-clearing checks and clearing supervision will be undertaken by an ecologist. Where native fauna is identified, it will be left to move away from the construction area of its own accord. If fauna capture and relocation is required it must be done under licence under the Wildlife Act 1975. A licence for any fauna salvage work would be required from DEECA under this Act and will be applied. The relocation of animals is subject to the reporting requirements of a Management Authorisation issued under the Wildlife Act 1975. The operations supervisor will report activities to the DELWP in a manner and timeframe specified by the Wildlife Act 1975 licence requirements. The report will include: Area of potential habitat salvaged; Number of individuals found; Relocation sites; and Number of dead specimens.

Table 10: Pollution and waste management measures

		Pollution and waste management
	Values to be protected	The values to be protected include clean, non-polluted land, surface water and groundwater at the site, suitable for the existing pre-construction uses of these environments.
	Objectives	 The objectives of the management and mitigation measures are to: Manage waste to the satisfaction of the Planning Permit and Council requirements (and EPA Victoria, if necessary); Avoid the contamination of soil and water; Minimise waste production and dispose of waste appropriately; Minimise effects on native vegetation, livestock and wildlife; Minimise visual impacts; Maximise the efficiency of resource use; Minimise health risks to workers and the public; Promote the principals and hierarchy of waste avoidance, reduce, re-use, recycle, treat and dispose; and Source construction materials using reusable packaging, where practicable.
	Management measures	 Waste management will follow the EPA waste management hierarchy principles (from least preferable to most preferable – avoidance, reuse, recycling, recovery of energy, treatment, containment, disposal); Waste products will not be stored or dumped within 'no-go zones', areas of native vegetation to be retained, and any tree or vegetation protection zone; The construction site will be kept free of litter and waste. On site disposal or burning of waste is not permitted; Waste will be collected either via physical or mechanical methods, Industrial vacuum cleaners or by sweeping. Wastes will not be collected/removed via the application of water hosing the ground to prevent wastewater; Bins or skips will be used as temporary storage for waste generated and collection of these wastes will be periodic and dependent on levels of waste generation; Waste storage areas will be approved by the Site Manager, sign posted, addiguately bunded and located away from constitive recentors (areas
his document in a	osbeen copied and made of the and do and the a	 Adequately builded and located away from sensitive receptors/areas, drainage lines and watercourses; Waste streams will be appropriately segregated and stored as either General waste, Recyclables waste (particularly metals, plastic and glass) or Regulated wastes within appropriate vessels, dependent on disposal, treatment and recycling options; All regulated wastes will be collected and stored in an approved bunded area; Contaminated soil will be placed into a skip bin lined with HDPE liner. A waste transport certificate (e-certificate) will be required prior to any off-site disposal of contaminated soil sourced from areas listed as contaminated; All waste streams will be collected and transported by a licensed waste contractor for recycling, rouse, treatment or disposal at approved
the top of		 contractor for recycling, reuse, treatment or disposal at approved licensed waste facilities. Only licensed regulated waste contractors will transport waste streams classified as regulated; All waste records including general tip dockets, waste tracking certificates and Registers will be retained and made readily available upon request; and Ongoing staff awareness training will be conducted on the need to avoid littering.

Salinity management 3.9

Table 11: Salinity management r	neasures
	Salinity management
Values to be protected	The values to be protected include soil and water quality.
Objectives	 Assess the potential presence of salinity within areas of the project area affected by the Salinity Management Overlay (SMO) (there is no SMO over the project area); and Identify the types of management actions that should be considered, if required.
Management measures	 Potentially saline areas will be maintained as freely draining. Reduction in drainage capacity, for example by damming or otherwise restricting flow in Unnamed Watercourse, may result in expanded areas of waterlogging, water table rise and associated expression of saline groundwater at the surface; Use of appropriate salt-resistant materials for buildings and structures that have the potential to be in contact with groundwater or areas of saline soil; Use of barriers such as coarse-grained fill to increase the separation from groundwater and limit capillary rise of groundwater; Provision of adequate drainage to avoid restricting surface water flow, which may otherwise result in groundwater level rise and expansion of the saline area; and Implementation of a soil management plan for saline areas to manage re-use of excavated saline soil and consideration of run-off of leachate from stockpiles or re-located soil.

		manage re-use of excavated saline soil and consideration of run-off of
		leachate from stockpiles or re-located soil.
	3.10 Sediment, er	osign and water quality management
	Table 12: Sediment erosion and	witer avality management
	rubic 12. Scument, crosion dinu	
	20°, 0 ⁽¹⁾ ,	Sediment, erosion and water quality management
	Values to be protected	The values to be protected include the pre-construction existing ecosystems that utilise the soil and/or water habitats and include flora and fauna.
This document in a this and the state of the	Objectives see of the second the second to be and t	 The objectives of the management and mitigation measures are to: Manage sediment, erosion and water quality to the satisfaction of the Planning Permit and Council requirements; Minimise the on- and off-site impacts to land and water quality caused by sediment and erosion; Minimise the duration and extent of soil disturbance; Minimise erosion by water, wind, machinery and traffic; Drain any run-off from all disturbed areas into sediment control structures; Minimise modification to existing drainage patterns; and Prevent, as far as practicable, sediment transport to adjacent watercourses.
	Management measures	 Where practicable, vegetation clearing activities should be staged, so that areas of exposed soil are minimised. This will minimise the potential for erosion. Revegetation of exposed soil should occur as soon as practicable;

•	water crossings for access tracks will be designed so that flow
	capacity is maintained, flooding potential minimised and stream
	bank degradation is avoided / minimized;
•	During construction activities, the following practices will be applied
	to minimise the risk of erosion and sedimentation:
	• excavated material (topsoil, subsoil and rock) will be
	managed as per Stockpiles requirements
	 site preparation works and major construction activities will
	be planned for the drier months. Where this is not
	practicable, major earthworks will be scheduled to avoid
	heavy rainfall events
	o upstream drainage will be installed at each worksite to
	prevent and redirect surface water around work sites
	• vehicles accessing the site will be kept to well-defined
	access tracks where possible
	 stream crossings and culverts have the potential to become
	compromised and unstable and will be managed by a
	program of ongoing maintenance
	 erosion associated with tracks and hardstand will be
	controlled by a program of ongoing access track and
	hardstand area maintenance
	 to ensure material is not tracked off-site and does not dirty
	or muddy off-site roads the following measures will be
	considered at site access points:
	 a regime of street sweeping may need to be
	implemented in the event that mud or soil build
	Aup is detected: and
	installation of rumble grids or washpools at entry
SV*	point to bitumen roads to remove any residual
40 ¹	material on wheels to prevent dirt being tracked
	onto roads.
internet internet	O _{III}
The fol	lowing erosion and drainage controls will be implemented:
	minimise the sediment discharge from the site, geo-textile silt fences
	hould be installed in surface water flow areas. These fences will
S TY S S S TY	pically be located:
Cher Soo On Methic	coming from disturbed construction areas
COLON- ADIAN C	o immediately downgradient of stockpiles
LOCOLO WIND SHID	 immediately upstream of vegetated buffer zones
S St C 40 M Milli	• at the downstream toe of batter slopes and erosion-prone
at Mut of isso	areas
10° 10° 10°	 parallel to surface contours, and, where required, in
NOUT ON ANY	multiple parallel sets for progressive filtering
• st	raw bales should be used where required for additional sediment
CC CC	ontrol and, if so, they will be sourced from local cereal crops. Hay
bi	ales will not be used as they can present an increased risk of dispersal
of	weed seeds;
• S6	comment traps and basins should be installed where required to avoid
	averse nood risk to adjoining properties and allow for the gradual
di	ace a sediment tran has reached a 60% canacity the sediment will be
• 01	proved and returned to a stabilised part of the project site:

S	ediment, erosion and water quality management
	 stormwater drainage and sediment control structures will be regularly inspected to ensure integrity and effectiveness. The control structures will be cleared if they are observed to be obstructed or have their capacity significantly reduced through the accumulation of silt, litter and vegetation. The obstructing material will be returned to a stabilised part of the project site; stormwaters will not be directly discharged to receiving waterways from stormwater drainage and sediment control structures, but will be discharged onto grassed areas of sufficient size to reduce turbidity (pumping will be monitored and supervised at least every hour to ensure that the turbidity remains low); site waters entering receiving waterways will be free of foams, scums, odours, sheens or oil on the surface, unusual colour or concrete slurry prior to discharge (as per EPA Victoria publication 480 Environmental Guidelines for Major Construction Sites).

Soil and stockpile management 3.11

Table 13: Soil and stockpile management measures

		Guidelines for Major Construction Sites).
	3.11 Soil and stoc	kpile management
	Table 13: Soil and stockpile man	agement measures
	Values to be protected	Soil and stockpile management The values to be protected include the pre-construction existing ecosystems that utilise the soil habitats and include flora and fauna.
	Objectives	 The objectives of the management and mitigation measures are to: Manage soils and stockpiles to the satisfaction of the Planning Approval and Council requirements Minimise the change to soil profile from excavation activities Prevent the occurrence of soil erosion during and following construction Prevent damage to agricultural production or other land uses.
This documents	Management measures	 Prevent damage to agricultural production of other land uses. Trenching or soil excavations and storage or dumping of any soils within 'no-go zones', areas of native vegetation to be retained, and any tree or vegetation protection zone will not occur; All vehicles will be made free of soil before being taken to the works site and again before being taken from the works site, during and on completion of the project to prevent the spread of weeds and pathogens; All imported soil and topsoil proposed for use will be of an appropriate quality and be weed/contaminant-free by the supplier and accompanied with relevant documentation; Topsoil and subsoil disturbed during earthworks will be stockpiled separately such that the soil profile may be maintained during backfilling; Movement of topsoil will be minimised during periods of high wind where practicable. Bureau of Meteorology (BoM) weather forecasts to be checked daily; Soil stockpiles will be stored within the approved construction footprint as close as practicable to the source location; Topsoil shall be stockpiled in areas with similar weed risk and not with topsoil from lower weed risk areas; Soil will not be stockpiled where it has the potential to result in sedimentation of land or surface water (e.g. on slopes that drain

	Soil and stockpile management
	immediately to a creek or drainage line). Topsoil containment
	measures e.g. berms and sediment fencing will be used as necessary;
•	Topsoil and subsoil will be stockpiled where it can be easily recovered
	and will not be lost by wind/water erosion. Protection may be required
	during times of extreme weather;
•	Soil stockpiles will be maintained at a height of equal to or less than 2
•	The period of time that soil stockpiles are left exposed within the
	construction alignment will be minimised to preserve soil integrity,
	minimise soil loss and biota;
•	Following backfill and re-spreading, topsoil shall be ripped to prevent compaction;
•	Site vehicles, machinery and equipment will be restricted to designated
	construction areas, access tracks, laydown and parking areas in order
	to prevent the unnecessary compaction and/or destabilisation of
	surfaces; and
•	Erosion, sediment and drainage controls will be installed and
	maintained as per above section in order to preserve soil integrity and
	limit soil loss.

3.11.1 Silt fences

Silt fences are temporary, permeable barriers of geo-textile installed in a trench and supported by star pickets or wooden posts. Sediment is treated in two ways:

- The velocity of run-off is slowed to a point at which it no longer has sufficient energy to hold particles in suspension. This is achieved through a damming of run-off behind the silt fence. When the run-off no longer has energy to hold particles in suspension, the particles are able to drop out of the water column by gravity. This is how the majority of sediment is removed by a silt fence; and
- Some filtration also occurs as run-off passes through the silt fence. Silt fences may be reinforced with wire mesh or by placing posts every 1m where there's a risk of being knocked over by run-off flow or wind. Note: the ends must be turned up-slope to allow damming to occur. Typical silt fence installation is displayed in Figures 5 and 6.



Figure 6: Silt fence ends (source: EPA Victoria 2004, Publication 960 p.30)

Silt fences should be regularly inspected to ensure:

- run-off is not passing under or around the fence (if installed properly this shouldn't be a problem);
- the silt fence hasn't been knocked over as a result of runoff flows or wind;
- the silt fence hasn't detached from posts; and
- no damage has occurred as a result of works on site or due to interference by members of the public.

ACTION Silt fences require de-silting (removal of collected sediment) when sediment has built up to 1/3 the height of the measure, or when the built-up sediment is preventing the silt fence from working effectively. This generally requires the silt to be shoveled out from behind the fence and deposited in a stabilised area of the site away from run-off flows. It shouldn't be placed up-slope or next to the silt fence where it'll be washed straight back into the silt fence. It also shouldn't be placed down-slope of the silt fence.

3.11.2 Straw bales

Straw bales are frequently used as a measure to capture sediment in run-off due to their availability (Figure 7). Sediment is treated in two ways:

- The velocity of run-off is slowed to a point at which it notionger has sufficient energy to hold particles • in suspension. This is achieved through damming of run-off behind the straw bales. When the run-off no longer has energy to hold particles in suspension, the particles are able to drop out of the water column by gravity. This is how the majority of sediment is removed and
- Some filtration also occurs as run-off passes through the bales. Coarse particulates may be trapped on the outside of the bale and smaller particulates may be trapped within the bale. They're appropriate to use in areas of sheet flow. They can also be used in concentrated flows if used in conjunction with a silt fence. They're most effective in removing coarse particulates. They have limited filtering capacity for fine or dispersive soils

Straw bales alone can be very difficult to get to work effectively as it's very difficult to ensure there are no gaps between the bales. If there are any gaps where run-off is able to pass through, the bales won't work and erosion can actually be exacerbated, as the flow is concentrated through the gap. It's generally most effective to install silt fence in conjunction with straw bales. In this application the straw bales give the silt fence more structural stability than if silt fence were used alone. The silt fence is placed on the upslope side of the measure, which can prevent damage to the bales in an area of concentrated flow.

A line of bales should service a catchment no greater than 0.5ha. Due to decomposition, bales can require replacement every 3 months. Straw bales should be regularly inspected to ensure:

run-off isn't passing under or around the bales (if installed properly this shouldn't be a problem);

bales haven't been knocked over as a result of run-off flows or wind;

bales haven't begun to degrade;

- bales aren't full of sediment clogging can prevent run-off from filtering through the bale; and
- no damage has occurred as a result of works on site or due to interference by members of the public They require de-silting when sediment has built up to 1/3 the height of the measure or when the built- up sediment is preventing the straw bales from working effectively. Bales should also be removed when sediment captured within the bales has clogged the bale, preventing run-off flow through it.

Some individuals often leave straw bales in place when they leave the site, as they believe they will break down. This is the case for the straw bale itself but the posts and twine on the bales won't break down. The posts must be removed and straw bales should be broken up and twine removed.



Figure 7: Straw bale installation (source: EPA Victoria 2004, Publication 960 p.28) et.

Sewage and wastewater manage ater management 3.12

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ruble	14:	Sewuue	ana	wastewater	тапаа	ement	measures
					1.1.1.2	C) S	

	" Mind Co	Sewage and wastewater management			
Val	ues to be protected	The values to be protected include clean, non-polluted land, surface water and groundwater at the site, suitable for the existing pre-construction uses of these			
	copie second distri	environments.			
Obj	jectives of the	The objectives of the management and mitigation measures are to:			
ve	o noi whi nati	 Manage waste to the satisfaction of the Planning Approval and 			
25	st do mi	Council requirements (and EPA Victoria, if necessary);			
	to isse	Avoid the contamination of soil and water.			
This document of Ma	nagement measures	 In the event that wastewater is to be treated on site with daily flow rates of up to 5,000 litres, an on-site wastewater treatment and disposal system will be selected, sited and installed in accordance with the EPA Victoria Publication 891: Code of practice – onsite wastewater management to the satisfaction of the responsible authority If the treatment, discharge or deposition of sewage (including sullage) effluent is anticipated to exceed a design or actual flow rate of 5,000 litres per day, it will be managed in accordance with a Works Approval from EPA Victoria for its treatment or disposal. 			
		All temporary toilets shall be cleaned, maintained/serviced daily and			

Sewage and wastewater management			
	be kept in a constant sanitary condition in accordance with all		
	applicable health regulations. All portable toilets shall have an		
	audible and visual alarm system installed to indicate when the		
	septic/sewerage tanks are at full capacity.		

3.13 Weed, pest and pathogen management

3.13 Weed, pest and pathog	Weed, pest and pathogen management	
values to be protected	free of weeds, pests and/or pathogens introduced by construction activities.	
Objectives	 The objectives of the management and mitigation measures are to: Manage weed and pest impact to the satisfaction of the Planning Permit and Council requirements Minimise the introduction and/or spread of weeds, pests and pathogens Promptly identify weed species and habitats and adopt specific weed control requirements Eliminate and effectively control infestations of noxious weed species Avoid impacts to primary industries 	
	Avoid impacts to flora and fauna	
copied and made availed	 made free of soil, seed and plant material before being taken to the works site and again before being taken from the works site, during and on completion of the project, as best as possible; All staff shall be inducted regarding the appearance and significance of Weeds of National Environmental Significance (WONS) and declared weeds with potential to occur in the project area All declared plants, weeds and pests present will be managed in accordance with the relevant State/Local Weed and Pest Management Plans; Weed infestations in the Project area shall be flagged and controlled prior to construction Access of vehicles and personnel to areas of known weed infestation shall be restricted Regular inspections of the Project area shall occur to identify and assess weed prevalence Now wood infectations chall be removed and destroyed as soon as 	
the peer of be mile in ation.	 New weed infestations shall be removed and destroyed as soon as practicable All imported soil and topsoil proposed for use will be of an appropriate quality and be weed/contaminant-free by the supplier and accompanied with relevant documentation All chemicals associated with weed control will be appropriately stored and bunded in accordance with Hazardous Substances Section Vehicles, machinery, equipment and applicable materials will be regularly inspected, washed where there is a risk of spreading a declared pest; in order to remove all soil and organic material and in order to certify the item clean prior to entry to the construction area. A risk-based approach will be adopted to vehicle and machinery hygiene inspections and clean downs that differentiates the clean-down and 	

		 Weed, pest and pathogen management as part of this risk-based approach Access of vehicles and personnel to areas of known noxious weed/declared plant infestation areas will be restricted, otherwise wash down facilities will be setup as close as possible to these known areas of infestation to reduce the risk of spreading infected material. Weed infested areas will be clearly signed/fenced. Subsequently, areas requiring washdown prior to entry/exit will be clearly signed All washdown facilities and locations will be approved by the Site Manager prior to installation and will be designed to meet all environmental requirements. All washdowns will be impermeable lined, appropriately sized and will contain waste storage and treatment systems to contain wastewater, sediment, oils and seed/plant material.
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Appendix A – Stage A Development Plan

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Ecological Assessment

Avington Lifestyle Village Stage A

March 2023 PREPARED FOR Hallmarc



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Hallmarc ALV StageA

Avington Lifestyle Village Stage A Ecological Assessment				
Rev	Description	Author	Date	
1	For review	Dylan McWhinney	08/03/2023	
2	Eor review	Dylan McWhinney	15/03/2023	



The report has been prepared by Dylan McWhinney (DM Ecological) who is an experienced ecologist and project environmental manager. He has over 10 years' experience in environmental management and consulting and is a Certified Environmental Practitioner (CEnvP) as administered by the Environmental Institute of Australia and New Zealand (EIANZ). The CEnvP scheme:

- assures the minimum standards of competency for consultants performing regulatory functions
- develops guidelines and codes of practice
- improves confidence in the quality, reliability and accountability of environmental reports and documentation provided to government agencies by environmental practitioners

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Executive Summary

DM Ecological was engaged by Hallmarc to undertake an ecological assessment of Stage A of the proposed Avington Lifestyle Village in Nagambie, Victoria. Stage A includes residential lots and associated infrastructure and utilities within Avington, which is part of the broader Elloura Estate.

In order to provide a context for the study area, information about flora and fauna from within 5 kilometres of the study area was obtained from relevant biodiversity databases, including those maintained by both the Victorian Government Department of Energy, Environment and Climate Action (DEECA) and the Australian Government Department of Climate Change, Energy, the Environment & Water (DCCEEW). Records from the applicable databases were collated and reviewed.

Flora and fauna assessments were undertaken within the study area where a list of species present was compiled. Particular attention was given to searching for significant species and their habitats. Of priority was identifying native vegetation as identified in the *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment, Land, Water and Planning – DELWP, 2017). Identifying and mapping the extent of native vegetation assists in ensuring that any development is designed with the avoid, minimise, mitigate principle in mind.

The study area resides within the Victorian Riverina (VRiv) and Northern Inland Slopes (NIS) bioregions and modelled as containing Ecological Vegetation Classes (EVC) #55 (VRiv)– Plains Grassy Woodland, and #168 – Drainage Line Aggregate (Figure 3), both of which are listed as endangered. The desktop assessment returned records for 239 flora species and 2073fauna species within the buffered search area. Native vegetation within the study area includes one large remnant scattered tree and three remnant patches, containing sixteen patch trees in total, eleven of which are large. Nine of the identified trees are hollow bearing. The patches of remnant vegetation provide faunal habitat values for arboreal and avian hollow dependant species as well as terrestrial species, particularly reptiles and amphibians. A number of bird species were observed amongst the trees within the study area. At the time of assessment there was some pooled water amongst grasses and rushes that provide habitat for frogs. No native vegetation is proposed to be removed or impacted as part of this project.

Three threatened species were assessed as having at least a medium likelihood of occurring within the study area; Brush-tailed Phascogale, Bearded Dragon and Diamond Firetail which are listed under the FFG Act 1998. None were detected during site assessments and no further assessments are recommended at this point. No potential impacts to Matters of National Environmental Significance (MNES) were identified through the assessment, and referral under the Environment Protection and Biodiversity Conservation Act 1999 is not required. The project would not be subject to a planning permit under the Planning and Environment Act 1987 on the condition it complies with the Lake Nagambie Master Plan. The project will need to ensure requirements under the Catchment and Land Protection Act 1994 are met during the construction phase.

A list of recommended best practice mitigation measures has been provided in Section 5.
1. Introduction

1.1 Project background

DM Ecological was engaged by Hallmarc to undertake an ecological assessment of Stage A of the proposed Avington Lifestyle Village in Nagambie, Victoria. Stage A includes residential lots and associated infrastructure and utilities within Avington, which is part of the broader Elloura Estate. The project requires understanding of Purpose specified the ecological character of the ~20ha site in order to satisfy the requirements of applicable legislation and to support planning approval for the project.

1.2 Scope of assessment This ecological assessment considers native vegetation on the site and includes all flora, fauna, communities and native vegetation in accordance with:

- Environment Protection and Biodiversity Conservation Act 1999;
- **Environment Effects Act 1978** •
- Flora and Fauna Guarantee Act 1988 and Flora and Fauna Guarantee Amendment Act 2019; •
- Wildlife Act 1975:
- Planning and Environment Act 1987;
- Catchment and Land Protection Act 1994;
- Water Act 1989; and
- Water Act 1989; and Any other legislation and/or guidelines relevant to ecological values and impacts.

Location of study area 1.3

Stage A of the Avington Lifestyle Village is proposed at a 20ha site located along Vickers Rd and Elloura Drive in Nagambie Victoria (Figure 1). The identified is bordered by the Nagambie Sport and Recreation Reserve to the east, Vickers Road to the south, Elloura Drive to the West and remnant vegetation to the north. The study area encompasses three parcels of land (\$11\P\$543359, S6\P\$543359 and \$17\P\$543359) and is subject to the following zone per the Strathbogie Planning Scheme:

Comprehensive Development Zone – Schedule 1 (CDZ).

No planning scheme overlays affect the study area.

The study area is primarily freehold land that has been historically used for agriculture, as evidenced by vegetation clearing, planted and cropped pasture. (Figure 2). An indicative site layout is provided in Appendix 1. There is planted vegetation present as well as remnant native vegetation within the study area, including in the adjacent road reserves. There are some scattered paddock trees which are likely remnant vegetation. There is a minor unnamed watercourse which flows through the study area into Lake Nagambie to the north. The study area is within: ing a cop

- % Victorian Riverina Bioregion;
- ,0 that Goulburn River Basin;
 - Goulburn Broken Catchment Management Authority (CMA) area; and
 - Strathbogie Shire Council Local Government Area (LGA).



Figure of Project Location

Vicmap, Esri, HERE, Garmin, Foursquare, METI/NASA, USGS, Maxa

0 0.25 0.5 0.75 1 Kilometers



Figure 2: The study area comprises cleared agricultural land (February 2023).

Methodology 2

2.1 Desktop assessment

In order to provide a context for the study area, information about flora and fauna from within 5 kilometres of the study area was obtained from relevant biodiversity databases, including those maintained by both the Victorian Government Department of Energy, Environment and Climate Action (DEECA) and the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW). Records from the following databases were collated and reviewed:

DEECA's Victorian Biodiversity Atlas (VBA), including the 'VBA FLORA25, FLORA100 & FLORA Restricted' and 'VBA_FAUNA25, FAUNA100 & FAUNA Restricted' datasets; and

DCCEEW's Protected Matters Search Tool for matters protected by the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

Other sources of biodiversity information were examined including:

DEECA's NatureKit mapping tool;

DEECA's Habitat Importance Maps;

DEECA's Native Vegetation Information Management (NVIM) system; and

Planning Scheme overlays relevant to biodiversity based on VicPlan.

3100Ve 31 Definitions of significance

The significance of a species or ecological community is determined by its listing status under Commonwealth or State legislation / policy (Table 1).

Table 1: Criteria for determining significance of species & ecological communities

Significance		
National	Listed as critically endangered, endangered or vulnerable under the EPBC Act.	
State	Listed as critically endangered, endangered or vulnerable in Victoria on a DELWP Advisory List (DSE 2009; DSE 2013; DEPI 2014). Listed as threatened under the FFG Act.	ct. 081

Records of significant species within a 5km buffer of the study area generated from the databases are provided in Table 2 (flora) and Table 3 (fauna) in Section 3, Results section of this report. The species have been assessed to determine their likelihood of occurrence (Table 7 - results) based on the process outlined tor the pur below. Planning

2.2.1 Determining likelihood of occurrence of significant species

Likelihood of occurrence indicates the potential for a species or ecological community to occur regularly within the study area. It is based on expert opinion, information in relevant biodiversity databases and reports, and an assessment of the habitats on site. Likelihood of occurrence is ranked as negligible, low, medium, high or recorded. The rationale for the rank assigned is provided. Those species for which there is little or no suitable habitat within the study area, or would only very occasionally occur there, are assigned a likelihood of low or negligible and are not considered further.

Species which have at least medium likelihood of occurrence are given further consideration in this report. The need for targeted survey for these species is also considered.

2.2.2 Determining occurrence of significant ecological communities

The EPBC Act Policy Statement for White Box – Yellow Box – Blakely's Red Gum grassy woodlands and derived native grasslands (CoA 2006) was used to determine the absence of this threatened ecological community within the study area. Further information can be found within the policy statement: https://www.environment.gov.au/system/files/resources/be2ff840-7e59-48b0-9eb5-4ad003d01481/files/box-10 10

gum.pdf

A similar process was used to determine absence of Grey Box (Eucalyptus microcarpa) Grassy Woodlands and derived native grasslands of South Eastern Australia (CoA 2012a). Further information can be found within the document: https://www.environment.gov.au/system/files/resources/e6041636-388e-40cc-9bd4-8c8b2dbe6419/files/grey-box-booklet.pdf

The description of the Buloke Woodlands of the Riverina and Murray Dowling Depression Bioregions community provided in the associated National Recovery Plan was used to determine the absence of this community from the study area. The plan can be found at:

https://www.dcceew.gov.au/sites/default/files/documents/buloke-woodlands.pdf

Descriptions of the Natural Grasslands of the Murray Valley Plains ecological community provided in the EPBC Act Conservation Advice was used to determine the absence of this community from the study area. The document can be found at: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/117- conservation-advice.pdf

Descriptions of the Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains ecological community provided in the EPBC Act Conservation Advice was used to determine the absence of this community from the study area. The document can be found at:

https://www.environment.gov.au/biodiversity/threatened/communities/pubs/97-conservation-advice.pdf

For FFG Act listed communities, the descriptions provided by DEECA were reviewed: <u>https://www.environment.vic.gov.au/conserving-threatened-species?a=50418</u>

2.3 Site Assessment

2.3.1 Flora assessment

The flora assessment was undertaken on February 22nd 2023. A list of flora species was collected and is included in Section 3.5, Table 8. Of priority was identifying native vegetation as identified in the *Guidelines for the removal, destruction or lopping of native vegetation* (Department of Environment, Land, Water and Planning – DELWP, 2017) herein referred to as 'the Guidelines'. Identifying and mapping the extent of native vegetation assists in ensuring that any development is designed with the avoid, minimise, mitigate principle in mind. Desktop assessments identified the study area residing within the Victorian Riverina (VRiv) bioregion and modelled as containing Ecological Vegetation Classes (EVC) #55 (VRiv)– Plains Grassy Woodland, and #168 – Drainage Line Aggregate (Figure 3), both of which are listed as endangered. The EVC Benchmarks (Appendix 2) provide a list of species likely to occur within the study area should they be in an ecologically sound condition. These benchmarks were used to inform the site assessment.

Native vegetation is defined in the Victoria Planning Provisions as 'plant's that are indigenous to Victoria, including trees, shrubs, herbs and grasses' (Clause 72). Native vegetation is assessed using two parameters: extant (hectares) and condition (Table 2).

As per the Guideline's, native vegetation mapped included both patches and scattered trees (small or large according to EVC benchmark diameter at breast height (DBH)). Trees in patches were further classified as small or large patch trees, despite the Guidelines only requiring the accounting of large patch trees. This will give the project a better understanding of the extent to which patches are 'treed'.

Categ	Category Definition		Extent	Condition		
Pate Pate Paster Paster Paster Paster Paster Pate Pate	ch Jed and De used Jeserning	An area with three or more native canopy trees where the drip line of each tree touches the drip line of at least on other tree, forming a continuous canopy; OR An area of vegetation where at least 25% of the total perennial understory plant cover is native; OR Any mapped wetland included in the Current Wetland Maps (DELWP, NatureKit, VicPlan, Mapshare etc.)	Measured in hectares (hectare area of the patch).	Vegetation Quality Assessment Manual (DSE 2004). Modelled condition of current wetlands.		
Scattere	d Tree	A native canopy tree that does not form part of a patch.	Measure in hectares. Large trees are attributed 15m radius or 0.071-hectare extent. Small trees are attributed a 10m radius or 0.031-hectare extent.	All scattered trees assigned condition score of 0.2 (where not part of a patch).		

Table 2: Native vegetation determinations

2.3.2 Fauna assessment

The study area was investigated on February 22nd 2023 to determine its values for fauna. These were determined primarily on the basis of the types and qualities of habitat(s) present. All species of fauna observed during the assessment were noted and active searching for fauna was undertaken. This included direct observation, searching under rocks and logs, examination of tracks and scats and identifying calls.

Particular attention was given to searching for significant species and their habitats. Fauna species were recorded with a view to characterising the values of the site and the investigation was not intended to provide a comprehensive survey of all fauna that has notential to utilize the site survey time. Environmer a comprehensive survey of all fauna that has potential to utilise the site over time.

2.3.3 Targeted threatened species surveys Targeted threatened species surveys have not yet been undertaken and based on the results of the desktop and site assessment are not recommended at this point unless there are changes to the proposed study area.

2.4 Limitations

outinine given time, given time, ester values of a site. ersity values of a site. the formation of the second of the secon Ecological surveys provide a sampling of flora and fauna at the given time and season. There are several reasons why a species may not be detected at the site during survey, such as low abundance, patchy distribution, species dormancy, seasonal conditions, and migration and breeding behaviours. If a species is not detected, it doesn't necessarily mean that it is not present. In most cases these factors do not present a



2.5 Legislation and policy

The implications for the project are assessed in relation to key biodiversity legislation and policy including:

- Matters listed under the EPBC Act, associated policy statements, significant impacts guidelines, listing • advice and key threatening processes;
- Threatened taxa, communities and threatening processes listed under Section 10 of the FFG Act and ٠ Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017); and Noxious weeds and pest animals listed under the Catchment and Land Protection Act 1994 (CaLP Act)
- •
- •

Results 3

3.1 Desktop assessment

J994 (CaLP At J994 (CaLP At CaLP At Dutin the planning and the purpose vatened) and rence of The NatureKit (VBA) search returned records for 239 flora species (one threatened) and 273 fauna species (15 threatened) within the buffered search area, along with the modelled occurrence of FFG listed community 'Northern Plains Grassland' within the activity area (Figure 4). Records of significant (listed) species within a 5km buffer of the study area generated from the databases, are provided in Table 3 (flora) and Table 4 (fauna).

Table 3: Listed flora species recorded within a 5km buffer of the study area

Colontific Nomo	Common Nomo	Conservatio	Lest Deserved	
Scientific Name	Common Name	FFG Act	EPBC Act	Last Recorded
Allocasuarina luehmannii	Buloke	Critically Endangered	Not Listed	1995
Brasenia schreberi	Water Shield	Critically Endangered	Not Listed	1990
Comesperma polygaloides	Small Milkwort	Critically Endangered	Not Listed	1893
Goodia medicaginea	Western Golden-tip	Endangered	Not Listed	1892

Table 4: Listed fauna species recorded within a 5km buffer of the study area

Scientific Name	Common Name	Conservation Status		Last Recorded
		FFG Act	EPBC Act	
Anseranas semipalmota	Magpie Goose	Vulnerable	Not Listed	1991
Antigone rubicunda	Brolga	Endangered	Not Listed	2021
Ardea alba modesta	Eastern Great Egret	Vulnerable	Not Listed	2018
Ardea intermedia plumifera	Plumed Egret	Critically Endangered	Not Listed	1987
Aythya australis	Hardhead	Vulnerable	Not Listed	2019
Biziura lobata	Musk Duck	Vulnerable	Not Listed	2019
Calamoecia australis	Centropagid copepod	Vulnerable	Not Listed	1976
Egretta garzetta	Little Egret	Endangered	Not Listed	1984
Galaxias rostratus	Flat-headed Galaxias	Vulnerable	Critically Endangered	1984
Geopelia cuneata	Diamond Dove	Vulnerable	Not Listed	2008
Grantiella picta	Painted Honeyeater	Vulnerable	Vulnerable	1987
Haliaeetus leucogaster	White-bellied Sea-Eagle	Endangered	Not Listed	2001
Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Listed	2000
Hirundapus caudacutus	White-throated Needletail	Vulnerable	Vulnerable	2018

Scientific Name	Common Name	Conservation Status		Last Recorded
		FFG Act	EPBC Act	
Hydroprogne caspia	Caspian Tern	Vulnerable	Not Listed	2000
Lathamus discolor	Swift Parrot	Critically Endangered	Critically Endangered	1976
Litoria raniformis	Growling Grass Frog	Vulnerable	Vulnerable	1788
Maccullochella macquariensis	Trout Cod	Endangered	Endangered	1993
Maccullochella peelii	Murray Cod	Endangered	Vulnerable	2012
Macquaria australasica	Macquarie Perch	Endangered	Endangered	1982 🐥
Melanodryas cucullata	Hooded Robin	Vulnerable	Not Listed	1976
Oreoica gutturalis	Crested Bellbird	Endangered	Not Listed	1984
Ornithorhynchus anatinus	Platypus	Vulnerable	Not Listed	E 2012 50
Phascogale tapoatafa	Brush-tailed Phascogale	Vulnerable	Not Listed	2010
Pogona barbata	Bearded Dragon	Vulnerable	Not Listed	1976
Pomatostomus temporalis	Grey-crowned Babbler	Vulnerable	Not Listed	of ¹¹¹ 1976
Pseudophryne bibronii	Brown Toadlet	Endangered	NotListed	1965
Pyrrholaemus sagittatus	Speckled Warbler	Endangered	Not Listed	1959
Rostratula australis	Australian Painted- snipe	Critically Endangered	Endangered	1931
Spatula rhynchotis	Australasian Shoveler	Vulnerable	Not Listed	2019
Stagonopleura guttata	Diamond Firetail	Vulnerable	Not Listed	2018
Stictonetta naevosa	Freckled Duck	Endangered	Not Listed	1999
Synemon plana	Golden Sun Moth	Vulnerable	Vulnerable	1932
Tandanus	Freshwater Catfish	Endangered	Not Listed	2012
Tringa glareola	Wood Sandpiper	Endangered	Not Listed	1983
- · · · · · · · · · · · · · · · · · · ·	Manah Canalainan	Endangorod	Notlisted	1092

The protected matters search tool (PMST) report (Appendix 3) identified EPBC Act listed species which have habitat potentially occurring within the search area, but for which there are no actual records. These are listed in Table 5. Table 5: EPBC Listed species with potential habitat within 5km buffer of study area but no records

	Scientific Name	Common Name	EPBC Act	PMST Comments
	Amphibromus fluitans	River Swamp Wallaby-grass	Vulnerable	Species or species habitat known to occur within area
	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Species or species habitat known to occur within area
	Aprasia parapulchella	Pink-tailed Legless Lizard	Vulnerable	Species or species habitat likely to occur within area
	Botaurus poiciloptilus	Australasian Bittern	Endangered	Species or species habitat known to occur within area
all'	Brachyscome muelleroides	Mueller Daisy	Vulnerable	Species or species habitat may occur within area
cumer atic	Calidris ferruginea	Curlew Sandpiper	Critically Endangered	Species or species habitat may occur within area
this informa	Callocephalon fimbriatum	Gang-gang Cockatoo	Endangered	Species or species habitat known to occur within area
The take of	Crinia sloanei	Sloane's Froglet	Endangered	Species or species habitat may occur within area
200	Dasyurus maculatus (SE mainland population)	Spot-tailed Quoll	Endangered	Species or species habitat may occur within area
	Delma impar	Striped Legless Lizard	Vulnerable	Species or species habitat may occur within area
	Dodonaea procumbens	Trailing Hop-bush	Vulnerable	Species or species habitat may occur within area

Scientific Name	Common Name	EPBC Act	PMST Comments
Falco hypoleucos	Grey Falcon	Vulnerable	Species or species habitat likely to occur within area
Glycine latrobeana	Clover Glycine	Vulnerable	Species or species habitat likely to occur within area
Keyacris scurra	Key's Matchstick Grasshopper	Endangered	Species or species habitat may occur within area
Lepidium monoplocoides	Winged Pepper-cress	Endangered	Species or species habitat may occur within area
Numenius madagascariensis	Eastern Curlew	Critically Endangered	Species or species habitat may occur within area
Pedionomus torquatus	Plains-wanderer	Critically Endangered	Species or species habitat likely to occur within area
Pimelea spinescens subsp. spinescens	Plains Rice-flower	Critically Endangered	Species or species habitat may occur within area
Polytelis swainsonii	Superb Parrot	Vulnerable	Species or species habitat may occur within area
Prasophyllum validum	Sturdy Leek-orchid	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Foraging, feeding or related behaviour may occur within area
Senecio macrocarpus	Large-fruit Fireweed	Vulnerable	Species or species habitat may occur within area

The protected matters search tool (PMST) report (Appendix 3) also identified EPBC Act listed threatened ecological communities which may potentially occur within the search area. These are listed in Table 6 (below).

Table 6: EPBC Listed threatened ecological communities' that may occur within 5km buffer of study area

	Threatened Ecological Community	EPBC Act	PMST Comments
	Buloke Woodlands of the Riverina and	Endangered	Community may occur within area
	Murray-Darling Depression Bioregions	AL ON	
	Grey Box (Eucalyptus microcarpa) Grassy	Endangered	Community likely to occur within area
	Woodlands and Derived Native Grasslands of	Nec 30-	
	South-eastern Australia		
	Natural Grasslands of the Murray Valley Plains	S Critically Endangered	Community may occur within area
	Seasonal Herbaceous Wetlands (Freshwater)	Critically Endangered	Community likely to occur within area
	of the Temperate Lowland Plains		
	White Box-Yellow Box-Blakely's Red Gum	Critically Endangered	Community likely to occur within area
	Grassy Woodland and Derived Native		
This document in a this is a standard a standard a standard a stan	as been of the section of the sectio		



FFG communities within 5km of study area

− Kilometers 15

Vegetation and fauna habitat 3.2

The study area has been highly modified by extensive land clearing for agriculture, primarily cropping. Native vegetation within the study area includes one large remnant scattered tree and three remnant patches, containing sixteen patch trees in total, eleven of which are large. Nine of the identified trees are hollow bearing. These trees occur along the unnamed watercourse that traverses the site from east to south. Along this watercourse there are some native Bull rushes Juncus sp. and Cumbungi (Typha domingensis), however the watercourse is mostly dominated by introduced and weed species. These included Water Couch (Paspalum distichum), Kykuyu (Pennisetum clandestinum) and Umbrella Sedge (Cyperus eragrostis). Noxious weeds including Blackberry (Rubus fruticosus), Toowoomba Canary Grass (Phalaris aquatica) and Spear Thistle (Cirsium vulgare) were also recorded. Along the edges of the watercourse there was a presence of recruiting *Eucalyptus sp.* saplings and Dogwood (*Cassini asp.*) prior to the surrounding landscape being cropped.

The patches of remnant vegetation provide faunal habitat values for arboreal and avian hollow dependant species as well as terrestrial species, particularly reptiles and amphibians. A number of bird species were observed amongst the trees within the study area. At the time of assessment there was some pooled water amongst grasses and rushes that provide habitat for frogs. There was also a presence of woody debris and organic leaf litter providing cover for a range of species. An Eastern Brown Snake (Pseudonaja textilis) was observed among remnant vegetation in the south of the study area.

The remainder of the study area was mostly devoid of vegetation and appears to have been regularly cropped. At the time of assessment, the sturdy area largely presented as cropping stubble with emergent weeds most likely struck from summer rain. These included Fleabane (Conyza sumatrensis), Heliotrope (Heliotropium europaeum), Prairie Ground Cherry (Physalis hederifolia), Horehound (Marrubium vulgare), Smooth Cat's Ear (Hypochaeris glabra), and Spear Thistle (Cirsium vulgare). One area of the cropped land on the west of the study area has been fenced and with the lack of disturbance is being colonised by Dogwood (Cassini sp.).

There is a significant amount of native vegetation along the north-east and north boundary of the study area. They mainly consist of large Box and Gum trees with a modified/ disturbed understory. There is some planted native vegetation on the eastern boundary which is within the Nagambie Recreation Reserve. On the southern boundary, the remnant patches describe above extend into the road reserve of Vickers Rd. On the western site boundary, there are extensive plannings within Elloura Drive associated with development landscaping works. There were three non-native trees in the north of the study area which appear to have been planted. Within the north of the study area there was also evidence of dumping of green waste with stockpiles of branches, pruning's etc. As this area was no longer being cropped, there was also evidence of Eucalypt recruitment.

Native understory and ground cover species were largely absent from the study area, except for amongst the remnant patches and where Eucalyptus or Cassinia species were recruiting. Otherwise, the dominant grass species was Wild Oats (Avena fatua).

Vegetation and fauna habitat are further described in Table 7. Lists of flora and fauna species recorded during the ecological assessment are provided in Section 3.4 and 3.5

Native vegetation removal

3.2 4 an¹ No native vegetation is proposed to be removed or impacted as part of this project. The ecological assessment Nincluded gathering data such as vegetation quality and extent in line with the Guidelines, and also information which will inform construction environmental management. Diameter at breast height (DBH) for each tree was recorded which will allow for the mapping of Tree Protection Zones (TPZ) to ensure that development is in line with Australian Standard AS4970-2009 Protection of Trees on Development Sites.

3.2.2 Victoria's native vegetation management- a framework for action

The Native Vegetation Management: A Framework for action (DSE, 2002) is a Victorian strategy which aims to protect, enhance and revegetate Victoria's native vegetation. The Framework's main goal is to "achieve a reversal, across the entire landscape of the long-term decline in the extent and quality of native vegetation, leading to a net gain".

The framework has four guiding principles which contribute to achieving the goal. They are:

- 1. Retention and management of remnant native vegetation is the primary way to conserve the natural biodiversity across the landscape;
- 2. The conservation of native vegetation and habitat in a landscape is dependent on the maintenance of catchment processes;
- 3. The cost of vegetation management should be equitably shared according to benefits accrued by the landholder, community and region; and
- 4. A landscape approach to planning native vegetation management is required. Goals for native vegetation management will be based on bioregions, or sub-units, within the Catchment Management Authority region2. Priorities for vegetation management should be specific for each bioregion and catchment.

The project has prioritised the retention of all remnant native vegetation within the proposed project area. As such, no offsets are required and benefits to the native vegetation can be achieved "on-site" to provide a net gain. The project has identified a number of management commitments to retained vegetation that will be implemented as detailed in the Avington Lifestyle Village Stage A - Environment Plan (DM Ecological, 2023). The management commitments include actions to be implemented prior to construction, during construction and as ongoing maintenance to ensure the ongoing viability and enhancement of remnant vegetation at the site.

3.2.3 GB CMA Regional Catchment Strategy

Goulburn Broken Catchment Management Authority (GB CMA) have developed the Regional Catchment Strategy (RCS) 2021-2027 which is a vision for the integrated management of natural resources in the catchment. It is a blueprint for improving catchment health and builds on achievements and lessons from the past. The strategy describes the current condition of the natural resources, principles to guide change, priority actions and what success looks like in 2040.

The strategy is categorised into themes which outline critical attributes and mid-term and long-term outcomes to be reached by implementing priority actions. The biodiversity theme in the RCS addresses native vegetation quality and extent as critical attributes. The RCS identifies four key principles to understand and manage native vegetation for biodiversity health:

- increase native vegetation extent; 1.
- information must increase habitat quality in native ecological communities on public and private land;
 - improve landscape context or pattern of native vegetation; and
 - 8 prioritise habitat management for threatened species, ecological communities and increased system function.

KINOS By prioritising not just the retention of all native vegetation on the site, but also the ongoing protection and management of that vegetation during and post construction, the project can be seen to be abiding by the principles outlined above the contributing towards the identified RCS biodiversity outcomes.

Table 7: Summary of vegetation and habitat types within the study area

Table 7: Summary of vegetation and hab	pitat types within the study area		dEnvironnent Act 1981.
Vegetation or habitat type	Description	Location	Fauna habitat & significant values
Scattered Remnant Trees Figures 5 and 6	Remnant patches and one adjacent remnant scattered tree. Mostly large trees, many hollow-bearing consisting of the following species: • Grey Box (<i>Eucalyptus microcarpa</i>) • Long-leaf Box (<i>Eucalyptus goinocalyx</i>) • River Red Gum (<i>Eucalyptus camaldulesis</i>) • Yellow Box (<i>Eucalyptus melliodora</i>) Of the seventeen native trees recorded, twelve are considered large according to the EVC benchmark.	Restricted to the south-east quadrant of the study area, along the watercourse that runs form the east of the study area to the south. Also present immediately adjacent to the study area in the porth/ porth-east	Many of the trees are hollo-bearing providing breeding opportunities for a number of native fauna species. The trees are present along a watercourse and appear to provide an important 'stepping stone' among the landscape between the more heavily timbered areas immediately south of Vickers Rd and immediately north of the study area. This was evidenced by significant numbers of Large-billed Corellas, Galahs, Sulfur-crested Cockatoos and Eastern Rosellas using the trees to move throughout the landscape
Watercourse Figures 7 and 8	Whilst of poorer vegetative quality within the study area, the watercourse has riparian vegetation of significant value outside of and immediately adjoining the study area. Due to the land use within the study area, the watercourse is mostly dominated by weeds and non-native species (outside of the remnant trees described above). The watercourse is ephemeral and at the time of assessment, contained only shallow, disconnected pools of water.	Runs from eastern boundary of the study area to southern boundary of the study area.	Though weedy, the vegetative cover along with some water presents as suitable habitat for some amphibian species. The water also provides a resource for native fauna.
Cropped Paddocks Figure 9	Stubble and agricultural/ environmental weeds. Mostly tree less except for some recruitment on the periphery of nearby remnant patches.	Majority of the study area	Negligible in terms of habitat value.
Previously cleared, non-cropped paddocks Figures 10 and 11	These areas are distinct from the cropped paddocks as they have been fenced and left undisturbed. This has resulted in Eucalypt and Dogwood recruitment amongst the previously listed weeds and non-native ground cover species.	North-west quadrant of the study area.	Some habitat value for small birds in terms of foraging and sheltering opportunities. Perhaps some habitat value for frogs and reptiles in the sometimeswetter areas where <i>Juncus</i> and <i>Dock sp.</i> are present.
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Figure 7: Unnamed watercourse within study area, February 2023



Figure 8: Unnamed watercourse within study area, February 2023 Ò.





Figure 10: Previously cleared and now fenced area showing colonisation by Cassinia sp. and presence e of semi-aquatic species in low-lying areas, February 2023



Figure 11: Previously cleared area in north-west of study area showing dumped garden waste and Eucalypt recruitment,

Landscape context

The study area and much of the surrounding land has been subject to agricultural land use historically, including clearing of vegetation for grazing and cropping. More recently has seen adjacent land to the east and north developed as part of the Elloura Estate. Connectivity of remnant vegetation in the study area and broader landscape is low, with native vegetation mainly present in the form of isolated paddock trees and fragmented patches. Approximately 300m north of the study area is Lake Nagambie, an important socioeconomic and recreational asset to the township of Nagambie, which also has some ecological value for

aquatic species. The study area is bordered by Vickers Rd, Elloura Dv, the Nagambie Recreation Reserve and remnant woodland.

3.3.1 Lake Nagambie Foreshore

The Strathbogie Planning Scheme detailed in Clause 37.02 Schedule 1 relating to Comprehensive Development Zone requires an assessment of any impact on Lake Nagambie and its foreshore.

A site inspection was undertaken on February 22nd 2023 to assess any potential impact to Lake Nagambie and its foreshore. The assessment related directly to Stage A only of the Avington Lifestyle Village as shown in Indicative Site Layout (Appendix 1) The development of Stage A poses no direct threats to Lake Nagambie or its foreshore. Construction for the stage is >200m from the foreshore.

The indirect threat posed by Stage A to Lake Nagambie and its foreshore is posed by sediment and runoff from the Stage 1 development area entering the lake via the unnamed watercourse that traverses the activity area and discharges into Lake Nagambie approximately 600m downstream.

For details of how the development will address surface water management, the stream system on site and upstream and downstream of the development, including the protection of flows and enhancement of water quality including treatments required to accommodate staged construction, please refer the accompanying Stormwater Management Plan (Incitus, 2023).

The project will address sediment control, salinity, nutrient control, and pollution control and management of stormwater from the development based on Best Practice Environmental Management Guidelines (CSIRO, 1999) and Best Practice Erosion and Sediment Control (International Erosion Control Association, 2008). Specific management actions are detailed in the Avington Lifestyle Village Stage A – Environment Plan (DM Ecological, 2023).

3.4 Fauna Observations

During the ecological assessment, fauna observations were recorded. The species directly observed within the study area on are provided in Table 8.

Common Name	Scientific Name	Conservat	ion Status
		FFG Act	EPBC Act
Australian Magpie	Cracticus tibicen	Secure	Secure
Australian White Ibis	Threskiornis molucca	Secure	Secure
Brown Falcon	Falco berigora	Secure	Secure
Crested Pigeon	Ocyphaps lophotes	Secure	Secure
Eastern Brown Snake	Pseudonaja textilis	Secure	Secure
Eastern Rosella	Platycercus eximius	Secure	Secure
Galah	Eolophus roseicapillus	Secure	Secure
Laughing Kookaburra	Dacelo novaeguineae	Secure	Secure
Long-billed Corella	Cacatua tenuirostris	Secure	Secure
Magpie-lark	Grallina cyanoleuca	Secure	Secure
Noisy miner	Manorina melanocephala	Secure	Secure
Sulphur-crested Cockatoo	Cacatua galerita	Secure	Secure

Table 8: Fauna observed within study are

3.5 Flora Observations

During the ecological assessment, flora observations were recorded. The species directly observed within the study area on are provided in Table 9.

Table 9: Flora observed within study area

Common Name	Scientific Name	Conservation Status		
		FFG Act EPBC Act		
Blackberry	Rubus fruticosus	Regionally con	trolled weed	
Briar Rose	Rosa rubiginosa	Regionally con	trolled weed	
Bullrushes	Juncus spp.	Not listed	Not listed	
Cumbungi	Typha domingensis	Not listed	Not listed	
Curled Dock	Rumex crispus	Introduced	Introduced	
Dogwood	Cassinia aculeata	Not listed	Not listed	
European Heliotrope	Heliotropium europaeum	Introduced	Introduced	
Grey Box	Eucalyptus microcarp	Not listed	Notlisted	
Horehound	Marrubium vulgare	Regionally controlled weed		
Kykuyu	Pennisetum clandestinum	Introduced	Introduced	
Long-leaf Box	Eucalyptus goinocalyx	Not listed	Not listed	
Olive	Olea europea	Introduced 🖑	Introduced	
Peppercorn	Schinus molle	Introduced	Introduced	
Prairie Ground Cherry	Physalis hederifolia	Regionally controlled	Regionally controlled	
Prickly-leaf Paperbark	Melaleuca styphelioides	Not listed	Not listed	
River Red Gum	Eucalyptus camaldulensis	SNot listed	Not listed	
Smooth Cat's-ear	Hypochoeris glabra	Introduced	Introduced	
Spear Thistle	Cirsium vulgare	Regionally con	trolled weed	
Tall Fleabane	Conyza sumatrensis),	Introduced	Introduced	
Toowoomba Canary Grass	Phalaris aquatica	Introduced	Introduced	
Umbrella Sedge	Cyperus eragrostis	Introduced	Introduced	
Yellow Box	Eucalyptus melliodora	Not listed	Not listed	
Water Couch	Paspalum distichum	Introduced	Introduced	
Wild Oats	Avena fatua	Introduced	Introduced	

3.6

Significant Species of administration of this administration of the second of the seco 3.6.1

Lists of EPBC Act and FFG Act listed species recorded or predicted to occur within 5 kilometers of the study prov ind an ini inded in Tabl. they are given fun-they are given fun-given fun-funarea are provided in Tables 3, 4 and 5. An assessment of the likelihood of these species occurring in the study area and an indication of where within the site (i.e., which habitats or features of relevance to the species) is included in Table 10. Where species have a likelihood of occurrence within the study area of medium or high, they are given further consideration.

					onnent	Act 1987.
Table 10: Summary of EPBC	and FFG Act listed spo	ecies likely occurrence	e in the study area	6	Enville e	Se contraction of the second sec
Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Critically Endangered	A range of dry woodlands and forests dominated by nectar producing tree species.	Low	mainly due to the isolated and fragmented nature of Eucalypts within study area. Lack of nearby recent records.
Calidris ferruginea	Curlew Sandpiper	Critically Endangered	Critically Endangered	Occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand.	Negligible	No suitable habitat in study area
Lathamus discolor	Swift Parrot	Critically Endangered	Critically Endangered	A range of forests and woodlands, especially those supporting nectar-producing tree species. Also, well-treed urban areas.	Low	Could utilise study area when in mainland Australia however would expect it to forage in areas with larger diversity and extent of flowering species. Number of records in Rushworth State Forest to east of study area.
Numenius madagascariensis	Eastern Curlew	Critically Endangered	Critically Endangered	Intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbors and lagoons.	Negligible	No suitable habitat in study area
Pedionomus torquatus	Plains Wanderer	Critically Endangered	Critically Endangered	Open, sparse swards and grasslands	Negligible	No grasslands on site. Only introduced pasture species with
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Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
				- Dario	ourpos	herbaceous weeds which is not suitable habitat.
Pimelea spinescens subsp. spinescens	Plains Rice-flower	Critically Endangered	Critically Endangered	Occurs in grassland or open shrubland. Many populations consist of a small number of plants (55 percent of sites with population counts have fewer than 100 plants), with most occurring in tiny patches of remnant habitat (59 percent of sites with extent estimates are smaller than 1ha) such as on roadsides and rail easements (Carter & Walsh 2006).	Negligible	Study area not considered suitable habitat. Conspicuous species that would have been observed if present. No nearby records.
Botaurus poiciloptilus	Australasian Bittern	Endangered	Critically Endangered	Lives and forages in wetlands amongst rushes and reeds	Negligible	No suitable habitat in study area
Rostratula australis	Australian Painted Snipe	Endangered	Critically	Different types of shallows, brackish or freshwater terrestrial wetlands, especially temporary ones which have muddy margins and small, low-lying islands. Suitable wetlands usually support a mosaic of low, patchy vegetation, as well as lignum and cane grass.	Negligible	No suitable habitat in study area
Crinia sloanei	Sloane's Froglet	Endangered other pu	Endangered	Temporary and permanent waterbodies including oxbows off creeks and rivers, farm dams, large and small natural wetlands, constructed frog ponds and temporary puddles. It prefers wetlands that contain riparian and aquatic vegetation. Most often it has been found in waterbodies that contain grasses and reeds that are of medium height and have small stem diameters, such as couch, water couch or the common spike rush (<i>Eleocharis actua</i>)	Low	Watercourse in study area is somewhat suitable but highly isolated. Nearest records are at Reedy Lake (8km north) and from 1991.
Dasyurus maculatus	Spot-tailed Quoli	Endangered	Endangered	Forests, woodlands, coastal heathlands and	Low	No suitable habitat or
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Scientific Name	Common Namo	EDBC Act Status	EEG Act Status	Habitat	Likelihood	Rationales
Sciencijic Munie				rainforests. They are sometimes seen in open country, or on grazed areas and rocky outcrops. They are mainly solitary animals, and will make their dens in rock shelters, small caves, hollow logs and tree hollows. They use these dens for shelter and to raise young	the purpos	connectivity to suitable habitat that would facilitate their interest in the study area.
Lepidium monoplocoides	Winged Pepper- cress	Endangered	Endangered	Seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by <i>Allocasuarina luehmannii</i> (Bulloak) and/or eucalypts, particularly <i>Eucalyptus largiflorens</i> (Black Box) or <i>Eucalyptus populnea</i> (Poplar Box). The field layer of the surrounding woodland is dominated by tussock grasses.	Low	Watercourse in study area highly disturbed with lack of associated species.
Maccullochella macquariensis	Trout Cod	Endangered	Endangered lede	Cooler upper reaches of streams, usually in flowing pools between falls and rapids where the stream bottom is bed-rock, boulders and sand or gravel substrates. Larger fish are usually found in the deeper holes, smaller fish beneath and amongst boulders.	Negligible	No suitable habitat in study area
Macquaria australasica	Macquarie Perch	Endangered	Endangered	Naturally a riverine fish, preferring deep holes. Cool, upper reaches of Victorian tributaries of the Murray-Darling system.	Negligible	No suitable habitat in study area
Callocephalon fimbriatum	Gang-gang Cockatoo	Endangered	Not Listed	Found in tall mountain forests and woodlands, with dense shrubby understoreys. In winter, Gang-gangs will move to lower altitudes into drier, more open forests and woodlands. At this time, they may be seen by roadsides and in parks and gardens of urban areas. They require tall trees for nest hollows.	Low	Fragmented nature of habitat available in study area not preferable.
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Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
Keyacris scurra	Key's Matchstick	Endangered	Not Listed	Typically found in native grasslands and grassy woodlands but it has also been recorded in other vegetation associations usually containing a native grass understory (especially kangaroo grass <i>Themeda triandra</i>) and known food plants (particularly <i>Asteraceae</i>).	the Putpos	Nothing resembling native grassland within the study area. Not known to use pasture.
Senecio macrocarpus	Large-fruit Fireweed	Vulnerable	Critically Endangered	Grasslands on red-brown earth soils. It may also occur in grassy woodlands and open woodlands	Low	Study area does not resemble preferred habitat. No nearby records.
Synemon plana	Golden Sun Moth	Vulnerable	Critically Endangered	Natural Temperate Grasslands and grassy Box- Gum Woodlands in which ground layer is dominated by wallaby grasses <i>Austrodanthonia</i> spp. Grasslands dominated by wallaby grasses are typically low and open - the bare ground between the tussocks is thought to be an important microhabitat feature for the Golden Sun Moth, as it is typically these areas on which the females are observed displaying to attract males.	Low	Study area does not resemble preferred habitat. Dominated by exotics. Not recorded around Nagambie since 1932.
Aprasia parapulchella	Pink-tailed Legless Lizard	Villnerable available	Endangered	Sloping, open woodland areas with predominantly native grassy ground layers, particularly those dominated by Kangaroo Grass (<i>Themeda australis</i>). Sites are typically well- drained, with rocky outcrops or scattered, partially-buried rocks. Commonly found beneath small, partially-embedded rocks	Low	Lacking slopes, rocky outcrops and Kangaroo Grass.
Brachyscome muelleroides	Mueller Daisy	Vulnerable	Endangered	Occurs in seasonally damp situations such as shallow depressions and around the margins of swamps, lagoons and claypans, on heavy grey	Low	Study area too disturbed/ modified. Lack of nearby records.
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Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
				cracking clays to lighter clay loam soils, in grassland, grassy woodland and open forest habitats, growing in association with various grasses and seasonal aquatic plants such as <i>Marsilea</i> species	the purpose	
Delma impar	Striped Legless Lizard	Vulnerable	Endangered	Grassy ground cover, often with a mixture of native and exotic perennials and annuals. The species shelters under surface rock, in cracks in the soil, or in tussocks.	Low	Only annual grasses and no tussocks. No obvious surface rock or cracking clays.
Maccullochella peelii	Murray Cod	Vulnerable	Endangered	Waterways of the Murray–Darling Basin in a wide range of warm water habitats that range from clear, rocky streams to slow flowing turbid rivers and billabongs.	Negligible	No suitable habitat in study area
Polytelis swainsonii	Superb Parrot	Vulnerable	Endangered	Timbered waterways and nearby well-watered woodlands, especially in River Red Gums along the Murray and Murrumbidgee Rivers.	Low	Study area does not represent suitable habitat.
Falco hypoleucos	Grey Falcon	Vulnerable vailable	Vutherable	The species occurs throughout the arid and semiarid zones of Australia, where the mean annual rainfall is less than 500 mm, but rarely in waterless areas. These areas are relatively treeless except along watercourses, and comprise sandy to stony plains, spinifex tussock grassland, low shrubland and acacia scrub.	Low	Not within key range. Lack of nearby records.
Glycine latrobeana	Clover Glycines	Vulnerable	Vulnerable	Occurs mainly in grassland and grassy woodland habitats, less often in dry forests, and only rarely in heathland. In Victoria, plants grow in a range of soil types including alluvial soils, and those derived from sandstones, mudstones, granite and basalt	Low	Study area does not represent suitable habitat. No nearby records.
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Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
Grantiella picta	Painted Honeyeater	Vulnerable	Vulnerable	Found in dry open forests and woodlands, and is strongly associated with mistletoe. It may also be found along rivers, on plains with scattered trees and on farmland with remnant vegetation. It has been seen in urban parks and gardens where large eucalypts are available.	Low	Lack of connectivity to suitable habitat makes the study area unlikely to host the species.
Hirundapus caudacutus	White-throated Needletail	Vulnerable	Vulnerable	Almost exclusively aerial but will roost in trees on occasion	Low	No nearby records but could possibly occupy airspace over study area.
Litoria raniformis	Growling Grass Frog	Vulnerable	Vulnerable	Water bodies, including slow flowing streams and rivers, or off-stream wetlands, which contain water at least periodically	Low	Limited habitat offered by study area. No nearby recent records.
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Vulnerables ^e	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Low	No suitable habitat in study area.
Amphibromus fluitans	River Swamp Wallaby-grass	Vulnerable	Not Listed	Gilgai depressions in seasonally wet Kangaroo Grass (<i>Themeda triandra</i>) dominated grassland, a seasonal soak dominated by Common Bog- rush (<i>Schoenus Apogon</i>) and in a stand of Sedge Carex <i>sp. aff. bichenoviana</i> .	Negligible	No suitable habitat in study area.
Dodonaea procumbens	Trailing Hop-bush	Vùlnerable	Not Listed	Grows in low-lying, often winter-wet areas in woodland, low open forests, heathland and grasslands, on sands and clays. Prefers heathy dry forest in central Victoria.	Low	Study area does not resemble suitable habitat. No nearby records.
Prasophyllum validum	Sturdy Leek Orchid	Vulnerable	Not Listed	Little is known of the ecology or biology of the species, although it seems to prefer relatively dry woodland habitats	Low	Study area presents more as floodplain (wet) and is near treeless.
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Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
Allocasuarina Iuehmannii	Buloke	Not Listed	Critically Endangered	Typically occupies patches of red-brown loamy sands with alkaline sub-soils on the alluvial plain of the Murray River	Negligible	No suitable habitat in study area. Species would have been conspicuous if present.
Ardea intermedia plumifera	Plumed Egret	Not Listed	Critically Endangered	Freshwater wetlands, especially lake margins, billabongs, and swamps with abundant emergent vegetation. Occasionally mangrove swamps and tidal flats.	Negligible	No suitable habitat within study area.
Brasenia schreberi	Water Shield	Not Listed	Critically Endangered	Known in recent times only from shallow lagoons of the Goulburn River and tributaries near Nagambie, but there locally common. Early records from the lower Ovens and Mitta Mitta Rivers suggest a former wider range. Plants need to remain submerged (except for floating leaves and flowers) in freshwater year-round.	Negligible	No suitable habitat within study area.
Comesperma polygaloides	Small Milkwort	Not Listed	Critically Endangered	Occasional on heavier soils (clays, alluvium) supporting grassland and grassy woodland communities in central and south-western areas.	Low	Study area does not resemble suitable habitat.
Antigone rubicunda	Brolga	Not Listed	Endangerêd	Large open wetlands, grassy plains, coastal mudflats and irrigated croplands and, less frequently, mangrove-studded creeks and estuaries. It is less common in arid and semi- arid regions, but will occur close to water.	Low	Study area does not resemble suitable habitat
Egretta garzetta	Little Egret	Not Listed	Endangered	Frequents tidal mudflats, saltwater and freshwater wetlands, and mangroves.	Negligible	No suitable habitat in study area
Goodia medicaginea	Western Golden- tip	Not Listed	Endangered	In Victoria occurs sporadically in the south- west (e.g. north of Portland, Mt Arapiles), at Long Forest west of Melbourne, in central Victoria near Eaglehawk and at Killawarra Forest, and near Suggan Buggan in the east. Favours drier sites	Low	Outside typical range. Lack of nearby records.
Haliaeetus leucogaster	White-bellied Sea- Eagle	Not Listed	Endangered	Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Breeding	Low	No nests identified in the remnant trees. Unlikely to use
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Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
				habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts. Nests are large structures built from sticks and lined with leaves or grass.	the Pulpos	study area when better habitat available around Lake Nagambie/ Goulburn River.
Oreoica gutturalis	Crested Bellbird	Not Listed	Endangered	Occurs from semi-arid coastlines to the arid Australia interior. They are found in <i>acacia</i> shrublands, <i>eucalypt</i> woodlands, spinifex and chenopod (saltbush) plains or dunes.	Low	Study area likely too fragmented to warrant incursion.
Pseudophryne bibronii	Brown Toadlet	Not Listed	Endangered	Eggs are laid as one small cluster on land under moist leaf litter, rocks, logs, and Sphagnum moss. They are released into water bodies after the nest is flooded by rain. Breeds during any time of the year after rain.	Low	Lack of preferred ground cover habitat within study area. No recent records in geographic area.
Pyrrholaemus sagittatus	Speckled Warbler	Not Listed	Endangered	Dry sclerophyll forests and woodlands (woodlands have fewer trees than forests) dominated by eucalypts. It is mostly seen on the grassy ground layer, when it is foraging.	Low	Lack of grassy ground layer. No nearby recent records.
Stictonetta naevosa	Freckled Duck	Not Listed Judiable	Endangered	Prefers permanent fresh water swamps and creeks with heavy growth of cumbungi (bullrushes), lignum or tea-tree. During drier times, the Freckled Duck moves from ephemeral (not permanent) breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewerage ponds.	Low	Lack of water and preferred habitat within study area.
Tandanus	Freshwater Catfish	Not Listed	Endangered	Lakes and sluggish turbid streams with fringing vegetation. Lives and feeds largely on the bottom. Solitary, although small individuals often form loose schools.	Negligible	No suitable habitat within study area.
Tringa glareola	Wood Sandpiper	Not Listed	Endangered	Migratory species. In Victoria most sightings occur around Port Phillip Bay and in the mid- Murray Valley from around Cohuna to Kooloonong.	Negligible	No suitable habitat within study area.
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Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
Tringa stagnatilis	Marsh Sandpiper	Not Listed	Endangered	Commonly seen singly, or in small to large flocks in fresh or brackish (slightly salty) wetlands such as rivers, water meadows, sewage farms, drains, lagoons and swamps.	Negligible	No suitable habitat within study area.
Anseranas semipalmata	Magpie Goose	Not Listed	Vulnerable	Floodplains and wet grassland	Low	Study area does not resemble suitable habitat
Ardea alba modesta	Eastern Great Egret	Not Listed	Vulnerable	The Eastern Great Egret has been reported in a wide range of wetland habitats. The species usually frequents shallow waters.	Low	Study area does not resemble suitable habitat
Aythya australis	Hardhead	Not Listed	Vulnerable	Freshwater swamps and wetlands and occasionally in sheltered estuaries. They are rarely seen on land and tend to roost on low branches and stumps near the water. They prefer deep, fresh open water and densely vegetated wetlands for breeding	Low	Study area does not resemble suitable habitat
Biziura lobata	Musk Duck	Not Listed	Vulnerable	Tend to be found in deep freshwater lagoons, with dense reed beds.	Negligible	No suitable habitat within study area.
Calamoecia australis	Centropagid copepod	Not Listed available	of the putposed of this of the	Copepods meaning "oar-feet" are a group of small crustaceans found in nearly every freshwater and saltwater habitat. Continental species may live in limnoterrestrial habitats and other wet terrestrial places, such as swamps, under leaf fall in wet forests, bogs, springs, ephemeral ponds, and puddles, damp moss, or water-filled recesses (phytotelmata) of plants such as bromeliads and pitcher plants. Many live undergrounds in marine and freshwater caves, sinkholes, or stream beds.	Low	Species has one record in local area (Lake Nagambie, 1976)
Geopelia cuneata	Diamond Dove	Not Listed	Vulnerable	Arid or semi-arid grassland with reliable water supply in the vicinity. Often seen along roads and tracks.	Low	Study area does not resemble suitable habitat
Hieraaetus morphnoides	Little Eagle	Not Listed	Vulnerable	Seen over woodland and forested lands and open country, extending into the arid zone. It tends to avoid rainforest and heavy forest.	Low	Not impossible it could be an itinerant visitor to study area.
Hydroprogne caspia	Caspian Tern	Not Listed	Vulnerable	Migratory species. mostly found in sheltered coastal embayments (harbours, lagoons,	Negligible	No suitable habitat within study
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Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
				inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks.	the Putpost	area.
Melanodryas cucullata	Hooded Robin	Not Listed	Vulnerable	Lightly timbered woodland, mainly dominated by acacia and/or eucalypts.	Low	Study area highly fragmented, no acacias recorded.
Ornithorhynchus anatinus	Platypus	Not Listed	Vulnerable	ideal habitat for the species includes a river or a stream with earth banks and native vegetation that provides shading of the stream and cover near the bank. The presence of logs, twigs, and roots, as well as cobbled or gravel water substrate result in increased micro invertebrate fauna (a main food source), and the Platypus also tends to be more abundant in areas with pool-riffle sequences.	Negligible	No suitable habitat within study area.
Phascogale tapoatafa	Brush-tailed Phascogale	Not Listed		Inhabits open dry foothill forest with little ground cover, typically associated with box, ironbark and stringybark eucalyptus. Occurs in low densities and forages over a very large home range which means only small populations can exist in quite large areas of habitat.	Medium	Hollow-bearing trees within study area that are connected to larger wooded areas. More prevalent in Box-Ironbark forests but records near Nagambie.
Pogona barbata	Bearded Dragon	Not Listed	vulnerable	Open sclerophyll woodlands or forests with places to perch such as logs and fallen branches.	Medium	Could appear in southern remnant patch within study area. Recent (2022) records from around Nagambie.
Pomatostomus temporalis	Grey-crowned Babbler	NotListed	Vulnerable	Found in open forests and woodlands, favouring inland plains with an open shrub layer, little ground cover and plenty of fallen timber and leaf litter. May be seen along roadsides and around farms	Low	Study area highly fragment and lack of nearby recent records.
Spatula rhynchotis	Australian Shoveler	Not Listed	Vulnerable	All kinds of wetlands, preferring large undisturbed heavily vegetated freshwater	Negligible	No suitable habitat within study
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Scientific Name	Common Name	EPBC Act Status	FFG Act Status	Habitat	Likelihood	Rationales
				swamps. It is also found on open waters and occasionally along the coast.	ourpos	area.
Stagonopleura guttata	Diamond Firetail	Not Listed	Vulnerable	Diamond Firetails are found in open grassy woodland, heath and farmland or grassland with scattered trees.	Medium	Possible they would use areas from time to time. Conspicuous species that would have been detected if present during survey.
This docut The internet	hent has been copied	and made available of the put of	tot the purpose of the deed of the purpose of this of the purpose of the purpose of this of the purpose of the	and agree strictly provide agree strictly pro		34

3.6.2 Brush-tailed Phascogale

The Brush-tailed Phascogale inhabits open dry foothill forest with little ground cover, typically associated with box, ironbark and stringybark Eucalyptus. Prevalent in Box-Ironbark Forests to the west of the study area. Suitable habitat is present in south of activity area. Hollows in dead or live trees provide preferred den sites, although nests constructed under flaking bark, or in tree stumps are sometimes used but provide a less secure substitute against predators in areas where hollows are scarce. Mating occurs in late autumn - early winter. Hollow-bearing trees were identified in parts of the study area which could support breeding.

With no native vegetation removal proposed, potential impacts to the species are negligible and no further PUTPOSE consideration is required at this point.

3.6.3 Bearded Dragon

The species' habitats include temperate to tropical arid to semi-arid woodland, shrubland and hummock grassland (with scattered trees). Suitable habitat does exist within the southern remnant patch within the study area. Nearby recent records indicate that it could be considered likely to be present in that part of the study area.

With no native vegetation removal proposed, potential impacts to the species are regligible and no further consideration is required at this point.

3.6.4 Diamond Firetail

Diamond Firetails are commonly found in open grassy woodland, heath and farmland or grassland with scattered trees (Australian Museum, 2022). There are numerous records of the species occurring within 5km of the site, many of which are within the last five years. They are somewhat habitat generalists and readily adapt to highly modify environments, nesting in residential gardens and small trees on nature strips where nearby grasses provide ample nesting material. They were not recorded during this survey however it is entirely possible they could visit the patches of vegetation within the study area.

With no native vegetation removal proposed, potential impacts to the species are negligible and no further consideration is required at this point.

Legislative Implicatio 4

Environment Protection and Biodiversity Conservation Act 1999 4.1

The EPBC Act establishes a Commonwealth process for the assessment of proposed actions likely to have a significant impact on any Matters of National Environment Significance (MNES). The significant impact guidelines outline the impact criteria (Table 11), and provide a decision-making framework ('self-impact assessment') for determining whether an action will require referral to the Australian Government Environment Minister and/or further approval under the EPBC Act (DCCEEW 2022b).

MNES	Potential Impacts
World Heritage Properties	The proposed action will not impact any properties listed for World Heritage.
National Heritage Places	The proposed action will not impact any places listed for National Heritage.
Ramsar wetlands of international significance	The proposed action will not impact any listed Ramsar wetlands.
Threatened species and ecological communities	No threatened species or ecological communities were recorded or predicted to occur within the study area.
Migratory and marine species	There is no marine or wetland habitat within the study area. Further, the study area would not be classed as an 'important habitat' as defined under the EPBC Act Policy Statement 1.1 Significant Impact Guidelines (Commonwealth of Australia 2013), in that it does not contain:

Table 11: Assessment of project against EPBC Act significant impact criteria.

MNES	Potential Impacts	
	 Habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, Habitat utilised by a migratory species which is at the limit of the species range; or, Habitat within an area where the species is declining. 	, 9 ⁰⁷
Commonwealth marine area	The proposed action will not impact any Commonwealth marine areas.	, C
Nuclear actions (including uranium mining)	The proposed action is not a nuclear action.	0
Great Barrier Reef Marine Park	The proposed action will not impact the Great Barrier Reef Marine Park.	illo
Water resources impacted by coal	The proposed action is not a coal seam gas or mining development.	5
seam gas or mining development		

4.1.1 EPBC Act implications

There were no threatened species or ecological communities recorded within the study area that would require further assessment under the EPBC Act. Further, the modified condition of the site does not provide suitable habitat for nationally significant flora, nor breeding or limiting habitat for nationally significant fauna. Although terrestrial fauna species may fly or travel over the study area when moving between areas of more suitable habitat, it is unlikely they will utilise this area, or rely on this habitat on a more permanent basis. The action is highly unlikely to have a significant impact on any Matter of National Environmental Significance, and as such, a referral under the EPBC Act is not required.

4.2 Flora and Fauna Guarantee Act 1988

The Flora and Fauna Guarantee Act 1988 (the FFG Act) provides for the listing of taxa (genera, species, subspecies and varieties), threatened communities of flora and fauna and potentially threatening processes. Proponents are required to apply for an FFG Act permit to 'take' listed and/or protected flora species and listed vegetation communities.

An FFG Act permit is generally not required for the removal of listed and/or protected flora species and communities on private land. There are currently no requirements for proponents to apply for a permit under the FFG Act where a proposed activity requires the removal of habitat for a listed terrestrial fauna species. The Act does however regulate the removal, salvage, temporary holding, relocation, taking, trading and keeping of FFG Act-listed fish species. The Flora and Fauna Guarantee Amendment Act 2019 (the Amendment Act) came into effect on June 1, 2020. The Amendment Act requires consideration of biodiversity across government to ensure decisions and policies are made with proper consideration of the potential impacts on biodiversity and now applies the FFG Act to Crown land and private/freehold land that is managed by a public authority.

The following threatening processes listed under the FFG Act should be considered in relation to the proposed development (DELWP 2022f):

- Habitat fragmentation as a threatening process for fauna in Victoria; and
- Invasion of native vegetation by environmental weeds.

No FFG Act listed species were recorded in the study area.

4.2.1 FFG Act implications

The proponent is not a public authority and no FFG Act species were recorded within the study area. No permits or further consents are required under the FFG Act.

4.3 Planning and Environment Act 1987

The Planning and Environment Act 1987 (P&E Act) outlines the legislative framework for planning in Victoria and for the development and administration of planning schemes. Within Victoria, the requirement for a planning permit to remove native vegetation is triggered by a number of Clauses within the Victoria Planning Provisions Planning Scheme. Within each municipality, the Local Planning Provisions for each Government Authority are outlined within the associated local Planning Scheme. The local Planning Scheme that applies to the study area is the Wodonga Planning Scheme.

The Strathbogie Planning Scheme defines native vegetation at Clause 73.01 as plants that are indigenous to Victoria, including trees, shrubs, herbs, and grasses. Within every local Planning Scheme, the removal of native vegetation is assessed in accordance with either Clause 52.16 or 52.17. In this case, Clause 52.17 applies, and vegetation removal should be assessed and offset in accordance with the incorporated document the Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017).

4.3.1 Local Planning Provisions

The study area is located within the Strathbogie Shire Council. The study area is subject to the provisions of the Comprehensive Development Zone (CDZ).

Comprehensive Development Zone (CDZ).

The farming zone applies to the whole study area. Schedule 1 to Clause 37.02 states the permit requirements for uses of land in comprehensive development zone. Uses not requiring a permit include:

- Accommodation (other than Bed and breakfast, Corrective institution); and
- Leisure and recreation facility (other than Motor racing track).

A permit is not required for these uses based on the condition "Must comply with the Lake Nagambie Resort and agree Master Plan".

Catchment and Land Protection Act 1994 4.4

The Catchment and Land Protection Act 1994 (CatP Act) contains provisions relating to catchment planning, land management, noxious weeds and pest animals. Under the CaLP Act, noxious weeds are further defined as either State Prohibited (S), Regionally Prohibited (P), Regionally Controlled (C), or Restricted (R), while pest animals are classified as either Prohibited Pest Animals (P), Controlled Pest Animals (C), Regulated Pest Animals (R) or Established Pest Animals (E). This classification is dependent on the type and level of threat to primary production, Crown land, the environment and community health. Landowners are responsible for the control of any infestation of noxious weeds and pest animals to minimise their spread and impacts. Landowners must, to the best of their ability:

- Eradicate regionally prohibited weeds;
- Prevent the growth and spread of regionally controlled weeds; and,

There were five weeds listed as noxious under the CaLP Act recorded within the study area (See Section 3.5 able 8).

4.4.1 CaLP Act implications

Listed noxious weeds must be appropriately controlled throughout the study area. Weed management measures should be included in any Environmental Management Plan developed for the project. These should follow the guidelines set out in the CaLP Act, and clearly outline any obligations of the project team in relation to minimising the spread of weeds as a result of this project. This may include a pre-clearance weed survey

undertaken prior to any construction activities to record and map the locations of all noxious and environmental weeds. Noxious weeds are subject to permit conditions.

4.5 Wildlife Act 1975 and Wildlife Regulations 2013

4.5.1 Wildlife implications
As no native vegetation removal or habitat is required for the project, no further requirements under the wildlife Act are necessary.

the Planning at for the pur Wildlife Act are necessary.

4.6 Environmental Effects Act 1978

The Environment Effects Act 1978 provides for assessment of proposed projects (works) that are capable of having a significant effect on the environment. The Act does this by enabling the Minister administering the Environment Effects Act to decide that an Environment Effects Statement (EES) should be prepared. The Minister might typically require a proponent to prepare an EES when:

- there is a likelihood of regionally or State significant adverse effects on the environment;
- there is a need for integrated assessment of potential environmental effects (including economic and • social effects) of a project and relevant alternatives, and
- normal statutory processes would not provide a sufficiently comprehensive, integrated and • transparent assessment.

The requirement for project referrals under the EE Act is assessed against the referral criteria set out in the Ministerial Guidelines for Assessment of Environmental Effects. They include both individual potential effects and combinations of potential effects. A self-assessment against each criterion for this project is set out in Tables 12 and 13.

Table 12: Assessment against the referral criteria for individual potential environmental effects.

Criterion	Assessment
 Potential clearing of 10 ha or more of native vegetation from an area that: is of an Ecological Vegetation Class identified as endangered by the Department of Sustainability and Environment (in accordance with Appendix 2 of Victoria's Native Vegetation Management Framework); or is, or is likely to be, of very high conservation significance (as defined in accordance with Appendix 3 of Victoria's Native Vegetation Management Framework); and is not authorised under an approved Forest Management Plan or Fire Protection Plan 	The project is not removing native vegetation.
Potential long-term loss of a significant proportion (e.g. 1 to 5 percent depending on the conservation status of the species) of known remaining habitat or population of a threatened species within Victoria	Loss of habitat is likely to be limited to one large hollow bearing tree given that the other is already occupied by introduced Common Starling. No threatened species were identified in the study area or as being highly likely to be found within the study area.
Potential long-term change to the ecological character of a wetland listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'	The proposed action will not impact any listed Ramsar wetlands due to no significant waterways being present within or close to the study area.

Criterion	Assessment		
Potential extensive or major effects on the health	Lake Nagambie is hydrologically connected to the study area at		
or biodiversity of aquatic, estuarine or marine	certain times of year however any impacts would be mitigated		
ecosystems, over the long term	and not considered extensive or long-term.		
Potential extensive or major effects on the health,	The study area is adjacent to the Recreation Reserve and nearby		
safety or well-being of a human community, due to	residences in Elloura Drive. The only potential impacts to air		
emissions to air or water or chemical hazards or	would be from construction activities (noise, dust, vehicle		
displacement of residences	emissions etc) which would be managed in accordance with an		
	EMP and EPA regulations.		
Potential greenhouse gas emissions exceeding	Collection of the second se		
200,000 tonnes of carbon dioxide equivalent per	The only emissions would be from construction (plant and		
annum, directly attributable to the operation of	machinery) and be significantly less than this amount.		
the facility.			

	Table 13: Assessment against the referral criteria for a combi	ination of potential environmental effects.		
	Criterion	Assessment		
	Potential clearing of 10 ha or more of native vegetation,	"He cit		
	unless authorised under an approved Forest	The project is not removing native vegetation.		
	Management Plan or Fire Protection Plan	NIL NOCO		
	Matters listed under the Flora and Fauna Guarantee Act	Å		
	1988:	No listed ecological communities were identified within the		
	 potential loss of a significant area of a listed 	study area.		
	ecological community; or	CO3 MY		
	 potential loss of a genetically important population 	No threatened species were identified in the study area or		
	of an endangered or threatened species (listed or	likely to be impacted by the project's implementation.		
	nominated for listing), including as a result of loss	nill's jour child.		
	or fragmentation of habitats; or	The project is not removing native vegetation.		
	potential loss of critical habitat; or	All The		
	 potential significant effects on habitat values of a 	No wetlands will be impacted by the project.		
	wetland supporting migratory bird species	19 . 5 ⁻⁷		
	Potential extensive or major effects on landscape values	The study area is not an area of regional importance or of		
	of regional importance, especially where recognised by a	Significant landscape value. There are no planning scheme		
	planning scheme overlay or within or adjoining land	overlays presiding over the study area.		
	reserved under the National Parks Act 1975	The project will comply with the Lake Nagambie Master		
	CONTRACTION AND AND AND AND AND AND AND AND AND AN	Plan.		
	Potential extensive or major effects on land stability,	The land is flat and minimal soil disturbance is required.		
	acid sulphate soils or highly erodible soils over the short	Acid sulphate soils are not likely to be present. A CEMP will		
	or long term かんてん スプ	provide erosion and sediment control requirements.		
	Potential extensive or major effects on beneficial uses of	Lake Nagambie is hydrologically connected to the study		
	waterbodies over the long term due to changes in water	area at certain times of year however any impacts would be		
	quality, stream flows or regional groundwater levels	mitigated and not considered extensive or long-term.		
	Potential extensive or major effects on social or			
	economic well-being due to direct or indirect	No displacement will occur as a result of the project.		
	displacement of non-residential land use activities			
	Potential for extensive displacement of residences or			
	severance of residential access to community resources	No residences would be displaced by the proposed project.		
. ~	due to infrastructure development			
ell'	Potential significant effects on the amenity of a	Whilst visual changes could be considered long-term it		
in all	substantial number of residents, due to extensive or	would not likely be considered negative as the land is		
20CC Mia	major, long-term changes in visual, noise and traffic	already cleared		
50,10, 3	conditions			
(n' on kings	Potential exposure of a human community to severe or	only potential impacts to air would be from construction		
	chronic health or safety hazards over the short or long	activities (noise, dust, vehicle emissions etc) which would		
87,010	term, due to emissions to air or water or noise or	be managed in accordance with an EMP and EPA		
a de la companya de l	chemical hazards or associated transport	regulations.		
	Potential extensive or major effects on Aboriginal	There are Aboriginal Heritage register places immediately		
	cultural heritage	north of the study area. The project is undertaking a		
		Cultural Heritage due diligence assessment to ensure no CH		
		impacts.		

Assessment

Potential extensive or major effects on cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the Heritage Act 1995.

Criterio

Per above

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4.6.1 EE Act implications

Based on the self-assessments provided in Tables 12 and 13, none of the criteria for referral are triggered by the project.

5. Mitigation Measures

Recommended measures to mitigate impacts upon terrestrial and aquatic values present within the study area include:

- Ensuring any proposed works remain within the intended construction footprint, i.e. not disturbing or removing areas of native vegetation outside the proposed works area. This also applies to machinery storage, materials stockpiles, laydown areas, rest areas, parking and access roads;
- Minimise impacts to native vegetation and habitats through construction and micro-siting techniques, including appropriate signage and fencing for retained areas of native vegetation (i.e. no-go zones).
- If necessary, trees (including dead trees) should be lopped/ pruned rather than removed. If retained trees are lopped or pruned, it should be in line with the Australian Standard 4373-2007 Pruning of amenity trees.
- Where possible, all material from trees removed or lopped/ pruned (i.e. logs) should be placed outside of impacted areas and utilised on-site or in adjacent shelterbelts as habitat for fauna;
- All contractors should be inducted prior to beginning construction to ensure that they are aware of all project environmental requirements and conditions of approvals;
- Ecological features should be included as a mapping overlay on any construction plans and should be displayed throughout common areas;
- Construction stockpiles, machinery, haul roads, and other infrastructure should be placed away from all retained ecological features;
- Tree Protection Zones (TPZs) must be fenced and no-go zone signage displayed to prevent indirect losses during construction activities. A TPZ applies to a tree and is a specific area above and below the ground, with a radius 12 x the DBH. At a minimum standard a TPZ should consider the following:
 - o A TPZ should be a radius no less than two metres or greater than 15 metres;
 - Construction related activities and encroachment (i.e. earthworks such as trenching or compaction that disturb the root zone) should be excluded from the TPZ;
 - Where encroachment exceeds 10% of the total area of the TPZ, the tree should be considered as lost and offset accordingly;
 - Directional drilling may be used for works within the TPZ without being considered encroachment. The directional bore should be at least 600 millimetres deep.
 - The above TPZ guidelines may be varied if a qualified arborist confirms the works will not significantly damage the tree (including stags / dead trees). In this case the tree would be retained, and no offset would be required.
 - Ensure that best practice sedimentation and pollution control measures are undertaken, in accordance with Environment Protection Agency guidelines (EPA 1991; EPA 1996; Victorian Stormwater Committee 1999) to prevent offsite impacts to waterways and wetlands; and,
- As indigenous flora provides valuable habitat for indigenous fauna, it is recommended that any landscape/ remedial plantings that are undertaken as part of the proposed works are conducted using indigenous species sourced from a local provenance, rather than exotic deciduous trees and shrubs.

In addition to these measures, the following documents must be prepared and implemented prior to any construction activities:
The service of the se Construction Environmental Management Plan (CEMP). The CEMP should include specific • species/vegetation conservation strategies, daily monitoring, sedimentation management, site specific rehabilitation plans, weed and pathogen management measures, etc.

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Appendix 1 – Indicative Site Layout

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Appendix 2 – EVC Benchmark

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EVC/Bioregion Benchmark for Vegetation Quality Assessment Victorian Riverina bioregion

EVC 55_62: Riverina Plains Grassy Woodland (syn. Plains Woodland)

Description:

An open, eucalypt woodland to 15 m tall occurring on a number of geologies and soil types. Occupies fertile clays and clay loam soils on flat or gently undulating plains at low elevations in areas with <600 mm annual rainfall. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer and chenopods are often present.

	Large trees:				~	o ati	
	Species		DBH(cm)	#/ha	14	i' dei	
	<i>Eucalyptus</i> spp		70 cm	15 / ha	11	CDI.	
	Eucalyptus larg	hiflorens	50 cm		00	90	
	<i>Allocasuarina</i> s	pp.	40 cm	S	, X	^C	
		_		P.	e C	۳ ⁷	
	Tree Canopy C	Cover:		S	155		
	%cover	Species typical of at lea	ast part of EVC i	ange	Cor	nmon Name	
	15%	Eucalyptus microcarpa	0		Grey	y Box	
		Eucalyptus melliodora	·	0; "	Yello	DW BOX	
		Eucalyptus camaiduiensis	alli	10, 0hi	Rive		
		Eucalyptus larginorens	d'as	x, 6,		N DUX	
		Allocasuarina luehmannii	10 ×11		Bulo	ke	
			ATT NO C				
	Understorey:		20,00,00	/			
	Life form		∭° (#Sp	p %C	Cover	LF code	
	Immature Cano	ppy Tree	20° Me	- 5%		IT	
	Medium Shrub	e correction of the second sec	20, 20, 2	5%		MS	
	Small Shrub	and the second s	° 6° 1	1%		SS	
	Large Herb	40° 8° 100°	in 1	5%		LH	
	Medium Herb	ata Ularka a a la constanta a la const	11	25%	S	MH	
	Small of Prostr	ale Herb	2	5%		SH	
	Medium to Sm:	all Tuffed Graminoid	15	576 45%	,	MTG	
	Medium to Tin	/ Non-tufted Graminoid	2	5%	5	MNG	
	Bryophytes/Lic	hens 1	na	10%	, 5	BL	
	, , , , , , , , , , , , , , , , , , , ,	S SO KON					
	LF Code	Species typical of at leas	t part of EVC ra	nge	Com	mon Name	
	MS O	Acacia montana			Malle	e Wattle	
	MS ON ST	Acacia acinacea s.l.			Gold-	dust Wattle	
	MS	Acacia pycnantha			Golde	en Wattle	
	Callo Callo	Pittosporum angustitoilum			vveep	ang Pittosporum	
		Calocophalus citrous			Lomo	n Roguty boads	
y,	MÐ	Maireana enchylaenoides			Winal	less Bluehush	
Colle	MH.	Finadia hastata			Saloo	n	
it's The	S MH	Einadia nutans ssp. nutans			Nodd	ing Saltbush	
200 1110	с <u>ж</u> мн	Vittadinia gracilis			Wooll	y New Holland Daisy	
15 . NO . O	MTG	Elymus scaber var. scaber			Comn	non Wheat-grass	
The kine	MTG	Lomandra filiformis			Wattl	e Mat-rush	
	MTG	Austrodanthonia setacea			Bristly	y Wallaby-grass	
87,02	MIG	Chioris truncata			Windi	mill Grass	
27							



Recruitment:

Continuous

Organic Litter:

10 % cover

Logs:

10 m/0.1 ha.

Weediness:

	LF Code MH MH MH MH MH MH SH LTG MTG MNG MNG MNG MNG MNG MNG MNG MNG MNG MN	Typical Weed Species Hypochoeris radicataTrifolium angustifolium var. angustifoliumArctotheca calendulaTrifolium campestre var. campestreTrifolium arvense var. arvenseTrifolium subterraneumHypochoeris glabraTrifolium dubiumTrifolium glomeratumPhalaris aquaticaLolium rigidumRomulea roseaBriza maximaVulpia bromoidesAira elegantissimaVulpia myurosJuncus capitatus	Common Cat's Ear Narrow-leaf Cape Weed Hop Clover Hare's-foot Subterranea Smooth Cat Suckling Clo Cluster Clov Toowoomba Wimmera R Onion Grass Lesser Quaki Squirrel-tail Delicate Hai Rat's-tail Fe Capitate Ru
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	Common Name	Invasive	Impact
	Cat's Ear	high 💦	low
	Narrow-leaf Clover	high	low
	Cape Weed	high	low
	Hop Clover	high	low
	Hare's-foot Clover	high	low
	Subterranean Clover	high	low
	Smooth Cat's-ear	high	low
	Suckling Clover	high	low
	Cluster Clover	nign	low
	Toowoomba Canary-grass	nign	nign
	wimmera Rye-grass	nign	IOW
	Union Grass	nign	low
	Lesser Quaking-grass	high	low
	Large Quaking-grass	high	low
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1	Canitato Rush	high	low
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Appendix 3 - Protected Matters Search Tool Report

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Australian Government

Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

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Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	6
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	32
Listed Migratory Species:	12



Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <u>https://www.dcceew.gov.au/parks-heritage/heritage</u>

A <u>permit</u> may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	19
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	5
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)	[Res	source Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	500 - 600km upstream from Ramsar site	In feature area
<u>Gunbower forest</u>	50 - 100km upstream from Ramsar site	In feature area
Hattah-kulkyne lakes	300 - 400km upstream from Ramsar site	In feature area
Nsw central murray state forests	50 - 100km upstream from Ramsar site	In feature area
Riverland	400 - 500km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	400 - 500km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act. λ_{I} α_{I} α_{I} α_{I}

Community Name	Threatened Category	Presence Text	Buffer Status
Buloke Woodlands of the Riverina and	Endangered	Community may occu	Irln feature area
Murray-Darling Depression Bioregions	-	within area	

, 90mm Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native

Endangered

Community likely to In feature area occur within area

[Resource Information]

Grasslands of South-eastern Australia ein¹⁰

Natural Grasslands of the Murray Valley **Critically Endangered** Community may occurln feature area within area **Plains**

Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland **Plains**

In buffer area only Critically Endangered Community likely to occur within area

Community Name	Threatened Category	Presence Text	Buffer Status
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species		[Res	source Information
Status of Conservation Dependent and Ex Number is the current name ID.	tinct are not MNES unde	r the EPBC Act.	
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			, ct
Anthochaera phrygia			ant a
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus		. no	Pull.
Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea		set the	
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum	ant your		
Gang-gang Cockatoo [768]	Endangered that have been and adree strictly P	Species or species habitat known to occur within area	In feature area
Falco hypoleucos	Source and		
Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta	ζ.		
Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area



Critically Endangered Species or species In feature area habitat likely to occur within area

Numenius madagascariensis

Eastern Curlew, Far Eastern Curlew [847]

Critically Endangered Species or species In feature area habitat may occur within area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pedionomus torquatus			
Plains-wanderer [906]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Polytelis swainsonii			
Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area	In feature area
Rostratula australis			R
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH		- Carl	outp
Galaxias rostratus		Chilles and	© [×]
Flathead Galaxias, Beaked Minnow,	Critically Endangered	Species or species	In feature area
Flat-headed Galaxias, Flat-headed		habitat known to	
Jollytail, Flat-headed Minnow [84745]		occur within area	
		cot so	
Maccullocholla macquarionsis	0		
Trout Cod [26171]	Endangered	Species or species	In facture area
	Linuariyereu V	habitat known to	in leature area
	aind' au	occur within area	
	alant at your	011	
Maccullochella peelii	nop. and with		
Murray Cod [66633]	Vulnerable	Species or species	In feature area
	ose no ntis	habitat known to	
	our de sume	occur within area	
W ^e	Nedes Joce		
Macquaria australasica	10 ^{N^a} His	0	he footune and a
Macquarie Perch [66632]	Endangered	Species or species	In feature area
Note Control	JINS	within area	
20 the contraction	X		
FROG			
Crinia sloanei			
Sloane's Froglet [59151]	Endangered	Species or species	In feature area
Contraction of the second s		habitat may occur	
per not will att		within area	
has ust i de enni			
LILOTIA FAILIFOITMIS	Vulnarabla	Spacios or operios	la factura area

Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]

vumerable

species of species in feature area habitat may occur within area

5 INSECT

Keyacris scurra

 δ

Key's Matchstick Grasshopper [89739]

Endangered

Species or species habitat may occur within area

In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Synemon plana			
Golden Sun Moth [25234]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
Dasyurus maculatus maculatus (SE main	land population)		
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area	In feature area
Pteropus poliocephalus			and is a
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	Infeature area
PLANT		Plan tot	
Amphibromus fluitans		the cent	
River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat known to occur within area	In feature area
Brachyscome muelleroides	C855	My so	
Mueller Daisy [15572]	Vulnerable	Species or species habitat may occur within area	In feature area
Dodonaea procumbens	of the offer still		
Trailing Hop-bush [12149]	Vulnerabled and the	Species or species habitat may occur within area	In feature area
<u>Glycine latrobeana</u>	204 C Still		
Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lepidium monoplocoides			
Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In feature area
	.	.	

Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea [21980] <u>Prasophyllum validum</u>

Sturdy Leek-orchid, Mount Remarkable

Critically Endangered

Species or species habitat may occur within area

In feature area

Species or species In buffer area only habitat may occur within area

Senecio macrocarpus

Leek-orchid [10268]

Large-fruit Fireweed, Large-fruit Groundsel [16333] Vulnerable

Vulnerable

Species or species In feature area habitat may occur within area

Scientific Name	Threatened Category	Presence Text	Buffer Status
REPTILE			
Aprasia parapulchella			
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma impar			
Striped Legless Lizard, Striped Snake- lizard [1649]	Vulnerable	Species or species habitat may occur within area	In feature area
Listed Migratory Species		[Res	source Information
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds		nd	.0050
Apus pacificus			PULF
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species		ton do	
Hirundapus caudacutus	a a a a a a a a a a a a a a a a a a a	Se the	
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava	North St. Pr	0,	
Yellow Wagtail [644]	ulpose of the Page the strictly .	Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca	8 890 CM		
Satin Flycatcher [612]	20Know this c	Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons			
Rufous Fantail [592] and hand to child		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species	In feature area



habitat may occur within area

Species or species In feature area habitat likely to occur within area

Calidris ferruginea Curlew Sandpiper [856]

Critically Endangered Species or species In feature area habitat may occur within area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis			* PO
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
<u>Tringa nebularia</u>			outt
Common Greenshank, Greenshank [832]		Species or species habitat may occur	In buffer area only
		within area	
		at out it adocult	
		sso the	
Other Matters Protected by the E	EPBC Act	ESON USE THE	
Other Matters Protected by the E	EPBC Act	E ^{See} USE THE [Res	source Information
Other Matters Protected by the E	EPBC Act	Presence Text	source Information Buffer Status
Other Matters Protected by the E Listed Marine Species Scientific Name Bird	EPBC Act Threatened Category	Presence Text	source Information Buffer Status
Other Matters Protected by the E Listed Marine Species Scientific Name Bird Actitis hypoleucos	EPBC Act Threatened Category	Presence Text	Source Information Buffer Status
Other Matters Protected by the E Listed Marine Species Scientific Name Bird Actitis hypoleucos Common Sandpiper [59309]	EPBC Act	Fresence Text Species or species habitat may occur within area	Source Information Buffer Status In feature area
Other Matters Protected by the E Listed Marine Species Scientific Name Bird Actitis hypoleucos Common Sandpiper [59309]	EPBC Act provide the provide	Fresence Text Species or species habitat may occur within area	Source Information Buffer Status In feature area
Other Matters Protected by the E Listed Marine Species Scientific Name Bird Actitis hypoleucos Common Sandpiper [59309] Apus pacificus Fork-tailed Swift [678]	PBC Act Threatened Category Threatened Category	Ender En	Source Information Buffer Status In feature area
Other Matters Protected by the E Listed Marine Species Scientific Name Bird Actitis hypoleucos Common Sandpiper [59309] Apus pacificus Fork-tailed Swift [678] Bubulcus ibis as Ardea ibis	PBC Act Threatened Category Threatened Category Connocide and agree striction Connocide agree stri	Ender En	Source Information Buffer Status In feature area
Other Matters Protected by the E Listed Marine Species Scientific Name Bird Actitis hypoleucos Common Sandpiper [59309] Apus pacificus Fork-tailed Swift [678] Bubulcus ibis as Ardea ibis Cattle Egret [66521]	PBC Act Threatened Category Threatened Category	Eresence Text Presence Text Species or species habitat may occur within area Species or species habitat likely to occur within area overfly marine area Species or species habitat may occur within area overfly marine area	Source Information Buffer Status In feature area In feature area In feature area



Species or species In feature area habitat likely to occur within area

Critically Endangered Species or species In feature area habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osc	<u>ulans</u>		
Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Gailinago hardwickii		Chasica er chasica	No to at the area
Latnam's Snipe, Japanese Snipe [863]		habitat likely to occur within area overfly marine area	on reature area
Haliaeetus leucogaster		not an	
White-bellied Sea-Eagle [943]	2	Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus		N US	
White-throated Needletail [682]	Vulnerable procession	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor	5° 200.5°		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Rainbow Bee-eater [670]	<i>SQ</i> ,	Species or species	In feature area
Motacilla flava		habitat may occur within area overfly marine area	
Yellow Wagtail [644]		Species or species	In feature area
nent no must of dissel		habitat may occur within area overfly	



marine area

Species or species In feature area habitat known to occur within area overfly marine area

Scientific Name	Threatene	ed Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]			Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically	Endangered	Species or species habitat may occur within area	In feature area
Rufous Fantail [592]			Species or species habitat may occur within area overfly marine area	Infeature area
Rostratula australis as Rostratula beng Australian Painted Snipe [77037]	<u>ghalensis (ser</u> Endangei	red	Species or species habitat likely to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832] Extra Information	he putpose of the	planning procession with a planning procession with a planning procession with a planning procession with a procesion with a procession with a procession with a procession wi	Species or species habitat may occur within area overfly marine area	In buffer area only
State and Territory Reserves	the second state		[Reg	source Information 1
Protected Area Name	Reserve	Γνρε	State	Buffer Status
Goulburn River	Heritage	River	VIC	In feature area
Tabilk Lagoon W.R	Natural F Reserve	eatures	VIC	In buffer area only
EPBC Act Referrals			[Res	source Information]
Title of referral Controlled action	Reference	Referral Outco	ome Assessment Sta	tus Buffer Status
The Modified Operation of the Goulburn Murray Irrigation District	2009/5123	Controlled Act	tion Post-Approval	In feature area
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	d Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	d Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Road Bypass	2002/555	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manne	er)			
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
				1,00°
			ning and Environ	inent h specified
		SOL	tin the plainent or ti	
		aing process as shirt only	JS ^O ¹¹	
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Caveat

PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

kinvironment Act 1981 vailable se specified reprint This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

хO Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be DS are will only use the occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

threatened species listed as extinct or considered vagrants;

C

- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

 Isted migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
 seals which have only been mapped for broading sites as the search of the search o seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales -Department of Environment and Primary Industries, Victoria Automatic for the second secon -Department of Primary Industries, Parks, Water and Environment, Tasmania -Department of Environment, Water and Natural Resources, South Australia -eBird Australia -Australian Government - Australian Antarctic Data Centre -Museum and Art Gallery of the Northern Territory -Australian Government National Environmental Science Program -Australian Institute of Marine Science -Reef Life Survey Australia

American Museum of Natural History

Queen Victoria Museum and Art Gallery, Inveresk, Tasmania

Tasmanian Museum and Art Gallery, Hobart, Tasmania

-Other groups and individuals

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The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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