Australian Government
Department of the Environment

Referral of proposed action

Proposed action title: **Groundwater Replenishment Scheme (GWRS) Stage 2**

1 Summary of proposed action

1.1 **Short description**

The proposed action comprises the expansion to the existing Advanced Water Recycling Plant (AWRP) and the construction of additional water recharge and conveyance infrastructure to allow the recharge (under Stage 1 and 2) of up to 127.5 ML/day (77 ML/day on average, or approximately 28 GL/annum) of recycled water (of drinking water quality) to the Leederville and Yarragadee aquifers (Figure 1). The proposed action consists of the construction and operation of the AWRP (Stage 2), the pipeline (approximately 13km) and the aquifer recharge bore sites. For the purposes of this environmental assessment these elements are located within an overall 'development envelope' which encompasses all proposed disturbance areas, including temporary construction areas.

1.2 **Latitude and longitude (GDA 94, MGA Zone 50)**

Table 1

ID	Longitude	Latitude
1	115.777524	-31.781633
2	115.777545	-31.781975
3	115.777388	-31.781982
4	115.777464	-31.783649
5	115.777121	-31.783661
6	115.777155	-31.7844
7	115.778608	-31.784334
8	115.77856	-31.783288
9	115.778201	-31.782932
10	115.778166	-31.782184
11	115.778201	-31.782109
12	115.778186	-31.781786

Table 2

ID	Longitude	Latitude
13	115.777609	-31.784385
14	115.777627	-31.784904
15	115.778348	-31.784893
16	115.778372	-31.785616
17	115.780558	-31.78555

Table 3

ID	Longitude	Latitude
18	115.782241	-31.785486
19	115.7823	-31.785506
20	115.782242	-31.785627
21	115.78213	-31.785856
22	115.782079	-31.7861
23	115.782142	-31.787079
24	115.784141	-31.787005
25	115.784569	-31.787094
26	115.78502	-31.787342
27	115.785469	-31.787012
28	115.785806	-31.786888
29	115.786716	-31.786804
30	115.787927	-31.786472
31	115.788417	-31.786639
32	115.788707	-31.787503
33	115.789228	-31.787953
34	115.790355	-31.786999
35	115.791871	-31.788284
36	115.792023	-31.788286
37	115.793287	-31.787198
38	115.793593	-31.78695

Table 3 (continued)

ID	Longitude	Latitude
39	115.793765	-31.786845
40	115.794035	-31.786704
41	115.794217	-31.786613
42	115.794486	-31.78647
43	115.796356	-31.785397
44	115.797091	-31.785389
45	115.797075	-31.784278
46	115.796889	-31.782869
47	115.798601	-31.782006
48	115.79859	-31.781098
49	115.801011	-31.775896
50	115.80083	-31.775532

Table 4

ID	Longitude	Latitude
51	115.801687	-31.773577
52	115.80188	-31.773652
53	115.801967	-31.773487
54	115.801774	-31.773413

Table 5

ID	Longitude	Latitude
55	115.803096	-31.771911
56	115.802534	-31.772133
57	115.80359	-31.770773
58	115.803712	-31.770626
59	115.803885	-31.770524
60	115.804493	-31.770226
61	115.804526	-31.770122
62	115.80435	-31.76984
63	115.804088	-31.769779
64	115.802199	-31.766957
65	115.801866	-31.766461
66	115.80102	-31.764743
67	115.800984	-31.764658
68	115.800996	-31.76457
69	115.801012	-31.764482
70	115.800976	-31.764397
71	115.80092	-31.764322
72	115.800828	-31.764279
73	115.800763	-31.764209
74	115.799538	-31.761423
75	115.799423	-31.760971
76	115.79692	-31.755913
77	115.795398	-31.752798

Table 5 (continued)

ID	Longitude	Latitude
78	115.795138	-31.752463
79	115.795109	-31.752099
80	115.794649	-31.75114
81	115.79433	-31.751019
82	115.794253	-31.750791
83	115.794141	-31.750293
84	115.794081	-31.749789
85	115.794073	-31.749282
86	115.794118	-31.748777
87	115.794602	-31.746729
88	115.794638	-31.746551
89	115.79469	-31.746284
90	115.794721	-31.746015
91	115.794745	-31.745745
92	115.794741	-31.745475
93	115.794718	-31.745115
94	115.794629	-31.744579
95	115.794507	-31.744141
96	115.794341	-31.743713
97	115.793842	-31.742702
98	115.792029	-31.741635
99	115.791548	-31.74103
100	115.791515	-31.74065
101	115.791138	-31.739999
102	115.790852	-31.739596
103	115.790338	-31.739354
104	115.790069	-31.739069
105	115.789855	-31.738425
106	115.789853	-31.737894
107	115.789551	-31.73727
108	115.789367	-31.737041
109	115.788971	-31.736058
110	115.78893	-31.735404
111	115.788611	-31.734738
112	115.78844	-31.734213
113	115.788272	-31.733968
114	115.78693	-31.733316

Table 6

ID	Longitude	Latitude
115	115.787322	-31.729055
116	115.787321	-31.728514
117	115.786265	-31.728515
118	115.786266	-31.72903

Table 7

ID	Longitude	Latitude
119	115.786249	-31.729075
120	115.784951	-31.729077
121	115.784847	-31.725522
122	115.784768	-31.725406
123	115.784767	-31.724886
124	115.783983	-31.724076
125	115.783624	-31.723828
126	115.783403	-31.723352
127	115.783393	-31.722728
128	115.783656	-31.722235
129	115.783412	-31.721929
130	115.783113	-31.721924
131	115.781948	-31.720584
132	115.781877	-31.720389
133	115.781353	-31.720125
134	115.780716	-31.719358
135	115.780548	-31.719011
136	115.779909	-31.718736
137	115.779432	-31.718635
138	115.779613	-31.717204
139	115.779593	-31.717006
140	115.77699	-31.717198

Table 8

ID	Longitude	Latitude
141	115.776828	-31.715591
142	115.777194	-31.715255
143	115.778182	-31.714985
144	115.778318	-31.714452
145	115.778814	-31.714194
146	115.775659	-31.709227
147	115.775509	-31.709123
148	115.774693	-31.707838

1.3 **Locality and property description**

The proposed action will occur within the localities of Heathridge, Edgewater,Hocking, Wanneroo, Ashby, Tapping , Carramar and Currambine.

1.4	**Size of the development development envelope or work area (hectares)**	The size of the development envelope is 26.61 ha.
1.5	**Street address of the site**	The development envelope passes throught the following suburbs: Heathridge, Edgewater,Hocking, Wanneroo, Ashby, Tapping , Carramar and Currambine.

1.6 **Lot description**

The development envelope intersects land with various uses including: Urban deferred, Urban, Public Purposes, Parks and Recreation Primary Regional Roads and Other Regional Roads.

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

The proposed action will occur within the City of Joondalup the City of Wanneroo.

1.8 **Time frame**

Construction is anticipated to commence in Q1 2017.

1.9	**Alternatives to proposed action** Were any feasible alternatives to taking the proposed action (including not taking the action) considered which are not proposed?		
		X	Yes The Corporation's public water supply planning responds and adapts to changing circumstances, including climate, by identifying and adding new sources when needed. This planning includes consideration of desalination and groundwater replenishment options for source development, as well as continuing investment in programs to encourage efficient water use across all of our customers to defer the need for new water sources as long as reasonably possible. Recent declines in dam inflow means that source expansion is now required to meet demand. Before arriving at the preferred proposal, a number of desalination and groundwater replenishment expansion options were considered and assessed against environmental, social, economic and other criteria. Stage 2 of the Groundwater Replenishment Scheme was selected as the preferred option to meet the imminent public water supply requirements.

1.10	**Alternative time frames, locations or activities** Does the proposed action include alternative time frames, locations or activities?		Yes
		X	Aquifer recharge to the north of the AWRP site, as proposed, has been determined by the Department of Water (DoW) as the preferred option following investigation into the deeper, confined aquifers of the Perth region in the study known as the Perth Regional Confined Aquifer Capacity (PRCAC) project. The DoW commenced the PRCAC project in 2012 to investigate the following: • Update abstraction strategies for public and private water supply that minimise impact on wetlands and groundwater dependent ecosystems and maximise use of the deeper confined aquifers without impacting on water quality; • Identify locations suitable for groundwater replenishment; • Support the sustainable use of the Gnangara groundwater system which currently supplies around 45 per cent of Perth's total estimated water use; • Develop the Gnangara Groundwater Areas Allocation Plan to define private and public abstraction volumes for the next 5 years that provide the most optimum balance between access to groundwater and protection of environmental values such as wetlands and GDEs; • Protect existing users of Perth groundwater from saline intrusion; and • Inform decisions about land use and development that optimise recharge and abstraction of groundwater from shallow and deep aquifers. Progression towards achieving the groundwater level recovery targets, including the contribution predicted as a result of the proposed action, is likely to aid in the recovery of groundwater levels and potentially assist in wetland recovery. Several alternative pipeline alignments were also considered (refer Attachment 1). The final pipeline route was selected as it represents the best environmental outcome.
1.11	**Commonwealth, State or Territory assessment** Is the action subject to other a Commonwealth, State or Territory environmental impact assessment?		
		X	Yes, please refer to Section 2.5
1.12	**Component of larger action** Is the proposed action a component of a larger action?	X	No
1.13	**Related actions/proposals** Is the proposed action related to other actions or proposals in the region?	X	No
1.14	**Australian Government funding**	X	No

	Has the person proposing to take the action received any Australian Government grant funding to undertake the proposed action?		
1.15	**Great Barrier Reef Marine Park** Is the proposed action inside the Great Barrier Reef Marine Park?	X	No, the proposed action is not inside the Great Barrier Reef Marine Park.

2 Detailed description of proposed action

2.1 Description of proposed action

In July 2016, the WA Minister for Water announced the expansion of the Groundwater Replenishment Scheme (GWRS) in response to the need for additional sustainable water sources after one of the driest years on record in 2015.

The expansion of the GWRS to Stage 2 (the proposed action) involves the duplication of the existing AWRP at the Beenyup wastewater treatment plant (WWTP) site, and recharge of an additional 14 GL per annum of recycled water that meets drinking water standards into the Leederville and Yarragadee aquifers at two recharge sites located offsite. A recharge pipeline of approximately 13 km in length will convey recycled water from the AWRP through to the southern recharge site and the northern recharge site for injection into the Leederville and Yarragadee aquifers.

The main components of the proposed action are:

- The duplication of the existing 14 GL/annum AWRP;
- A 13 km recharge pipeline from the AWRP to the aquifer recharge sites;
- The southern recharge site and associated infrastructure including a recharge pump station, recycled water tank, recharge bores and an access track;
- The northern recharge site and associated infrastructure including a recharge pump station, recycled water tank and recharge bores; and
- Groundwater recharge of the Leederville and Yarragadee aquifers.

The proposed action area comprises the AWRP Stage 2 site, the recharge pipeline and the recharge sites. The proposed action is encompassed within the 'development envelope'. The development envelope includes a 'construction footprint' which includes all areas potentially temporarily disturbed during the construction phase (Figure 1).

2.2 Feasible alternatives to taking the proposed action

There are no feasible alternatives to undertaking the proposed action (other than no action).

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

None

2.4 Context, including any relevant planning framework and state/local government requirements

The land within the development envelope is reserved as Public purposes, Urban Zone, Reserved Lands-Parks and recreation, Rural Zone, Primary regional roads, Other regional roads, and Urban deferred Zone under the Metropolitan Region Scheme. The City of Joondalup and City of Wanneroo's District Planning Scheme No. 2 also apply to the development envelope.

2.5 Environmental impact assessments under Commonwealth, State or Territory legislation

The proposed action will be referred under Part IV of the *Environmental Protection Act 1986* (WA) and the *Environment Protection Biodiversity Protection Act 1999* (EPBC Act) (C'lth).

2.6 Public consultation (including with Indigenous stakeholders)

Water Corp is and will continue to engage with stakeholders, including residents; local government; businesses and other government agencies. Consultation with indigenous stakeholders has commenced.

2.7 A staged development or component of a larger action

No

2.8 Related actions

None

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description

There are no known World Heritage Properties located within the vicinity of the development envelope. The nearest World Heritage Property is the Australian Convict Sites (Fremantle Prison- former) which is located approximately 30 km south of the development envelope.

Nature and extent of likely impact

The World Heritage Property is located approximately 30 km away from the development envelope and will not be impacted directly or indirectly by the proposed action.

3.1 (b) National Heritage Places

Description

There are no known National Heritage Properties located within the vicinity of the development envelope. The nearest listed National Heritage Place is the Historic Fremantle Prison (former), which is located approximately 30 km south of the development envelope.

Nature and extent of likely impact

The National Heritage Place is located approximately 30 km away from the development envelope and will not be impacted directly or indirectly by the proposed action.

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

Description

There are no known Wetlands of International Importance (declared Ramsar wetlands) located within the vicinity of the development envelope.
The closest declared Ramsar wetland is the 'Forrestdale and Thomsons Lakes' which is located approximately 40 km south of the development envelope.

Nature and extent of likely impact

Forrestdale and Thomsons lakes wetland is located approximately 30 km away from the development envelope and will not be impacted directly or indirectly by the proposed action.

3.1 (d) Listed threatened species and ecological communities

Description

A search using the EPBC Act Protected Matters Search Tool (PMST) identified 16 Listed Threatened Species as potentially occuring within a 3 km radius of the development envelope (Attachment 2).

One threatened ecological community (TEC), 'Banksia Woodlands of the Swan Coastal Plain', listed as Endangered under the EPBC Act on 16 Sep 2016 (after the PMST report was generated), occurs within the development envelope. The description of this TEC states that it typically occurs on well drained, low nutrient soils on sandplain landforms, particularly deep Bassendean and Spearwood sands and occasionally on Quindalup sands and must include one or more of the following Banksia species:

- *Banksia attenuata* (candlestick banksia);
- *Banksia menziesii* (firewood banksia);
- *Banksia prionotes* (acorn banksia); and/or
- *Banksia ilicifolia* (holly-leaved banksia) (Commonwealth of Australia 2016).

A total of up to 0.6 ha of vegetation considered likely to represent this TEC occurs within the development envelope and could potentially be impacted by the proposed action. This represents less than 0.001% of the total extent of this community across the Swan Coastal Plain and 0.02% of that remaining within 4 km of the developpment envelope.

Field surveys have been undertaken within the development envelope to determine the likelihood of occurrence of Threatened species including:

- Flora and Fauna Survey (360 Environmental 2016a) undertaken in May and September 2016.
- Black Cockatoo Assessment (360 Environmental 2016b) undertaken in July 2016.

The likelihood of the species occurring within the development envelope was determined through the assessment of:

- A literature review;
- The survey outcomes;
- The known occurrence of the species;
- The habitat present within the development envelope compared to the habitat typically associated with the species;
- Typical species behaviour (e.g. foraging behaviour, migration);
- The landform (topography, hydrology) the species generally occurs on;
- The condition of the site; and
- Current land uses.

Table 1. EPBC Act Listed Threatened Species Likelihood of Occurrence within development envelope

Scientific Name	Common Name	Conservation Status as Listed under the EPBC Act	Presence	Likelihood
Birds				
Botaurus poiciloptilus	Australasian Bittern	Endangered	Did not come up in EPBC PMST	Likely
Calyptorhynchus banksii naso	Forest Red-tailed Black-Cockatoo	Vulnerable	Species or species habitat known to occur within area	Possible
Calyptorhynchus baudinii	Baudin's Black Cockatoo	Vulnerable	Did not come up in EPBC PMST	Possible
Calyptorhynchus latirostris	Carnaby's Black Cockatoo	Endangered	Species or species habitat likely to occur within area	Likely
Leipoa ocellata	Malleefowl	Vulnerable	Species or species habitat likely to occur within	Unlikely

			area	
Limosa lapponica baueri	Bar-tailed Godwit	Vulnerable	Species or species habitat may occur within area	Unlikely
Limosa lapponica menzbieri	Northern Siberian Bar-tailed Godwit,	Critically Endangered	Species or species habitat may occur within area	Unlikely
Rostrulata australis	Australian Painted Snipe	Endangered	Species or species habitat may occur within area	Likely
Mammals				
Dasyurus geoffroii	Chuditch, Western Quoll	Vulnerable	Species or species habitat likely to occur within area	Unlikely
Plants				
Andersonia gracilis	Slender Andersonia	Endangered	Species or species habitat may occur within area	Unlikely
Anigozanthos viridis subsp. *terraspectans*	Dwarf Green Kangaroo Paw	Vulnerable	Species or species habitat may occur within area	Unlikely
Caladenia huegelii	King Spider-orchid	Endangered	Species or species habitat likely to occur within area	Possible
Diuris micrantha	Dwarf Bee-orchid	Vulnerable	Species or species habitat likely to occur within area	Unlikely
Diuris purdiei	Purdie's Donkey-orchid	Endangered	Species or species habitat may occur within area	Unlikely
Drakaea elastica	Glossy-leafed Hammer-orchid	Endangered	Species or species habitat likely to occur within area	Unlikely
Drakaea micrantha	Dwarf Hammer-orchid	Vulnerable	Species or species habitat may occur within area	Unlikely
Eucalyptus argutifolia	Yanchep Mallee	Vulnerable	Species or species habitat likely to occur within area	Unlikely
Lepidosperma rostratum	Beaked Lepidosperma	Endangered	Species or species habitat likely to occur within area	Unlikely

Flora

A likelihood of occurrence assessment was undertaken for each of the listed flora species potentially occurring within the development envelope (Table 1). The assessment was based on nearby records and habitat availability. The results of the assessment indicated that only one species is likely (likelihood: Possible) to occur in the development envelope (Table 2).

Table 2. Likelihood of Occurrence Assessment for Threatened Flora

Species	Common Name	Habitat Information	Suitable Habitat Available	Closest Record	Likelihood
Andersonia gracilis	Slender Andersonia	White/grey sand, sandy clay, gravelly loam. Winter-wet areas, near swamps (WAH 2015)	No, the site does not contain swampy areas	-	Unlikely
Anigozanthos	Dwarf Green	Grey sand, clay loam.	No, there is little intact	72km	Unlikely

viridis subsp. *terraspectans*	Kangaroo Paw	Winter-wet depressions (WAH 2015)	habitat for this species (360 Environmental 2016)		
Caladenia huegelii	King Spider-orchid	Deep grey-white sand usually associated with the Bassendean sand-dune system (DEC 2009)	No, soils of the site occur on the Spearwood system, not the Bassendean sand-dune system.	3.5km	Possible
Diuris micrantha	Dwarf Bee-orchid	Seasonal wet flats amongst sedges and scattered shrubs(Brown et al. 2013)	No, the site does not contain seasonal wet flats.	50km	Unlikely
Diuris purdiei	Purdie's Donkey-orchid	Seasonally-wet swamps and drainage lines (Brown et al. 2013)	No, the site does not contain swampy or seasonally wet areas	33km	Unlikely
Drakaea elastica	Glossy-leafed Hammer-orchid	Deep sandy soil in Banksia woodland, winter wet swamps (Brown et al. 1998)	No, the site does not contain swampy or seasonally wet areas	37km	Unlikely
Drakaea micrantha	Dwarf Hammer-orchid	White-grey sand associated with the Bassendean dune-system (WAH 2015)	No, soils of the site occur on the Spearwood system, not the Bassendean sand-dune system	38km	Unlikely
Eucalyptus argutifolia	Yanchep Mallee	Shallow soils over limestone. Slopes or gullies of limestone ridges, outcrops (WAH 2015)	No, the site does not have slopes or gullies of limestone ridges or outcrops	-	Unlikely
Lepidosperma rostratum	Beaked Lepidosperma	Peaty sand and clay amongst low heath, in winter-wet swamps (WAH 2015)	No, the site does not contain winter wet swamps	-	Unlikely

The Flora and Fauna Survey undertaken in May 2016 (360 Environmental 2016a) did not identify any Priority species (as listed by DPaW) and no Threatened species listed under the EPBC Act or gazetted Declared Rare Flora (Threatened) pursuant to the *Wildlife Conservation Act 1950* (WC Act) within the development envelope.

Fauna

A likelihood of occurrence assessment was undertaken for each of the listed fauna species potentially occurring within the development envelope (Table 1). The assessment was based on nearby records and habitat availability. The results of the assessment indicated that five species could occur in the area of the proposed action (Table 3).The likelihood of all threatened species occuring within the development envelope is discussed below.

Table 3. Likelihood of Occurrence Assessment for Threatened Fauna

Species	Common Name	Conservation Status	Suitable Habitat Available	Likelihood of Occurrence Within Area
Birds				
Botaurus poiciloptilus	Australasian Bittern	Endangered	Lake Joondalup represents the species'preferred habitat of wetlands and water associated with reeds and rushes (DotE 2015).	Likely
Calyptorhynchus banksii naso	Forest Red-tailed Black-Cockatoo	Vulnerable	The development envelope is on the northern extremity of this species distribution.	Possible
Calyptorhynchus baudinii	Baudin's Black Cockatoo	Vulnerable	The development envelope is on the northern extremity of this species distribution.	Possible
Calyptorhynchus latirostris	Carnaby's Black Cockatoo	Endangered	The development envelope is within the known distribution of the species.	Likely
Leipoa ocellata	Malleefowl	Vulnerable	The development envelope is not within the known distribution of the species (Barrett et al. 2003).	Unlikely

Limosa lapponica baueri	Bar-tailed Godwit	Vulnerable	No, this species' preferred habitat is coastal and it is rarely found inland at wetlands (Marchant & Higgins 1993).	Unlikely
Limosa lapponica menzbieri	Northern Siberian Bar-tailed Godwit,	Critically Endangered	No, this species' preferred habitat is coastal and it is rarely found inland at wetlands (Marchant & Higgins 1993).	Unlikely
Rostrulata australis	Australian Painted Snipe	Endangered	Lake Joondalup represents the species' preferred habitat (Garnett et al. 2011)	Likely
Mammals				
Dasyurus geoffroii	Chuditch, Western Quoll	Vulnerable	Now restricted to the south-west of WA where it has a fragmented distribution. This species is now only found in sclerophyll forest, woodland and mallee shrubland (Van Dyck & Strahan 2008). The Western Quoll is considered unlikely to occur in the development envelope.	Unlikely

Nature and extent of likely impact

Flora

Table 2 shows one species as having the potential to occur within the development envelope, *Caladenia huegelii*. This is discussed in more detail below.

King Spider-orchid *(Caladenia huegelii)*

Caladenia huegelii, is a perennial (tuberous) short-lived herb (orchid) that needs various conditions to flower and exhibits different flowering patterns (360 Environmental 2016a).

The nearest recorded specimen of *Caladenia huegelii* is located 3.5 km from the development envelope. *Caladenia huegelii* occurs in areas of mixed woodland of Jarrah (*Eucalyptus marginata*), Candlestick Banksia (*Banksia attenuata*), Holly Banksia (*B. ilicifolia*) and Firewood Banksia (*B. menziesii*) with scattered Sheoak (*Allocasuarina fraseriana*) and Marri (*Corymbia calophylla*) over dense shrubs of Blueboy (*Stirlingia latifolia*), Swan River Myrtle (*Hypocalymma robustum*), Yellow Buttercups (*Hibbertia hypericoides*), Buttercups (*H. subvaginata*), Balga (*Xanthorrhoea preissii*), Coastal Jugflower (*Adenanthos cuneatus*) and *Conostylis* species, from just north of Perth to the Busselton area, usually within 20 km of the coast. Throughout its range the species tends to favour areas of dense undergrowth. Soil is usually deep grey-white sand usually associated with the Bassendean sand-dune system. However, rare plants have been known to extend into the Spearwood system (in which calcareous yellow sands dominate) in some areas (DEC 2009).

This species is considered unlikely to occur. The flora surveys undertaken to date (360 Environmental 2016a) have been outside the flowering period for this species. A targeted search will be completed in September 2016 to confirm the absence of this species.

Fauna

Potential impacts to the species likely to occur or possibly present within the development envelope (as shown in Table 3) are discussed below:

Australasian Bittern

This species has been recorded as occuring within the region of the Yellagonga Regional Park (CALM 2003). The species habitat is associated with wetlands (DotE 2015).
It is considered likely that the Australasian Bittern may occur in Lake Joondalup, but the proposed action will not impact the lake and this species should not be directly affected. Any disturbance to the area as a result of the proposed action is therefore unlikely to impact the Australasian Bittern at a local scale.

Australian Painted Snipe

This waterbird utilises wetland habitat, often feeding on seeds and invertebrates, including insects, worms, molluscs and crustaceans from the water's edge (Garnett et al. 2011).
It is considered likely that the Australian Painted Snipe may occur in Lake Joondalup, but the proposed action will not impact the lake and this species should not be directly affected. Any disturbance to the area as a result of the proposed action is therefore unlikely to impact the Australian Painted Snipe at a local scale.

Black Cockatoo Assessment

The proposed action will result in the loss of a maximum of 2.15 ha of Black Cocktatoo potential foraging habitat and 3 potential nesting trees.

The development envelope falls within the modelled distribution area for the Carnaby's Black Cockatoo (DSEWPaC 2012) and is on the northern extremity of both the Forest Red-Tailed Black Cockatoo (FRTBC) and Baudin's Black Cockatoo (BBC) distribution. A Black Cockatoo Habitat Assessment was undertaken by 360 Environmental (360 Environmental 2016a, 360 Environmental 2016b; Attachment 3). The habitat assessment was undertaken to determine the extent and significance of Black Cockatoo habitat within and surrounding the development envelope. The habitat assessment determined that the development envelope contains a total of 2.35 ha of Black Cocktatoo foraging habitat (including 0.2 ha of pine trees) and 3 potential nesting trees.

Note the Baudin's Black Cockatoo was not returned in the PMST search, however it has been considered in this referral due to the proximity of the development envelope to it's reported range.

The significance of the impact on foraging habitat and potential nesting trees is discussed below (refer also Figure 2).

Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*)

Breeding Habitat
Breeding of Carnaby's Black Cockatoos has been recorded to occur from early July to mid-December, and primarily occurs in the Wheatbelt (Johnstone & Storr 1998). However, this species is currently expanding its breeding range westward and south into the Jarrah-Marri forests of the Darling Scarp (e.g. Wungong Dam Catchment) and into the Tuart forests of the Swan Coastal Plain (SCP) including Yanchep, Baldivis, Lake Clifton and near Bunbury (Johnstone & Kirkby 2011).

Breeding habitat for Carnaby's Black Cockatoo consists of Eucalypt woodland, principally Salmon gum (*Eucalyptus salmonophloia*) or Wandoo, Tuart, Jarrah, Flooded gum (*Eucalyptus rudis*), York Gum (*Eucalyptus loxophleba* subsp. *loxophleba*), Powderbark (*Eucalyptus accedens*) , Karri and Marri (DSEWPaC 2012). On the SCP, most nests are in Tuart and eggs are laid on a mat of wood chips at the bottom of a large hollow (mostly top entry hollows) ranging from a few cm's to 5 m deep (Johnstone & Kirkby 2011).

For most tree species known to support breeding for the Carnaby's Black Cockatoo, a suitable diameter at breast height (DBH) to support a nest hollow is 500 mm, however for Salmon Gum and Wandoo a suitable DBH is 300 mm (DSEWPaC 2012).

During the Black Cockatoo Habitat Assessment, a total of 3 potential future breeding trees were identified for the Carnaby's Black Cockatoo within the development envelope, based on their DBH). None of the trees within the development envelope were observed to contain hollows of suitable dimensions for Black Cockatoo breeding (>120mm) (360 Environmental 2016b).

No known breeding activity has been recorded within the area within or surrounding the development envelope (DoP 2011).

Roosting Habitat
Mapping of Carnaby's Black Cockatoo breeding and roosting locations undertaken by the Department of Planning (DoP) (WA) shows that a roosting site has previously been recorded (in 2011) approximately 100 m north east of a section of the development envelope (DoP 2011). This roosting site was recorded as active in 2011 and 2012, but has since not been used by the species as a roosting site (Byrne et al. 2015). No other active roosts have been recorded within 5 km of the development envelope.

Foraging Habitat
Carnaby's Black Cockatoos feed on seeds, nuts and flowers of a variety of native and exotic plants. Food sources include Banksia, Pine trees (*Pinus* sp.), Marri, Hakea and Eucalyptus such as Jarrah, Grevillea and *Allocasuarina fraseriana* (Sheoak) (Shah 2006). Seeds from seed pods of Banksia and the cones of pine trees provide the highest energetic yield for Carnaby's Black Cockatoo. Carnaby's Black Cockatoo are less efficient at extracting marri seeds than other species of black cockatoos (Cale 2003).

During the survey, several species of Eucalypts, representing foraging habitat, were recorded; Marri, Jarrah, Tuart, Powderbark, Wandoo and Flooded Gum. Other known foraging species present in the development envelope included *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana* and *Xanthorrhoea preissii* (360 Environmental 2016a).

Evidence of foraging was observed in the form of chewed Marri nuts (360 Environmental 2016a).

The development envelope contains 2.35 ha of vegetation known to be foraging habitat for the Carnaby's

Black Cockatoo. A total of 0.2 ha of this total comprises pine trees (within a DPaW-managed plantation) which will not be cleared. Over 2,543 ha of remnant native vegetation occurs within 4 km of the proposed action (Figure 3) including key structural species that represent a food source for Black Cockatoos (DPaW 2013a). These areas provide more extensive areas of intact vegetation that would likely be of higher quality than the majority of habitat within the area of the proposed action which is degraded and fragmented. The impact from the loss of a maximum of 2.15 ha of foraging habitat is negligible given that it represents less than 1% of the foraging habitat available within 4 km of the proposed action.

Given that no known nesting or roosting sites occur within a 6-12 km radius of the development envelope, and that there are over 2,543 ha of cockatoo foraging habitat within a 4km radius (Figure 3) of the development envelope (DoP 2011), the removal of up to 2.15 ha of foraging habitat is unlikely to have a significant impact on the Carnaby's Black Cockatoo.

Forest Red-tailed Black-Cockatoo (FRTBC) (*Calyptorhynchus banksii naso*),

During the survey, no FRBT were observed (360 Environmental 2016), however, the species has been previously recorded adjacent to the site and to the south and east of the development envelope (Ecologica 2012).

Breeding Habitat
The FRTBC nests in the hollows of mature Marri (*Corymbia calophylla*), Jarrah (*Eucalyptus marginate*) and Karri (*E. diversicolour*) in south-west forests and may only breed in years when Marri is fruiting in abundance (DEC 2008). No known breeding sites occur within the vicinity of the development envelope (360 Environmental 2016a).

Roosting Habitat
No known roosting sites occur within the vicinity of the development envelope (360 Environmental 2016a).

Foraging Habitat
The FRTBC feeds primarily on Marri and Jarrah fruit (*Johnstone & Kirkby 1999*) and to a lesser extent on Blackbutt (*Eucalyptus patens*), Albany Blackbutt (*Eucalyptus staeri*), Karri, Sheoak (*Allocasuarina fraseriana*) and Snottygobble (*Persoonia longifolia*). FRTBC can obtain energy faster when feeding on Marri and Jarrah than other food sources (Cooper et al. 2002) and these two plant species make up 90% of the diet of the FRTBC.

During the survey, no foraging evidence was observed of the FRTBC. The development envelope was calculated to contain 2.15 ha of vegetation known to be foraging habitat for the FRTBC. The FRTBC is thought to occupy a range of 61,000 km² (Garnett et al. 2011). The loss of a maximum of 2.15 ha of foraging habitat is negligible in comparison to the range of the species (the foraging habitat to be lost accounts for less than 0.0001% of the total occupancy area for the FRTBC) and less than 1% of the 2,543ha of available foraging habitat in the region.

Baudin's Black Cockatoo (*Calyptorhynchus baudinii*)

Breeding Habitat
The Baudin's Black Cocktoo nests in the hollows of mature Marri *Corymbia calophylla*, Karri *Eucalyptus diversicolour* and Jarrah *Eucalyptus marginata* in the lower south-west (DEC 2008).The development envelope is outside the typical breeding range for this species (DSEWPaC 2011); therefore, potential habitat usage of the site would be restricted to potential foraging and roosting habitat.

Roosting Habitat
No known roosting sites occur within the vicinity of the development envelope (360 Environmental 2016a).

Foraging Habitat

This species forages primarily in Eucalypt forest, where it feeds on Marri seeds, flowers, nectar and buds. The species also feeds on a wide range of seeds of Eucalypt, Banksia, Hakea and Pines (*Pinus* sp.) as well as fruiting apples and pears and beetle larvae from under the bark of trees (Johnstone & Kirkby 2008, Johnstone & Storr 1998a). Baudin's Black Cockatoo forages at all levels of the forest from the canopy to the ground, often feeding in the understorey on proteaceous trees and shrubs, especially Banksia, and in orchards both in trees and on dropped or fallen fruit on the ground.

During the survey, no evidence of foraging by this species was observed. The 2.35 ha of foraging habitat within the development envelope (including 0.2 ha of pine trees within a DPaW-managed plantation which will not be cleared) is unlikely to have a significant impact on the species given that over 2,543 ha of suitable foraging habitat, composed of larger, more intact areas, occurs within 4km of the development envelope.

3.1 (e) Listed migratory species

Description

A search of the Protected Matters Search Tool indicates that 8 migratory species protected under the EPBC Act may be present within a 3 km radius of the proposed action.

Table 5. EPBC Act Listed Migratory Species Likelihood of Occurrence within development envelope

Scientific Name	Common Name	Conservation Status as Listed under the EPBC Act	EPBC Presence	Likelihood
Birds				
Apus pacificus	Fork-tailed Swift	Migratory Marine	Species or species habitat likely to occur within area	Unlikely
Calidris acuminata	Sharp-tailed Sandpiper	Migratory Marine	Species or species habitat known to occur within area	Likely
Calidris ruficollis	Red-necked Stint	Migratory Marine	Species or species habitat known to occur within area	Likely
Limosa lapponica	Bar-tailed Godwit	Migratory Wetland	Species or species habitat may occur within area	Unlikely
Motacillia cinerea	Grey Wagtail	Migratory Terrestrial	Species or species habitat may occur within area	Unlikely
Pandion haliaetus	Osprey	Migratory Wetland	Species or species habitat likely to occur within area	Unlikely
Sterna dougallii	Roseate Tern	Migratory Marine	Foraging, feeding or related behaviour likely to occur within area	Unlikely
Tringa nebularia	Common Greenshank	Migratory Wetland	Species or species habitat known to occur within area	Likely

Nature and extent of likely impact

The likelihood of occurrence assessment determined that three Migratory species are likely to occur within the development envelope.

Table 6. Likelihood of Occurrence Assessment for Migratory Species

Scientific Name	Common Name	Suitable Habitat Available	Likelihood of Occurrence within area
Migratory Marine Species			
Apus pacificus	Fork-tailed Swift	The Fork-tailed Swift is an aerial species which forages high above the tree canopy and is independent of terrestrial habitats. It occurs in flocks of up to 2,000 birds and is often seen accompanying Tree Martins and Masked Wood swallows (Johnstone & Storr 1998). The Fork-tailed Swift is rare to scarce in the south-west (Johnstone & Storr 1998) and unlikely to occur in the development envelope.	Unlikely
Sterna dougallii	Roseate Tern	No, the species preferred habitat is coastal and marine areas in subtropical and tropical seas. The Bird rarely occur in inshore water or near the mainland (Higgins & Davies 1996)	Unlikely
Migratory Terrestrial Species			
Motacilla cinerea	Grey Wagtail	No, the Grey Wagtail is a rare visitor to	Unlikely

		Australia (Johnstone & Storr 1998b), and is known to mainly inhabit areas with fast flowing fresh water. The development envelope does not provide preferred habitat.	
Migratory Wetland Species			
Calidris acuminata	Sharp-tailed Sandpiper	Lake Joondalup is suitable for the species preferred habitat of wetland habitat (Garnett et al. 2011)	Likely
Calidris ruficollis	Red-necked Stint	Lake Joondalup is suitable for the species preferred habitat of wetland habitat (Garnett et al. 2011)	Likely
Limosa lapponica	Bar-tailed Godwit	No, this species preferred habitat is coastal and is rarely found inland at wetlands (Marchant & Higgins 1993).	Unlikely
Pandion haliaetus	Osprey	Favoured habitats for the Osprey are coastal areas, especially the mouths of large rivers, lagoons and lakes (Johnstone & Storr 1998).	Unlikely
Tringa nebularia	Common Greenshank	Lake Joondalup is suitable for the species preferred habitat of wetland habitat (Garnett et al. 2011)	Likely

Potential impacts to the three species likely to occur within the development envelope is discussed in further detail below:

- **Common Greenshank (*Tringa nebularia*)**
- **Red-necked Stint (*Calidris ruficollis*)**
- **Sharp-tailed Sandpiper (*Calidris acuminata*)**

All these waterbirds utilise wetland habitat, often feeding on seeds and invertebrates, including insects, worms, molluscs and crustaceans from the water's edge (Garnett et al. 2011).
It is considered likely that these birds may occur in Lake Joondalup, but as the proposed pipeline alignment and development envelope does not enter the lake habitat, these species will not be directly affected. Additionally, none of the three species haven been recorded as occuring within the Yellagonga Regional Park (CALM 2003). Any local disturbance to the area as a result of the proposed construction works is therefore unlikely to impact these species at a local scale and particularly not at a regional scale.

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, please 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 development envelope does not occur within a Commonwealth marine area.

Nature and extent of likely impact

No direct or indirect impacts on the Commonwealth Marine Area will occur as a result of this proposed action.

3.1 (g) Commonwealth land

Description

The proposed action does not occur within Commonwealth Land.

Nature and extent of likely impact

Not applicable.

3.1 (h) The Great Barrier Reef Marine Park

Description

The Great Barrier Reef Marine Park exists in Northern Queensland, on the eastern side of Australia that is more than 3000 km from the development envelope.

Nature and extent of likely impact

Given the distance between the site and the Great Barrier Reef Marine Park, it is not expected there will be any impact to Great Barrier Reef Marine Park.

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

Description

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

Nature and extent of likely impact

Not applicable.

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

3.2 (a)	**Is the proposed action a nuclear action?**	X	No
	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
	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
	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
	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
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))		

3.3 Description of the development envelope and affected area for the proposed action

3.3 (a) Flora and fauna

See Section 3.1 (d)

3.3 (b) Hydrology, including water flows

The corridor of the proposed action largely runs adjacently to the eastern edge of Lake Joondalup (UFI 7951), which is listed as a Conservation wetland of the DPaW Geomorphic dataset.

3.3 (c) Soil and Vegetation characteristics

Soil-landscape mapping of South West Western Australia has been completed at scales ranging from 1:20 000 to 1:250 000 (DAFWA 2012). Soil-landscape mapping describes broad soil and landscape characteristics from regional to local scales.

The proposed action is located on the Spearwood Land system which is described as:

- Spearwood System: Pleistocene Aeolian sands overlying Tamala Limestone. These sands have a less leached profile than the sands of the Bassendean Dunes but generally a similar relief except where the Tamala Limestones are exposed. The exposed ridges of Tamala Limestone are the most prominent landforms on the Swan Coastal Plain.

Mapping of the vegetation of the Perth region of WA was completed on a broad scale (1:250,000) by Beard (1981). These vegetation units were re-assessed by Shepherd et al. (2001) to account for clearing in the intensive land use zone, dividing some larger vegetation units into smaller units.
There are three Beard / Shepherd vegetation units in the area of the proposed action. The Shepherd et al. (2001) vegetation types (along with the corresponding Beard [1981]), are described below:

- 6 (e2,4Mi) – Medium woodland, Tuart and Jarrah;
- 37 (mSc) – Shrublands; teatree thicket; and
- 126 (fl) – Bare areas; fresh water lakes.

3.3 (d) Outstanding natural features

The area of the proposed action does not contain any outstanding natural features nor is it likely to impact any outstanding features.

3.3 (e) Remnant native vegetation

During the flora and vegetation survey (360 Environmental 2016a), six natural vegetation associations and 15 vegetation units were described to occur within the area of the development envelope (Table 7).

Table 7: Vegetation Association and unit Descriptions in the area surrounding the development envelope

VEGETATION ASSOCIATION CODE	DESCRIPTION
CcEmBa	Woodland of *Corymbia calophylla, Eucalyptus marginata, Banksia attenuata, Banksia menziesii* and *Allocasuarina fraseriana* over *Hibbertia hypericoides, Xanthorrhoea preissii, Macrozamia riedlei, Mesomelaena pseudostygia, Jacksonia sternbergiana, Jacksonia furcellata, Hibbertia racemosa* and *Desmocladus flexuosus*.
AfBa	Low Open Woodland of *Allocasuarina fraseriana, Banksia attenuata, Banksia menziesii, Banksia prionotes* over *Jacksonia sternbergiana* and *Hibbertia hypericoides*.
EmAf	Low Woodland of *Eucalyptus marginata*, *Allocasuarina fraseriana, Banksia attenuata, Banksia prionotes* over *Xanthorrhoea preissii, Macrozamia riedlei, Hibbertia hypericoides* and **Ehrharta calycina*.
BaBg	Low Open Woodland of *Banksia attenuata, Banksia grandis, Eucalyptus marginata* over *Xanthorrhoea preissii, Hakea lissocarpha* and *Hakea prostrata*.
MrPe	Low Woodland of *Melaleuca rhaphiophylla* over *Pteridium esculentum, Acacia saligna* and *Acacia rostellifera.*
EmEr	Low Open Woodland of *Eucalyptus marginata*, *Eucalyptus rudis, Corymbia calophylla* and *Banksia attenuata* over *Xanthorrhoea preissii*, *Macrozamia riedlei* and *Dianella revoluta*.
EmJf	*Eucalyptus marginata* over *Jacksonia furcellata* and *Macrozamia riedlei*.
BmJf	*Banksia menziesii* over *Jacksonia furcellata* and *Thysanotus dichotomus*.
EgLl	*Eucalyptus gomphocephala* over *Leptospermum laevigatum.*
EgPe	*Eucalyptus gomphocephala* over *Pteridium esculentum.*
MrEr	*Melaleuca rhaphiophylla* and *Eucalyptus rudis.*
Rehab	*Areas of rehabilitation/revegetation*
Eg	*Eucalyptus gomphocephala*
Cc	*Corymbia calophylla*
Em	*Eucalyptus marginata*
Er	*Eucalyptus rudis*

VEGETATION ASSOCIATION CODE	DESCRIPTION
As	*Acacia saligna*
Ba	*Banksia attenuata*
Bm	*Banksia menziesii*
Af	*Allocasuarina fraseriana*
Jf	*Jacksonia furcellata*
Ea	*Eucalyptus accedens*
Js	*Jacksonia sternbergiana*
Pp	**Pinus pinaster*
G	*Garden/non-endemic species*

It is considered that the vegetation associations CcEmBa, AfBa, EmAf, BaBg, BmJf, EmEr, Ba and Bm are likely to represent the TEC 'Banksia Woodlands of the Swan Coastal Plain', listed as Endangered under the EPBC Act on 16 Sep 2016 (after the PMST report was generated). A total of 0.6 ha of these associations occur within the development envelope and could potentially be impacted by the Proposal.

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

The area of the proposed action varies in elevation, sloping from the east to the west, towards Lake Joondalup. Topographical contours show that site the elevation of the development envelope ranges from approximately 17m AHD along the western edge of the envelope to 37m AHD along the eastern edge (Geoscience Australia 2008).

3.3 (g) Current state of the environment

The vegetation within the development envelope is mostly cleared and comprises isolated native trees, gardens and non-endemic species surrounded by urban, rural and road infrastructure.There are pockets of intact native vegetation in several locations along the development envelope (360 Environmental 2016a). Historical vegetation clearing, weeds, road infrastructure, parks and residential development surrounding the development envelope were the most commonly observed impacts on the pockets of native vegetation.

The land use in the surrounding area has caused fragmentation of the native vegetation, with much of the remaining mature native trees having been integrated with gardens and parks along with non-endemic species. In these instances the vegetation no longer has a natural structure and is considered Completely Degraded (360 Environmental 2016a).

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

There are no Commonwealth Heritage Places or other places recognised as having heritage values by the Heritage Council of Western Australia within the development envelope (SHO 2016).

3.3 (i) Indigenous heritage values

A search of the Department of Aboriginal Affairs (DAA) Aboriginal Heritage Inquiry System found multiple Aboriginal Heritage Places occuring in the vicinity of the development envelope including Lake Joondalup (Place ID 3740), Wanneroo Scarred Tree (Place Id 3657), Waugal Cave, Neil Hawkins Park (Place ID 17498), Joondalup Caves (Place ID 3532), Lake Joondalup West (Place ID3316), Joondalup Waugal Egg (Place ID 3504). Sites that have been lodged include Joondol Muryang (Place ID 22671). The development envelope crosses the south eastern corner of the Lake Joondalup (Place ID 3740) site.

Consultation with indigenous stakeholders has commenced and a heritage survey is planned for September 2016.

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

There are no other important or unique values of the environment within the proposed action.

3.3 (k) Tenure of the action area (e.g. freehold, leasehold)

Tenure within the proposed action includes Crown Land, Easements, Freehold land, Reserved Land, Vacant Crown Land and Road Reserves.

3.3 (l) Existing uses of area of proposed action

The corridor for the proposed action is currently zoned as Public purposes, Urban Zone, Reserved Lands-Parks and recreation, Rural Zone, Primary regional roads, Other regional roads, and Urban deferred Zone under the Metropolitan Region Scheme.

3.3 (m) Any proposed uses of area of proposed action

The use of the recharge bore sites will change to Public Water Supply.

4 Environmental outcomes

A total of up to 0.6 ha of vegetation likely represent the TEC 'Banksia Woodlands of the Swan Coastal Plain' could potentially be impacted by the proposed action.

The proposed action will result in the clearing of a maximum of 2.15 ha of native vegetation (including the 0.6 ha of vegetation identified above as likely to represent the TEC 'Banksia Woodlands of the Swan Coastal Plain') considered to be foraging habitat for the Carnaby's Black Cockatoo, Baudin's Black Cockatoo and FRBT.

The development envelope contains a total of 3 potential breeding trees for the Black Cockatoo. The pipeline route has been designed to avoid potential breeding trees as much as possible. It is anticipated that the three trees identified within the development envelope can be retained such that no potential breeding trees will be cleared.

5 Measures to avoid or reduce impacts

Management Measures
The development envelope has been designed to retain as much native vegetation, including the TEC 'Banksia Woodlands of the Swan Coastal Plain', as possible, through the strict enforcement of development and contruction envelopes that will limit native vegetation clearing. Clearing of key areas of native vegetation has been avoided through the nomination of drilling techniques (microtunnelling and horizontal directional drilling).

Management measures for reducing the potential impacts to the TEC and Black Cockatoos are outlined below.

Planning (Pre-construction) Phase Measures
The development envelope has been developed to avoid the need for clearing of native vegetation wherever possible.

Construction Phase Measures
The Contractor will have an approved environmental management plan in place to ensure that impacts to native vegetation are limited to within the development envelope and that impacts within this area are minimised as far as possible.

A key strategy to avoid impacts to native vegetation during the construction phase is to clearly define the extent of Project clearing. Management measures will include:

- Clearly defining the extent of the clearing development envelope by the use of fencing, pickets or flagging tape;
- Checking the clearing area against the project design; and
- Identifying and conserving (avoiding) significant trees (DBH>500mm) within the development envelope where possible.

Education and Induction
Mandatory site inductions and pre-start toolbox meetings for all site personnel will include education regarding Black Cockatoo habitat management to avoid impacts, as far as possible, through awareness and behaviour change.

Minimise Clearing Disturbance
Restrict construction personnel to the development envelope including designated access routes and parking areas.

Monitoring and Reporting
Monitoring and reporting of compliance with the Construction Environmental Management Plan (CEMP) will be undertaken during construction activities.

6 Conclusion on the likelihood of significant impacts

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

X	No, complete section 5.2
	Yes, complete section 5.3

6.2 Proposed action IS NOT a controlled action.

Implementation of the proposed action has the potential to impact one TEC, 'Banksia Woodlands of the Swan Coastal Plain', listed as Endangered under the EPBC Act. A total of up to 0.6 ha of vegetation considered likely to represent this TEC occurs within the development envelope and could potentially be impacted by the Proposal. This represents less than 0.001% of the total extent of this community across the Swan Coastal Plain and 0.02% of that remaining within 4 km of the developpment envelope.

Implementation of the proposed action has the potential to impact three species listed as matters of National Environmental Significance (NES):

- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*)(Endangered);
- Baudin's Black Cockatoo (*Calyptorhynchus baudinii*)(Vulnerable), and
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*)(Vulnerable).

Given the small scale of the proposed loss of habitat (maximum 2.15 ha) it is considered unlikely that the proposed action would cause a significant impact on the Carnaby's Black Cockatoo (endangered) or Baudin's Black Cockatoo or Forest Red-tailed Black Cockatoo (vulnerable) and is therefore not considered a controlled action. This is discussed below against the significant impact criteria (DotE 2013) for Endangered Species (Carnaby's Black Cockatoo) and the significant impact criteria for Vulnerable Species (Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo).

The Significant Impact Guidelines (DotE 2013) define the significant impact criteria for critically endangered, and endangered species as follows:

- *lead to a long-term decrease in the size of a population;*
- *reduce the area of occupancy of the species;*
- *fragment an existing population into two or more populations;*
- *adversely affect habitat critical to the survival of a species;*
- *disrupt the breeding cycle of a population;*
- *modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;*
- *result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat;*
- *introduce disease that may cause the species to decline; or*
- *interfere with the recovery of the species.*

The Significant Impact Guidelines (DotE 2013) define the significant impact criteria for vulnerable species as follows:

- *lead to a long-term decrease in the size of an important population of a species;*
- *reduce the area of occupancy of an important population;*
- *fragment an existing important population into two or more populations;*
- *adversely affect habitat critical to the survival of a species;*
- *disrupt the breeding cycle of an important population;*
- *modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;*
- *result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat;*
- *introduce disease that may cause the species to decline; or*
- *interfere substantially with the recovery of the species.*

Lead to long term decrease in the size of a population

The proposed action area contains a total of 3 trees that are considered potential future breeding trees for the Black Cockatoo. It is expected that through careful final design and construction of the pipeline, these potential breeding trees can be avoided. In addition, Carnaby's Black Cockatoos typically breed in the Wheatbelt region of WA (Saunders 1980), and the proposed action is on the northern extremity of both the FRTBC and Baudin's distribution.

The proposed action will result in clearing a maximum of 2.15 ha of potential foraging habitat for the Black Cockatoo.

Mapping prepared by the Department of Environment and Conservation (now the DPaW) shows that approximately 2,543 ha of potential Black Cockatoo foraging habitat exists within a 4 km radius of the development envelope (DPaW 2013). Consequently the proposed action will result in an overall reduction of potential Black Cockatoo foraging habitat of less than 1% of that present within a 4 km radius.

Given the above, the proposed action is unlikely to lead to a long-term decrease in the size of the Carnaby's Black Cockatoo population, or a long-term decrease in the populations of FRTBC and Baudin's Black Cockatoo, and a significant impact is not expected.

Reduce the area of occupancy of the species

Given the minimal extent of the proposed clearing, and the presence of large areas of foraging habitat within the vicinity of the development envelope, it is unlikely that the proposed action will significantly reduce the area of occupancy of the Carnaby's Black Cockatoo, FRTBC or Baudin's Black Cockatoo.

In addition there are a number of nearby large DPaW managed lands that provide long-term protection for the Black Cockatoos. The closest DPaW managed land exists approximately 2 km to the east of the development envelope.

Fragment an existing population into two or more populations

Clearing of the development envelope will not create a significant gap between patches of Black Cockatoo habitat, as the clearing is limited to discrete areas of already fragmented foraging habitat (Figure 3). Additionally, the development envelope is on the northern extremity of the FRTBC and Baudin's Black Cockatoo distribution.

Given the above, the proposed clearing of a maximum of 2.15 ha will not fragment an existing population of Carnaby's Black Cockatoo or an important population of FRTBC or Baudin's Black Cockatoo, and a significant impact is not expected.

Adversely affect habitat critical to the survival of the species

The seasonal movements of Black Cockatoos means they require large areas of habitat for breeding, roosting and foraging, as well as connectivity between habitats to assist their movement through the landscape (DSEWPaC 2012). Based on the *EPBC Act referral guidelines for three threatened black cockatoo species*, critical habitat for the Black Cockatoos is defined as providing breeding, roosting and foraging habitat which also provides connectivity between habitats. Habitat that accommodates for all three Black Cockatoo species would be defined as most critical.

Habitat critical for the survival of the Carnaby's Black Cockatoo is described in the Recovery Plan (DPaW 2013b) as:

1. Eucalypt woodlands that provide nest hollows used for breeding, together with nearby vegetation that provides feeding, roosting and watering habitat that supports successful breeding;
2. Woodland sites known to have supported breeding in the past and which could be used in the future, provided adequate nearby food and/or water resources are available or are re-established; and
3. In the non-breeding season the vegetation that provides food resources as well as the sites for nearby watering and night roosting that enable the cockatoos to effectively utilise the available food resources.

The habitat critical to survival and important populations of the Forest Red-tailed Black Cockatoo and Baudin's Black Cockatoo is described in the Recovery Plan (DEC 2008) as:

1. Marri *Corymbia calophylla*, Karri *Eucalyptus diversicolour* and Jarrah *Eucalyptus marginata* forests, woodlands and remnants in the south-west of Western Australia receiving more than 600 mm of annual average rainfall.

Tthe proposed clearing of a maximum of 2.15 ha will not adversely affect habitat critical to the survival of the Black Cockatoo. Of the potential breeding trees within the development envelope to be cleared, none support hollows suitable for nesting and the nearest known roosting site has not been active for several years. A significant impact is not expected.

Disrupt the breeding cycle of a population

Traditionally, Carnaby's Cockatoo breed in the Wheatbelt region of WA (Saunders 1980) and it is therefore unlikely that the Carnaby's Cockatoo breeds in the development envelope.
Further, for all three Black Cockatoos, no known breeding sites occur within the vicinity of the proposed action (DoP 2011; DSEWPaC 2012) or were identified during the survey (360 Environmental 2016a).

The development envelope contains 3 potential breeding trees suitable for Black Cockatoos. Due to careful placement of the development envelope, the proposed action will result in the potential clearing of only 3 potential breeding trees, which do not currently provide adequate hollows for nesting. It is therefore unlikely that the proposed action will disrupt the breeding cycles of the Carnaby's Black Cockatoo population or an FRTBC or Baudin's Black Cockatoo.

Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

The EPBC Act Referral Guidelines for the Black Cockatoos state that creating a gap of greater than 4 km between patches of Black Cockatoo habitat is at a high risk of causing a significant impact (DSEWPaC 2012).
Impact of the loss of 2.15 ha of foraging habitat would be negligible given that 2,543 ha of remnant native vegetation containing key structural species that represent a food source for Black Cockatoos occurs within 4 km of the proposed action. The clearing of 2.15 ha of potential foraging habitat that equates to less than 1% of potential foraging habitat within 4km of the site is not deemed to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. A significant impact is not expected.

Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat

The proposed action alone is unlikely to introduce or spread invasive species that are harmful to Black Cockatoos.

The 50% reduction in Carnaby's Black Cockatoo abundance recorded to date in WA is a result of clearing of core breeding habitat in the Wheatbelt, the deterioration of nesting hollows, and clearing of food resources on the SCP (Cale, 2003).

An increase in weeds and feral animals, which commonly results from modified, cleared sites, is not seen as likely to result from the proposed action. Areas of native vegetation disturbed during the construction phase will be rehabilitated and weed control completed to provide a functioning native vegetation community.

Introduce disease that may cause the species to decline

The proposed action is unlikely to introduce disease that may cause the three Black Cockatoo species to decline. As the majority of the development envelope is already disturbed or urban and parkland areas, it is unlikely there will be any introduced diseases or parasite vectors (i.e. foxes, feral cats) from construction on already disturbed areas.

Interfere with the recovery of the species

The proposed action is unlikely to interfere with the recovery of the three Black Cockatoo species as no critical habitat will be impacted.

6.3 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 significantly 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 by reference to each matter protected by the EBPC Act identified in section 3 above.

7 Environmental record of the person proposing to take the action

		Yes	No
7.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details** The Water Corporation has been responsible for the safe treatment and distribution of drinking water; collection, treatment and disposal of domestic wastewater; and the transport of drainage water in Western Australia for over 100 years. Over this period the organisation has been at the forefront of environmental management in Western Australia: implementing Environmental Mangagement Systems for elements of the business, becoming one of the first water utilities to sign up for the Greenhouse Challenge in 1999 and more recently, committing to full carbon neutrality by 2030. Sustainability principles were developed and agreed to at a Board level and are now being integrated into all levels of decision making across the Corporation.	X	
7.2	**Provide details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:** **(a) the person proposing to take the action, or** **(b) if a permit has been applied for in relation to the action - the person making the application.** **If yes, provide details**		X
7.3	**If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework and if and how the framework applies to the action.** The Water Corporation has Environmental Standards in place to ensure that all activities are carried out with minimal environmental impact. The Water Corporation will put in place management actions to minimise any environmental impact expected from the proposed action. In addition, all works will be carried out in accordance with the Water Corporation's Environmental Policy (see http://www.watercorporation.com.au/_files/PCY230_EnvironmentalPolicy.PDF).	X	
7.4	**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	

Provide name of proposal and EPBC reference number (if known)

The Water Corporation is Western Australia's main provider and operator of water and wastewater infrastructure. The Water Corporation understands it environmental duties and responsibility to mitigate any potential impacts on the surrounding environment.
Water Corporation WA has undertaken previous EPBC referral for the following projects:

- Onslow Water Supply Infrastructure Upgrade Project (2014/7370)
- Stirling to Harris Dam Pressure Main (2014/7277)
- Mt Barker to Albany Water Supply Pipeline (2013/6720)
- Millstream to Greenbushes Link Mains (2012/6632)
- Millstream 20GL Pipeline, Bungaroo, Borefield Integration (2012/6379)
- Samson Brook Dam Remedial Works (2012/6329)
- Mundaring Weir Outlet Works Upgrade – Stage 1 (2012/6315)
- Rockingham and Peron, Sepia Depression Ocean Outlet Landline Duplication (2012/6248)
- Mundaring Fire Access Control Access Track (2011/6096)
- Water Corporation/Water management and use/South Dandalup Dam to Dwellingup,
- WA/WA/Dwellingup Water Supply New Source and Supply Pipeline (2011/6077)
- Water Corporation/Water management and use/Lot 1 near Tuia Road, Southampton, approx 260 km SE of Perth/WA/Millstream Dam Expansion (2010/5614)
- Water Corporation/Water management and use/Mundaring/WA/Perth Hills District Office and Depot Relocation (2010/5345)
- Water Corporation/Water management and use/Mundaring/WA/Mundaring Water
- Treatment Plant and Mundaring C Pump Station Project (2009/5193)
- Water Corporation/Waste management and use/East Rockingham/WA/Wastewater Treatment Plant (2009/4970)
- Water Corporation/Waste Management (sewerage)/Broome/WA/Wastewater Treatment Plant (2008/4545)
- Water Corporation/Water management and use/Lots 32, 33 and part Lot 8 Taranto Rd, Binningup/WA/Southern Seawater Desalination Plant (2008/4173)
- Water Corporation/Transportwater/Armadale/Gosnells/WA/Wungong Transfer Mains Project (2007/3532)
- Water Corporation of Western Australia/Waste management (sewerage)/Alkimos/WA/ Development of new Alkimos Wastewater Treatment Plant (2007/3259)
- Water Corporation/Water transport/Blackwood Plateau, southwest WA/WA/Yarragadee Water Supply Development (2005/2073)
- Water Corporation of Western Australia/Water management and use/Perth/WA/Perth Seawater Desalination Project: Thomsons Lake to Kogolup Pipeline (2005/2073).

8 Information sources and attachments

(For the information provided above)

8.1 References

- 360 Environmenta. 2016a. Perth Groundwater Replenishment Scheme Stage 2 - Flora and Fauna Survey Preliminary Assessment (unpublished).
- 360 Environmental. 2016b. Black Cockatoo Habitat Assessment – Perth Groundwater Replenishment Scheme Stage 2.
- Byrne, M. G. Barrett, M. Blythman, H. Finn and M. Williams (2015). The 2015 Great Cocky Count: a community-based survey for Carnaby's Black-Cockatoo (Calyptorhynchus latirostris) and Forest Red-tailed Black-Cockatoo (Calyptorhynchus banksii naso). BirdLife Australia, Floreat, Western Australia.
- Cale, B. (2003). Carnaby's Black-Cockatoo (Calyptorhynchus latirostris) Recovery Plan. Perth: Department of Conservation and Land Management.
- Commonwealth of Australia. 2016. Amendment to the list of threatened species, threatened ecological communities and key threatening processes under sections 178, 181 and 183 of the Environment Protection and Biodiversity Conservation Act 1999 (EC131). https://www.legislation.gov.au/Details/F2016L01442
- Department of Environment and Conservation (DEC) 2008. Forest Black Cockatoo (Baudin's Cockatoo Calyptorhynchus baudinii and Forest Red-tailed Black Cockatoo Calyptorhynchus banksii naso) Recovery Plan, Government of Western Australia.
- Department of Parks and Wildlife (DPaW) 2013a. Carnaby Cockatoo Potential Foraging Habitat, GIS Shapefile, Government of Western Australia.
- Department of Parks and Wildlife (DPaW) 2013b. Carnaby's Cockatoo (Calyptorhynchus latirostris) Recovery Plan Government of Western Australia.
- Department of Planning Western Australia 2011. Metropolitan Region Scheme (MRS) NorthWest – Potential habitat for the Carnaby's Black Cockatoo which may require further assessment, Perth, Department of Planning WA on behalf of Western Australian Planning Commission.
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). (2012). EPBC Act referral guidelines for three threatened black cockatoo species. Australian Government.
- Department of the Environment, Water, Heritage and the Arts. (2010). Survey Guidelines for Australia's Threatened Birds. EPBC Act Survey Guidelines 6.2.
- Department of the Environment (DotE) 2013 *Significance Impact Guidelines 1.1*, Commonwealth of Australia
- Department of the Environment (DotE)2015, *Threatened Species Strategy Action Plan 2015-16 - 20 birds by 2020,* Commonwealth of Australia
- Garnett, S.T., Szabo, J.K., & Dutson, G. (2011). The action plan for Australian birds 2010. CSIRO Publishing.
- Higgins, P.J. & S.J.J.F. Davies, eds (1996). Handbook of Australian, New Zealand and Antarctic Birds. Volume Three - Snipe to Pigeons. Melbourne, Victoria: Oxford University Press.
- Johnstone, R. E, & Kirkby, T. (2011). Carnaby's Black Cockatoo (Calyptorhynchus latirostris), Baudin's Black Cockatoo (Calyptorhynchus baudinii) and the Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso) on the Swan Coastal Plain (Lancelin–Dunsborough), Western Australia. Studies on distribution, status, breeding, food, movements and historical changes. Perth: Department of Planning.
- Johnstone, R. E. & Storr, G. M. (1998). Handbook of Western Australian Birds. Volume 1 - Non-Passerines (Emu to Dollarbird). Oxford University Press.
- Johnstone, R. E. & Storr, G. M. (1998b). Handbook of Western Australian Birds. Volume 2 - Passerines (Blue-winged Pitta to Goldfinch). Oxford University Press.
- Johnstone, R. E., & Kirkby, T. (1999). Food of the forest red-tailed black cockatoo Calyptorhynchus banksii naso in south-west Western Australia. Western Australian Naturalist 22, 167–177.
- Marchant, S. & P.J. Higgins, eds. (1993). Handbook of Australian, New Zealand and Antarctic Birds. Volume 2 - Raptors to Lapwings. Melbourne, Victoria: Oxford University Press.

- Saunders, D.A. (1980). Food and movements of the short-billed form of the White-tailed Black Cockatoo. Australian Wildlife Research. 7: 257-269.
- Shah, B. (2006). Conservation of Carnaby's Black Cockatoo on the Swan Coastal Plain, Western Australia. Perth: Birds Australia.
- State Heritage Office (SHO). 2016. Heritage Council of Western Australia inHerit. Government of Western Australia. Available at: http://inherit.stateheritage.wa.gov.au/Public/
- Van Dyck, S., & Strahan, R. (2008). The Mammals of Australia. New South Wales: New Holland Publishers.
- Western Australian Herbarium (WAH) 2015. Florabase - *Information on the Western Australian Flora*. Accessed from http://florabase.dpaw.wa.gov.au.

8.2 Reliability and date of information

The information provided in this referral is based on current primary (surveys undertaken by Environmental Botanists and Zoologists on behalf of the proponent) and secondary sources that have in the main been cited from Commonwealth and State Government Department websites. Other secondary sources of information have been taken from reputable scientific journals that have in most instances gone through a process of peer review prior to publication. Many of these journal references have also been cited on the Department of the Environment's own website and are therefore considered current and reliable.

8.3 Attachments

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the locality of the proposed action (section 1)	✓	Figure 1. Area of Proposed Action
	GIS file delineating the boundary of the referral area (section 1)	✓	
	figures, maps or aerial photographs showing the location of the proposed action in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Figure 2. Black Cockatoo Foraging Habitat and Potential Breeding Trees
		✓	Figure 3. Surrounding Black Cockatoo Habitat within a 4km radius of the development envelope
		✓	Figure 4. TEC 'Banksia Woodlands of the Swan Coastal Plain' within and surrounding the development envelope
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 1. Assessment of alternative pipeline route options Attachment 2. Protected Matters Search Tool Report Attachment 3. Black Cockatoo Assessment (360 Environmental 2016b)
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3) conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

9 Contacts, signatures and declarations

NOTE: Providing false or misleading information in response to a requirement under Part 7 of the EPBC Act is an offence punishable on conviction by imprisonment and/or fine (section 489 of the 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.

Proposed action title: Groundwater Replenishment Scheme (GWRS) Stage 2

9.1 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. It may be a trustee (either being an individual or a body corporate) acting on behalf of the trust for which they have responsibility (but not the trust).

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 GBRMP Act[1], 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.

Name and Title:	Tung Nguyen, Senior Project Manager
Organisation (if applicable):	Organisation name should match entity identified in ABN/ACN search The Water Corporation
Trust deed (if applicable):	☐ attached; OR ☑ not applicable
ACN / ABN (if applicable):	28 003 434 917
Postal address:	PO Box 100, Leederville, WA 6902
Telephone:	(08) 9420 3306
Email:	Tung.Nguyen@watercorporation.com.au

[1] *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.*

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

Note: Applications for a waiver must be supported by information in writing setting out the grounds on which the applicant considers that a waiver should be made and the reasons why it should be made. The Minister may, at his or her discretion, waive all or part of a fee that would otherwise be payable in the following circumstances:

- the action's primary objective is to protect the environment, or protect and conserve heritage, in a way that is consistent with the objects of the EPBC Act;
- it is in the public interest to do so; or
- there are other exceptional circumstances justifying the waiver.

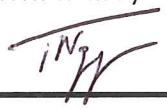
The Minister will consider the application within 20 business days.

I would like to apply for a waiver of full or partial fees under regulation 5.21A of the EPBC Regulations. Under 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 declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature: 

Date: 29/7/2016

9.2 Designated proponent

Individual or organisation who is proposed to be designated as the proponent if the Minister decides that the action is a controlled action and further assessment and approval is required. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent may or may not be the person proposing to take the action.

Name of proposed proponent: The Water Corporation

ACN / ABN (if applicable):

Postal address:

Telephone:

Email:

Declaration by the proposed proponent: I TUNG NGUYEN....., the proposed proponent, consent to the proposed designation of myself as the proponent for the purposes of the action described in this referral.

Signature: [signature] Date: 29/9/2016

Declaration by the person proposing to take the action: I TUNG NGUYEN....., the person proposing to take the action, consent to the proposed designation of WATER CORPORATION..... as proponent for the purposes of the action described in this referral.

Signature: [signature] Date: 29/9/2016

9.3 Person preparing the referral information (if different from section 9.1)

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

Name: Spencer Shute

Title: Principal Environmental Scientist

Organisation: 360 Environmental Pty Ltd

ACN / ABN (if applicable): 50 109 499 041

Postal address: PO box 14, West Perth, WA 6872

Telephone: (08) 93888360

Email: spencershute@360environmental.com.au

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: [signature] Date: 29/9/2016

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 development envelope for the proposed action?
- ☑ 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)