Referral of proposed action

Project title: Barwon Heads Stormwater Outfall Upgrade.

1 Summary of proposed action

NOTE: You must also attach a map/plan(s) and associated geographic information system (GIS) vector (shapefile) dataset showing the location and approximate boundaries of the area in which the project is to occur. Maps in A4 size are preferred. You must also attach a map(s)/plan(s) showing the location and boundaries of the project area in respect to any features identified in 3.1 & 3.2, as well as the extent of any freehold, leasehold or other tenure identified in 3.3(i).

1.1 Short description

The City of Greater Geelong is proposing to replace the existing stormwater outfall, by laying a new pipeline of larger diameter, within the township of Barwon Heads (Melways Ref: 497 C3). The existing outfall will be removed following construction of the new outfall.

The footprint of the proposed action includes a road crossing at the intersection of Ozone Road and Flinders Parade to the Barwon River.

The location of the new outfall will extend approximately 20 metres into the Barwon River estuary which is identified as a component of the Port Phillip Bay (Western Shoreline) and Bellarine Ramsar site. Design drawings and an aerial plan of the proposed outfall are included in Attachments 1 and 2.

A flora and fauna assessment and net gain analysis have been undertaken and forms the basis for this referral (refer Attachment 4).

1.2 Latitude and longitude

Outfall Alignment

Latitude	Longitude
-38.278908	144.495317
-38.279035	144.496403

A GIS compliant point file is provided as Attachment 6.

The Interactive Mapping Tool may provide assistance in determining the coordinates for your project area.

If the area is less than 5 hectares, provide the location as a single pair of latitude and longitude references. If the area is greater than 5 hectares, provide bounding location points.

There should be no more than 50 sets of bounding location coordinate points per proposal area.

Bounding location coordinate points should be provided sequentially in either a clockwise or anticlockwise direction.

If the proposed action is linear (eg. a road or pipeline), provide coordinates for each turning point.

Also attach the associated GIS-compliant file that delineates the proposed referral area. If the area is less than 5 hectares, please provide the location as a point layer. If greater than 5 hectares, please provide a polygon layer. If the proposed action is linear (eg. a road or pipeline) please provide a polyline layer (refer to GIS data supply guidelines at Attachment A).

Do not use AMG coordinates.

1.3 Locality and property description

The study area is located within the township of Barwon Heads, Victoria, approximately 100 kilometres south-west of Melbourne (Melways Reference (497 C3). It consists of a new concrete outfall pit and new stormwater pipeline which will be laid beneath the existing road east along Ozone Road and across Flinders Parade to the Barwon River.

A locality plan is provided at Attachment 1.

1.4	**Size of the development footprint or work area (hectares)**	The length of the new pipeline alignment is approximately 100 metres and the alignment width will be approximately three metres. The length of the existing outfall to be removed is approximately 50 metres with an alignment width of approximately three metres. Therefore the approximate development footprint is 0.045 Ha, and approximately 0.006 Ha of the construction footprint is located on the edge of the Barwon River estuary.
1.5	**Street address of the site**	The study area consists of a new stormwater pipeline which will be laid beneath the existing road east along Ozone Road and across Flinders Parade to the Barwon River. The existing outfall to be removed is approximately 12 metres south of the new outfall.
1.6	**Lot description**	N/A

1.7 **Local Government Area and Council contact (if known)**

The City of City of Greater Geelong (CoGG) is the relevant local government area.

The contact for this Mark Richards (CoGG Design Engineer) ph: (03) 5272 4359

1.8 **Time frame**

It is expected that construction of the new stormwater outfall and removal of the existing stormwater outfall will commence, and be completed, in the 2015/16 financial year.

The upgrade to the outfall is expected to take approximately 2 months to construct and this would occur outside of peak tourist months to avoid potential conflict between the public and construction activities. At this stage it is expected that construction would occur approximately between the months of April and June however this will be firmed up in discussions with the land manager/s and successful Contractor and is subject to obtaining all of the required approvals before commencement.

The existing outfall must be kept in service until the new outfall is commissioned. Removal of the existing outfall will therefore occur near the end of the project.

1.9	**Alternatives to proposed action** Were any feasible alternatives to taking the proposed action (including not taking the action) considered but are not proposed?		No
		X	Yes, you must also complete section 2.2
1.10	**Alternative time frames etc** Does the proposed action include alternative time frames, locations or activities?		No
		X	Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	**State assessment** Is the action subject to a state or territory environmental impact assessment?	X	No. However, a flora and fauna survey has been undertaken (refer to Attachment 4)
			Yes, you must also complete Section 2.5
1.12	**Component of larger action** Is the proposed action a component of a larger action?		No
		X	Yes, you must also complete Section 2.7
1.13	**Related actions/proposals** Is the proposed action related to other actions or proposals in the region (if known)?	X	No
			Yes, provide details:
1.14	**Australian Government funding** Has the person proposing to take the action received any Australian Government grant funding to undertake this	X	No
			Yes, provide details:

	project?		
1.15	**Great Barrier Reef Marine Park** Is the proposed action inside the Great Barrier Reef Marine Park?	X 	No Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

NOTE: It is important that the description is complete and includes all components and activities associated with the action. If certain related components are not intended to be included within the scope of the referral, this should be clearly explained in section 2.7.

2.1 Description of proposed action

The Barwon Heads township has a number of areas which have been recognized as flood prone. Due to the low lying nature of some areas it is difficult to provide the normal gravity discharge drainage systems to the Barwon River.

In 2002, the Barwon Heads Drainage Flood Management Plan (DFMP) was developed, which comprised drainage surveying, floodplain mapping and the development of a drainage flood management strategy for the flood-prone areas (stormwater flooding) within the Barwon Heads township. The Barwon Heads DFMP was adopted by COGG in November 2005.

The first stage of the recommended flood mitigation works was the construction of an 825mm diameter stormwater main from Bridge Road to Clifford Parade. Construction of this main was completed in 2006.

The second stage of the identified flood mitigation works was the construction of a new 600mm diameter rising main with a capacity of 800 litres per second. This main was constructed in 2011 and follows a northerly alignment from the Clifford Parade pump station along Grove Road and then is redirected in an easterly alignment along Ozone Road to Flinders Parade.

The third stage of the flood mitigation works required an upgrading to the stormwater pumping station in Clifford Parade. The existing pumping station had a capacity of 120 litres per second which was insufficient to cater for the flows from large storm events. This pumping station was replaced in 2013/14 with a pumping station with the capacity to pump up to 800 litres per second to cater for the flows from more intense rainfall events.

Currently pumped flows from low lying areas and flows from areas that can be drained by gravity are combined in a single pipe system that flows to the Barwon River via an existing 750mm diameter outfall under the jetty at the end of Ozone Road. This outfall has a capacity of approximately 700 litres per second which is inadequate for the combined pumped and gravity flows.

Council engaged a Consultant to design a replacement outfall, as the fourth stage of the flood mitigation works, to transfer the combined pumped and gravity flows to the Barwon River. Preliminary design drawings have been completed for a new single 1600mm diameter concrete encased polyethylene pipe outfall that will run in a more direct alignment from Flinders Parade to the Barwon River at a location approximately 12 metres north of the end of the existing jetty.

The existing outfall is not fully buried and discharges into the Barwon River before, and under, the end of the existing Ozone Road jetty. The visible pipe sections and corresponding sand scour at the outlet are not aesthetically appealing and can hinder pedestrian movements along the beach. The replacement outfall will extend past the end of the existing jetty and be terminated below the lowest astronomical tide level to reduce the likelihood of obstructing pedestrian movement along the beach and also minimise the potential for sand scouring. The existing outfall will be removed.

The new outfall will be founded on precast concrete piles driven into the XW basalt unit as identified from the geotechnical investigation undertaken by Council's Consulting Engineer. Temporary sheet piling will be driven to penetrate into the XW basalt unit and extend above the highest astronomical tide. The new outfall will be constructed from polyethylene pipe with a nominal diameter of 1600 millimetres. Individual pipes will be butt welded together to form a continuous length which will be encased in concrete. Reinforcing steel from the top of the piles will extend into the concrete encasement so that the outfall is anchored to the piles. The temporary sheet piling will be removed following construction of the outfall.

All materials that can be removed will be taken away from site and disposed of at a suitable refuse facility. The decommissioning phase of the existing outfall will be covered in the Environmental Management Plan that will be prepared.

2.2 Alternatives to taking the proposed action

Various outfall configurations and alignments were considered before adopting the final design. All options considered are described below.

- Option 1
  Preliminary design from CPG (now Spiire). Separate 800mm diameter gravity and pumped pipelines based on advice that pumped flow could flow back through the gravity pipeline system if the outfalls were combined. The pumped pipeline had a large kink around the existing power pole and was not hydraulically acceptable. Offset 5 metres from existing jetty. The poor hydraulics, implied added cost for two separate pipes with valves and extra disturbance made this option undesirable.

- Option 2
  Concept proposed by GHD for discussion purposes. Single 1600mm diameter combined gravity and pumped pipeline outfall based on advice from GHD that backflow would not be an issue if designed properly. There were some advantages with this proposal but the negative aspects of discharging to a highly visible area with less potential for river flushing outweighed any positive aspects and this option was not considered further.

- Option 3
  Preliminary design from GHD with single combined 1600mm diameter combined gravity and pumped pipeline outfall. The alignment was straightened to improve hydraulics and located the pipe approximately 12 metres from the end of the existing jetty. The outfall had a constant grade from the new junction pit to a level approximately 200mm above the surveyed river channel invert. This option was rejected because the constant outfall grade potentially impacted on the foundations of the heritage listed bluestone wall and the top of the pipe concrete encasement could potentially be exposed if sand was scoured from the beach. Barwon Coast Committee of Management also expressed their preference for maintaining an offset of approximately 5 metres from the existing jetty to the proposed outfall.

- Option 4
  Similar to Option 1 this option consisted of separate gravity main and pumped main outfalls. The alignment of the outfall pipes was straightened resulting in a 12 metre offset from the existing jetty. The single pipes were of a larger diameter than the CPG option, which had not been subjected to a detailed design. Similarly this option was not considered further since GHD advised that a high level consideration suggested that this option would add substantial costs to the project through increased material costs (i.e. more pipe, more piles, larger pits, two valves etc) and construction costs (greater excavation volume etc) for a modest increase in depth.

- Option 5
  Similar to Option 3 this option consisted of separate gravity main and pumped main outfalls. The alignment of the outfall pipes was rotated to achieve Barwon Coast Committee of Management's preferred offset of approximately 5 metres from the existing jetty. GHD advised that, from available survey information, this location was shallower than the alternative location approximately 12 metres from the end of the jetty. GHD further stated that a realigned outfall would need to extend past the jetty head into the river by approximately 25 metres just to achieve the designed depth. This would place the outfall within the navigable channel and increase the length of pipe by approximately 25% substantially increasing the cost of construction. This option was discarded because of these issues and also concerns from the valve manufacturer regarding satisfactory operation of the valve if the outfall was submerged to any significant depth in sediment over 300mm.

- Option 6
  Similar to Option 3 this option consists of single 1600mm diameter combined gravity and pumped pipeline outfall with a 12 metre offset from the existing jetty. The design has been modified to provide a kink in the pipeline under the existing bluestone wall. The pipeline to the west of the wall has a steeper grade to provide additional clearance beneath the wall foundation. The pipeline grade then flattens after the bluestone wall but is marginally deeper across the beach to reduce the likelihood of the pipeline concrete encasement being exposed when sand scour occurs on the beach. This option was selected as the preferred option and forms the basis of the detailed drawings included with this application. Modifications were made during detailed design to provide a rounded top to the pipeline concrete encasement to further reduce impacts should sand scour expose the concrete encasement.

2.3 Alternative locations, time frames or activities that form part of the referred action

The route of the existing gravity main and outfall under the jetty is primarily dictated by the topography of the catchment to drain higher properties. The original Ozone Road drain was dug on this alignment to relieve the 1952 flood waters.

The Barwon Coast Committee of Management has indicated that it would be preferable for the alignment to be away from, but within close proximity, to the existing jetty. Their preferred offset was in the order of 5 metres from the end of the existing jetty but for reasons detailed above that is not feasible. It is proposed that the new outfall will be located approximately 12 metres to the north of the existing jetty because it aligns better with the mains in Ozone Road and therefore provides a better hydraulic solution.

Powercor have also indicated that the excavation for the new outfall pipe must be a required distance away from their existing power pole near the intersection of Ozone Road and Flinders Parade.

2.4 Context, planning framework and state/local government requirements

A flora and fauna assessment, including the identification of any EPBC Act matters of NES within the study area was undertaken on 12 August 2010 (Ecology Partners 2010 – refer to Attachment 4). An evaluation of the implications arising from State and Commonwealth environmental legislation and policy associated with the proposed development, and mitigation measures to minimise the likely and potential impacts to flora and fauna values were also provided.

Local Government Policy

The project is located within the City of Greater Geelong and thus Council is the responsible authority for the administration of the Greater Geelong Planning Scheme. The study area is currently primarily Residential Zone (RZ1) with the area within the Barwon River and its foreshore classified as Public Conservation and Recreation Zone (PCRZ). There is also an Environmental Significance Overlay (ESO2) over the Barwon River and its foreshore relating to the high value wetlands and associated habitat protection.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

An Environmental Impact Assessment or Statement under State legislation/policy is not required as part of the proposed development. A flora and fauna survey has been undertaken (refer Attachment 4).

2.6 Public consultation (including with Indigenous stakeholders)

The Draft Final Report of the Barwon Heads Drainage Flood Management Plan and associated flood mapping was placed on public exhibition with an invitation for submissions. The general public was advised of the exhibition via public notice, and owners of properties affected by the 100 year ARI flood event within the study area (approximately 440 no. properties) received individual letters with explanatory fact sheets.

The Barwon Heads Drainage Flood Management Plan was adopted by the City of Greater Geelong in November 2005.

Public notification has been undertaken prior to the construction of preceding individual stages of the flood mitigation works. This notification has primarily been via advertisements in local papers and have indicated that the works formed part of an overall scheme to upgrade the stormwater network from the pumping station in Clifford Parade to the outfall into the Barwon River.

No specific public consultation for the proposed outfall replacement has taken place at this stage. It is expected that public notification will be undertaken by some, or all, of the following methods:

- Advertisements in local newspapers,
- Information bulletins sent to residents,
- Information placed on notice boards in the town, including the caravan park,
- Public meetings.

Consultation with indigenous groups has not occurred at present. A due diligence assessment of the study area has been completed by TerraCulture (Attachment 5), which concluded that a Cultural Heritage Management Plan (CHMP) was not compulsory for the proposed works. However, they have suggested that a voluntary CHMP be undertaken, if the construction uses open trenching for the mounded sand area immediately adjacent to the roadway, given that there are some records of cultural activity in the area. The proposed pipeline alignment is located to the north of this mounded sand area and therefore there is no need for a voluntary CHMP.

A copy of the completed report will be sent to the Wathaurung Aboriginal Corporation trading as Wadawurrung for review and comment.

2.7 A staged development or component of a larger project

In 2002, the Barwon Heads Drainage Flood Management Plan (DFMP) was developed, which comprised drainage surveying, floodplain mapping and the development of a drainage flood management strategy for the flood-prone areas (stormwater flooding) within the Barwon Heads township. The Barwon Heads DFMP was adopted by COGG in November 2005.

The first stage of the recommended flood mitigation works was the construction of an 825mm diameter stormwater main from Bridge Road to Clifford Parade. Construction of this main was completed in 2006.

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The third stage of the flood mitigation works required an upgrading to the stormwater pumping station in Clifford Parade. The existing pumping station had a capacity of 120 litres per second which was insufficient to cater for the flows from large storm events. This pumping station was replaced in 2013/14 with a pumping station with the capacity to pump up to 800 litres per second to cater for the flows from more intense rainfall events.

Currently pumped flows from low lying areas and flows from areas that can be drained by gravity are combined in a single pipe system that flows to the Barwon River via an existing 750mm diameter outfall under the jetty at the end of Ozone Road. This outfall has a capacity of approximately 700 litres per second which is inadequate for the combined pumped and gravity flows.

The removal of this existing outfall and its replacement with a new 1600 millimetre diameter pipe outfall to the Barwon River comprises Stage 4 of the flood mitigation works.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest.

Your assessment of likely impacts should refer to the following resources (available from the Department's web site):

- specific values of individual World Heritage properties and National Heritage places and the ecological character of Ramsar wetlands;
- profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*; and
- associated sectoral and species policy statements available on the web site, as relevant.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The Minister has prepared four marine bioregional plans (MBP) in accordance with section 176. It is likely that the MBP's will be more commonly relevant where listed threatened species, listed migratory species or a Commonwealth marine area is considered.

Note that even if your proposal will not be taken in a World Heritage area, Ramsar wetland, Commonwealth marine area, the Great Barrier Reef Marine Park or on Commonwealth land, it could still impact upon these areas (for example, through downstream impacts). Consideration of likely impacts should include both direct and indirect impacts.

3.1 (a) World Heritage Properties

Description

The proposal is not within a World Heritage property and will not affect any World Heritage values. The EPBC Act Protected Matters Report indicates there are no World Heritage properties that may occur in, or relate to, the nominated development area.

Nature and extent of likely impact

None

3.1 (b) National Heritage Places

Description

The proposal is not within a listed National Heritage place and will not affect any National Heritage values.

Nature and extent of likely impact

None

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

The EPBC Act Protected Matters Report generated for this project identified one Wetland of International Importance: Port Phillip (Western Shoreline) and Bellarine (Attachment 3). The replacement outfall will occur within the mapped Port Phillip (Western Shoreline) and Bellarine Ramsar boundary, within approximately 0.006Ha. The remainder of the pipeline alignment is outside the boundary of the Ramsar site and impact will be negligible.

Nature and extent of likely impact

There is potential for minor impacts to this wetland. The range of likely impacts includes changes in hydrology and water quality, dune erosion, pest plant and animals, noise, light, vibration and shading. Construction of the proposed outfall is likely to have little or no impact on the flows of the river during normal or flood conditions, as it is proposed to occur in mid to late Autumn. In stream construction activities will be managed to minimise the likelihood of sediment deposition in the estuary. River flows will be maintained and there is not likely to be any significant geomorphological changes to the Barwon River estuary.

The outfall replacement is the 4th stage of identified flood mitigation works with the preceding stages involving upgrades to pipes and the Clifford Parade pump station.

For the more regular small rainfall events it is not expected that the extra pump station capacity and proposed outfall would contribute to significantly larger flows to the Barwon River than the original smaller capacity pump station.

The extra pump station capacity will primarily be utilised for the less regular extreme rainfall events. The upgraded pumps allow water to be moved from low lying areas to the Barwon River in a shorter period of time thereby reducing possible flood impacts within Barwon Heads. The total volume of water pumped to the Barwon River is not expected to significantly increase but it will be conveyed to the outfall in a shorter timeframe. The low capacity original pump station and existing outfall resulted in water ponding in low areas. This water was then discharged to the Barwon River over a longer time period.

Similarly it is not expected that the quality of water being discharged to the Barwon River will be significantly different from that experienced with the smaller capacity original pumps and existing outfall. Pollutants carried by the stormwater runoff are generally carried in the 'first flush' of water from the catchment. After the initial rainfall has 'cleansed' the catchment the following runoff is less polluted than the first flush. The upgraded pump station has also had coarse screening installed so that the larger pollutants are trapped at the pump station to be removed for disposal at a suitable location.

3.1 (d) Listed threatened species and ecological communities

Description

The EPBC Act Protected Matters Report generated for this project indentified 33 listed threatened species.

The EPBC Act Protected Matters Report generated for this project indentified four listed ecological communities: Grassy Eucalypt Woodland of the Victorian Volcanic Plain, Natural Damp Grassland of the Victorian Coastal Plains, Natural Temperate Grassland of the Victorian Volcanic Plain and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. None of these communities are likely to occur within the study area, and none were recorded (Attachment 4).

Threatened Flora Species

No EPBC Act listed or other threatened flora species were recorded within the study area during the recent assessment (Ecology Partners Pty. Ltd. 2010). Significant flora previously recorded within 10 kilometre radius of the study area is presented in Table 1 (see also Attachment 4, Figure 3). No significant flora are likely to occur within the study area.

Threatened Fauna Species

No EPBC Act listed or other threatened fauna species were recorded within the study area during the recent assessment (Ecology Partners Pty. Ltd. 2010). One nationally listed species (Hooded Plover *Thinornis rubricollis rubricollis*) was recorded to the immediate north of the study area during site assessment. While this species has previously been recorded within the local area, there are no records from within the study area. Significant fauna previously recorded within 10 kilometre radius of the study area is presented in Table 2 (see also Attachment 4, Figure 4), and none are considered to regularly occur within the study area.

Nature and extent of likely impact

Given that no ecological communities have been recorded in the area, it is anticipated that the proposed works will not affect any listed ecological communities.

The likelihood of any EPBC Act listed species occurring within the proposed works area is outlined in Tables 1 and 2 below. In general, there is very low likelihood of most EPBC Act listed species occurring within the proposed works area.

The most likely effect on any of these species would result in a temporary disturbance from construction noise and activity. The project has been designed to minimise potential impact on these species through a relatively short construction period and mitigation measures are proposed to minimise any impacts.

Table 1. Significant flora recorded within 10 kilometres of the study area.

Sources used to determine species status:

EPBC	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
DSE	Advisory List of Threatened Flora in Victoria (DSE 2005)
FFG	Flora and Fauna Guarantee Act 1988 (Victoria)

National status of species is designated by:

X	Extinct
CR	Critically endangered
EN	Endangered
VU	Vulnerable
K	Poorly Known (Briggs and Leigh 1996)
#	Records identified from EPBC Act Protected Matters Search Tool.
*	Native non-indigenous species

State status of species is designated by:

X	Extinct
e	Endangered
v	Vulnerable
r	Rare
k	Poorly Known
L	Listed

Likelihood of occurrence:

1	known occurrence
2	habitat present
3	habitat present, but low likelihood
4	unlikely
5	no suitable habitat

Scientific Name	Common Name	Last Documented Record (FIS)	Total number of documented records (FIS)	EPBC	VROTS	FFG	Likely occurrence within the study area
NATIONAL SIGNIFICANCE							
# *Carex tasmanica*	Curly Sedge	-	-	VU	v	L	5
# *Glycine latrobeana*	Clover Glycine	-	-	VU	v	L	5
Lepidium aschersonii	Spiny Peppercress	2006	1	VU	e	L	5
# *Pimelea spinescens subsp. spinescens*	Spiny Rice-flower	-	-	CR	e	L	5
# *Prasophyllum frenchii*	Maroon Leek-orchid	-	-	EN	e	L	5
Pterostylis cucullata	Leafy Greenhood	1999	1	VU	v	L	4
# *Thelymitra epipactoides*	Metallic Sun-orchid	-	-	EN	e	L	5
# *Xerochrysum palustre*	Swamp Everlasting	-	-	VU	v	L	5

Source: Flora Information System (FIS 2009); Protected Matters Search Tool (DEWHA 2010).

Table 2. Significant fauna within 10 kilometres of the study area.

Sources used to determine species status:

EPBC *Environment Protection and biodiversity Conservation Act 1999* (Commonwealth)

DSE Advisory List of Threatened Vertebrate Fauna in Victoria (DSE 2009)

FFG *Flora and Fauna Guarantee Act 1988* (Victoria)

Species status:

EX Extinct

RX Regionally extinct

CR Critically endangered

EN Endangered

VU Vulnerable

RA Rare

NT Near threatened

CD Conservation dependent

LR Lower risk (least concern)

DD Data deficient (insufficiently or poorly known)

L Listed as threatened under FFG Act

I Invalid or ineligible for listing under the FFG Act

Protected Matters Search Tool (DEWHA)

Use of the study area:

1 Known resident

2 Possible resident

3 Frequent visitor

4 Occasional visitor

5 Rare visitor

6 Vagrant visitor

7 Unlikely/no suitable habitat

Common Name	Scientific Name	Last documented record	Total # of records	EPBC Act	DSE (2009)	FFG ACT	National Action Plan	Likely use of study area
NATIONAL SIGNIFICANCE								
# Blue Petrel	*Halobaena caerulea*	1999	1	VU	-	-	-	6
Fairy Prion	*Pachyptila turtur*	2001	13	VU	VU	-	-	6
# Wandering Albatross	*Diomedea exulans*	1984	1	VU	EN	L	VU	6
Yellow-nosed Albatross	*Thalassarche chlororhynchos*	1985	3	VU	VU	L	VU	6
# Grey-headed Albatross	*Thalassarche chrysostoma*	1985	1	VU	VU	L	VU	6

# Shy Albatross	*Thalassarche cauta*	2000	5	VU	VU	L	VU	6
Hooded Plover	*Thinornis rubricollis*	2005	87	-	VU	L	VU	4
# Australian Painted Snipe	*Rostratula australis*	1985	2	VU	CE	L	VU	7
Australasian Bittern	*Botaurus poiciloptilus*	2004	19	-	EN	L	VU	7
# Swift Parrot	*Lathamus discolor*	2005	7	EN	EN	L	EN	6
Ground Parrot	*Pezoporus wallicus*	1909	1	-	EN	L	VU	7
# Southern Giant-Petrel	*Macronectes giganteus*	1988	6	EN	VU	L	VU	6
# Northern Giant-Petrel	*Macronectes halli*	1988	3	VU	NT	L	-	6
# Southern Brown Bandicoot	*Isoodon obesulus obesulus*	1968	1	EN	NT	-	NT	7
# Southern Right Whale	*Eubalaena australis*	1997	7	EN	CE	L	-	7
# Blue Whale	*Balaenoptera musculus*	2005	2	EN	CE	L	-	7
# Growling Grass Frog	*Litoria raniformis*	1997	4	VU	EN	L	VU	7
# Australian Grayling	*Prototroctes maraena*	1986	2	VU	VU	L	VU	6
# Yarra Pygmy Perch	*Nannoperca obscura*	1876	1	VU	NT	L	VU	7
Small Ant Blue	*Acrodipsas myrmecophila*	1974	35	-	EN	L	EN	7
# Black-browed Albatross	*Thalassarche melanophris*			VU	VU		NT	6
# Buller's Albatross	*Diomedea bulleri*			VU		L	VU	6
# Common Bent-wing Bat (S ssp.)	*Miniopterus schreibersii bassani*			CE		L	CD	6
# Dwarf Galaxias	*Galaxiella pusilla*			VU	VU	L	VU	7
# Great White Shark	*Carcharadon carcharias*			VU	VU	L	VU	7
# Grey-headed Flying-fox	*Pteropus poliocephalus*			VU	VU	L	VU	6
# Leathery Turtle	*Dermochelys coriacea*			VU	CR	L	VU	6
# Loggerhead Turtle	*Caretta caretta*			EN			VU	6
# Long-nosed Potoroo	*Potorous tridactylus*			VU	EN	L	VU	7
# Orange-bellied Parrot	*Neophema chrysogaster*			CR	CR	L	CR	6
# Pacific (Olive) Ridley	*Lepidochelys olivacea*			EN			VU	7
# Regent Honeyeater	*Anthochaera phrygia*			EN	CR	L	EN	7
# Royal Albatross	*Diomedea epomophora*			VU	VU	L	VU	6
# Salvin's Albatross	*Thalassarche salvini*						VU	6
# Soft-plumaged Petrel	*Pterodroma mollis*			VU				6
# Spot-tailed Quoll	*Dasyurus maculatus*			EN	EN	L	VU	7
# Spotted Tree Frog	*Litoria spenceri*			EN	CR	L	EN	7

Source: **Atlas of Victorian Wildlife (2009); Protected Matters Search Tool (DEWHA 2010) 3.1**

3.1 (e) Listed migratory species

Description

While a small number of migratory and marine species may occupy habitats within, or fly over the project area on occasions, the project area does not support marine habitat, or provide habitat for an ecologically significant proportion of any of these species (i.e. highly unlikely to support an 'important population' of migratory and/or marine species listed under the EPBC Act 1999). A list of EPBC Act -listed migratory and marine species recorded during the present survey, or that have been recorded within the local area are provided below (Table 3).

Nature and extent of likely impact

The likely impact on any of these species would be a temporary disturbance resulting from construction noise and activity. The project has been designed to minimise potential impact on these species through a relatively short construction period and mitigation measures are proposed to minimise any impacts.

Table 3. Habitat for migratory and marine fauna within the Project area.

Type of Record: Mi Migratory (EPBC Act)
H – Heard Ma Marine (EPBC Act)
S – Seen

Common Name	Scientific Name	Last Documented Record (AVW)	Total # of Documented Records (AVW)	Hollow Use	Mi/ Ma	Present Survey
MAMMALS						
Australian Fur Seal	*Arctocephalus pusillus*	2001	8	-	Ma	-
Leopard Seal	*Hydrurga leptonyx*	1990	6	-	Ma	-
Southern Right Whale	*Eubalaena australis*	1997	7	-	Mi/Ma	-
Blue Whale	*Balaenoptera musculus*	2005	2	-	Mi/Ma	-
Pygmy Sperm Whale	*Kogia breviceps*	1999	1	-	Ma	-
Strap-toothed Whale	*Mesoplodon layardi*	1992	1	-	Ma	-
Killer Whale	*Orcinus orca*	2004	1	-	Mi/Ma	-
Bottlenose Dolphin	*Tursiops truncatus*	1987	3	-	Ma	-
Common Dolphin	*Delphinus delphis*	1993	4	-	Ma	-
BIRDS						
Baillon's Crake	*Porzana pusilla*	2000	4	-	Ma	-
Spotless Crake	*Porzana tabuensis*	2002	2	-	Ma	-
Purple Swamphen	*Porphyrio porphyrio*	2004	70	-	Ma	-
Wilson's Storm-Petrel	*Oceanites oceanicus*	1986	2	-	Mi/Ma	-
Grey-backed Storm-Petrel	*Garrodia nereis*	1985	1	-	Ma	-
White-faced Storm-Petrel	*Pelagodroma marina*	2000	1	-	Ma	-
Little Shearwater	*Puffinus assimilis*	1973	1	-	Ma	-
Fluttering Shearwater	*Puffinus gavia*	2001	13	-	Ma	-
Short-tailed Shearwater	*Ardenna tenuirostris*	2001	22	-	Mi/Ma	-
Southern Fulmar	*Fulmarus glacialoides*	1985	1	-	Ma	-
Great-winged Petrel	*Pterodroma macroptera*	1954	1	-	Ma	-
White-headed Petrel	*Pterodroma lessonii*	1958	1	-	Ma	-
Cape Petrel	*Daption capense*	2000	4	-	Ma	-
Blue Petrel	*Halobaena caerulea*	1999	1	-	Ma	-
Fairy Prion	*Pachyptila turtur*	2001	13	-	Ma	-
Antarctic Prion	*Pachyptila desolata*	1985	1	-	Ma	-
Common Diving-Petrel	*Pelecanoides urinatrix*	2001	7	-	Ma	-

Wandering Albatross	*Diomedea exulans*	1984	1	-	Mi/Ma	-
Yellow-nosed Albatross	*Thalassarche chlororhynchos*	1985	3	-	Mi/Ma	-
Grey-headed Albatross	*Thalassarche chrysostoma*	1985	1	-	Mi/Ma	-
Shy Albatross	*Thalassarche cauta*	2000	5	-	Mi/Ma	-
Black-faced Cormorant	*Phalacrocorax fuscescens*	2000	2	-	Ma	-
Australasian Gannet	*Morus serrator*	2001	18	-	Ma	-
Australian Pelican	*Pelecanus conspicillatus*	2006	126	-	Ma	-
White-winged Black Tern	*Chlidonias leucopterus*	1985	2	-	Ma	-
Whiskered Tern	*Chlidonias hybridus*	2005	26	-	Ma	-
Gull-billed Tern	*Gelochelidon nilotica*	1999	11	-	Ma	-
Caspian Tern	*Hydroprogne caspia*	2006	59	-	Mi/Ma	S
White-fronted Tern	*Sterna striata*	2000	3	-	Ma	-
Crested Tern	*Thalaseus bergii*	2006	50	-	Ma	-
Little Tern	*Sternula albifrons*	2006	15	-	Mi/Ma	-
Fairy Tern	*Sternula nereis*	2006	24	-	Ma	-
Silver Gull	*Chroicocephalus novaehollandiae*	2006	282	-	Ma	S
Pacific Gull	*Larus pacificus pacificus*	2006	80	-	Ma	S
Ruddy Turnstone	*Arenaria interpres*	2000	11	-	Mi/Ma	-
Pied Oystercatcher	*Haematopus longirostris*	2006	13	-	Ma	-
Sooty Oystercatcher	*Haematopus fuliginosus*	1992	2	-	Ma	-
Red-kneed Dotterel	*Erythrogonys cinctus*	2004	21	-	Mi	-
Masked Lapwing	*Vanellus miles*	2006	299	-	Mi	-
Banded Lapwing	*Vanellus tricolor*	2003	17	-	Mi	-
Pacific Golden Plover	*Pluvialis fulva*	2001	5	-	Mi/Ma	-
Hooded Plover	*Thinornis rubricollis*	2005	87	-	Ma	S
Lesser Sand Plover	*Charadrius mongolus*	1998	1	-	Mi/Ma	-
Double-banded Plover	*Charadrius bicinctus*	2006	33	-	Mi/Ma	-
Red-capped Plover	*Charadrius ruficapillus*	2006	154	-	Mi/Ma	-
Black-fronted Dotterel	*Elseyornis melanops*	2004	25	-	Mi	-
Black-winged Stilt	*Himantopus himantopus*	2006	82	-	Mi/Ma	-
Banded Stilt	*Cladorhynchus leucocephalus*	2006	14	-	Mi	-
Red-necked Avocet	*Recurvirostra novaehollandiae*	2006	16	-	Mi/Ma	-
Eastern Curlew	*Numenius madagascariensis*	2006	30	-	Mi/Ma	-
Whimbrel	*Numenius phaeopus*	1986	1	-	Mi/Ma	-
Black-tailed Godwit	*Limosa limosa*	2004	6	-	Mi/Ma	-
Bar-tailed Godwit	*Limosa lapponica*	2006	9	-	Mi/Ma	-
Wood Sandpiper	*Tringa glareola*	1997	1	-	Mi/Ma	-
Grey-tailed Tattler	*Heteroscelus brevipes*	1988	1	-	Mi/Ma	-
Common Sandpiper	*Actitis hypoleucos*	2001	10	-	Mi/Ma	-
Common Greenshank	*Tringa nebularia*	2006	98	-	Mi/Ma	-
Marsh Sandpiper	*Tringa stagnatilis*	2001	12	-	Mi/Ma	-
Terek Sandpiper	*Xenus cinereus*	1998	1	-	Mi/Ma	-
Curlew Sandpiper	*Calidris ferruginea*	2006	80	-	Mi/Ma	-
Red-necked Stint	*Calidris ruficollis*	2006	131	-	Mi/Ma	-
Sharp-tailed Sandpiper	*Calidris acuminata*	2006	58	-	Mi/Ma	-

Red Knot	*Calidris canutus*	2001	10	-	Mi/Ma	-
Great Knot	*Calidris tenuirostris*	2001	9	-	Mi/Ma	-
Sanderling	*Calidris alba*	1999	8	-	Mi	-
Broad-billed Sandpiper	*Limicola falcinellus*	1992	1	-	Mi/Ma	-
Latham's Snipe	*Gallinago hardwickii*	2004	21	-	Mi/Ma	-
Australian Painted Snipe	*Rostratula australis*	1985	2	-	Mi/Ma	-
Brolga	*Grus rubicunda*	2006	4	-	Mi	-
Glossy Ibis	*Plegadis falcinellus*	2004	13	-	Mi/Ma	-
Australian White Ibis	*Threskiornis molucca*	2006	205	-	Ma	-
Straw-necked Ibis	*Threskiornis spinicollis*	2003	148	-	Ma	-
Little Egret	*Egretta garzetta*	2006	57	-	Ma	-
Intermediate Egret	*Ardea intermedia*	1997	1	-	Ma	-
Eastern Great Egret	*Ardea modesta*	2006	79	-	Mi/Ma	-
Cape Barren Goose	*Cereopsis novaehollandiae*	1981	3	-	Mi/Ma	-
Magpie Goose	*Anseranas semipalmata*	1999	6	-	Mi/Ma	-
Australian Wood Duck	*Chenonetta jubata*	2001	51	Total	Mi	-
Black Swan	*Cygnus atratus*	2006	290	-	Mi	-
Australian Shelduck	*Tadorna tadornoides*	2006	178	Total	Mi	-
Pacific Black Duck	*Anas superciliosa*	2006	220	-	Mi	-
Chestnut Teal	*Anas castanea*	2006	198	Total	Mi	-
Grey Teal	*Anas gracilis*	2006	110	Total	Mi	-
Australasian Shoveler	*Anas rhynchotis*	2006	41	-	Mi	-
Pink-eared Duck	*Malacorhynchus membranaceus*	2003	3	Partial	Mi	-
Freckled Duck	*Stictonetta naevosa*	1981	1	-	Mi	-
Hardhead	*Aythya australis*	2004	26	-	Mi	-
Blue-billed Duck	*Oxyura australis*	1995	3	-	Mi	-
Musk Duck	*Biziura lobata*	2006	18	-	Mi/Ma	-
Spotted Harrier	*Circus assimilis*	1982	2	-	Mi	-
Swamp Harrier	*Circus approximans*	2004	107	-	Mi/Ma	-
Grey Goshawk	*Accipiter novaehollandiae*	2000	6	-	Mi	-
Brown Goshawk	*Accipiter fasciatus*	2006	76	-	Mi/Ma	-
Collared Sparrowhawk	*Accipiter cirrhocephalus*	1992	2	-	Mi	-
Wedge-tailed Eagle	*Aquila audax*	2001	8	-	Mi	-
Little Eagle	*Hieraaetus morphnoides*	2001	28	-	Mi	-
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	2005	14	-	Mi/Ma	-
Whistling Kite	*Haliastur sphenurus*	2006	90	-	Mi/Ma	-
Black-shouldered Kite	*Elanus axillaris*	2003	56	-	Mi	-
Australian Hobby	*Falco longipennis*	2001	24	-	Mi	-
Peregrine Falcon	*Falco peregrinus*	2003	4	Partial	Mi	-
Black Falcon	*Falco subniger*	1991	3	-	Mi	-
Brown Falcon	*Falco berigora*	2005	71	-	Mi	-
Nankeen Kestrel	*Falco cenchroides*	2004	23	Partial	Mi/Ma	-
Southern Boobook	*Ninox novaeseelandiae*	1993	1	Total	Ma	-
Orange-bellied Parrot	*Neophema chrysogaster*	2006	74	-	Mi/Ma	-
Blue-winged Parrot	*Neophema chrysostoma*	2006	56	Partial	Ma	-
Swift Parrot	*Lathamus discolor*	2005	7	Total	Ma	-

Sacred Kingfisher	*Todiramphus sanctus*	2000	8	Partial	Ma	-
Rainbow Bee-eater	*Merops ornatus*	1999	2	-	Ma	-
White-throated Needletail	*Hirundapus caudacutus*	1993	6	-	Mi/Ma	-
Fork-tailed Swift	*Apus pacificus*	1991	3	-	Ma	-
Pallid Cuckoo	*Cuculus pallidus*	2001	17	-	Ma	-
Fan-tailed Cuckoo	*Cacomantis flabelliformis*	2003	89	-	Ma	-
Black-eared Cuckoo	*Chrysococcyx osculans*	2001	2	-	Ma	-
Horsfield's Bronze-Cuckoo	*Chrysococcyx basalis*	2003	40	-	Ma	-
Shining Bronze-Cuckoo	*Chrysococcyx lucidus*	2001	40	-	Ma	-
Welcome Swallow	*Hirundo neoxena*	2006	251	Partial	Ma	-
Tree Martin	*Hirundo nigricans*	2001	22	Total	Ma	-
Rufous Fantail	*Rhipidura rufifrons*	2001	5	-	Mi/Ma	-
Satin Flycatcher	*Myiagra cyanoleuca*	1990	2	-	Mi/Ma	-
Flame Robin	*Petroica phoenicea*	2004	55	-	Ma	-
Pink Robin	*Petroica rodinogaster*	2001	26	-	Ma	-
Magpie-lark	*Grallina cyanoleuca*	2005	195	-	Ma	-
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*	2002	83	-	Ma	-
Clamorous Reed Warbler	*Acrocephalus stentoreus*	2001	20	-	Ma	-
Silvereye	*Zosterops lateralis*	2006	158	-	Ma	S
Australasian Pipit	*Anthus novaeseelandiae*	2003	41	-	Ma	-
Bassian Thrush	*Zoothera lunulata*	2000	4	-	Ma	-
Little Ringed Plover	*Charadrius dubius*	1987	1	-	Mi	-
Baird's Sandpiper	*Calidris bairdii*	1986	1	-	Mi/Ma	-
Southern Giant-Petrel	*Macronectes giganteus*	1988	6	-	Mi/Ma	-
Red-necked Phalarope	*Phalaropus lobatus*	2002	1	-	Mi/Ma	-
Ruff	*Philomachus pugnax*	1995	2	-	Mi/Ma	-
Kerguelen Petrel	*Lugensa brevirostris*	1975	1	-	Ma	-
Northern Giant-Petrel	*Macronectes halli*	1988	3	-	Mi/Ma	-
Salvin's Prion	*Pachyptila salvini*	1986	3	-	Ma	-
Slender-billed Prion	*Pachyptila belcheri*	2001	6	-	Ma	-
Pomarine Jaeger	*Stercorarius pomarinus*	1984	1	-	Mi/Ma	-
Common Tern	*Sterna hirundo*	2002	7	-	Mi/Ma	-
Little Raven	*Corvus mellori*	2006	255	-	Ma	H
Long-toed Stint	*Calidris subminuta*	1986	2	-	Mi/Ma	-
Cattle Egret	*Ardea ibis*	2001	23	-	Mi/Ma	-
Pectoral Sandpiper	*Calidris melanotos*	2001	6	-	Mi/Ma	-
Great Skua	*Stercorarius skua*	1985	1	-	Ma	-
Kelp Gull	*Larus dominicanus*	1999	2	-	Ma	-
FISHES						
Spotted Pipefish	*Stigmatopora argus*	1987	1	-	Ma	-

Source: DSE Atlas of Victorian Wildlife (2009)

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

The EPBC Act Protected Matters Report generated for this project did not indentify a Commonwealth marine area. The study area is not within a Commonwealth marine area and is unlikely to impact on this area.

Nature and extent of likely impact

None

3.1 (g) Commonwealth land
(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

Description

The EPBC Act Protected Matters Report generated for this project did not identify any Commonwealth Lands.

Nature and extent of likely impact

None

3.1 (h) The Great Barrier Reef Marine Park

Description

The project is located in Victoria and will not affect the Great Barrier Reef Marine Park. The EPBC Act Protected Matters Report generated for this project did not identify the Great Barrier Reef Marine Park.

Nature and extent of likely impact

None

3.1 (i) A water resource, in relation to coal seam gas development and large coal mining development

Description

If the action is a coal seam gas development or large coal mining development that has, or is likely to have, a significant impact on water resources, the draft *Policy Statement Significant Impact Guidelines: Coal seam gas and large coal mining developments—Impacts on water resources* provides further details on the type of information needed.

The action is not a coal seam gas development or large coal mining development.

Nature and extent of likely impact

Address any impacts on water resources. Your assessment of impacts should refer to the draft *Significant Impact Guidelines: Coal seam gas and large coal mining developments—Impacts on water resources*.

None

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

You must describe the nature and extent of likely impacts (both direct & indirect) on the whole environment if your project:

- is a nuclear action;
- will be taken by the Commonwealth or a Commonwealth agency;
- will be taken in a Commonwealth marine area;
- will be taken on Commonwealth land; or
- will be taken in the Great Barrier Reef marine Park.

Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

3.2 (a)	**Is the proposed action a nuclear action?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (b)	**Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (c)	**Is the proposed action to be taken in a Commonwealth marine area?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))

3.2 (d)	**Is the proposed action to be taken on Commonwealth land?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))

3.2 (e)	**Is the proposed action to be taken in the Great Barrier Reef Marine Park?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))

3.3 Other important features of the environment

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed above). If at Section 2.3 you identified any alternative locations, time frames or activities for your proposed action, you must complete each of the details below (where relevant) for each alternative identified.

3.3 (a) Flora and fauna

The Project lies within one Victorian bioregion – the Otway Plain. The Otway Plain bioregion is characterised by freehold land used for agriculture and comprises of coastal plains, river valleys and foothills extending from east of Princetown to the Bellarine Peninsula and Werribee and surrounding the Otway Ranges.

The main geomorphological features in the area include flat to gently undulating plains of Tertiary deposits. The soils of the Otway Plain are variable and range from acidic in the western half, sandy around Anglesea, volcanic around the Bellarine Peninsula and clay soils around Werribee, all supporting a range of ecosystems.

Flora

The Department of Environment, Land, Water and Planning (DELWP) extant EVC mapping indicates that no EVC communities occur within the study area, however, it does show a small area of Coastal Alkaline Scrub immediately north and south of the study area along the foreshore of the Barwon River. Coastal Alkaline Scrub is listed as Endangered within the Otway Plain bioregion.

The study area was highly modified and was characterised by predominantly introduced vegetation, with native and exotic planted trees and shrubs, and introduced groundcover species on nature strips along the adjacent road verge. Grassed areas were typically dominated by exotic species such as Soursob *Oxalis pes-caprae*, Couch *Cynodon dactylon*, Kikuyu *Pennisetum clandestinum*, Subterraneum Clover *Trifolium subterraneum* and Small Flower Mallow *Malva parviflorus*.

Adjacent to Flinders Parade, along the foreshore of the Barwon River there was a small area of dune vegetation consisting predominantly of introduced Marram Grass *Ammophila arenaria* with scattered indigenous species (<25% cover) including Small-leaved Clematis *Clematis microphylla*, Seaberry Saltbush *Rhagodia candolleana* subsp*. candolleana*, Coast Saltbush *Atriplex cinerea* and Hairy Spinifex *Spinifex sericeus*. A sparse cover of Marram Grass extended toward the Barwon River shoreline. No native vegetation was present within the Barwon River within the study area, or around the existing jetty.

No patches of remnant vegetation or scattered trees, as defined by DELWP, were recorded within the study area.

No EPBC Act listed or other threatened flora species were recorded within the study area during the recent assessment (Ecology Partners Pty. Ltd. 2010). Significant flora previously recorded within 10 kilometre radius of the study area are presented above in Table 1 (see also Attachment 4, Figure 3). No significant flora are likely to occur on the study area.

Fauna

The Viridans 2009 Victorian Fauna Database identified 295 fauna species (comprising 28 mammals, 259 birds, nine reptiles, eight frogs, 20 fish and one invertebrate) have previously been recorded within 10km of the study area. Twelve bird species (ten native and two introduced) were recorded during the site assessment.

No EPBC Act listed or other threatened fauna species were recorded within the study area during the recent assessment (Ecology Partners Pty. Ltd. 2010). One nationally listed species (Hooded Plover *Thinornis rubricollis rubricollis*) was recorded to the immediate north of the study area during site assessment. While this species has previously been recorded within the local area, there are no records from within the study area. The foreshore and dune vegetation within the study area provides potential habitat for the Hooded Plover; however, regular disturbance from recreational users is likely to deter it from foraging or breeding within this area. Significant fauna previously recorded within 10 kilometre radius of the study area are presented above Table 2 (see also Attachment 4, Figure 4), and none of these species are expected to regularly occur within the study area.

3.3 (b) Hydrology, including water flows

The Barwon River foreshore and estuarine environs are present within the study area.

For the more regular small rainfall events it is not expected that the extra pump station capacity and proposed outfall would contribute to significantly larger flows to the Barwon River than the original smaller capacity pump station.

The extra pump station capacity will primarily be utilised for the less regular extreme rainfall events. The upgraded pumps allow water to be moved from low lying areas to the Barwon River in a shorter period of time thereby reducing possible flood impacts within Barwon Heads. The total volume of water pumped to the Barwon River is not expected to significantly increase but it will be conveyed to the outfall in a shorter timeframe. The low capacity original pump station and existing outfall resulted in water ponding in low areas. This water was then discharged to the Barwon River over a longer time period.

Similarly it is not expected that the quality of water being discharged to the Barwon River will be significantly different from that experienced with the smaller capacity original pumps and existing outfall. Pollutants carried by the stormwater runoff are generally carried in the 'first flush' of water from the catchment. After the initial rainfall has 'cleansed' the catchment the following runoff is less polluted than the first flush. The upgraded pump station has also had coarse screening installed so that the larger pollutants are trapped at the pump station to be removed for disposal at a suitable location.

3.3 (c) Soil and Vegetation characteristics

Actual geotechnical information available for the site is limited to two geotechnical boreholes, one of which is located on the river bank/foreshore. The lithological profile for the borehole closest to the end of the proposed outfall describes sand to a depth of 6 to 6.3 metres below the surface, overlying clay with sand or trace sand to a depth of 9.1 metres. The borehole terminated within a clayey gravel unit which would represent the top of the weathering profile of extremely weathered basalt. Occasional cemented layers were encountered in the sand unit.

- Vegetation within the vicinity of the Project area – The study area is surrounded by residential development, therefore very little indigenous vegetation occurs in the vicinity of the project area and what little remains is in a degraded state. Most vegetation is planted and non-native or non-indigenous to the local area. However, a small area of dune vegetation containing several indigenous species is present on the foreshore of the Barwon River within the study area.

- Weeds – The majority of the adjacent area consists of high density residential development. The distribution of weeds is consistent and consists of weed species typically found within nature strips. Within the dune vegetation along the Barwon River foreshore, Marram Grass and Coastal Tea-tree *Leptospermum laevigatum* are dominant.

3.3 (d) Outstanding natural features

No outstanding natural features are known to occur in the Project area.

3.3 (e) Remnant native vegetation

It is considered that no patches of remnant vegetation or scattered trees, as defined by DELWP are present within the study area.

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

From survey data, the existing "natural" surface profile at the time of survey was generally as follows:

- A grade of 4% falling from west to east. This grade generally extends for 40 metres from Flinders Parade, across the buried bluestone wall and finishes just to the east of the vegetated Marram Grass area,
- A grade of 9% falling from west to east. This grade extends 30 metres to the east from the Marram Grass mound, and
- A grade of 14% falling from west to east. This sharp fall occurs over a distance of approximately 10 metres. The proposed outfall discharges at this low point.

The outfall is kinked from Flinders Parade to pass under the foundations of the buried bluestone wall. The depth to the invert of the pipe over this section varies from 3.5 metres at the junction pit near Flinders Parade to 4.6 metres at the bluestone wall.

The outfall then falls at a constant grade of 1.36% over 65 metres with a depth to pipe invert ranging from 4.6 metres at the bluestone wall to 0.01 metres at the discharge point.

3.3 (g) Current state of the environment

The current state of the environment in relation to the location of the study area is discussed below.

Flora and fauna – See 3.1 (d) above

- Vegetation within the vicinity of the Project area – The study area is surrounded by residential development, therefore very little indigenous vegetation occurs in the vicinity of the project area and what little remains is in a degraded state. Most vegetation is planted and non-native or non-indigenous to the local area. However, a small area of dune vegetation containing several indigenous species is present on the foreshore of the Barwon River within the study area.
- Weeds – The majority of the adjacent area consists of high density residential development. The distribution of weeds is consistent and consists of weed species typically found within nature strips. Within the dune vegetation along the Barwon River foreshore, Marram Grass and Coastal Tea-tree *Leptospermum laevigatum* are dominant.
- Watercourses – The proposed stormwater outfall extends twenty metres in to the Barwon River Estuary.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

Section 4.2 of the Cultural Heritage Due Diligence Advice (Attachment 5) provides a summary of European Historical sites as follows:

"Within Barwon Heads there are a vast number of historical sites listed on the various heritage registers (Heritage Victoria Site Inventory, Victorian Heritage Register, Australian Heritage Database, Register of the National Trust, City of Greater Geelong Planning Scheme). There are several such sites associated with the area on the City of Greater Geelong Planning Scheme. The following places are listed on the Heritage Overlay:

- Flinders Heritage Area (HO1649) which covers an area from the Barwon River and including the entire proposed activity area including the road;
- Latrines Shed (HO1693) which lies just to the south of the area; and
- The Barwon Heads Jetty (HO1696)".

There is also a bluestone seawall in the vicinity of the jetty. The proposed outfall will be located under the bluestone wall. The seawall is identified by HO1660 in the Schedule to the Heritage Overlay but the City of Greater Geelong's Heritage Adviser has advised that the heritage overlay map does not include the wall as far as the location of the proposed work. It is proposed that a localised section of the wall will be temporarily removed for safety reasons to permit the new pipeline to be constructed. A detailed plan and elevation will be prepared showing the specific part of the wall identified for temporary removal. The wall will be reconstructed using mortar of the same strength, texture and colour as existing and the new wall foundation will be documented.

3.3 (i) Indigenous heritage values

A due diligence assessment of the study area has been completed by TerraCulture (Attachment 5), which concluded that a Cultural Heritage Management Plan (CHMP) was not compulsory for the proposed works. However, they have suggested

that a voluntary CHMP should be considered if the construction used open trenching for the mounded sand area immediately adjacent to the roadway. The route of the proposed outfall alignment does not pass through this sand mound and therefore a CHMP is not required.

A copy of the completed report will be sent to the Wathaurung Aboriginal Corporation trading as Wadawurrung for review and comment.

3.3 (j) Other important or unique values of the environment

No other areas of ecological significance occur within the study area. The study area has already substantially declined in terms of species diversity and abundance, and very few indigenous species were observed during the current survey.

3.3 (k) Tenure of the action area (eg freehold, leasehold)

The study area is located within public land consisting of roads within residential zones, and the immediate edge of the foreshore and estuary of the Barwon River.

3.3 (l) Existing land/marine uses of area

The majority of the study area is used for residential purposes, and the Barwon River foreshore and estuary are currently used for recreational boating, fishing, swimming and other water related activities, and passive uses include enjoyment of natural values and conservation purposes.

3.3 (m) Any proposed land/marine uses of area

It is intended that the study area will be used to contain the upgrade to the Barwon Heads stormwater outfall. There are currently no additional uses proposed for the study area.

4 Measures to avoid or reduce impacts

Note: If you have identified alternatives in relation to location, time frames or activities for the proposed action at Section 2.3 you will need to complete this section in relation to each of the alternatives identified.

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

For any measures intended to avoid or mitigate significant impacts on matters protected under the EPBC Act, specify:
- what the measure is,
- how the measure is expected to be effective, and
- the time frame or workplan for the measure.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

Provide information about the level of commitment by the person proposing to take the action to implement the proposed mitigation measures. For example, if the measures are preliminary suggestions only that have not been fully researched, or are dependent on a third party's agreement (e.g. council or landowner), you should state that, that is the case.

Note, the Australian Government Environment Minister may decide that a proposed action is not likely to have significant impacts on a protected matter, as long as the action is taken in a particular manner (section 77A of the EPBC Act). The particular manner of taking the action may avoid or reduce certain impacts, in such a way that those impacts will not be 'significant'. More detail is provided on the Department's web site.

For the Minister to make such a decision (under section 77A), the proposed measures to avoid or reduce impacts must:
- clearly form part of the referred action (eg be identified in the referral and fall within the responsibility of the person proposing to take the action),
- be must be clear, unambiguous, and provide certainty in relation to reducing or avoiding impacts on the matters protected, and
- must be realistic and practical in terms of reporting, auditing and enforcement.

More general commitments (eg preparation of management plans or monitoring) and measures aimed at providing environmental offsets, compensation or off-site benefits CANNOT be taken into account in making the initial decision about whether the proposal is likely to have a significant impact on a matter protected under the EPBC Act. (But those commitments may be relevant at the later assessment and approval stages, including the appropriate level of assessment, if your proposal proceeds to these stages).

The proposed method of construction was developed in consultation with GHD based on their Structural Concept Pre-Design Report dated July 2013. That report addressed potential site conditions surrounding the proposed outlet structure such as sand movement, water velocities, geotechnical and geochemical including coastal acid sulphate soils. The report also provided preliminary pile design and material selection advice.

The outfall pipe will be tied to precast concrete piles driven to practical refusal into the basalt layer. The outfall pipe will consist of individual 1600mm diameter polyethylene pipe lengths butt welded together to form one continuous pipe length. Polyethylene pipe is ideal in a marine environment because it is immune to galvanic corrosion. Other benefits include its light weight, its flexibility, its ductility and the ability to produce water tight butt joints.

The polyethylene pipe will be concrete encased which will allow it to be tied to the concrete piles and also provide a firm foundation and constant grade for the outfall.

Temporary sheet piling will be required during the construction of the outfall. This sheet piling will be driven down to the basalt layer and extend above the high tide mark. This will limit water infiltration into the excavation. The trench will need to be dewatered during construction.

The temporary sheet piling will be removed following construction of the outfall and sand will be replaced over the concrete encasement to return the trench to "natural" surface levels.

The existing outfall pipe will also be removed once the new outfall is operational.

Measures to mitigate/ameliorate impacts to ecological values within the study area associated with the proposed works include:

- Soil disturbance should be minimised during construction (where possible) to avoid erosion and disturbance to surrounding areas;
- Appropriate sediment and erosion controls should be implemented during construction, particularly around Flinders Parade and the Barwon River shoreline. Sedimentation and erosion controls should be undertaken to EPA standards and incorporated into a construction plan. This is to prevent any sedimentation within the Barwon River and should be undertaken prior to construction commencing. Sedimentation levels should be managed during construction as well.
- Ensure contractors are aware of areas of ecological value within the general vicinity of the area;
- Place construction stockpiles and machinery away from areas supporting native vegetation/fauna habitat;
- All fuel and chemicals should be kept at a minimum of 50 metres from the Barwon River foreshore;
- Develop a detailed Environmental Management Plan to outline measures to ensure ecological values on the site and in surrounding areas are protected during construction activities, such as weed management, soil stockpile locations and sediment control; and,
- Use indigenous plants associated with the relevant EVC as part of any landscaping/revegetation works post construction.

5 Conclusion on the likelihood of significant impacts

Identify whether or not you believe the action is a controlled action (ie. whether you think that significant impacts on the matters protected under Part 3 of the EPBC Act are likely) and the reasons why.

5.1 Do you THINK your proposed action is a controlled action?

X	No, complete section 5.2
	Yes, complete section 5.3

5.2 Proposed action IS NOT a controlled action.

Specify the key reasons why you think the proposed action is NOT LIKELY to have significant impacts on a matter protected under the EPBC Act.

An EPBC Act referral will be required for the works due to the potential of the works to impact upon the Ramsar site. Based on this assessment, it is believed that the proposed upgrade to the Barwon Heads stormwater outfall project is not a controlled action in accordance with the Environment Protection and Biodiversity Conservation Act 1999. All activities, prior, during and post construction, will be undertaken in accordance with an overall approved site Environmental Management Plan.

Given the relatively small area of the Ramsar wetland to be affected by the proposed works, along with considerations of the existing infrastructure within the River, including the existing high levels of disturbance within the proposed works areas, it is considered that the proposed project will not have a 'significant impact' on the environmental values of this Ramsar site.

Further, no EPBC Act listed ecological communities or flora species were recorded within the study area, and no EPBC Act listed fauna species would regularly use the study area.

5.3 Proposed action IS a controlled action

Type 'x' in the box for the matter(s) protected under the EPBC Act that you think are likely to be significantly impacted. (The 'sections' identified below are the relevant sections of the EPBC Act.)

	Matters likely to be impacted
	World Heritage values (sections 12 and 15A)
	National Heritage places (sections 15B and 15C)
	Wetlands of international importance (sections 16 and 17B)
	Listed threatened species and communities (sections 18 and 18A)
	Listed migratory species (sections 20 and 20A)
	Protection of the environment from nuclear actions (sections 21 and 22A)
	Commonwealth marine environment (sections 23 and 24A)
	Great Barrier Reef Marine Park (sections 24B and 24C)
	A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
	Protection of the environment from Commonwealth actions (section 28)
	Commonwealth Heritage places overseas (sections 27B and 27C)

Specify the key reasons why you think the proposed action is likely to have a significant adverse impact on the matters identified above.

6 Environmental record of the responsible party

NOTE: If a decision is made that a proposal needs approval under the EPBC Act, the Environment Minister will also decide the assessment approach. The EPBC Regulations provide for the environmental history of the party proposing to take the action to be taken into account when deciding the assessment approach.

		Yes	No
6.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details** The City of Greater Geelong is directly responsible for a number of Acts and statutes that have environmental implications. In particular the City is responsible for the Planning and Environment Act (1987) which reflects the need to comply with all current environmental obligations and expectations. The City has, since 1999, also adopted its Environmental Management Strategy which sets out the direction and actions it aspires to based on community expectation. Best practice environmental management in planning, delivery, operations and services is promoted and supported across all services that the City undertakes. The City has an excellent record in achievement of environmental strategy implementation and has been recognised nationally for environmental campaigns and programs and has delivered quality outcomes for the community.	**X**	
6.2	**Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?** **If yes, provide details**		**X**
6.3	**If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?** **If yes, provide details of environmental policy and planning framework** The action will respect not only all federal and state planning and environmental responsibilities but will also deliver the action in line with best practice methodology as articulated in the City's Environmental Management Strategy and related and subordinate strategies and guidelines.	**X**	
6.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?**	**X**	

2009/5001	City of Greater Geelong/Water management and use/Lovely Banks/VIC/Construction of Stormwater Harvesting Dam, Anakie Road	15 Jul 2009		
2009/4956	City of Greater Geelong/Tourism and recreation/Dandos Road, Avalon, approx. 50km S-W of Melbourne CBD/VIC/Motocross Track and Associated Infrastructure	23 Jun 2009		
2009/4943	City of Greater Geelong/Commercial development/Between McManus & Broderick Roads, Corio/VIC/Proposed land subdivision for industrial development	17 Jun 2009		
2005/2132	Greater Geelong City Council/Agriculture and forestry/Geelong/VIC/Mosquito Control	18 May 2005		
2002/708	City of Greater Geelong/Tourism, recreation and conservation management/Barwon Heads/VIC/Rehabilitation of Lake Connewarre State Game Reserve	03 Jul 2002		

7 Information sources and attachments

(For the information provided above)

7.1 References

- List the references used in preparing the referral.
- Highlight documents that are available to the public, including web references if relevant.

Information provided in this referral is based on a report prepared for the proposal –

Flora and Fauna Assessment and Net Gain Analysis for the proposed stormwater upgrade, Barwon Heads, Victoria. Ecology Partners 2010.

References used in this report are shown below:

AVW 2009. Atlas of Victorian Wildlife. Viridians Biological Databases Pty Ltd, Melbourne.

Briggs, J.D. & Leigh, J.H. 1996. *Rare or Threatened Australian Plants*. CSIRO Australia & Australian Nature Conservation Agency.

CCMA 2003. *Corangamite Regional Catchment Strategy 2003-2008*. Corangamite Catchment Management Authority, Victoria.

CCMA 2005. *Corangamite Native Vegetation Plan*. Corangamite Catchment Management Authority, Victoria.

CCMA 2006. *Corangamite River Health Strategy*. Corangamite Catchment Management Authority, Victoria.

Cogger, H.G., Cameron, E.E., Sadlier, R.A. & Eggler, P. 1993. *Action Plan for Australian Reptiles*. Australia Nature Conservation Age.

DEWHA 2010. EPBC Act Protected Matters Search Tool, Department of the Environment, Water, Heritage and the Arts: http://www.environment.gov.au/

DPCD 2010. Planning Schemes online. Department of Planning and Community Development. http://www.dse.vic.gov.au/planningschemes

DPI 2010. *Declared Noxious Weeds*. Department of Primary Industries, Melbourne, Victoria

DSE 2004. Vegetation quality *assessment manual: Guidelines for applying the habitat hectares scoring method*. Biodiversity and Natural Resources Division, Department of Sustainability and Environment, Victoria.

DSE 2005. *Advisory List of Rare or Threatened Plants in Victoria - 2005*. Department of Sustainability and Environment, Victoria, East Melbourne, Victoria.

DSE 2007a. *Native Vegetation*. *Guide for assessment of referred Planning Permit Applications.* Department of Sustainability and Environment, East Melbourne, Victoria.

DSE 2007b. Advisory List of Threatened Vertebrate Fauna in Victoria. Department of Sustainability and Environment, Victoria

DSE 2010. Biodiversity Interactive Map. Department of Sustainability and Environment, Victoria www.dse.vic.gov.au

Duncan, A., Baker, G.B. & Montgomery, N. 1999. *The Action Plan for Australian Bats*. Environment Australia, Canberra.

EPA 2003. *State Environmental Protection Policy (SEPP) Waters of Victoria objectives and Environmental Quality Assessment*. Publication Number 792.1. Environmental Protection Agency, Southbank, Victoria.

FIS 2009. Flora Information System (Department of Sustainability and Environment), Viridans Pty Ltd. Bentleigh East, Victoria.

Garnett, S. & Crowley, G. 2000. *The Action Plan for Australian Birds*. Environment Australia, Canberra.

IUCN 2009. *2009 IUCN Red List of Threatened Animals*. International Union for the Conservation of Nature & Natural Resources, Geneva.

Maxwell, S., Burbidge, A. & Morris, K. 1996. *Action Plan for Australian Marsupials and Monotremes*. IUCN Species Survival Commission.

NRE 2002. *Victoria's Native Vegetation Management: A Framework for Action.* Department of Natural Resources & Environment, Victoria.

Tyler, M.J. 1997. *The Action Plan for Australian Frogs*. Environment Australia, Canberra.

Walsh, N.G. & Stajsic, V. 2007. *A Census of the Vascular Plants of Victoria*. 8th Edition. Royal Botanic Gardens, Melbourne.

7.2 Reliability and date of information

For information in section 3 specify:

- source of the information;
- how recent the information is;
- how the reliability of the information was tested; and
- any uncertainties in the information.

7.3 Attachments

Indicate the documents you have attached. All attachments must be less than three megabytes (3mb) so they can be published on the Department's website. Attachments larger than three megabytes (3mb) may delay the processing of your referral.

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	Attachment 1: Design Drawings Attachment 2: Study area and works area Attachment 6: GIS-compliant file
	GIS file delineating the boundary of the referral area (section 1)		
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Attachment 3: EPBC Act Protected Matters Report (Ramsar Mapping)
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)	✓	Attachment 4: Flora and Fauna Assessment and Net Gain Analysis for the Barwon Heads proposed stormwater upgrade, Barwon Heads, Victoria
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations undertaken, including with Indigenous	✓	Attachment 5: Due Diligence Assessment

stakeholders (section 3)		by TerraCulture

8 Contacts, signatures and declarations

NOTE: Providing false or misleading information is an offence punishable on conviction by imprisonment and fine (s 489, EPBC Act).

Under the EPBC Act a referral can only be made by:

- the person proposing to take the action (which can include a person acting on their behalf); or
- a Commonwealth, state or territory government, or agency that is aware of a proposal by a person to take an action, and that has administrative responsibilities relating to the action[1].

Project title:

8.1 Person proposing to take action

This is the individual, government agency or company that will be principally responsible for, or who will carry out, the proposed action.

If the proposed action will be taken under a contract or other arrangement, this is:

- the person for whose benefit the action will be taken; or
- the person who procured the contract or other arrangement and who will have principal control and responsibility for the taking of the proposed action.

If the proposed action requires a permit under the Great Barrier Reef Marine Park Act[2], this is the person requiring the grant of a GBRMP permission.

The Minister may also request relevant additional information from this person.

If further assessment and approval for the action is required, any approval which may be granted will be issued to the person proposing to take the action. This person will be responsible for complying with any conditions attached to the approval.

If the Minister decides that further assessment and approval is required, the Minister must designate a person as a proponent of the action. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent will generally be the person proposing to take the action[3].

1. Name and Title:	Mark Richards, Senior Design Engineer
2. Organisation (if applicable):	City of Greater Geelong
3. EPBC Referral Number (if known):	
4: ACN / ABN	18 374 210 672
5. Postal address	PO Box 104 Geelong VIC 3220
6. Telephone:	(03) 52724359
7. Email:	mrichards@geelongcity.vic.gov.au
8. Name of designated proponent (if not the same person at item 1 above and if applicable):	
9. ACN/ABN of designated proponent (if not the same person named at item 1 above):	

[1] *If the proposed action is to be taken by a Commonwealth, state or territory government or agency, section 8.1 of this form should be completed. However, if the government or agency is aware of, and has administrative responsibilities relating to, a proposed action that is to be taken by another person which has not otherwise been referred, please contact the Referrals Gateway (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

[2] *If your referred action, or a component of it, is to be taken in the Great Barrier Reef Marine Park the Minister is required to provide a copy of your referral to the Great Barrier Reef Marine Park Authority (GBRMPA) (see section 73A,* EPBC Act*). For information about how the GBRMPA may use your information, see http://www.gbrmpa.gov.au/privacy/privacy_notice_for_permits.*

[3] *If a person other than the person proposing.to take action is to be nominated as the proponent, please contact the Referrals Gateway(1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

COMPLETE THIS SECTION ONLY IF YOU QUALIFY FOR EXEMPTION FROM THE FEE(S) THAT WOULD OTHERWISE BE PAYABLE

I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

□ an individual; OR

□ a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*); OR

□ not applicable.

If you are small business entity you must provide the Date/Income Year that you became a small business entity:

Note: You must advise the Department within 10 business days if you cease to be a small business entity. Failure to notify the Secretary of this is an offence punishable on conviction by a fine (regulation 5.23B(3) *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth)).

COMPLETE THIS SECTION ONLY IF YOU WOULD LIKE TO APPLY FOR A WAIVER

I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations. Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made:

□ not applicable.

Declaration

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.
I agree to be the proponent for this action.
I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature [signature] Date 10-02-2016

8.2 Person preparing the referral information (if different from 8.1)

Individual or organisation who has prepared the information contained in this referral form.

Name

Title

Organisation — Organisation name should match entity identified in ABN/ACN search

ACN / ABN (if applicable)

Postal address

Telephone

Email

Declaration

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.

Signature

Date

REFERRAL CHECKLIST

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

HAVE YOU:

- ❑ Completed all required sections of the referral form?
- ❑ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ❑ Provided a map showing the location and approximate boundaries of the project area?
- ❑ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ❑ Provided a digital file (preferably ArcGIS shapefile, refer to guidelines at Attachment A) delineating the boundaries of the referral area?
- ❑ Provided complete contact details and signed the form?
- ❑ Provided copies of any documents referenced in the referral form?
- ❑ Ensured that all attachments are less than three megabytes (3mb)?
- ❑ Sent the referral to the Department (electronic and hard copy preferred)?

Attachment A

Geographic Information System (GIS) data supply guidelines

If the area is less than 5 hectares, provide the location as a point layer. If the area greater than 5 hectares, please provide as a polygon layer. If the proposed action is linear (eg. a road or pipline) please provide a polyline layer.

GIS data needs to be provided to the Department in the following manner:

- Point, Line or Polygon data types: ESRI file geodatabase feature class (preferred) or as an ESRI shapefile (.shp) zipped and attached with appropriate title
- Raster data types: Raw satellite imagery should be supplied in the vendor specific format.
- Projection as GDA94 coordinate system.

Processed products should be provided as follows:

- For data, uncompressed or lossless compressed formats is required - GeoTIFF or Imagine IMG is the first preference, then JPEG2000 lossless and other simple binary+header formats (ERS, ENVI or BIL).
- For natural/false/pseudo colour RGB imagery:
    - If the imagery is already mosaiced and is ready for display then lossy compression is suitable (JPEG2000 lossy/ECW/MrSID). Prefer 10% compression, up to 20% is acceptable.
    - If the imagery requires any sort of processing prior to display (i.e. mosaicing/colour balancing/etc) then an uncompressed or lossless compressed format is required.

Metadata or 'information about data' will be produced for all spatial data and will be compliant with ANZLIC Metadata Profile. (http://www.anzlic.org.au/policies_guidelines#guidelines).

The Department's preferred method is using ANZMet Lite, however the Department's Service Provider may use any compliant system to generate metadata.

All data will be provide under a Creative Commons license (http://creativecommons.org/licenses/by/3.0/au/)