



**Licence Number** L7811/2002/4  
**Licence Holder** William Richard Cocking  
**File Number:** DER2017/000227-1  
**Premises** Wourie Pool Farm  
Mogumber-Yarrowindah Road  
MOGUMBER WA 6506

Legal description –

Lot Number	Plan/Diagram Number
893	Plan 3194
905	Diagram 3377
84	Deposited Plan 228035
143	Deposited Plan 228037
364	Deposited Plan 246404
462	Deposited Plan 246401
463	Deposited Plan 246402
479	Deposited Plan 246411
499	Deposited Plan 246403
748	Deposited Plan 249565
794	Deposited Plan 249585
795	Deposited Plan 249586
796	Deposited Plan 249587
797	Deposited Plan 249588
803	Deposited Plan 412147
804	Deposited Plan 412147
841	Deposited Plan 249608
1159	Diagram 5041
1248	Diagram 5318
52	Plan 22293

As defined by the map in Schedule 1

**Date of Report** 19/05/2020

# 1. Definitions and interpretation

## Definitions

In this Amendment Report, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

Term	Definition
AACR	Annual Audit Compliance Report
AER	Annual Environmental Report
Amendment Report	refers to this document
BGL	below ground level
Biosolids Guidelines	refers to the Western Australian guidelines for biosolids managements, Department of Environment and Conservation, December 2012, as amended from time to time
C1, C2 and C3	contaminant grades as defined in the Biosolids Guidelines
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means:  Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 or: <a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a>
conservation category wetlands	means Ramsar sites, important wetlands of Western Australia and geomorphic wetlands (conservation category) as outlined in the <i>Guidance Statement: Environmental siting</i> .
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
dry tonnes	means the mass of biosolids, excluding any moisture that is present within the biosolids, as determined by moisture content analysis.
DWER	Department of Water and Environmental Regulation

Term	Definition
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
LAB	lime amended biosolids
Licence Holder	William Richard Cocking
Occupier	has the same meaning given to that term under the EP Act.
P3	pathogen grade 3 as defined in the Biosolids Guidelines
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Amendment Report applies, as specified at the front of this Amendment Report.
Revised Licence	the amended Licence issued under Part V, Division 3 of the EP Act, with changes that correspond to the assessment outlined in this Amendment Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i>
wet tonnes	means the 'as is' mass of biosolids, that is, the total dry tonnes plus moisture.

## 2. Amendment Description

This amendment has been informed by DWER's Regulatory Framework which is available at <https://www.der.wa.gov.au/our-work/regulatory-framework>.

### 2.1. Purpose and scope of assessment

On 16 January 2020, the Water Corporation, on behalf of William Richard Cocking (the Licence Holder), applied to the Department of Water and Environmental Regulation (DWER) to amend licence L7811/2002/4. The licence is for Wourie Pool Farm, a prescribed premises Category 61A solid waste facility located in Mogumber, Western Australia (the premises). The premises is used for the application of biosolids to land.

The 2018-2019 Annual Audit Compliance Report (AACR) submitted by the Licence Holder reported an annual biosolids application rate of 29,988 tonnes. This quantity exceeded the approved design capacity of 10,000 tonnes per annual period. Following review of the AACR, DWER advised the Water Corporation that a licence amendment application would be required if the premises design capacity was expected to continue to exceed 10,000 tonnes per annual period. This amendment application was submitted in response to this advice, and the amendment request was limited to an increase to the design capacity from 10,000 tonnes to 50,000 tonnes per annual period.

Table 2 below outlines the proposed changes to the licence throughput.

**Table 2: Proposed throughput capacity changes**

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
61A	10,000 tonnes per annual period	50,000 tonnes per annual period	Increased throughput only

During the amendment assessment, DWER identified that the premises boundary did not accurately reflect the legal extent of the Wourie Pool Farm. The Delegated Officer determined that updates to the premises boundary would be included in the scope of this amendment.

## 2.2. Consolidation of licence

As part of this amendment package DWER has updated the licence by incorporating the following changes:

- updated licence conditions to reflect the current *Western Australia guidelines for biosolids management*, December 2012 (Biosolids Guidelines);
- updated the format and appearance of the licence;
- deleted the redundant AACR form set out in Attachment 1 of the previous licence and advised the Licence Holder to obtain the form from the Department's website;
- revised licence condition numbers, and removed any redundant conditions and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and unintentional errors.

## 2.3. Premises boundary

During the amendment assessment, DWER identified that there were inconsistencies between the premises boundary described on the front page of the Existing Licence, depicted in Attachment 2 of the Existing Licence and shown in the premises map submitted by the Licence Holder in the amendment application document. These inconsistencies are likely to have resulted from changes in cadastral boundaries and land ownership since the Existing Licence was issued in 2011, as well as some clerical errors in the Existing Licence. This amendment will be used to clarify and redefine the premises boundary.

During the amendment assessment, DWER sought clarification from the Licence Holder and Water Corporation about the extent of the premises based on their current occupancy. Evidence for legal occupation of lots proposed for inclusion in the premises was also requested.

Table 3 presents a summary of lots relating to the premises with comments about their current status and reasoning for inclusion or exclusion from the premises boundary.

Based on changes in cadastral boundaries and information provided by the Water Corporation on behalf of the Licence Holder, seven lots listed in the legal premises description on the Existing Licence will be removed as part of this licence amendment. This includes:

- Melbourne Location 83 and Melbourne Location 146 – the Licence Holder does not currently have evidence of legal occupation of these lots. If evidence can be obtained at a later date, the Licence Holder will apply for an amendment to include these lots within the premises.
- Lot 345 on Deposited Plan 246372, Lot 126 on Deposited Plan 35464 and Lot 127 on Deposited Plan 35464 – DWER understands that the Licence Holder does not currently occupy these lots.
- Lot 1791 on Diagram 10770 and Lot 101 on Plan 17580 – these cadastral lots have been superseded. Lots 803 and 804 on Deposited Plan 412147 will be added to the legal premises description as they are the updated lot numbers in this area.

Lots 1727, 955 and 812 are within the premises boundary shown in Attachment 2 of the Existing Licence but are not listed on the front page of the Existing Licence. Based on email correspondence from Water Corporation to DWER (formerly DEC) in 2010, DWER understands that the Licence Holder does not own these lots and their inclusion within the premises boundary in Attachment 2 of the Existing Licence was a clerical error. These lots will be removed from the premises map as part of this licence amendment.

An updated premises map which reflects these changes is provided in Schedule 1 of the Revised Licence.

**Table 3: Lots related to the premises**

Lot Number	Plan/Diagram Number	Current status	
ML146	Melbourne Location 146	No evidence for legal occupation currently available. Lots removed from premises boundary as part of this amendment.	
ML83	Melbourne Location 83		
345	Deposited Plan 246372	Removed from premises boundary as part of this amendment.	
126	Deposited Plan 35464		
127	Deposited Plan 35464		
893	Plan 3194	Retained within the premises boundary	
905	Diagram 3377		
84	Deposited Plan 228035		
143	Deposited Plan 228037		
364	Deposited Plan 246404		
462	Deposited Plan 246401		
463	Deposited Plan 246402		
479	Deposited Plan 246411		
499	Deposited Plan 246403		
748	Deposited Plan 249565		
794	Deposited Plan 249585		
795	Deposited Plan 249586		
796	Deposited Plan 249587		
797	Deposited Plan 249588		
841	Deposited Plan 249608		
1159	Diagram 5041		
1248	Diagram 5318		
52	Plan 22293		
803	Deposited Plan 412147		Lots 803 and 804 (with Lot 805 below) supersede defunct cadastral Lots 1791 on Diagram 10770 and 101 on Plan 17580 on the Existing Licence. Lots 803 and 804 are legally occupied by the Licence Holder. New lot numbers added to legal premises description as part of this amendment.
804	Deposited Plan 412147		

Lot Number	Plan/Diagram Number	Current status
805	Deposited Plan 412147	This lot (with Lots 803 and 804 above) supersedes now defunct cadastral Lots 1791 on Diagram 10770 and 101 on Plan 17580 on Existing Licence.  This lot should not be included in the premises based on advice in draft Amendment Report comments and was excluded from premises in Revised Licence.
1727	Unknown	Shown in the Existing Licence premises map by mistake.  Removed from premises map as part of this amendment.
955	Deposited Plan 249679	
812	Deposited Plan 246368	

## 2.4. Operations description

The premises has been used for mixed farming purposes consisting of arable and mixed cropping for at least 60 years. The Licence Holder has a contract with the Water Corporation to receive biosolids for land application to the farm. DWER understands that the contract requires that the Licence Holder is compliant with the Biosolids Guidelines.

The Licence Holder receives biosolids in the form of lime-amended biosolids (LAB) or dewatered biosolids cake. These products are described below:

- Biosolids cake – produced at the Beenyup and Woodman Point wastewater treatment plants (WWTPs). Raw sludge is stabilized by anaerobic digestion at 35°C for a minimum of 20 days, producing biosolids which meet the P3 pathogen grade. The liquid biosolids are dewatered, resulting in biosolids cake. The cake has an average of 80% water with the balance being solids.
- LAB – produced at the Subiaco WWTP. The raw sludge is first dewatered and then stabilised with the addition of lime. The pH is maintained above 12 for three days to achieve the P3 pathogen grade.

Biosolids production from Water Corporation’s metropolitan operations involves the following processes:

- Mechanical screening, followed by settling and skimming for the removal of large floating objects, sand, grit and settleable organic solids.
- Biological breakdown and stabilisation. Microorganisms in the wastewater feed on the sewage and convert them into mostly organic solids.
- Extensive stabilisation by anaerobic digestion. This achieves stabilisation of organic matter and reduces the quantity of solids and level of pathogens. The stabilized solids produced during the digestion process are termed ‘biosolids’.
- Addition of a polymer to assist with mechanical dewatering which results in a black, soft-textured substance with an earthy odour and easy handling properties.

Biosolids products may be stored on the premises for up to seven days prior to application during the warmer months of October to May and for up to 30 days from June to September. Biosolids are applied by even spreading across paddocks and incorporation into the soil to a depth of approximately 75 mm. Incorporation occurs as soon as conditions are suitable to do so without causing damage to the soil structure, generation of dust or erosion.

## Application rates

Biosolids application rates are calculated to maximize nutrient availability for the crop without providing excess nutrient or other contaminants which may otherwise leach into the environment. The quantity of biosolids applied per hectare is restricted by one of three factors:

- nitrogen limited biosolids application rate (NLBAR);
- phosphorus limited biosolids application rate (PLBAR); or
- contaminant limited biosolids application rate (CLBAR).

The NLBAR and PLBAR are the rates at which biosolids can be applied without exceeding the annual nutrient requirements of the crop or vegetation grown on the land. The CLBAR is the rate at which biosolids can be applied without exceeding the maximum allowable concentration of contaminants in the soil.

A summary of biosolids application parameters for the premises, as submitted in REFs from 2018 to 2020, is presented in Table 4.

Table 9 in the Biosolids Guidelines presents a soil ranking system based on the phosphorus retention index (PRI). Soils with a high PRI are preferred for biosolids application due to the lower risk of phosphorus leaching from soils compared to soils with a lower PRI. REFs submitted from 2018 to 2020 indicate that soils at the premises present a low to moderate risk of phosphorus leaching (Categories 2, 3 and 4). The Environmental Assessment Report accompanying the most recent licence renewal (dated 3 November 2011) states that soils at the premises record a PRI range from 60 to 135 which corresponds to a low to negligible risk of phosphorus leaching.

In accordance with the Biosolids Guidelines, PLBAR is excluded from the application rate calculations when the soil category based on PRI is 1 to 4. This is because application at NLBAR in these soil types has been demonstrated to not result in phosphorus leaching.

Based on the 2018 to 2020 REFs, nitrogen has consistently been the limiting factor for biosolids application at the premises. This is because the NLBAR has been calculated as lower than the CLBAR (based on metals concentrations).

The typical NLBAR for biosolids cake is 9 dry tonnes per hectare (t/ha) which is lower than the maximum allowable application rate of 10 dry t/ha specified in condition 1 in the Existing Licence. The typical NLBAR for LAB is 19-21 dry t/ha which is lower than the maximum allowable application rate of 25 dry t/ha specified in condition 1 in the Existing Licence.

The 2018 to 2020 REFs indicate that copper, cadmium and zinc are usually the contaminants controlling the CLBAR of biosolids applied at the premises. The contaminant grades of biosolids applied from 2018 to 2020 ranged from C1 to C3. The Biosolids Guidelines indicate that contaminant grades are applied as follows:

- C1 – suitable for unrestricted use;
- C2 – suitable for restricted use such as agricultural direct land application to pasture and crops that are processed before being consumed or crops that may be consumed raw but are not in direct contact with biosolids (e.g. grapes and fruit trees); and
- C3 – not suitable for direct use, may be used in composting, disposed to landfill or thermally processed.

A contaminant grade may be improved by blending or treating with other acceptable materials, such as composted green waste, lime or other by-products. The blended product must be re-sampled, analysed and re-graded to determine its new contaminant grade.

**Table 4: Biosolids application parameters based on 2018-2020 REFs**

<b>Paddock</b>	<b>Proposing application timing</b>	<b>Soil category based on PRI</b>	<b>Limiting factor</b>	<b>NLBAR (t/ha dry tonnes)</b>	<b>Limiting contaminant and classification</b>	<b>Source</b>
WP14	Mar-Apr 2020	3 – low risk	Nitrogen	9 – cake, 19 – LAB	Zinc – C2-C3 (cake) and copper – C2 (LAB)	Water Corporation 2020a
WP15	Feb-Apr 2020	3 – low risk	Nitrogen	9 – cake, 19 – LAB	Zinc – C2	Water Corporation 2020b
WP10	Nov-Dec 2020	3 – low risk	Nitrogen	9 – cake, 19 – LAB	Zinc – C2	
WP16	Mar-Apr 2020	3 – low risk	Nitrogen	9 – cake, 19 – LAB	Zinc – C2-C3	
WP11	Mar-Apr 2020	3 – low risk	Nitrogen	9 – cake, 19 – LAB	Zinc – C2	
WP8	Jul-Sep 2019	4 – mod risk	Nitrogen	9 – cake, 23 – LAB	Zinc and copper – C2 (cake) and copper – C2 (LAB)	Water Corporation 2019
WP6	Jul-Sep 2019	4 – mod risk	Nitrogen	9 – cake, 23 – LAB	Zinc and copper – C2 (cake) and copper – C2 (LAB)	
ST2	Jul-Sep 2019	4 – mod risk	Nitrogen	9 – cake, 23 – LAB	Zinc – C2 (cake) and copper – C2 (LAB)	
WP7	Jul-Sep 2019	3 – low risk	Nitrogen	9 – cake, 23 – LAB	Cadmium – C2 (cake) and cadmium – C1 (LAB)	
ST9	Oct-Dec 2018	4 – mod risk	Nitrogen	9 – cake, 23 – LAB	Copper and zinc – C2 (cake) and copper – C2 (LAB)	Water Corporation 2018a
ST10	Oct-Dec 2018	3 – low risk	Nitrogen	9 – cake, 23 – LAB	Zinc – C2 (cake) and copper – C2 (LAB)	Water Corporation 2018b



<b>Paddock</b>	<b>Proposing application timing</b>	<b>Soil category based on PRI</b>	<b>Limiting factor</b>	<b>NLBAR (t/ha dry tonnes)</b>	<b>Limiting contaminant and classification</b>	<b>Source</b>
ST1	Oct-Dec 2018	4 – mod risk	Nitrogen	9 – cake, 19 – LAB	Cadmium and zinc – C2 (cake) and cadmium – C1 (LAB)	Water Corporation 2018c
ST8	Oct-Dec 2018	4 – mod risk	Nitrogen	9 – cake, 19 – LAB	Zinc – C2 (cake) and copper – C2 (LAB)	
ST14/15	Oct-Dec 2018	3 – low risk	Nitrogen	9 – cake, 19 – LAB	Zinc – C2	
ST11	Oct-Dec 2018	2 – low risk	Nitrogen	9 – cake, 19 – LAB	Zinc – C2 (cake) and cadmium – C1 (LAB)	
WP19	Oct-Dec 2018	3 – low risk	Nitrogen	9 – cake, 19 – LAB	Cadmium – C2 (cake) and cadmium – C1 (LAB)	
WP10	Oct-Dec 2018	3 – low risk	Nitrogen	9 – cake, 19 – LAB	Cadmium – C2 (cake) and cadmium – C1 (LAB)	
WP4	Jan-Mar 2018	3 – low risk	Nitrogen	9 – cake, 21 – LAB	Zinc – C2 (cake) and copper – C2 (LAB)	Water Corporation 2017a
WP5	Jan-Mar 2018	3 – low risk	Nitrogen	9 – cake, 21 – LAB	Zinc – C2	Water Corporation 2017b
WP9	Jan-Mar 2018	3 – low risk	Nitrogen	9 – cake, 21 – LAB	Zinc – C2 (cake) and copper – C2 (LAB)	Water Corporation 2017c
WP11	Jan-Mar 2018	3 – low risk	Nitrogen	9 – cake, 21 – LAB	Zinc – C2	Water Corporation 2017d

Two of the REFs submitted to DWER for 2020 applications showed that cake from Woodman Point WWTP had contaminant grades of C3 based on zinc concentrations. The REFs did not provide any information about how these biosolids batches were to be treated to achieve C2 grade and comply with the Biosolids Guidelines before application.

The Water Corporation has indicated that the C3 contaminant grades were based on historical data from the Woodman Point WWTP, and these contaminant issues have since been resolved. They also suggested that the environmental risk from application of C3 biosolids was minimal because biosolids were applied at NLBAR (typically 9 tonnes/ha) which is significantly lower than the CLBAR (for Woodman Point 38 tonnes/ha).

**Key findings:**

- (1) The statement in the Biosolids Guidelines that C3 biosolids are not suitable for application to land is irrespective of the proposed application rate and limiting factors. The Delegated Officer considers that it would be beneficial to add a condition to the Revised Licence specifying that only biosolids graded as P3 C2 or higher quality are approved for acceptance at the premises to provide clarity on this matter. If future biosolids allocations record a C3 contaminant grading, they should be treated in accordance with the method outlined in the Biosolids Guidelines before delivery to the premises.

Table 5 presents a summary of calculations used to determine the minimum land application area which would be required for an annual application rate of 50,000 wet tonnes and achieve compliance with the typical NLBARs based on previous REFs submitted for the premises. The total solids concentrations presented are approximate values based on 2018-2020 REFs submitted by the Licence Holder and were used to convert NLBARs from dry tonne to wet tonne values.

**Table 5: Minimum land area calculations for 50,000 tonne annual application rate**

Biosolids type	NLBAR (t/ha dry tonnes)	Estimated total solids concentration (%)	Approximate NLBAR (t/ha wet tonnes)	Minimum land area for 50,000 wet tonne application (ha)
Cake	9	17	53*	943
LAB	19	27	70*	714

\*Wet tonne NLBARs are estimated values only as the specific values are determined for each batch based on measured total solids concentrations.

Based on the calculations presented in Table 5, the minimum land area required to accommodate 50,000 tonnes of biosolids application each year ranges from 714 to 943 ha, depending on the proportion of cake and LAB. This area is significantly smaller than the total premises area which is approximately 3,555 ha. These calculations are supported by the 2018-2019 Annual Environmental Report (AER) which reported that 29,988 wet tonnes of biosolids were applied over a total area of 544 ha, while maintaining compliance with the NLBARs for cake and LAB.

**Key findings:**

- (2) The minimum land area required to apply 50,000 tonnes of biosolids each year without exceeding NLBARs is significantly less than the total land area of the premises. However, a significant portion of the premises is not suitable for biosolids applications due to the requirement to maintain buffer distances to receptors and limitations on soil and slope conditions suitable for application.

Notwithstanding these limitations, the Delegated Officer considers the size of the premises is sufficient to accommodate the proposed increased application rate without exceeding NLBARs.

- (3) Ongoing soil sampling should be used to monitor the accumulation of nutrients and contaminants such as metals and pesticides in the soil. The current soil sampling regime includes general soil quality parameters, phosphorus parameters and metals. Soil samples are collected approximately nine months prior to the actual application and results are used to calculate biosolids application rates including CLBARs for some metals.
- (4) The current soil sampling regime (summarised by the Water Corporation in Appendix 2) does not include nitrogen species or pesticides. It therefore cannot be used to assess the accumulation of these substances in the soil and determine whether application rates eventually need to be reduced. Based on the increased biosolids application load proposed in this amendment, the Delegated Officer recommends that the current soil sampling regime is amended to include nitrogen species (total nitrogen as a minimum) and pesticides (dieldrin and chlordane as a minimum). These analyses should be used by the Licence Holder and the Water Corporation to inform preparation of each REF, monitor temporal changes in soil concentrations and assess the accumulation of these species in soils at the premises.

### 3. Other approvals

The Licence Holder did not provide any information relating to other approvals for the premises. The Department of Health (DOH) advised that the Licence Holder needs to apply to modify their current approval to increase the design capacity from 10,000 tonnes to 50,000 tonnes per annual period.

### 4. Licensing history

Table 6 provides the amendment history for L7811/2002/4 and the previous version of the licence, L7811/2002/3.

**Table 6: Licence amendments**

Instrument	Issued	Summary of changes
L7811/2002/3	10/11/2006	Licence renewed.
L7811/2002/3	22/10/2010	Licence amended to include additional lots within the premises boundary and increase the maximum allowable application rate of lime amended biosolids or dewatered biosolids cake.
L7811/2002/4	3/11/2011	Licence renewed.
L7811/2002/4	19/05/2020	Production/design capacity amended from 10,000 tonnes to 50,000 tonnes per annual period. Premises boundary updated to reflect current extent of Wourie Pool Farm.

## 5. Environmental siting

### 5.1 Receptors

In accordance with *Guidance Statement: Risk Assessment*, the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

The Licence Holder's application included a map showing four residential dwellings within the premises boundary and three residential dwellings outside of the premises boundary. DWER identified an additional two potential residential dwellings on the premises (residences 16 and 17) and eight potential residential dwellings within 1.5 km of the premises. As DWER is not aware of whether these dwellings are occupied, all potential residential dwellings have been included as potential receptors in this assessment.

Table 7 below lists the relevant sensitive land uses in the vicinity of the premises which may be receptors relevant to the proposed amendment. These receptors are shown in Figure 1.

**Table 7: Receptors and distance from activity boundary**

Residential and sensitive premises	Distance from Prescribed Premises	Biosolids Guidelines required buffer distances
<p>Residential dwellings within 1.5 km of the premises boundary</p> <p><i>Note that DWER does not have current information on which dwellings are occupied and has included all potential residences to be conservative.</i></p>	<ul style="list-style-type: none"> <li>• Residence 1 located on Lot 805 on Deposited Plan 412147, approximately 1,000 m from the premises boundary</li> <li>• Residence 2 located on Lot 800 on Deposited Plan 412147, approximately 1,910 m from the premises boundary</li> <li>• Residence 3 located on Lot 11 on Plan 23942, approximately 1,550 m from the premises boundary</li> <li>• Residence 4 located on Lot 11 on Plan 23942, approximately 990 m from the premises boundary</li> <li>• Residence 5* located on Lot 109 on Plan 72718, approximately 1,030 m from the premises boundary</li> <li>• Residence 6 located on Lot 2 on Deposited Plan 61671, approximately 1,180 m from the premises boundary</li> <li>• Residence 7 located on Lot 1763 on Diagram 7955, approximately 175 m from the premises boundary</li> <li>• Residence 8 located on Lot 2 on Diagram 33603, approximately 1,060 m from the premises boundary</li> <li>• Residence 9 located on Lot 24 on Diagram 402750, approximately 920m from the premises</li> </ul>	<p>1000 m to occupied dwellings on other properties or as negotiated with written approval from the occupant of the dwelling</p>

Residential and sensitive premises	Distance from Prescribed Premises	Biosolids Guidelines required buffer distances
	boundary <ul style="list-style-type: none"> <li>• Residence 10 located on Lot 955 on Deposited Plan 249679, approximately 200 m from the premises boundary</li> <li>• Residence 11 located on Lot 5 on Plan 6450, approximately 75 m from the premises boundary</li> <li>• Residence 12 located on Lot 127 on Plan 35464, approximately 760 m from the premises boundary</li> </ul>	
Residential dwellings within the premises boundary	<ul style="list-style-type: none"> <li>• Residence 13 located on Lot 893 on Plan 3194</li> <li>• Residence 14 located on Lot 893 on Plan 3194</li> <li>• Residence 15 located on Lot 803 on Deposited Plan 412147</li> <li>• Residence 16 located on Lot 804 on Deposited Plan 412147</li> <li>• Residence 17 located on Lot 52 on Plan 22293</li> </ul>	100 m to occupied dwellings on properties with biosolids applications

\*Unclear if residential dwelling or farm building from aerial photography

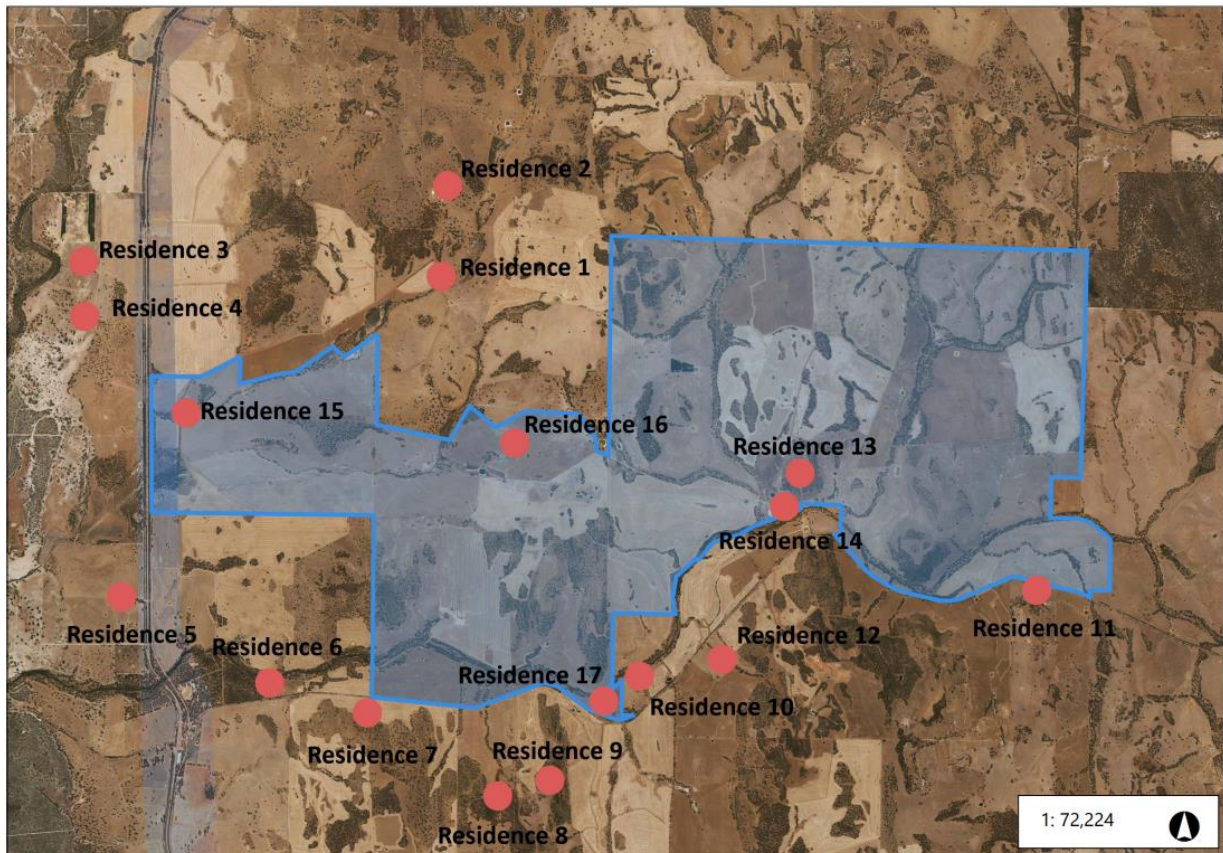


Figure 1: Residential receptors within approximately 1.5 km of premises boundary

Table 8 below lists the relevant environmental receptors in the vicinity of the premises which may be receptors relevant to the proposed amendment. Environmental receptors within approximately 2 km of the premises are shown in Figure 2.

**Table 8: Environmental receptors and distance from activity boundary**

Environmental receptors	Distance from Prescribed Premises	Biosolids Guidelines required buffer distances
Surface Water	<p>The premises is located within the Moore River catchment and the Moore River passes through the southern portion of the premises. The Moore River is a non-perennial watercourse.</p> <p>In addition to the Moore River, the following surface water features were identified within 3 km of the premises based on DWER's hydrography mapping.</p> <ul style="list-style-type: none"> <li>• More than 20 sections of unnamed non-perennial watercourses.</li> <li>• One unnamed swamp located 130 m west of the premises.</li> </ul> <p>REFs submitted by the Water Corporation show additional minor intermittent creeks to those mapped in DWER's hydrography dataset.</p> <p>The north-western portion of the premises (including Lots 803 and 804) is located within the Moore River and certain tributaries Surface Water Management Area which is proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act).</p>	<p>100 m to permanent creeks, streams, rivers and other wetlands</p> <p>50 m to banks of intermittent flow watercourses</p> <p>400 m to boundary of boundary of wetland vegetation around lakes</p>
Groundwater	<p>Limited information is available about groundwater at the premises. Groundwater resource mapping indicates that the premises is underlain by the Combined – Fractured Rock West aquifer. This aquifer comprises groundwater stored within the fractured and weathered portions of the crystalline basement rock.</p> <p>Previous REFs submitted by the Licence Holder indicate that groundwater is greater than 10 m below the ground level (BGL) (Water Corporation, 2002; Water Corporation, 2009). The Environmental Assessment Report accompanying the most recent licence renewal (dated 3 November 2011) states that the depth to groundwater is more than 25 m BGL. The basis of these depth to groundwater estimates is unknown.</p> <p>The Water Information Reporting online database was searched for groundwater level data within the vicinity of the premises. The most recent groundwater level data identified was from between 1951 and 1979 and was sourced from seven bores located within 2.5 km of the premises boundary. These levels ranged from 0.61 m to 18.29 m BGL. The reliability of this data is uncertain due to its age, therefore the Delegated Officer has assumed that groundwater at the premises is at least 10 m BGL, as previously indicated by the Licence Holder.</p> <p>No groundwater licences were identified within 3 km of the premises. The Water Information Reporting online database identified 14 groundwater bores within approximately 1 km of the premises, including two on the premises. The registered bore owners were listed as private or unknown and the purpose and current status of these bores are unknown.</p> <p>It is unclear if there are any private or agricultural production groundwater bores within close proximity to the premises. The fractured rock aquifer in this region is generally unproductive due to its small storage capacity and low bore yields, groundwater quantity and quality is highly variable (Water and Rivers Commission, 2002).</p>	<p>At least 1.5 m between the land application surface and groundwater table (separation distance is dependent on soil type)</p> <p>100 m to private drinking water supply bores</p> <p>50 m to agricultural, stock and domestic non-drinking water supply bores</p>

Environmental receptors	Distance from Prescribed Premises	Biosolids Guidelines required buffer distances
	The Gingin Groundwater Area which is proclaimed under the RIWI Act 1914 is located adjacent to the western boundary of the premises. The topography in the western part of the premises comprises undulating hills and valleys, sloping down towards the west. Based on this, it is considered possible that groundwater flowpaths exist from the premises into the Gingin Groundwater Area. Due to the nature of the fractured rock aquifer, groundwater flow may be inconsistent and discontinuous.	
Parks and Wildlife Managed Lands and Waters	<ul style="list-style-type: none"> <li>• Mogumber West Nature Reserve (Class A) – 2.75 km west of the premises</li> <li>• Mogumber Nature Reserve (Class A) – 3.5 km south-west of the premises</li> <li>• 2874/202 (no classification information available) – 2.75 km south-west of the premises</li> </ul>	Application outside of national parks and conservation reserves
Western Swamp Tortoise Habitat	None identified within 5 km of the premises. DWER understands that a translocation program has occurred to relocate individuals and establish a population at the Mogumber Nature Reserve and adjacent Lake Wannamal Nature Reserve located at least 3.5 km from the premises.	N/A
Geomorphic Wetlands of the Swan Coastal Plain	<p>On the premises:</p> <ul style="list-style-type: none"> <li>• Two palusplain wetlands (Conservation status) located on Lot 803.</li> <li>• Two palusplain wetlands (Multiple Use status) located on Lots 803 and 804.</li> <li>• One palusplain wetland (Resource Enhancement status) located on Lot 803.</li> </ul> <p>Within approximately 3 km of the premises:</p> <ul style="list-style-type: none"> <li>• Three dampland wetlands (Conservation status).</li> <li>• Eight sumpland, dampland and palusplain wetlands (Multiple Use status).</li> <li>• Seven sumpland and dampland wetlands (Resource Enhancement status).</li> </ul>	200 m to conservation category wetlands
Threatened and Priority Flora	Three occurrences of Priority 3 species, nine occurrences of Priority 4 species and 12 occurrences of Threatened species within approximately 3 km of the premises (none on premises).	N/A
Threatened and Priority Fauna	27 occurrences of Endangered species, one occurrence of a Priority 3 species and two occurrences of Priority 4 species within approximately 3 km of the premises (none on the premises).	N/A
Threatened and Priority Ecological Communities	75 occurrences of the Banksia Woodland Swan Coastal Plain community (Priority 3 Endangered status) within 3 km of the premises including adjacent to the premises boundary.	N/A
Ramsar Sites Regional Parks Important wetlands Public Drinking	None within 5 km of the premises.	200 m to conservation category wetlands  Application outside of national parks and conservation reserves

Environmental receptors	Distance from Prescribed Premises	Biosolids Guidelines required buffer distances
Water Source Areas		Application outside of Public Drinking Water Source Areas

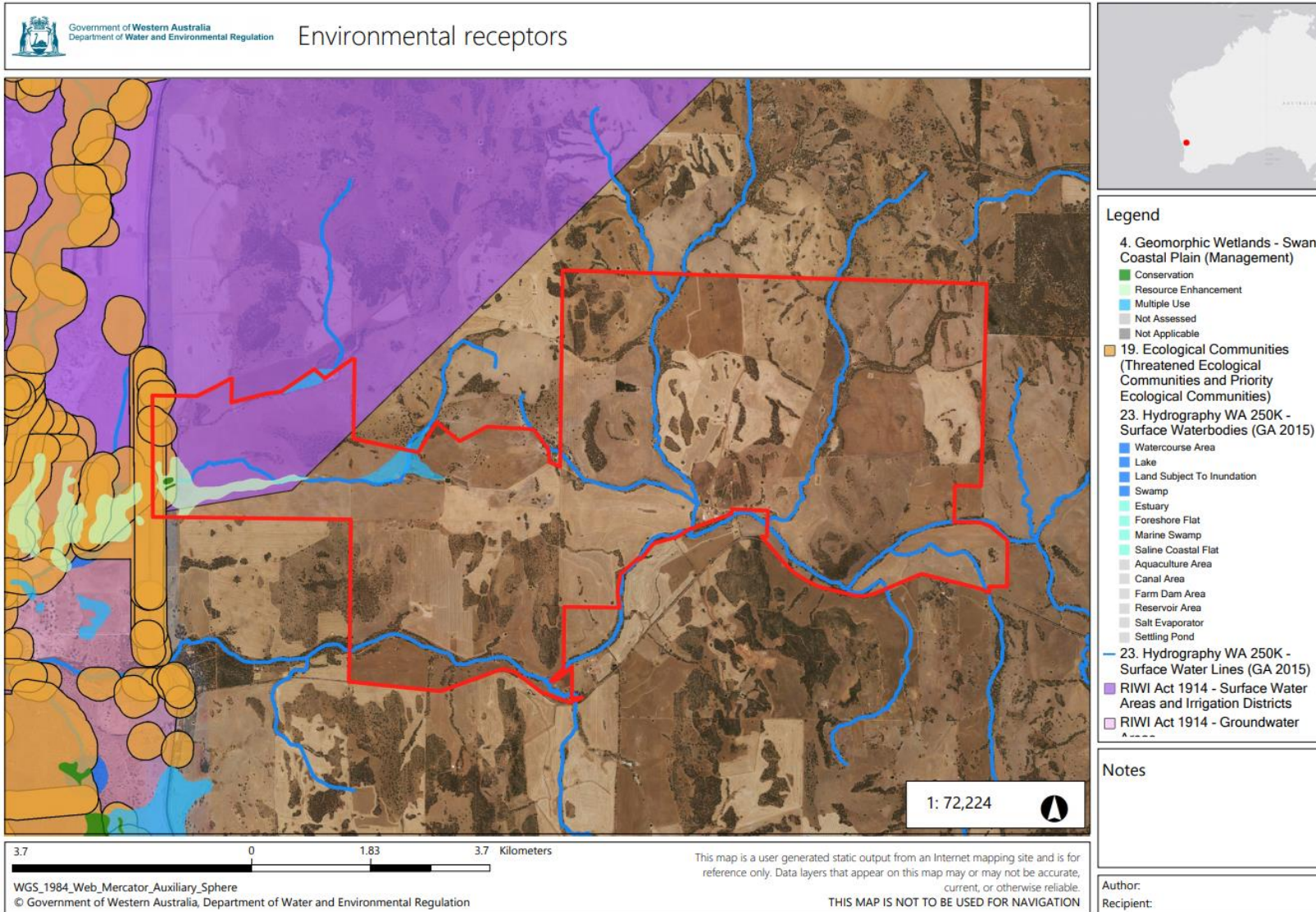
DWER has conducted a screening assessment of the separation distances to receptors discussed above against the buffer distances required in the Biosolids Guidelines.

**Key findings:**

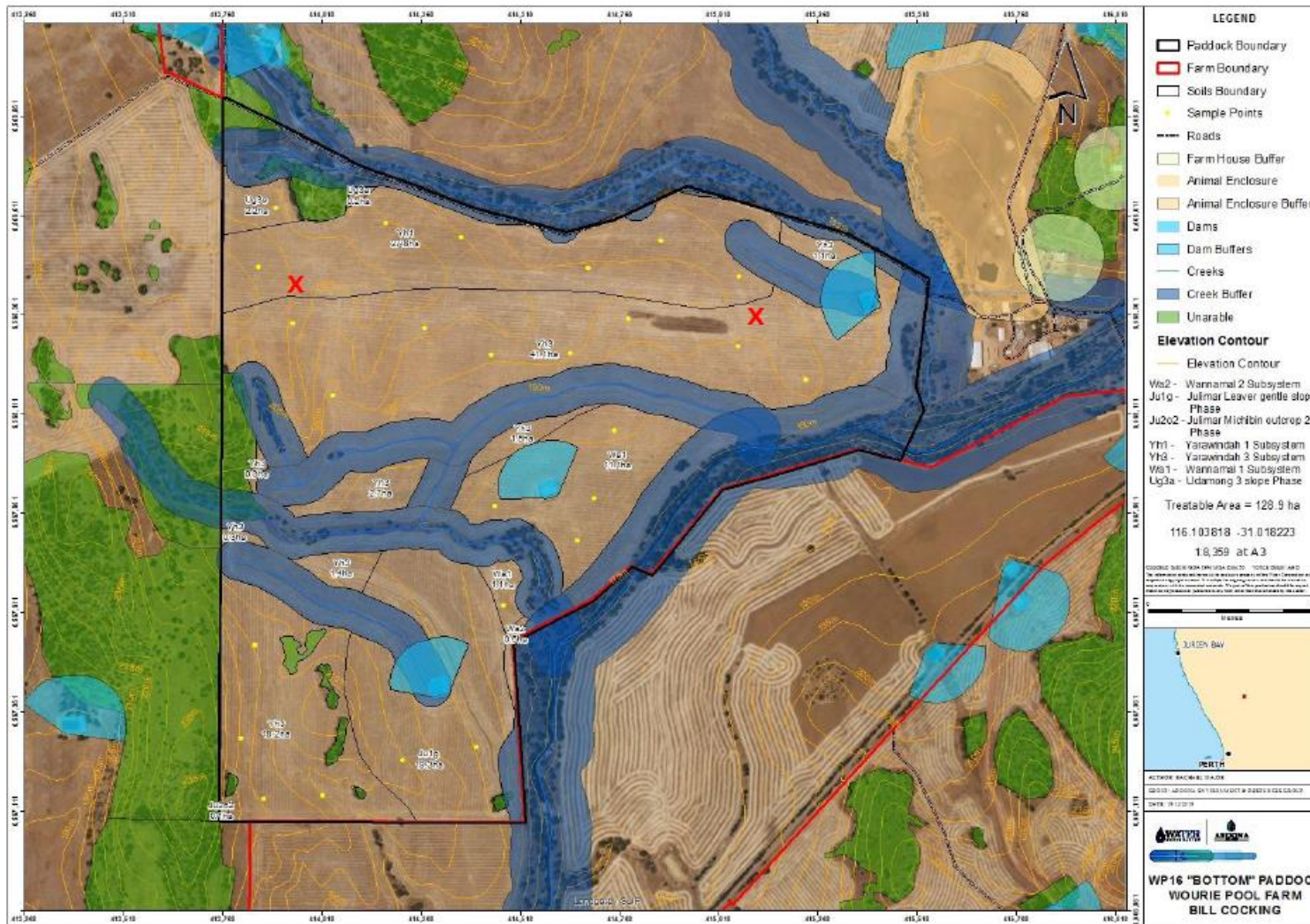
- (5) Based on the receptors identified above, the Biosolids Guidelines buffer distances which are applicable at the premises include:
- Conservation category wetlands (200 m);
  - High water mark for agricultural dams (100 m);
  - Permanent creeks, streams, rivers and other wetlands (100 m);
  - Banks of intermittent flow water courses (50 m);
  - Farm driveways access roads and fence lines (5 m);
  - Animal enclosures (50 m);
  - Occupied dwellings on properties with biosolids applications (100 m); and
  - Occupied dwellings on other properties (1000 m).
- (6) Recent REFs submitted to DWER (Water Corporation, 2020a; Water Corporation, 2020b) show that the required minimum buffer distances outlined in the Biosolids Guidelines are shown in biosolids application maps. An example of a REF map submitted for WP16 is shown in Figure 3. This mapping demonstrates that the Licence Holder and Water Corporation have existing controls in place to prevent the application of biosolids within required buffer distances.
- (7) The premises map provided in the amendment application shows two different buffer distances for residential receptors. A buffer distance of 1000 m was shown around residences 1 and 11, consistent with the Biosolids Guidelines, however a buffer distance of 500 m was shown around residence 10. In the draft Amendment Report comments, the Water Corporation confirmed that the resident of this property has previously provided a letter giving approval to apply within a reduced buffer. However, after discussing with the Licence Holder, a decision was reached to reinstate a 1,000 m buffer.
- (8) As discussed above, DWER identified more potential residential dwellings than were identified on the premises map in the amendment application. The Delegated Officer requested confirmation from the Licence Holder/Water Corporation as to the occupation status of these additional dwellings. In comments provided in response to the draft Amendment Report, the Water Corporation confirmed that residence 7 is currently occupied and will have appropriate buffer distances applied in the future. The Water Corporation also confirmed that residences 16 and 17 are owned by the Licence Holder. All identified residential receptors in this Amendment Report should be added to the Water Corporation’s mapping tools to ensure appropriate buffer distances are applied in the future.
- (9) The premises map provided in the amendment application did not show the location of two conservation category wetlands located on Lot 803, though it is



noted that the area around these wetlands was shown as 'unusable'. These environmental receptors should be added to Water Corporation's mapping tools to ensure appropriate buffer distances are applied in the future.



**Figure 2: Environmental receptors (excluding threatened and priority flora and fauna) within approximately 2 km of premises boundary**



Indicative stockpile locations shown with **X**  
 Approx distance to nearest water course = 120 m

**Figure 3: WP16 REF map submitted to DWER in February 2020 (Water Corporation, 2020b)**

L7811/2002/4

## 5.2 Physical setting

### Geology

The premises is located on the Yilgarn Craton, approximately 1.8 km to the east of the Darling Fault. Geological maps (1:250,000 scale) indicate the geology of the premises primarily comprises exposed and weathered basement rock of gneiss and granite, colluvium including valley-fill deposits, alluvium and laterite with minor occurrences of residual quartz sand.

### Soils

Soils at the premises are predominantly mapped as loamy gravel with additional soil types including yellow deep sand, brown loamy earth, yellow sandy earth, red loamy earth, semi-wet soil, wet soil and bare rock. Three of these soil types are unsuitable for biosolids application based on requirements in the Biosolids Guidelines, this includes bare rock, wet soil and semi-wet soil.

The premises was reported to have an extremely low to low probability of acid sulfate soils present in its vicinity based on the CSIRO Australian Soil Resource Information System (ASRIS) mapping tool.

#### Key findings:

- (10) Areas mapped as bare rock generally coincide with remnant bushland vegetation on the premises. These areas are generally mapped as 'unusable' in REFs submitted to DWER of the premises. This is shown by the example REF map presented as Figure 3.
- (11) Areas mapped as wet soil or semi-wet soil coincide with areas mapped as 'unusable' or within the 'intermittent creek buffer' in REFs submitted to DWER of the premises.
- (12) Based on the mapping included in REFs submitted to DWER, it appears that the Licence Holder and Water Corporation have existing controls in place to prevent the application of biosolids to unsuitable soils including bare rock and waterlogged soil.

### Contaminated Sites

Six sites within the immediate vicinity of the premises are classified under the *Contaminated Sites Act 2003*. These sites are summarised in Table 9 below. These classifications were all related to historical use of sheep dips and/or fuel storage and were unrelated to biosolids application.

**Table 9: Reported contaminated sites within the vicinity of the Premises**

Lot number	Location with respect to Premises	Classification	Reason for classification
Lot 802 and part of Lot 800 on Deposited Plan 412147	North of the premises boundary	Awaiting classification	Historical use as a sheep dip area and for fuel storage
Lot 1248 on Diagram 5318	Within the premises	Report not substantiated	Historical use as a sheep dip area
Lot 52 on Plan 22293	Within the premises	Report not substantiated	Historical use as a sheep dip area

Lot number	Location with respect to Premises	Classification	Reason for classification
Part of Lot 21 on Deposited Plan 402744	South of the premises boundary	Report not substantiated	Historical use as a sheep dip area
Lot 2 on Diagram 33603	South of the premises boundary	Report not substantiated	Historical use as a sheep dip area
Part of Lot 109 on Deposited Plan 72718	West of the premises boundary	Report not substantiated	Historical use as a sheep dip area

## 6. Risk assessment

Table 10 below describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. This table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

As identified in Section 5.1, DWER does not consider employees, visitors and contractors of the Licence Holder in its assessment. For the purposes of this risk assessment it has been assumed that all residential dwellings within the premises boundary are occupied by the Licence Holder or his employees, visitors or contractors.

**Table 10: Risk assessment for proposed amendments during operation**

Risk Event				Consequence rating <sup>1</sup>	Likelihood rating <sup>1</sup>	Risk <sup>1</sup>	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Increased storage of biosolids and rate of application of biosolids to land	Dust	Air/windborne pathway causing impacts to health and amenity of closest human receptors as close as 75 m from the premises boundary.	<ul style="list-style-type: none"> <li>• Buffer distances – 1 km to residential dwellings outside of premises;</li> <li>• Acceptance of biosolids treated to P3 pathogen grade; and</li> <li>• Incorporation of biosolids into soil as soon as possible after application and only when conditions are suitable to mitigate dust generation.</li> </ul>	Moderate	Unlikely	Medium	There is the potential for low level adverse health effects or mid-level impact to amenity.  Based on the proposed controls, this risk event will probably not occur in most circumstances.	Condition 1 - Waste acceptance (pathogen and contaminant grades)  Condition 2 – Waste processing (buffer distances and application/storage timeframes)
		Air/windborne pathway causing impacts to surface water quality including health and amenity impacts of users and potential disruption to aquatic ecosystems.		Moderate	Unlikely	Medium	There is the potential for low-level off-site impacts at local scale and minimal impacts at wider scale.  Based on the proposed controls, this risk event will probably not occur in most circumstances.	
		Air/windborne pathway causing impacts to a Priority ecological community adjacent to the premises.		Minor	Rare	Low	There is the potential for minimal off-site impacts at local scale.  Based on the proposed controls, this risk event may only occur in exceptional circumstances.	
	Odour	Air/windborne pathway causing impacts to health and amenity of closest human receptors as close as 75 m from the premises boundary.	<ul style="list-style-type: none"> <li>• Buffer distances – 1 km to residential dwellings outside of premises;</li> <li>• Acceptance of biosolids treated to P3 pathogen grade; and</li> <li>• Incorporation of biosolids into soil as soon as possible after application.</li> </ul>	Slight	Rare	Low	The treatment level of biosolids accepted at the premises means that biosolids should not generate offensive odours.  Based on this, there should be minimal impacts to amenity and the risk event may only occur in exceptional circumstances.	Condition 1 - Waste acceptance (pathogen and contaminant grades)  Condition 2 – Waste processing (buffer distances)
	Discharge to land	<p>Infiltration of nutrients and potential contaminants/pathogens to soil and groundwater and potential down-gradient discharge to surface water.</p> <p>May cause the deterioration of soil, surface water and groundwater quality, leading to health and amenity impacts of water users and potential disruption of terrestrial and aquatic ecosystems including riparian vegetation.</p>	<ul style="list-style-type: none"> <li>• Buffer distances and demarcation of unsuitable application areas on REF maps;</li> <li>• Acceptance of biosolids treated to P3 pathogen;</li> <li>• Assessment of application rates in accordance with Biosolids Guidelines; and</li> <li>• Application of biosolids in accordance with previously approved REFs and Biosolids Guidelines.</li> </ul>	Moderate	Possible	Medium	Based on biosolids application being conducted in accordance with the Biosolids Guidelines and approved REFs, off-site environmental, health and amenity impacts should be limited to low level at the local scale and minimal at the wider scale. This risk event could occur at some time.	Condition 1 - Waste acceptance (pathogen and contaminant grades)  Condition 2 – Waste processing (buffer distances, application rates and limitations)  Condition 3 – REF
	Contaminated stormwater runoff	<p>Discharge of nutrients and potential contaminants/pathogens to land and surface water.</p> <p>May cause the deterioration of soil, surface water and groundwater quality, leading to health and amenity impacts of water users and potential disruption of terrestrial and aquatic ecosystems including riparian vegetation.</p>	<ul style="list-style-type: none"> <li>• Buffer distances and demarcation of unsuitable application areas on REF maps;</li> <li>• Acceptance of biosolids treated to P3 pathogen grade;</li> <li>• Runoff controls, stockpile locations and application rates in accordance with Biosolids Guidelines and approved REFs; and</li> <li>• Incorporation of biosolids into soil as soon as possible after application.</li> </ul>	Moderate	Possible	Medium	Based on biosolids application being conducted in accordance with the Biosolids Guidelines and approved REFs, off-site environmental, health and amenity impacts should be limited to low level at the local scale and minimal at the wider scale. This risk event could occur at some time.	Condition 1 - Waste acceptance (pathogen and contaminant grades)  Condition 2 – Waste processing (buffer distances, application rates and limitations, storage requirements)  Condition 3 – REF
	Vectors/vermin	Attraction and harbouring of pests such as flies and rodents which may act as vectors for pathogens, potentially causing health and amenity impacts to closest sensitive receptors.	<ul style="list-style-type: none"> <li>• Buffer distances – 1 km to residential dwellings outside of premises; and</li> <li>• Acceptance of biosolids treated to P3 pathogen grade;</li> <li>• Biosolids stored for no longer than 7 days in warmer months before application to land;</li> <li>• Incorporation of biosolids into soil as soon as possible after application.</li> </ul>	Moderate	Possible	Medium	There is the potential for mid-level impacts to amenity and low level adverse health effects. Even with the proposed controls, the risk event could occur at some time.	Condition 1 - Waste acceptance (pathogen and contaminant grades)  Condition 2 – Waste processing (buffer distances and application/ storage timeframes)

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

## 7. Consultation

**Table 11: Summary of consultation**

Method	Comments received	DWER response
Local Government Authority advised of proposal (7/02/2020)	The Shire of Victoria Plains did not reply to the direct interest stakeholder referral	The Delegated Officer will proceed with the assessment as the proposed amendment is unlikely to require planning approval.
Department of Health (DOH) advised of proposal (7/02/2020)	The DOH responded on 11/03/2020 and indicated that Wourie Pool Farm has a current biosolids land application approval. The Licence Holder is required to apply to DOH to modify the current approval. Application details may be downloaded from: <a href="https://ww2.health.wa.gov.au/Articles/A_E/Application-process-for-approval-of-recycling-water-scheme">https://ww2.health.wa.gov.au/Articles/A_E/Application-process-for-approval-of-recycling-water-scheme</a>	The Delegated Officer will proceed with the assessment and advise the Licence Holder of this advice in relation to DOH approval.
Applicant referred draft documents (7/4/2020)	Detailed comments received – refer to Appendix 2.	Refer to Appendix 2.

## 8. Decision

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a licence amendment will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

As discussed in Key Finding **Error! Reference source not found.**, the Delegated Officer recommends that the current soil sampling regime is amended to include additional parameters. The Biosolids Guidelines do not explicitly set out which parameters are required to be monitored in soil samples from areas proposed to receive biosolids. However, they do state that *'Repeat applications of biosolids can lead to the accumulation of nutrients, metals and pesticide residues. It is important to test the soil to determine the level of nutrients and contaminants in the soil prior to initial or repeat applications, and reduce the application rate if required.'*

The current soil sampling regime is limited to general soil quality parameters, phosphorus and metals and therefore will not identify potential accumulation of nitrogen and other contaminants such as pesticides. The Delegated Officer recommends that to comply with the requirements of the Biosolids Guidelines, soil samples should also be analysed for nitrogen species (total nitrogen as a minimum) and pesticides (dieldrin and chlordane as a minimum). These analyses should be used by the Licence Holder and the Water Corporation to inform preparation of each REF, monitor temporal changes in soil concentrations and assess the accumulation of these species in soils at the premises.

### 8.1. Summary of amendments

Table 12 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

The Existing Licence was issued before publication of the current Biosolids Guidelines. As outlined in Section 2.2, the Delegated Officer has taken this opportunity to align the conditions in the licence with the requirements of the current Biosolids Guidelines.

**Table 12: Licence conversion map for new licence format**

Existing licence condition	Condition Summary	Revised licence condition	Conversion notes
N/A	Legal description of premises	Legal description of premises	Updated to accurately reflect current extent of Wourie Pool Farm, as legally occupied by the Licence Holder.
N/A	Definitions	Definitions	Terminology updated to reflect current licensing approach (for example 'licensee' replaced by 'licence holder') and new terms added to provide clear definitions of relevant terms.
1 to 6	Biosolids processing conditions	Condition 2	<p>Rewording and reformatting into current licence structure – moved into waste processing table.</p> <p>Updated biosolids processing conditions to align with current licensing approach for Category 61A biosolids premises and Biosolids Guideline requirements, including:</p> <ul style="list-style-type: none"> <li>• New biosolids storage requirements.</li> <li>• Buffer distance condition reworded to clearly apply to biosolids storage and application areas.</li> <li>• Additional buffer distance added for occupied dwellings within the premises boundary. This is consistent with the Biosolids Guideline and provides a suitable regulatory control in the event that one of these dwellings is occupied by someone other than the Licence Holder or his employees, visitors or contractors.</li> <li>• Buffer distance to occupied dwellings outside of the premises boundary edited to allow a reduce buffer distance where this has been negotiated with the occupier and is supported by written evidence.</li> <li>• Required buffer depths to groundwater amended to reflect current Biosolids Guideline requirements.</li> <li>• Addition of requirement that biosolids are not applied to unsuitable ground conditions (material type and slope) or during/pending inclement weather.</li> <li>• Timeframe for application of biosolids to land amended to allow up to 30 days of storage during cooler months from June to September.</li> <li>• Requirement for biosolids to be incorporated into soil within 7 days of receipt at premises has been amended to require incorporation to occur within 36 hours of application unless soil conditions are unfavourable. The Biosolids Guideline requires that incorporation into topsoil occurs within 36 hours of application. A DWER (formerly DER) compliance</li> </ul>



Existing licence condition	Condition Summary	Revised licence condition	Conversion notes
			<p>inspection conducted in 2014 identified that although biosolids were applied within 7 days of receipt, they were not always incorporated within this timeframe. Certain soil conditions are not suitable for incorporation as they would lead to excessive dust generation and soil erosion. For this reason, the Licence Holder does not undertake biosolids incorporation when soils are too dry. The new condition is consistent with the Biosolids Guidelines, provides increased flexibility for the Licence Holder, and will help avoid unnecessary dust emissions and soil erosion from the premises.</p> <ul style="list-style-type: none"> <li>• Requirement for biosolids application to be carried out in accordance with the REF.</li> <li>• Requirement that the quantity of biosolids applied per hectare does not exceed the limiting factor based on paddock, crop and composition.</li> </ul>
7	Annual audit compliance reporting requirements	Condition 10	Updated wording and requirements to align with current licensing approach.
Attachment 1	Annual Audit Compliance Report template	Form removed	AACR form is available on the Department's website as referenced in the licence definitions table.
Attachment 2	Plan of premises	Schedule 1	Premises map edited to accurately reflect current extent of Wourie Pool Farm, as legally occupied by the Licence Holder.
N/A	Waste acceptance	Condition 1	New condition specifying waste acceptance criteria and quantities to align with current licensing approach for premises accepting waste.
N/A	Review of Environmental Factors	Condition 3	New condition specifying requirements for REFs, provides clarity to Licence Holder and consistency with the Biosolids Guideline. This change is consistent with Water Corporation's current practices as REFs are submitted to DOH for approval and to DWER for notification purposes.
N/A	Waste monitoring	Conditions 4 and 5	New conditions specifying waste monitoring requirements which is consistent with current licensing approach for premises accepting waste.
N/A	Recordkeeping	Conditions 6 to 9	New recordkeeping conditions which are consistent with current licensing approach for Category 61A biosolids premises.
N/A	Annual Environmental Report	Condition 11	New condition requiring submission of an Annual Environmental Report, including requirements for inclusion in this report. This is consistent with current licensing approach for Category 61A biosolids premises.

Melissa Chamberlain  
**A/MANAGER WASTE INDUSTRIES  
REGULATORY SERVICES**

*An officer delegated by the CEO under section 20 of the EP Act*

## Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L7811/2002/4 – Wourie Pool Farm	L7811/2002/4	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
2	DER, November 2016. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	DER 2016a	
3	DER, November 2016. <i>Guidance Statement: Environmental Siting</i> . Department of Environment Regulation, Perth.	DER 2016b	
4	DER, March 2014. <i>L7811/2002/4 Compliance Inspection Checklist and Report</i> . Department of Environment Regulation, Perth.	DER 2014	DWER records (A837107)
5	Water and Rivers Commission, October 2002. <i>Managing the Water Resources of the Gingin Groundwater Area, WA</i> . Perth.	Water and Rivers Commission 2002	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
6	Water Corporation, August 2002. <i>Review of Environmental Factors - Application of Pelletised Biosolids to Agricultural Land</i> . Perth.	Water Corporation 2002	DWER records (DWERDT265978)
7	Water Corporation, August 2009. <i>Review of Environmental Factors, Wourie Pool – Salmon Gums, Jim Searl’s Corner, House, House Windmill and New Country Paddocks</i> .	Water Corporation 2009	DWER records (A1863362)
8	Water Corporation, June 2017. Review of Environmental Factors – WP4.	Water Corporation 2017a	DWER records (A1460052)
9	Water Corporation, June 2017. Review of Environmental Factors – WP5.	Water Corporation 2017b	DWER records (A1460056)
10	Water Corporation, June 2017. Review of Environmental Factors – WP9.	Water Corporation 2017c	DWER records (A1460079)
11	Water Corporation, June 2017. Review of Environmental Factors – WP11.	Water Corporation 2017d	DWER records (A1460083)
12	Water Corporation, October 2018. Email notification and submission of ST9 REF sent by Amy Curnow of Aroona Alliance.	Water Corporation 2018a	DWER records (A1730970)
13	Water Corporation, October 2018. Email notification and submission of ST10 REF sent by Amy Curnow of Aroona Alliance.	Water Corporation 2018b	DWER records (A1730972)
14	Water Corporation, June 2018. Email notification and submission of six	Water Corporation	DWER records (A1687577)

	<b>Document title</b>	<b>In text ref</b>	<b>Availability</b>
	REFs sent by Amy Curnow of Aroona Alliance.	2018c	
15	Water Corporation, April 2019. Email notification and submission of 4 REFs sent by Amy Curnow of Aroona Alliance.	Water Corporation 2019	DWER records (DWERDT148534)
16	Water Corporation, February 2020. Email notification and submission of WP14 REF sent by Rachael Major of Aroona Alliance.	Water Corporation 2020a	DWER records (A1864373)
17	Water Corporation, February 2020. Email notification and submission of 4 REFs sent by Rachael Major of Aroona Alliance.	Water Corporation 2020b	DWER records (A1864386)

## Appendix 2: Summary of Licence Holder comments

The Licence Holder and the Water Corporation were provided with the draft Amendment Report on 7 April 2020 for review and comment. The Water Corporation responded on the Licence Holder's behalf on 29 April 2020. The following comments were received on the draft Amendment Report and draft Revised Licence.

Condition	Summary of Water Corporation comment	DWER response
2, Table 2  Approved storage timeframe for biosolids (7 days)	While we promote minimum storage times the Guideline allows for extended storage beyond 7 days.  <b>Proposed condition:</b> Biosolids are to be applied to land within 7 days upon of receipt at the premises between October and May or 30 days for the rest of the year.	The Delegated Officer is satisfied that the proposed condition is consistent with the requirements of the Biosolids Guidelines. Condition 2 has been amended to allow up to 30 days biosolids storage from 1 June to 30 September. The risk of fly breeding is lower in the cooler months.
2, Table 2  Buffer distances to occupied dwellings outside the premises boundary (1000 m)	The Biosolids guideline allow for the buffer distance to be reduced with written consent from the occupier.  <b>Proposed condition:</b> 1000m – occupied dwellings outside the premises or as negotiated with written approval from the occupant of the dwelling.	The Delegated Officer is satisfied that the proposed condition is consistent with the Biosolids Guidelines. Condition 2 has been amended to reflect that a reduced buffer distance is allowed if supported by written approval from the occupant of the dwelling. Condition 3 has also been amended to reflect that this agreement and supporting documentation from the affected parties must be included in the REF.
2, Table 2  Biosolids incorporation method (ploughing or injecting) and depth (75 mm)	This is too prescriptive and may in some instances be impractical as it doesn't necessarily align with modern farming principles.  <b>Proposed change:</b> Remove point (ii) 'by methods such as ploughing or injecting, to a depth of at least 75 millimetres.'	The Biosolids Guidelines do not specify the method or depth to which biosolids incorporation must occur and states that ' <i>the best method of incorporation will depend on soil conditions (moisture, soil type).</i> ' The Delegated Officer considers that the primary concern with incorporation is that it is undertaken as soon as possible (i.e. within 36 hours of application or as soon as possible if soil conditions are not suitable). Based on these findings, the condition has been removed as requested.

Condition	Summary of Water Corporation comment	DWER response
<p>3(c)(iv)</p> <p>Requirement to identify slopes with a gradient of 6-12% on a map where biosolids are to be applied and identify the specific soil conservation practices that will be undertaken</p>	<p>To identify specific slopes on a paddock map is challenging and potentially more confusing for the farmer than its worth. The licensee understands slope and appropriate land management principles to prevent soil erosion/loss are central to their business and livelihood. Consequently slopes with a 6-12% gradient will be identified during biosolids application and managed accordingly.</p> <p><b>Proposed change:</b> Remove requirement and simply commit to soil conservation as per Condition 2, Table 2.</p>	<p>The Delegated Officer is satisfied with the proposed approach for managing biosolids application to slopes with a gradient of 6-12%.</p> <p>Condition 11, Table 5 has been amended to include a requirement for the soil conservation practices implemented in these circumstances to be briefly summarised within the AER.</p>
<p>3(d)</p> <p>Timing of REF submission to DWER</p>	<p>'biosolids batch' – incorrect terminology</p> <p><b>Proposed condition:</b> Condition 3(d) - be submitted to DWER at least 60 days before the relevant biosolids <u>allocation</u> is received at the premises.</p>	<p>The condition has been amended to reflect the preferred terminology.</p>
<p>4, Table 3</p> <p>Requirement to monitor each load accepted at the premises</p>	<p>Farms could receive up to 400 loads during each allocation. Consider simplify reporting and report allocation only, which is a sum of all the loads.</p> <p><b>Proposed condition:</b> Monitor each allocation accepted at the premises.</p>	<p>The Delegated Officer considers that each allocation is an acceptable rate of waste monitoring rather than each load. The condition has been amended to reflect the preferred monitoring rate. A definition for 'allocation' has been added to Table 6 of the Revised Licence.</p>
<p>5, Table 4</p> <p>Requirement to monitor each load removed/rejected from the premises</p>	<p>There is no intention for loads to leave the premises This condition also contravenes Condition 1, Table 1 "only for use within the premises".</p> <p><b>Proposed change:</b> Remove Condition 5 as not relevant.</p>	<p>The Delegated Officer understands that it is not standard practice for biosolids to be removed from the premises or rejected before acceptance. However, in the case of non-standard conditions or unpredicted circumstances, the need for biosolids to be removed/rejected may arise. Based on this, the Delegated Officer has determined to retain Condition 5, Table 4 as a contingency measure.</p>

Condition	Summary of Water Corporation comment	DWER response
<p>Section 2.3 of Amendment Report</p> <p>Premises boundary</p>	<p>DWER requested the Licence Holder/Water Corporation to confirm which lots were to be included in the premises and provide evidence of legal occupation of some of these lots.</p> <p><b>Response:</b> The following lot numbers should be removed from Licence - Lot 805, 345, 126 and 127</p> <p>See attached shapefile for corrections to property boundary.</p> <p>The Water Corporation also provided the following in relation to evidence of legal occupation:</p> <ul style="list-style-type: none"> <li>- Certificate of Title for Lot 804 (showing joint ownership with another party). A letter from the other party was provided to confirm that the Licence Holder has operational control of this lot.</li> <li>- Letter confirming the relationship between the Licence Holder and another party listed as joint owner on other titles.</li> <li>- Copy of the Australian Securities and Investments Commission extract confirming that the Licence Holder is a director of Wourie Pool Pty Ltd.</li> </ul>	<p>Lots 805, 345, 126 and 127 have been removed from the premises legal description and premises map.</p> <p>The Licence Holder could not provide evidence of legal occupation for Melbourne Locations 83 and 146, therefore these lots were removed from the premises legal description and map.</p> <p>The Licence Holder was able to demonstrate legal occupation for the remaining lots which have been retained within the premises legal description and map.</p>
<p>Section 2.4 of Amendment Report</p> <p>Operations description</p>	<p>DWER requested the Licence Holder/Water Corporation to advise if the current contract requires compliance with the 2012 revision of the Biosolids Guidelines.</p> <p><b>Response:</b> The contractual agreement between the Water Corporation and WR Cocking is for the receipt of biosolids for agricultural application. Clause 5 (b) of the contract states <i>'The receiver must spread biosolids in accordance with the conditions contained in this Agreement, the Guidelines, its licence and its paddock approvals'</i>.</p>	<p>The Delegated Officer is satisfied with this response.</p>

Condition	Summary of Water Corporation comment	DWER response
<p>Section 2.4 of the Amendment Report</p> <p>Application rates</p>	<p>DWER requested the Licence Holder/Water Corporation to indicate how C3 biosolids are managed to achieve C2 grades prior to receipt and application at the premises.</p> <p><b>Response:</b> REFs are calculated based on historical data. The Woodman point WWTP had produced biosolids with elevated zinc levels which have since been resolved. It is also worthwhile noting that if a biosolids is classified as C3, biosolids are applied at NLBAR rates (typically 9T/Ha), which are significantly lower than the CLBAR application rate (in the Woodman case 38T/Ha), therefore the environmental risk is minimal.</p>	<p>The Biosolids Guidelines state that C3 biosolids are not suitable for application to land. This requirement is irrespective of the proposed application rate and limiting factors.</p> <p>Based on the information provided, the C3 contaminant grades relate to a historical issue and will not affect future applications. Condition 1 in the Revised Licence specifies that only biosolids graded as P3 C2 or higher quality are approved for acceptance at the premises.</p>
<p>Section 2.4 of the Amendment Report</p> <p>Soil sampling regime</p>	<p>DWER requested Licence Holder/Water Corporation to confirm the current soil sampling regime for the premises</p> <p><b>Response:</b> Soils are sampled in accordance with biosolids guidelines with soil analysis being performed by SGS. The following analytes are measured: % Moisture, pH (CaCl<sub>2</sub>), Phosphorus, Arsenic, Cadmium, Copper, Lead, Nickel, Zinc, Mercury, Hexavalent Chromium, PRI, Colwell Phosphorus, Exchangeable elements, Cation Exchange Capacity, Reactive Iron, Bulk Density and Org. Matter.</p> <p>Soil Samples are collected approximately 9 months prior to the actual application, results are used to calculate biosolids application rates for paddock REFs. This advance sampling is necessary to ensure paddocks are approved by DoH at least 6 month prior to deliveries, ensuring we have a contingency should the need arise for an earlier application. This approach is approved by DoH and the long term data shows that the final application rate does not change over that time period. When the time</p>	<p>The Delegated Officer is satisfied that this soil sampling regime is appropriate for i) monitoring the accumulation of phosphorus and metals in the soil and ii) informing the calculation of CLBARs for metals.</p> <p>However, the current soil sampling regime does not include nitrogen species or pesticides and therefore cannot be used to assess the accumulation of these substances in the soil. As discussed in Key Finding <b>Error! Reference source not found.</b> and Section 8 above, the Delegated Officer recommends that the current soil sampling regime is amended to include nitrogen species (total nitrogen as a minimum) and pesticides (dieldrin and chlordane as a minimum).</p> <p>Condition 7 in the Revised Licence has been amended to require records of soil sampling to be kept. Condition 11, Table 5 in the Revised</p>



Condition	Summary of Water Corporation comment	DWER response
	comes for biosolids application, soil data is reviewed against current Biosolids Data from WWTPs which generally results in the same dry t/ha rate but the wet t/ha rate may be changed.	Licence has been amended to require the results of soil sampling to be reported in the AER.
Section 5.1 of the Amendment Report  Receptors	<p>DWER requested Licence Holder/Water Corporation to confirm if residences 16 and 17 in Table 7 and Figure 1 below are occupied residential dwellings or otherwise. If occupied, Licence Holder to confirm whether occupant is the Licence Holder, his employees or otherwise.</p> <p>Licence Holder to confirm if residence 7 in Table 7 and Figure 1 below is occupied residential dwelling or otherwise.</p> <p><b>Response:</b> Residences 16 and 17 are owned by the Licensee. Residence 7 is currently occupied and buffers will be applied in accordance with the biosolids guidelines.</p>	The Delegated Officer is satisfied with this response. Future REFs should reflect appropriate buffer distances for these residences.
Section 5.1 of the Amendment Report  Receptors	<p>Two palusplain wetlands (Multiple Use status) located on Lot 803, 804 and 805.</p> <p><b>Request:</b> Remove reference to Lot 805</p>	Text amended to reflect that Lot 805 is not within the premises boundary.
Section 5.1 of the Amendment Report  Receptors	<p>DWER requested Licence Holder/Water Corporation to comment on why a smaller buffer distance was applied to one of the residential receptors outside of the premises.</p> <p><b>Response:</b> Residence 10 - The resident of this property has previously provided a letter giving approval to apply within a reduced buffer. However, after discussing with William Cocking a decision was reached to reinstate a 1km buffer.</p>	The Delegated Officer is satisfied with this response. Future REFs should reflect appropriate buffer distances for this residence.