



Environmental Protection Authority

**EPA REFERRAL
FORM
PROPONENT**

Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the *Environmental Protection Act 1986*.

PURPOSE OF THIS FORM

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA’s *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) of the EP Act by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

CHECKLIST

Before you submit this form, please check that you have:

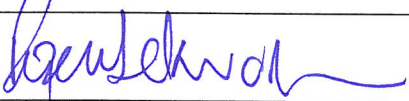
	Yes	No
Completed all the questions in Part A (essential).		
Completed all applicable questions in Part B.		
Included Attachment 1 – location maps.		
Included Attachment 2 – additional document(s) the proponent wishes to provide (if applicable).		
Included Attachment 3 – confidential information (if applicable).		
Enclosed an electronic copy of all referral information, including spatial data and contextual mapping but excluding confidential information.		

Following a review of the information presented in this form, please consider the following question (a response is optional).

Do you consider the proposal requires formal environmental impact assessment?		
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Not sure
If yes, what level of assessment?		
<input type="checkbox"/> Assessment on Proponent Information	<input type="checkbox"/> Public Environmental Review	

PROPONENT DECLARATION (to be completed by the proponent)

I, Rupert Duckworth, (full name) declare that I am authorised on behalf of Water Corporation (being the person responsible for the proposal) to submit this form and further declare that the information contained in this form is true and not misleading.

Signature 	Name: Rupert Duckworth
Position: EIA & Approvals Manager	Company: Water Corporation
Date: 5 August 2013	

Glossary

%	Percent
AHD	Australian Height Datum
AMC	Australian Marine Complex
ANZECC	Australian and New Zealand Environment Conservation Council
AOP	Advanced oxidation process
ASR	Aquifer storage and recover
AWRP	Advanced Water Recycling Plant
BWWTP	Beenyup Wastewater Treatment Plant
bgs	below ground surface
BPM	best practicable measures
BOD	Biological oxygen demand
cfu/100ml	Thermo-tolerant coli forms per 100 millilitres of water
CEMP	Construction Environmental Management Plan
DEC	Department of Environment and Conservation (WA)
DIA	Department of Indigenous Affairs (WA)
DoH	Department of Health (WA)
DoW	Department of Water (WA)
DPI	Department of Planning and Infrastructure (WA)
DSD	Department of State Development (WA)
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EPA	Environmental Protection Authority (WA)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
Fwy	Freeway
GIS	Graphical Information System
GWR	Groundwater replenishment
GWRS	Groundwater Replenishment Scheme
GWRT	Groundwater Replenishment Trial
ha	Hectares
IAWG	Inter Agency Working Group
IWSS	Integrated Water Supply Scheme
JAMBA	Japan-Australia Migratory Bird Agreement
km	Kilometre(s)
MAR	Managed aquifer recharge
m	Metre(s)
m ²	Metre(s) squared
m ³	Cubic Metre(s)
mm	millimetres
m/day	Metre(s) per day
mg/L	Milligrams per Litre
ML/d	Mega-litre (s) per day
MRS	Metropolitan Region Scheme
MW	Megawatt
OEPA	Office of the Environmental Protection Authority
OU	Odour Units
PST	primary treatment
RAMSAR	The Convention on Wetlands of International Importance
RO/MF	Reverse Osmosis/Micro-Filtration
TEC	Threatened Ecological Community
TPS	Town Planning Scheme
TWW	Treated wastewater
UF/RO	Ultrafiltration/ Reverse Osmosis
WA	Western Australia
WAPC	Western Australian Planning Commission
WWTP	Wastewater Treatment Plant

PART A - PROPONENT AND PROPOSAL INFORMATION

1 PROPONENT AND PROPOSAL INFORMATION

1.1 Proponent

Name	Water Corporation
Joint Venture parties (if applicable)	
Australian Company Number (if applicable)	28 003 434 917
Postal Address (where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State)	P.O. Box 100 Leederville W.A. 6902
Key proponent contact for the proposal: <ul style="list-style-type: none"> • name • address • phone • email 	Melissa Ee Harrison Senior Environmental Scientist 629 Newcastle Street Leederville W.A. 6902 P.O. Box 100 Leederville W.A. 6902 Contact: 9420 2879 Email: Melissa.EeHarrison@watercorporation.com.au
Consultant for the proposal (if applicable): <ul style="list-style-type: none"> • name • address • phone • email 	

1.2 Proposal

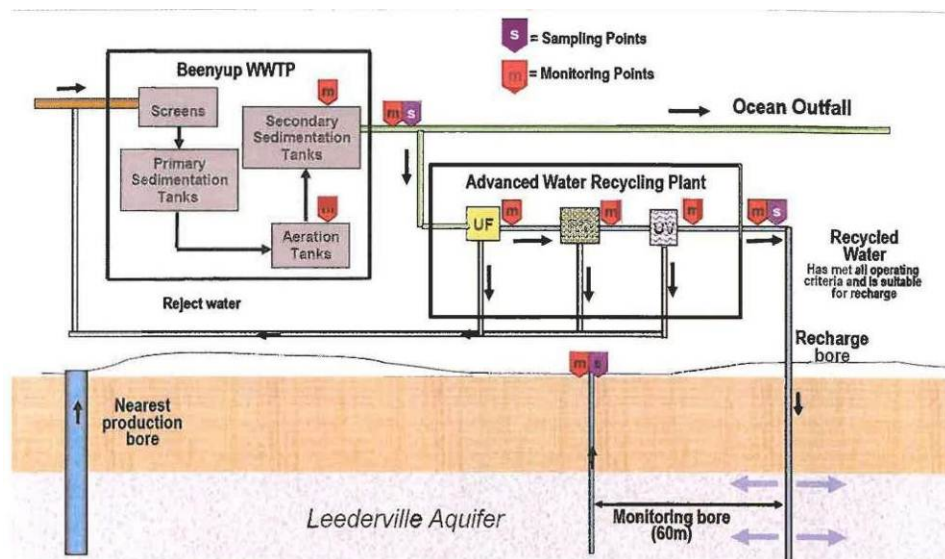
Title	Perth Groundwater Replenishment Scheme
Description	<p>Following the conclusion of a successful Groundwater Replenishment Trial (“GWRT”), the Water Corporation is proposing to implement a 14 gegalitre per annum (“GLpa”) groundwater replenishment scheme (“GWRS”) as a climate independent water source for Perth, Western Australia. The GWRS seeks to build on the proven technology and stringent water quality management framework developed for the GWRT and increases the scope of the project to allow the recharge of proposed 7 and subsequently 14GLpa from the existing capacity of 1.5GLpa.</p> <p><u>Background:</u> The Water Corporation conducted the three year GWRT at the Beenyup WWTP site to assess the technical and social feasibility of an advanced water recycling process for producing water that is suitable for replenishing groundwater. The GWRT was referred to the EPA for assessment under Section 38 of the <i>Environmental Protection Act 1986</i> (“the Act”) and was deemed to not require formal assessment as it could be adequately managed under Part V of the Act through the Works Approval and Operating licence</p>

regulatory processes. The EPA decision, Works Approval and existing operating licence are provided in Appendix 1.

The GWRT commenced construction in 2009 and began recharge to the Leederville aquifer on 10th November 2010 following a twelve month performance validation of the Advanced Water Recycling Plant (“AWRP”). The GWRT was successfully completed in December 2012. Since completing the GWRT, the Water Corporation continued to operate the AWRP in accordance with operating licence L8379/2009/2 to provide a water source benefit and maintain regulatory and community confidence in groundwater replenishment.

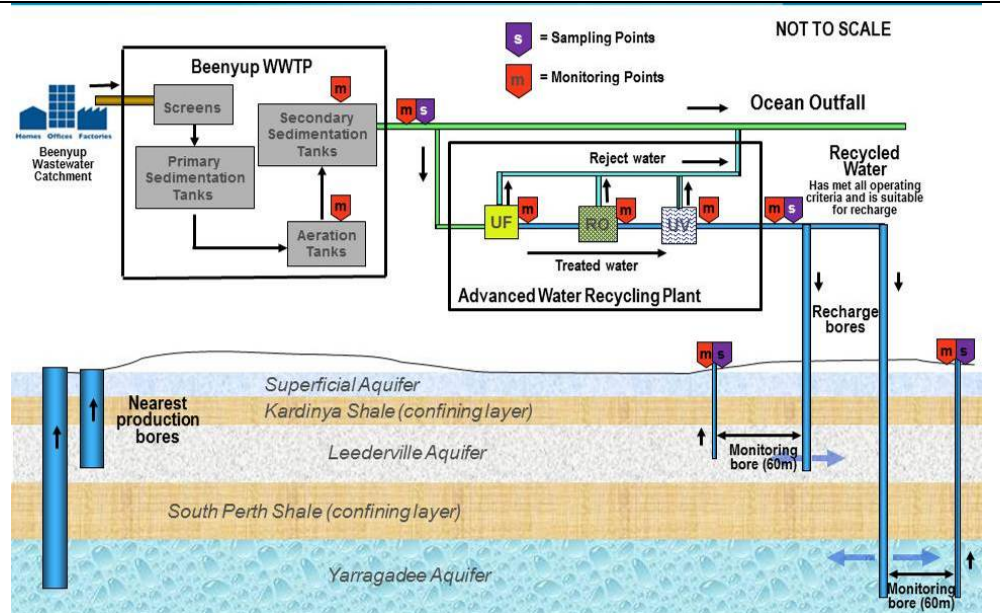
GWRS Proposal Description:

The GWRT involved treatment of secondary treated wastewater from the Beenyup WWTP through the AWRP. The following figure shows the process and main constituents of the AWRP:



AWRP Process and Main Constituents

The GWRS proposes to utilise the same concept albeit with a new AWRP and associated infrastructure sized to accommodate treatment of up to 14GLpa. Additionally, the Water Corporation has undertaken rigorous assessment to ensure that the proposed GWRS is able to implement the proposal as shown in the figure below:



Proposed GWRS

The key differences between the two projects are the inclusion of the following in the GWRS:

1. Increase in treatment capacity of the AWRP to increase treatment of secondary wastewater from Beenyup WWTP;
2. Discharge of process reject and out of specification water from the AWRP to the Ocean Reef Ocean Outfall;
3. Addition of a Yarragadee recharge bore, a Yarragadee monitoring bore ; and
4. Recharge of recycled water into the Yarragadee aquifer (approximately between 380m to 750m below ground level) as well as the Leederville Aquifer (approximately between 120m to 220 below ground level).

Additional conveyance pipe work will also be constructed to transport the reject water and any water that does not meet specifications to the Ocean Reef Ocean Outfall.

Relevant state regulatory agencies; the Department of Environment and Conservation (DEC), Department of Health (DoH) and the Department of Water (DoW) determined groundwater replenishment (GWR) to be a safe and sustainable water source option for the future. As a result they have provided support for the proposed GWRS. Additionally, the DEC has further advised that the GWRS proposal can be managed through works approval and licence under Part V of the Act. Written endorsements for the trial have been provided by these regulators and are provided in Appendix 2.

To ascertain if construction and operation of the GWRS will cause significant and detrimental impacts to the environment, thorough investigations and assessments to quantify impacts from discharge to the marine environment through the Ocean Reef Ocean Outfall, recharging recycled water to the Yarragadee aquifer, increase in project footprint from

	clearing native vegetation to accommodate additional infrastructure and community acceptance of the GWRS have been undertaken and are discussed in subsequent sections of this referral.
Extent (area) of proposed ground disturbance.	The proposal is expected to result in ground disturbance of approximately 9 ha for both the GWRS infrastructure and conveyance pipelines. The tie in to the existing Ocean Reef Ocean Outfall is proposed to occur within the premises boundary. The potential disturbance areas are marked out and include areas for site offices and laydown. The actual GWRS infrastructure is expected to utilise less than 9Ha within the existing site boundary. Please refer to Figure 1.
Timeframe in which the activity or development is proposed to occur (including start and finish dates where applicable).	The GWRS is scheduled to commence recharge by mid 2016. Construction of the GWRS is proposed to commence in the third quarter of 2014 with construction taking twelve (12) months. Commissioning and validation of the GWRS is proposed to commence in mid 2015.
Details of any staging of the proposal.	<p>The Water Corporation proposes to develop the GWRS in two stages to produce up to 14 GLpa as follows:</p> <ul style="list-style-type: none"> • Stage 1 to produce 7GLpa of recycled water; and • Stage 2 to produce 14GLpa. <p>This is reflected in the assessment reports provided to support this application. The impacts of the GWRS going beyond 14GLpa have also been looked at in certain studies. Consideration has been given to Stage 3 which would see the development of the GWRS to a capacity between 28 to 35 GLpa and in order to identify the limitations of the GWRS. However, based on current drying climate rainfall predictions and the increasing population growth in Perth's northern suburbs, commencement of the GWRS is now on the critical path. The Water Corporation is proposing to develop the GWRS to commence operation by 2016.</p> <p>Should there be a requirement to expand the GWRS beyond 14GLpa, the Water Corporation will refer the proposal to the EPA for a formal assessment.</p>
Is the proposal a strategic proposal?	No
Is the proponent requesting a declaration that the proposal is a derived proposal? If so, provide the following information on the strategic assessment within which the referred proposal was identified:	No
<ul style="list-style-type: none"> • title of the 	

<p>strategic assessment; and</p> <ul style="list-style-type: none"> • Ministerial Statement number. 	
<p>Please indicate whether, and in what way, the proposal is related to other proposals in the region.</p>	<p>No</p>
<p>Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land?</p>	<p>Yes. The proposal will be located on Crown Reserve 28921 vested to the Water Corporation.</p>
<p>What is the current land use on the property, and the extent (area in hectares) of the property?</p>	<p>The property is approximately 83ha and is currently being utilised primarily for the Beenyup WWTP (approximately 16.5 ha). The property also contains commercial property (approximately 5 ha), Bush Forever Site 303 (24.5 ha) and other remnant bush areas.</p>

1.3 Location

Name of the Shire in which the proposal is located.	City of Joondalup
For urban areas: <ul style="list-style-type: none"> • street address; • lot number; • suburb; and • nearest road intersection. 	<p>Lot number 8278, Ocean Reef Road, Craigie, near the corner of Ocean Reef Road and the Mitchell Freeway.</p> <p>The site is located in Perth's northern suburbs, bound by the Mitchell Fwy to the east, Ocean Reef Rd to the north, the residential suburb of Craigie to the west and an area of bushland to the south.</p>
For remote localities: <ul style="list-style-type: none"> • nearest town; and • distance and direction from that town to the proposal site. 	
Electronic copy of spatial data - GIS or CAD, geo-referenced and conforming to the following parameters: <ul style="list-style-type: none"> • GIS: polygons representing all activities and named; • CAD: simple closed polygons representing all activities and named; • datum: GDA94; • projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA); • format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD. 	Yes. Provided on attached DVD.

1.4 Confidential Information

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	<p>Yes; the following documents are required to be treated as confidential:</p> <ul style="list-style-type: none"> • Appendix 10 - Groundwater Replenishment Scheme Risk Assessment; and • Appendix 12 - Communications Strategy for the Groundwater Replenishment Scheme.
If yes, is confidential information attached as a separate document in hard copy?	Yes

1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.	<p>No.</p> <p>Beenyup WWTP site is within the City of Joondalup's Town Planning Scheme No. 2 as 'Public Purpose – Sewage Treatment</p>
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		Works' zoning which is part of the Metropolitan Region Scheme's (MRS) 'Public Purposed – Sewage Treatment Works' zoning.	
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, please complete the table below.		Yes	
Agency/Authority	Approval required	Application lodged Yes / No	Agency/Local Authority contact(s) for proposal
DEC	Works Approval in accordance with Part V of the <i>Environmental Protection Act 1986</i> and thereafter an operating licence to operate the GWRS.	No.	Marko Pasalich Swan Region, DEC
DoH	<ul style="list-style-type: none"> • Approval to construct a WWTP as required by <i>Health Regulations 1974</i>. • Upgrade to the existing DoH/WC MoU • Recycled Water Quality Management Plan • Approval to commence recharge. 	No Yes Yes No	Richard Theobald, Manager Water Unit, DoH
DoW	26D Licences to construct one 10 ML/d Yarragadee recharge bore, a Leederville and a Yarragadee monitoring bore in accordance with the <i>Rights In water and Irrigation Act 1914</i> .	Yes	Steve Watson Licencing, DoW

PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

- 2.1 flora and vegetation;
- 2.2 fauna;
- 2.3 rivers, creeks, wetlands and estuaries;
- 2.4 significant areas and/ or land features;
- 2.5 coastal zone areas;
- 2.6 marine areas and biota;
- 2.7 water supply and drainage catchments;
- 2.8 pollution;
- 2.9 greenhouse gas emissions;
- 2.10 contamination; and
- 2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

- (a) the source of the information; and
- (b) the currency of the information.

2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

[A proposal to clear native vegetation may require a clearing permit under Part V of the EP Act (Environmental Protection (Clearing of Native Vegetation) Regulations 2004)]. Please contact the Department of Environment and Conservation (DEC) for more information.

(please tick) Yes

If yes, complete the rest of this section.

No

If no, go to the next section

2.1.2 How much vegetation are you proposing to clear (in hectares)?

The Water Corporation is expecting the GWRS infrastructure to be located within existing cleared areas of the property where practicable. The conveyance pipelines are proposed to be located within mostly cleared land within the premises location (See Figure 1). The biological survey extent includes two corridors originally surveyed to provide for the potential installation of pipework. However, with the tie in to the existing Ocean Reef Ocean Outfall to occur within the premises boundaries and proposed proposal footprint provided in Figure 1, these corridors should be disregarded during impact assessment of this proposal. Therefore, it is expected that less than 1 ha of native vegetation will be cleared for the proposed works. No clearing will be undertaken within the Bush Forever site and provisions to minimise clearing of native vegetation will be imposed to reduce the ecological footprint of the proposal.

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

Yes

No

If yes, on what date and to which office was the application submitted of the DEC?

The Water Corporation has been issued with Clearing Permit (CPS 185/4) by the DEC for clearing to construct new infrastructure. The Water Corporation will assess the proposed clearing in accordance with the requirements of CPS 185/4.

2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

Yes

No

If yes, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

A Level 2 flora and vegetation survey was conducted by Ecologia Environment in October 2012 in accordance with the Environmental Protection Authority's Guidance Statement 51. A copy of the resulting report entitled "Water Corporation Beenyup Stage 1 Biological Survey, January 2013" is attached in Appendix 3.

2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

Yes

No

If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

In accordance with the implementation of the Water Corporation's Clearing Permit number 185/4 and the DEC's *Assessment of applications to clear native vegetation*, an assessment of the proposed clearing will be undertaken against each of the relevant Clearing Principles to identify the potential environmental impacts associated with the clearing phase of the project. This assessment will be informed by the search of the DEC's flora databases which was conducted by Ecologia Environment, the results of which are detailed within the survey report provided in Appendix 3.

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

- Yes ✓ No **If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

No rare or priority flora or threatened ecological communities were recorded within the proposed project footprint.

- 2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure)

- ✓ Yes No **If yes**, please indicate which Bush Forever Site is affected (site number and name of site where appropriate).

The proposed location is adjacent to Bush Forever Site 303, designated as Whitfords Avenue Bushland, Craigie/Padbury. The AWRP is proposed to be located west of the Bush Forever site with no development proposed within the Bush Forever site.

- 2.1.8 What is the condition of the vegetation at the site?

The survey undertaken by Ecologia Environment states that the project area has been largely cleared and the remaining areas of native vegetation are in Poor or Very Poor condition due to the presence of invasive species and the lack of understorey. No areas are in Good Condition; 2% of the project area is in Poor Condition; 4.4% is Very Poor and 93.6% is Completely Degraded. The proposed infrastructure will be located mostly within the cleared and completely degraded areas (see Figure 2).

2.2 Fauna

- 2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

- (please tick) ✓ Yes **If yes**, complete the rest of this section.
 No **If no**, go to the next section.

- 2.2.2 Describe the nature and extent of the expected impact.

It is likely that construction and clearing works may impact on local native fauna. However, a Construction Environmental Management Framework (CEMF) has been established to mitigate against excessive impacts to fauna, flora and vegetation within the proposal footprint. The CEMF is provided in Appendix 4. As stated above the proposed infrastructure will be located mostly within the cleared area as shown in Figure 2. As a result there will be no impact to the areas of good quality Black Cockatoo foraging observed in the surrounding bushland (Ecologia 2012).

- 2.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

Yes

No

If yes, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

A Level 1 fauna survey as detailed in the Environmental Protection Authority's Guidance Statement 56 was conducted by Ecologia Environment in October 2012. Details of the outcome of the survey are provided within the previously referenced report "*Water Corporation Beenyup Stage 1 Biological Survey, January 2013*" in Appendix 3.

2.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

Yes

No

(please tick)

2.2.5 Are there any known occurrences of Specially Protected (threatened) fauna on the site?

Yes

No

If yes, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

2.3 Rivers, Creeks, Wetlands and Estuaries

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estuary?

(please tick)

Yes

If yes, complete the rest of this section.

No

If no, go to the next section.

2.3.2 Will the development result in the clearing of vegetation within the 200 metre zone?

Yes

No

If yes, please describe the extent of the expected impact.

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

Yes

No

If yes, please describe the extent of the expected impact.

2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

Yes

No

If yes, please describe the extent of the expected impact.

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

Yes No **If yes**, please describe the extent of the expected impact.

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure
Perth's Bush Forever site	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure
Environmental Protection (Swan & Canning Rivers) Policy 1998	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure
The management area as defined in s4(1) of the <i>Swan River Trust Act 1988</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure
Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure

2.4 Significant Areas and/ or Land Features

2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

Yes ✓ No **If yes**, please provide details.

2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

Yes ✓ No **If yes**, please provide details.

2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

Yes ✓ No **If yes**, please provide details.

2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300metres of a coastal area?

(please tick) Yes **If yes**, complete the rest of this section.

✓ No **If no**, go to the next section.

2.5.2 What is the expected setback of the development from the high tide level and from the primary dune?

2.5.3 Will the development impact on coastal areas with significant landforms including beach ridge plain, cusped headland, coastal dunes or karst?

Yes No **If yes**, please describe the extent of the expected impact.

2.5.4 Is the development likely to impact on mangroves?

Yes No **If yes**, please describe the extent of the expected impact.

2.6 Marine Areas and Biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

Yes ✓ No **If yes**, please describe the extent of the expected impact.

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

✓ Yes No **If yes**, please describe the extent of the expected impact.

There is the potential for the proposed GWRS to impact upon the Marmion Marine Park. Therefore, the Water Corporation undertook rigorous assessment of these potential impacts in consultation with marine specialist consultants. The document "*Review of current and future impacts to Marmion Marine Park*" considers the impacts of discharge of secondary treated wastewater produced by the Beenyup WWTP combined with wastewater produced by the AWRP required for the GWRS. Modelling of combined Beenyup WWTP and AWRP waste streams against the base case of there being no AWRP has concluded that the AWRP will not alter the total nutrient loads discharged to Ocean Reef and nutrient concentrations after initial dilution will not change under typical conditions. This document is provided in Appendix 5.

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

Yes ✓ No **If yes**, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).

2.7 Water Supply and Drainage Catchments

- 2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?
(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

Yes No **If yes**, please describe what category of area.

- 2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

Yes No **If yes**, please describe what category of area.

The Beenyup site is within a Priority 3 Perth Coastal Underground Water Pollution Control Area.

- 2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)

Yes No **If yes**, please describe what category of area.

The Beenyup site is located within a Priority 3 Public Drinking Water Source Area (PDWSA). The Water Corporation obtained approval from DoW and DoH to undertake groundwater replenishment in the PDWSA for GWRT and have also obtained approval for the GWRS.

- 2.7.4 Is there sufficient water available for the proposal?

(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)

Yes No (please tick)

- 2.7.5 Will the proposal require drainage of the land?

Yes No **If yes**, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details.

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

(please tick) Yes **If yes**, complete the rest of this section.

No **If no**, go to the next section.

What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

The Water Corporation expects the water requirement for the construction and operation of this proposal to be approximately 36,500 kL of potable water per year.

2.7.7 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

Groundwater from a bore on site will be used for construction earthworks and some hydrostatic testing. Potable water is required for construction and operational amenities, fire service and some chemical systems and commissioning for flushing and testing of lines. Highly treated water will be utilised for operations of some chemical systems for mixing, flushing and backwashing as appropriate.

2.8 Pollution

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

(please tick) Yes **If yes**, complete the rest of this section.

No **If no**, go to the next section.

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

(Refer to the EPA's *General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986* for more information)

Yes No **If yes**, please describe what category of prescribed premise.

The proposal is a prescribed premises under Category 54 of Schedule 1 of the *Environmental Protection Regulations 1987* as it is associated with the treatment of wastewater.

2.8.3 Will the proposal result in gaseous emissions to air?

Yes No **If yes**, please briefly describe.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

Yes ✓ No **If yes, please briefly describe.**

2.8.5 Will the proposal result in liquid effluent discharge?

✓ Yes No **If yes, please briefly describe the nature, concentrations and receiving environment.**

Any recycled water from the GWRS that does not meet process specification and Australian guidelines for drinking water will be directed to the Ocean Reef Ocean Outlet. Waste streams from the treatment process will also be directed back to the Ocean Outlet. Water produced during commissioning of the plant will be directed to the Ocean Outfall. These effluent discharges will be assessed and regulated by the DEC through the Works Approval and licencing processes.

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

✓ Yes No **If yes, please describe.**

The Inter Agency Working Group (IAWG) was developed between the Water Corporation, DoW, DOH and DEC in 2007 to develop the groundwater replenishment regulatory framework. This defined the requirements for the approval and ongoing regulation of a GWRS.

The GWRT served to identify and allow policy and regulatory gaps to be addressed; including:

- Defining the process for identifying the environmental values (EVs) of the receiving aquifer and the quality guidelines required to protect the EVs. The document, *“Environmental Values for the Leederville Aquifer and the Yarragadee Aquifer at the Beenyup Site”* provided in Appendix 6, contains the endorsement of the DoH, DEC, DoW and the Water Corporation to agree on the Environmental Values relevant to the proposed Perth Groundwater Replenishment Scheme.
- Developing a process to determine the minimum distance between recharge of the recycled water and abstraction for drinking. This distance has been set at 250m for future GWR schemes at the Beenyup site recharging to the Leederville and Yarragadee aquifers.

In undertaking their assessment of groundwater replenishment as a sustainable water source, DoH, Dec and Dow have provided their support for the outcomes of the GWRT. Their endorsements are provided in Appendix 2. The success of the GWRT confirmed that there is policy and regulation in place to implement the proposed GWRS. Refer to Appendix 7 for the Groundwater Replenishment Trial final report; Appendix 8 for the GWR Regulatory Framework and Appendix 9 for the GWRS risk assessment document (confidential) which provides evidence of the amount of work that has taken place between the regulatory agencies.

2.8.7 Will the proposal produce or result in solid wastes?

Yes

No

If yes, please briefly describe the nature, concentrations and disposal location/ method.

The proposal will produce domestic and industrial wastes during construction and operation of the GWRS. Waste minimisation strategies will be implemented on site to reduce, reuse and recycle where possible. Waste minimisation opportunities will be explored and waste management strategies will be implemented through the CEMF during the construction phase of the proposal.

2.8.8 Will the proposal result in significant off-site noise emissions?

Yes

No

If yes, please briefly describe.

2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

Yes

No

If yes, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Please attach the analysis.

The AWRP will be designed and engineered to comply with the *Environmental Protection (Noise) Regulations 1997* and relevant Australian Standards. The operation of the AWRP is not expected to significantly impact upon the surrounding community.

Noise emissions during construction are expected and will be limited to normal working hours. Noise management strategies will be developed in line with DEC requirements as part of the Works Approval process and captured within the CEMF.

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other "sensitive premises" such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

Yes

No

If yes, please describe and provide the distance to residences and other "sensitive premises".

The residential suburbs of Craigie and Woodvale are located within one kilometre of the GWRS proposal site. The Craigie Primary School and Craigie Senior High School are approximately 1.2 km west of the Beenyup WWTP. It is unlikely that these receptors will be directly impacted by construction dust, odour or other air quality impacts. Any dust generated through earthworks is anticipated to occur within a short timeframe and no significant or detrimental impacts are expected. Air quality impacts will be mitigated within the CEMF.

2.8.11 If the proposal has a residential component or involves "sensitive premises", is it located near a land use that may discharge a pollutant?

Yes ✓ No Not Applicable

If yes, please describe and provide the distance to the potential pollution source

2.9 Greenhouse Gas Emissions

2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

Yes ✓ No **If yes**, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.

Based on the present emission factor for electricity of 0.82 tonnes CO₂-e/MWh, the proposal is expected to emit only 20,664 tonnes of carbon dioxide equivalent emission per year.

2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

2.10 Contamination

2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

✓ Yes No Unsure **If yes**, please describe.

The GWRS will be located within the existing Beenyup WWTP facility. The property is therefore a potentially contaminated site. Any soil or groundwater contamination issues which arise during the construction will be managed through the CEMF.

2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

✓ Yes No **If yes**, please describe.

Previous investigations at the property include:

- Water Corporation 2000; - “Beenyup Wastewater Treatment – Environmental Site Assessment and Waste Management Plans.”; and
- URS 2000; - "Stage 2 Environmental Investigations-Subiaco and Beenyup Wastewater Treatment Plants Data review and Recommended Contamination Management Strategy”

These reports are available upon request. The Water Corporation has undertaken geotechnical investigations and opportunistic site investigations to identify potential contamination on the property in 2013. A preliminary site investigation and detailed site investigation are scheduled to occur this year to investigate and confirm the status of soil and groundwater contamination at the site. A copy of the geotechnical report is provided in Appendix 10.

2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

Yes

No

If yes, please describe.

The property was reported to DEC as a suspect contaminated site during the grace period on account of historical practices at the site and the operation of the WWTP. To date the Site has not been classified by DEC under the *Contaminated Sites Act 2003*.

2.11 Social Surroundings

2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

Yes

No

Unsure

If yes, please describe.

There are no identified aboriginal heritage sites within the boundary of the proposed works footprint. A copy of the outcomes of a search of the Department of Indigenous Affairs' online Aboriginal Heritage Inquiry System is provided in Appendix 11. However, an Aboriginal Heritage desktop report commissioned in 2006 identified the presence of one recorded site known as BeA1-Beenyup Marked Tree with site ID number 19158 (see Figure 4 and Appendix 11).

As this site is approximately 130m from the proposed works, it is not expected that this Aboriginal Heritage site will be affected by the proposed works. However, should any artefacts be discovered as part of the proposed construction works, the Water Corporation will stop works immediately and implement the Aboriginal Heritage management strategies to be developed in line with guidance principles contained within the CEMF.

2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

Yes

No

If yes, please describe.

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

Yes

No

If yes, please describe.

It is expected that there will be increased traffic during the construction. Access to the property is via Mitchell Freeway, Ocean Reef road and a private road; no residential roads will be affected. Any impacts to the amenities of the local area will be restricted to the construction phase of the project and is not likely to cause any permanent impacts to the amenity of the local area. Traffic management and other construction related impacts will be managed within the CEMF.

3. PROPOSED MANAGEMENT

3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

- | | | |
|--|---|-----------------------------|
| 1. The precautionary principle. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. The principle of intergenerational equity. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. The principle of the conservation of biological diversity and ecological integrity. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. Principles relating to improved valuation, pricing and incentive mechanisms. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 5. The principle of waste minimisation. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

Yes No

3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

Yes No **If yes**, please list those consulted and attach comments or summarise response on a separate sheet.

The Water Corporation has undertaken extensive consultation with government agencies, community groups and other relevant stakeholders. A stakeholder log providing details of these consultations and the consultation and communication undertaken are provided in Appendix 12.

FIGURES

Figure 1: Proposal extent and footprint

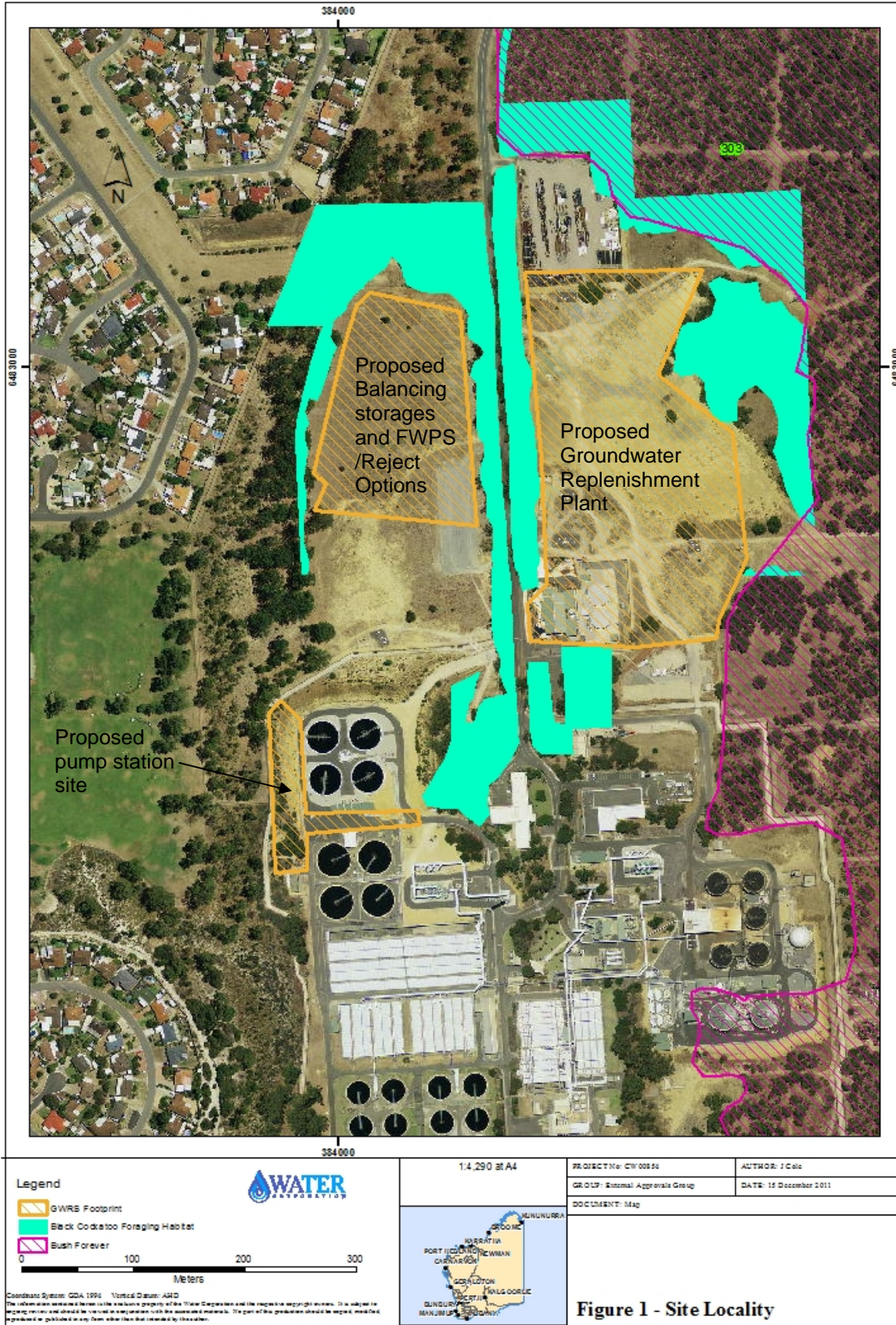


Figure 2: Vegetation condition of proposed project site

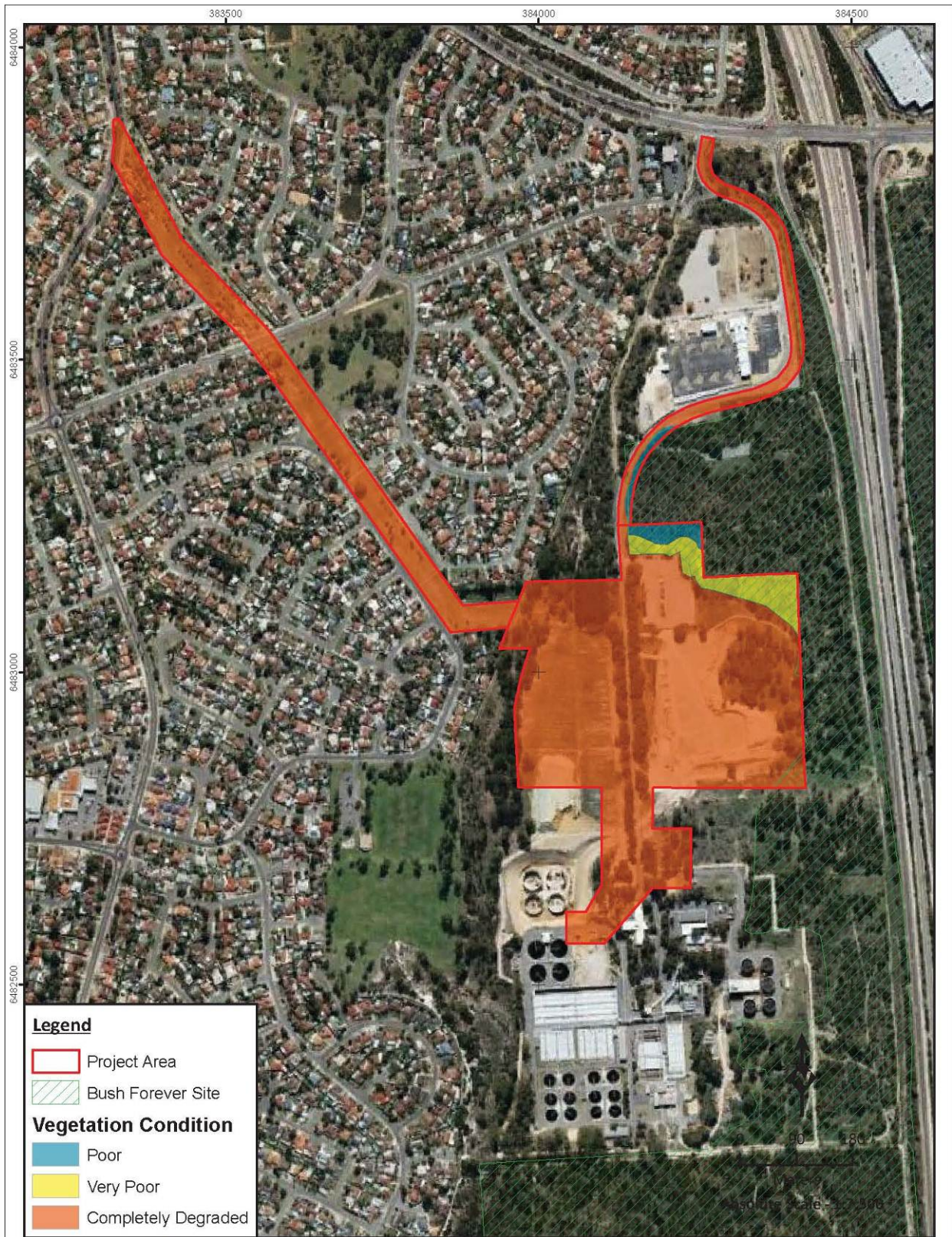


Figure 3: Ecological constraints

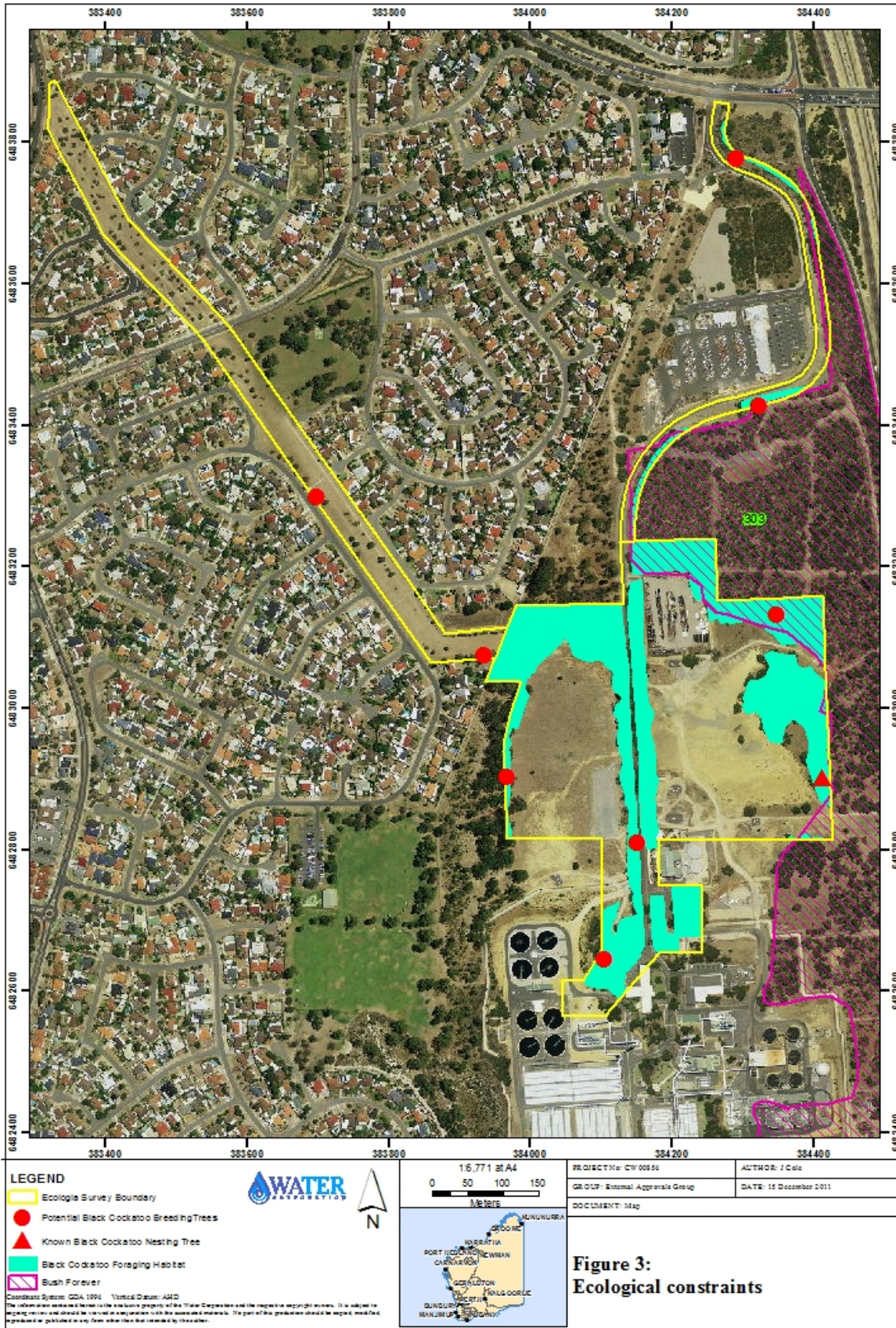


Figure 4: Aboriginal Heritage Site



APPENDICES

APPENDIX 1

GWRT APPROVAL HISTORY DOCUMENTATION

1. Section 38 referral assessment outcome
2. Works Approval Environmental Assessment Report
3. Operating Licence

APPENDIX 2

INTER AGENCIES ASSESSMENT OF THE GWRT

1. Endorsement letter from the DEC
2. Endorsement letter from the DOW
3. Endorsement letter from the DOH

APPENDIX 3

ECOLOGICAL ENVIRONMENT: BEENYUP STAGE 1 BIOLOGICAL SURVEY JANUARY 2013

APPENDIX 4
CONSTRUCTION ENVIRONMENTAL MANAGEMENT
FRAMEWORK

APPENDIX 5

REVIEW OF CURRENT AND FUTURE IMPACTS TO MARMION MARINE PARK

APPENDIX 6

ENVIRONMENTAL VALUES OF THE LEEDERVILLE AQUIFER AND THE YARAGADEE AQUIFER

APPENDIX 7

GROUNDWATER REPLENISHMENT TRIAL FINAL REPORT

APPENDIX 8

GROUNDWATER REPLENISHMENT REGULATORY FRAMEWORK

APPENDIX 9

GROUNDWATER REPLENISHMENT SCHEME RISK ASSESSMENT

APPENDIX 10

GWRS GEOTECHNICAL INVESTIGATION REPORT

APPENDIX 11

ABORIGINAL HERITAGE REPORTS

1. Aboriginal Heritage Inquiry System Aboriginal Sites Database Report
2. Beenyup Wastewater Treatment Plant Aboriginal Heritage Desktop Report

APPENDIX 12

COMMUNICATIONS AND CONSULTATION FOR THE GROUNDWATER REPLENISHMENT SCHEME

1. Communications Strategy for the Groundwater Replenishment Scheme.
2. Consultation Stakeholder logs.