



Licence Holder Water Corporation

ACN 003 434 917

Licence Number L7463/1993/8

File Number: DER2013/001031

Premises Onslow Wastewater Treatment Plant (WWTP)
Crown Reserve 47957
Being Lot 185 on Plan 219197
ONSLOW WA 6710

Date of amendment 7 July 2017

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act and follows.

Date signed: 7 July 2017

Steve Checker

MANAGER LICENSING (WASTE INDUSTRIES)

an officer delegated under section 20 of the Environmental Protection Act 1986 (WA)

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

The following DWER Guidance Statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles* (July 2015)
- *Guidance Statement: Setting Conditions* (October 2015)
- *Guidance Statement: Land Use Planning* (October 2015)
- *Guidance Statement: Licence Duration* (November 2015)
- *Guidance Statement: Decision Making* (November 2016)
- *Guidance Statement: Risk Assessment* (November 2016)
- *Guidance Statement: Environmental Siting* (November 2016)

Amendment Description

The Water Corporation (Water Corp) operates the Onslow Wastewater Treatment Plant (WWTP) under Licence Number L7463/1993/7. Water Corp have applied to amend the Licence due to the completion of additional wastewater treatment ponds and associated infrastructure constructed under Works Approval W5656/2014/1. The Onslow WWTP was operating close to treatment and disposal capacity under normal conditions. To accommodate the increase in population, major and immediate upgrades were required for the existing WWTP.

The existing WWTP consisted of a series of six lined treatment ponds (E1 – E6). Disposal was disposed via evaporation and infiltration at two unlined infiltration/evaporation ponds (IE1 – IE2). The following infrastructure was completed in accordance with Works Approval W5530/2014/1:

- an anaerobic pond (P1);
- a secondary facultative pond (P2);
- a maturation pond (P3);
- three large evaporation/infiltration basins (PE1, PE2 and PE3);
- associated infrastructure (MagFlow inflow meter, grit/screen inlet, outflow flume, spillways, connecting pipework and access roads).

Raw sewage is screened at the inlet screen. The grits/screenings are collected in the bin provided at the screen inlet, which can then be transferred to appropriate landfill. The remaining grits/screenings settle in the anaerobic pit and undergo anaerobic treatment for carbon removal. The anaerobic pond (P1) can be desludged via gravity pipeline to an adjacent chamber. The chamber will be emptied by a tanker for disposal at the landfill.

The WWTP then has the capability of partially or fully diverting flows through the new WWTP pond system (P1 – P3), or to the existing WWTP system (E1 – E6). The new WWTP components can manage flows of up to 640 kL/day, if required; with the existing WWTP components able to manage approximately 230 kL/day, bringing the total capacity of the plant to 870 kL/day.

Following treatment through P1 – P3 the treated wastewater (TWW) passes through an outflow flume with a monitoring and sampling point. The WWTP then has the ability to direct treated wastewater via the following 3 options:

1. Through ponds E1 – E6 and dispose of TWW water via ponds IE1 – IE2;
2. Through ponds E1 – E6 and dispose of TWW water via ponds PE1 – PE3; and
3. Bypass ponds E1 – E6 and dispose of TWW water via ponds PE1 – PE3.

When TWW is diverted to PE1 – PE3 the flow is measured at the outflow flume. When TWW is diverted to IE1 and IE2 the flow is measured at the output of the polishing ponds (E3 and E6). Delivery to the infiltration basins can be rotated such that one or more basins can be taken out for resting and maintenance at any given time. Ten new groundwater monitoring bores were constructed at the site, to monitor the effects of infiltration at the site.

The treatment ponds have been designed to contain a 1 in 10 year Average Recurrence Interval (ARI) 72-hour rainfall event, prior to discharging secondary treated effluent in a controlled manner via a spillway in the south east side of P2.

There are three external spillways located within the prescribed premises boundary. The use of spillways to discharge treated effluent will only occur in the event of a 1 in 10 year rainfall event and only when the freeboard on all ponds is compromised. Internal spillways will be used to fill any spare volume within treatment ponds or evaporation/infiltration basins. Once the ponds freeboard is compromised, the external spillways will be used to direct treated effluent to low lying areas within the prescribed premise boundary. Discharge volumes will be estimated by adding rainfall to inflow values after the freeboard of the ponds has been exceeded. The volumes of contaminants will then be conservatively estimated based on monitoring data. Table 1 below describes the proposed changes to the design capacity of the Onslow WWTP.

Table 1: Proposed design capacity changes requested in amendment

Category	Current Design Capacity	Proposed Design Capacity	Description of proposed amendment
54	N/A	870 kL/day	Increased design capacity to 870 kL/day
61	N/A	800 tonnes per annual period	Increased design capacity to 800 tonnes per annual period

Location, environmental siting and potential receptors

Groundwater is located 1.7m - 10m below ground level onsite. The ponds are understood to be located in an area of deeper groundwater, although this is not confirmed. Existing groundwater monitoring bores indicate groundwater flows mainly from east to the west under a low hydraulic gradient, with no known beneficial use of groundwater nearby. Onslow Salt operate a solar salt fields west of the premises. The nearest sensitive receptors to the premises are residential houses located 1.3km northwest of the premises.

Table 2 below lists the relevant sensitive land uses in the vicinity of the prescribed premises which may be receptors relevant to the proposed amendment.

Table 2: Receptors and distance from prescribed premises

Residential and sensitive premises	Distance from Prescribed Premises
Township of Onslow	1.3km northwest of the premises boundary

Risk assessment

Table 3 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The Table identifies whether the emissions present a material risk to human health or the environment, requiring regulatory controls.

Table 3: Risk assessment for proposed amendments during operation

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential Emissions	Potential Receptors	Potential Pathway	Potential Adverse Impacts				
<p><i>Cat 54 Sewage Facility, Cat 61 Liquid Waste Facility</i></p>	<p>Operation of WWTP</p>	<p>Discharges to land: infiltration of treated wastewater</p>	<p><i>Groundwater at the WWTP ranges from 1.7 - 10mbgl. Groundwater at the location of the new treatment ponds are 5-6mbgl.</i></p> <p>Land and groundwater – direct infiltration into soil and groundwater.</p> <p>Surface water - Overland flow into creeks from stormwater ingress</p>	<p>Alteration to soil and /or vegetation.</p> <p>Alteration to groundwater that has the potential to disrupt ecological processes of groundwater with excess nutrients.</p> <p>Alteration to surface water that has the potential to disrupt ecological processes of surface water body excess nutrients.</p>	<p>Minor</p>	<p>Unlikely</p>	<p>Medium</p>	<p>The Delegated Officer has considered the information submitted in the Licence amendment application and the potential receptors, pathways and impact.</p> <p>The new WWTP components can manage flows of up to 640 kL/day, if required with the existing WWTP components able to manage approximately 230 kL/day. The additional wastewater quality to be infiltrated is consistent with secondary standard effluent, which is authorised for disposal under the current licence. Current inflow rates range from 180 – 260 kl/day.</p> <p>During periods of high rainfall three internal spillways located at adjacent to ponds PE2, IE1 and PE2 which will transfer wastewater to maximise storage in all ponds. the freeboard of the ponds is compromised, three external spillways will be used to direct treated effluent to low lying</p>

									areas within the prescribed premise boundary. Discharges will be contained on site.
<i>Cat 54 Sewage Facility, Cat 61 Liquid Waste Facility</i>	Operation of WWTP	Odour: <i>associated with effluent treatment and disposal</i>	<i>Residential houses located 1.3km northwest of the premises.</i>	Air /wind dispersion	Amenity impacts causing nuisance	Minor	Rare	Low	<p>The Delegated Officer has considered the information submitted in the Licence amendment application and notes that the closest receptor is 1.3km northwest.</p> <p>Grit and screening material is separated from raw wastewater, washed and compressed. Washed screenings are then collected in a skip bin for disposal to a licenced landfill facility.</p> <p>Pond P1 is desludged via gravity pipeline to an adjacent chamber. The chamber will be emptied by a tanker for disposal at an appropriately licenced facility.</p> <p>The Delegated Officer considers that the current separation distance to sensitive receptors is adequate and that any odour impacts can be regulated through s49 of the <i>Environmental Protection Act 1986</i> (EP Act)</p>

Decision

The Delegated Officer has determined that an amendment be made to the Licence to allow for the upgraded infrastructure at the Onslow WWTP to treat up to 870 cubic metres per day of wastewater.

The increased disposal associated with the upgrade is not expected to result in unacceptable environmental impacts due to a lack of beneficial groundwater use or dependent ecosystems in the area. The 2015-16 monitoring results for the site do not indicate groundwater contamination

The Delegated Officer has amended the Licence to include a condition relating to containment infrastructure to ensure acceptable lining of the new ponds is achieved.

Condition 10 has been added to the Licence to ensure the Licence Holder maintains the infrastructure of the new treatment ponds in order to prevent potential contamination of untreated and partially treated wastewater discharged to the environment.

Condition 11 has been added to the Licence for the he Licence Holder to conduct quarterly groundwater monitoring. The Licence Holder committed to quarterly monitoring of groundwater as of their Works Approval application. The Licence Holder has previously conducted groundwater sampling and presented the results in AER's however, this was not a condition of the previous Licence. The Licence Holder intended to only sample bores 03/15, 04/15, 05/15, 06/15 and 07/15 when ponds PE2 and/or PE3 are in use. The Delegated Officer considers that these bores will be required to be monitored on at least an annual basis as the potential movement of any groundwater contamination is expected to be slow and will occur beyond the period of pond usage.

The Delegated Officer considers the additional conditions as appropriate and in line with other premises as assessed across the State, and in accordance with DWER's regulatory approach.

Amendment History

Table 7 provides the amendment history for L7463/1993/8.

Table 2: Licence amendments

Instrument	Issued	Amendment
L7463/1993/8	29 April 2016	Amendment Notice: Extension of expiry date until 31 October 2029
L7463/1993/8	Draft	Amendment Notice 1: Increase design capacity of WWTP to 870 cubic meters per day.

Amendment

1. Condition 10 has been added to the Licence as shown below:

10 *The Licence Holder must ensure that the infrastructure and equipment specified in Column 1 of Table 3 is maintained in good working order and operated in accordance with the requirements specified in Column 2 of Table 3.*

Table 3: Infrastructure and equipment controls table

Column 1	Column 2
Site infrastructure and equipment (as shown in Attachment 3)	Operational requirements
Anaerobic Pond (P1)	<ul style="list-style-type: none"> • Impervious, concrete lined
Secondary Facultative Pond (P2)	<ul style="list-style-type: none"> • Lined with High Density Poly Ethylene (HPDE) or equivalent to achieve a permeability of 1×10^{-9} m/s or less.
Maturation Pond (P3)	<ul style="list-style-type: none"> • Lined with High Density Poly Ethylene (HPDE) or equivalent to achieve a permeability of 1×10^{-9} m/s or less

2. Condition 11 has been added to the Licence as shown below:

11(a) *The licensee shall, at the frequencies stated in Table 4, collect representative groundwater samples, and have them analysed for the parameters listed:*

Table 4: Groundwater Monitoring Program

Monitoring Site (as shown in Attachment 4)	Frequency	Parameters to be Monitored
1/15, 2/15, 8/15, 9/15, 10/15, 1/98, 2/98, 3/98, 4/98,	Quarterly	$pH^{1,2}$, Total Dissolved Solids, Total Nitrogen, Ammonium Nitrogen, Nitrate + Nitrite Nitrogen and Total Phosphorus
3/15, 4/15, 5/15, 6/15, 7/15,	Quarterly when ponds PE2 and/or PE3 are in use during the annual period; or Annually when ponds PE2 and/or PE3 are not in use during the annual period	$pH^{1,2}$, Total Dissolved Solids, Total Nitrogen, Ammonium Nitrogen, Nitrate + Nitrite Nitrogen and Total Phosphorus

Note 1: With the exception of pH, all measurements are to be reported in milligrams per litre (mg/L).

Note 2: Non NATA accredited sampling permitted.

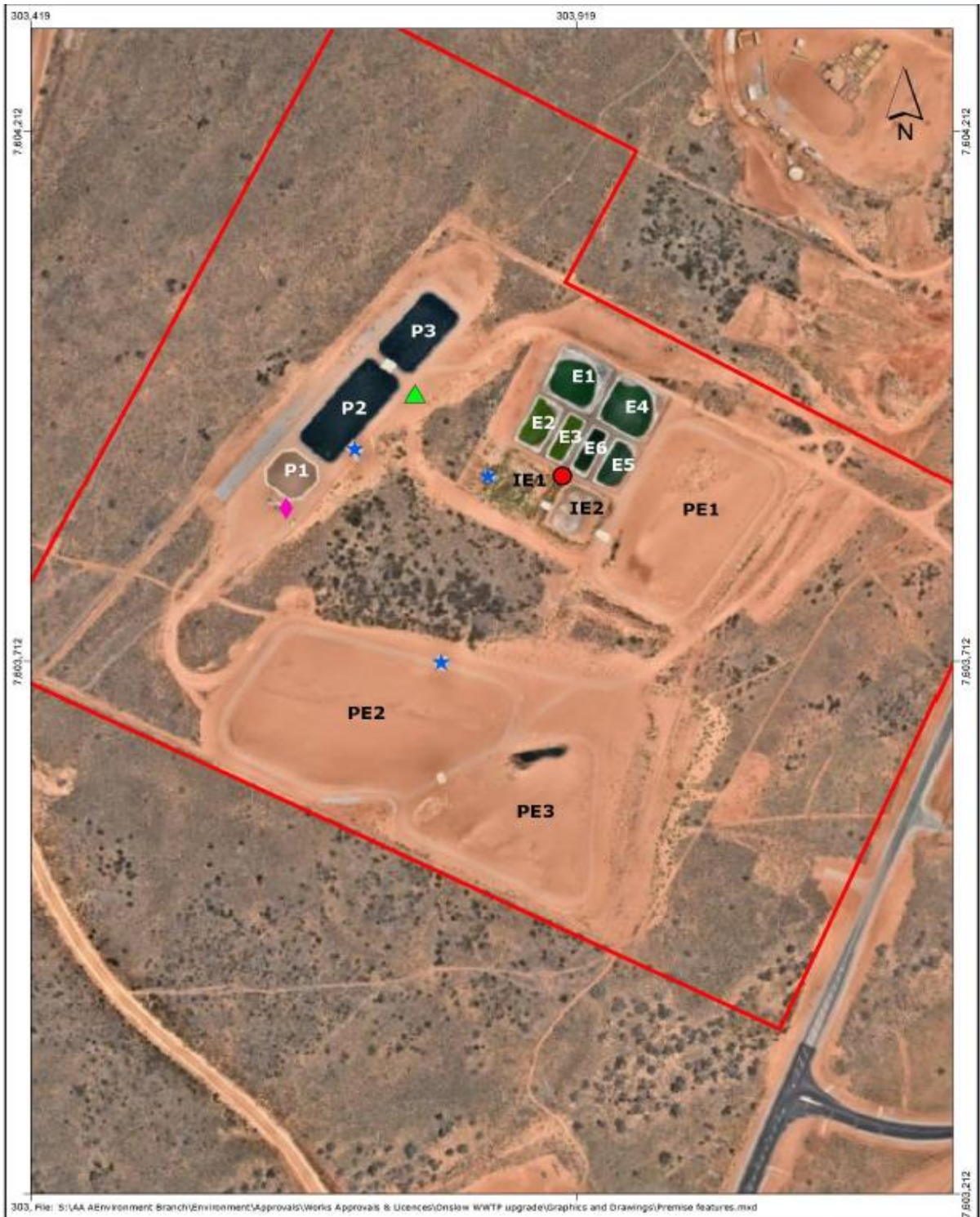
11(b) *The groundwater samples referred to in part (a) of this condition shall be collected, handled and preserved in accordance with the relevant parts of the Australian Standard 5667:*

11(c) *The groundwater samples referred to in part (a) of this condition shall be submitted to a laboratory with current NATA accreditation for the analysis specified:*

11(d) *The results of the monitoring undertaken in accordance with part (a) of this condition shall be submitted as part of the Annual Monitoring Report in accordance with condition 2*

3. The licence is amended by the inclusion of Attachments 3 and 4 as shown below:

Attachment 3: Infrastructure Map



303_File: S:\AA AEnvironment Branch\Environment\Approvals\Works Approvals & Licences\Onslow WWTW upgrade\Graphics and Drawings\Premise features.mxd

LEGEND

- Premise Boundary
- ◆ "M0" Inlet chamber - Monitoring Point
- ▲ "M1" Outflow Flume - Monitoring point
- "M2" Outlet Polish Pond - Monitoring point
- ★ 3 x Contingency Spillways



1:4,766 AT AA

0 40 80 120
Metres

Coordinate System: GDA 1994 MGA Zone 50
Vertical Datum: AHD

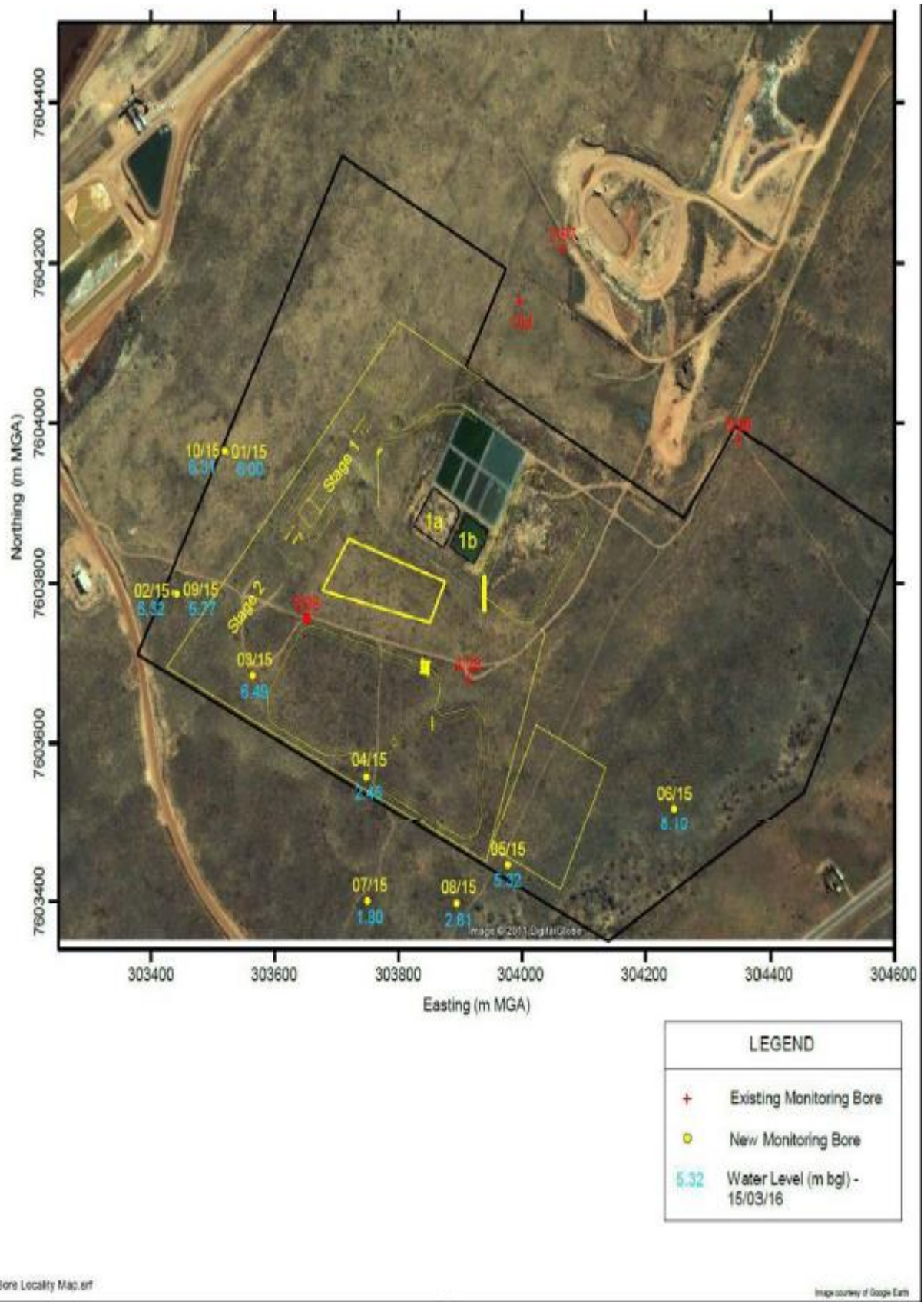
AUTHOR: BRETT SI DATE: 30/12/2016
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**Onslow WWTW
Premise Features**

Attachment 4: Groundwater Monitoring Locations



Appendix 1: Key Documents

	Document Title	In text ref	Availability
1	Licence L4432/1989/14 – Onslow Wastewater Treatment Plant	L7463/1993/8	accessed at http://www.dwer.wa.gov.au
2	Works Approval W5656/2014/1– Onslow Wastewater Treatment Plant – Interim Upgrade	W5656/2014/1	accessed at http://www.dwer.wa.gov.au
5	DWER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Environment Regulation, Perth.	N/A	accessed at http://www.dwer.wa.gov.au
6	DWER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Environment Regulation, Perth.	N/A	
7	DWER, August 2016. <i>Guidance Statement: Licence duration.</i> Department of Environment Regulation, Perth.	N/A	
8	DWER, November 2016. <i>Guidance Statement: Risk Assessments.</i> Department of Environment Regulation, Perth.	N/A	
9	DWER, November 2016. <i>Guidance Statement: Decision Making.</i> Department of Environment Regulation, Perth.	N/A	

Appendix 2: Summary of Licence Holder comments

Comments received	DER consideration of risk
Minor administration comments made in Decision section and of new condition 11.	Changes made as requested
Requested to remove reference groundwater monitoring bore 4/98 as the bore was removed during the upgrade works	Reference to groundwater monitoring bore 4/98 removed as requested.