Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Licensee: Water Corporation

Licence: 8960/2016/1

Registered office: 3rd Floor, John Tonkin Water Centre
629 Newcastle Street
LEEDERVILLE WA 6007

Premises address: East Rockingham Wastewater Treatment Plant (ERWWTP)
Lot 501 on Deposited Plan 61891 Chesterfield Road and
Pipeline Outlet Corridor located on Lot 502 Vol 2733 Folio 845 Deposited Plan 61891 Patterson Road East Rockingham WA 6168
as depicted in Schedule 1.

Issue date: Friday, 3 June 2016

Commencement date: Monday, 6 June 2016

Expiry date: Tuesday, 5 June 2036

Prescribed premises category
Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
54	Sewage facility premises – (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	100 cubic metres or more per day	20ML per day

Conditions
This Licence is subject to the conditions set out in the attached pages.

Date signed: 7 June 2016
.....
Caron Goodbourn
A/Manager Licensing (Waste Industries)
Officer delegated under section 20
of the *Environmental Protection Act 1986*

Contents

Introduction

This Introduction is not part of the Licence conditions.

DER's industry licensing role
The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act)for the licensing of prescribed premises. Through this process DER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements
This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link: http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.

- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.

- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.

Licence holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

Licence fees
If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions
If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary
Water Corporation (WC) has constructed Stage 1A the East Rockingham Wastewater Treatment Plant (ERWWTP) in the Kwinana Industrial Area at East Rockingham under Works Approval 5377/2013/1 (W5377). This licence application is for the operation of Stage 1A which has a total design capacity of 20ML per day, causing it to be a 'prescribed premises' Category 54 Sewage facility under Schedule 1 of the *Environmental Protection Regulations 1987*. The final fourth stage is planned for 2070 with a design capacity of 160ML per day and there is the potential for augmentation with a water reclamation plant. Construction of Stage 1A commenced in May 2014 and due to the potential for best practice technology to change, future staged constructions will require separate works approval and licence amendment applications.

The ERWWTP will treat sewage to an advanced secondary standard by the activated sludge process where the treatment processes include preliminary treatment, consisting of screening and grit removal and secondary treatment in oxidation ditches. Some of the units constructed for Stage 1A will be installed progressively in preparation for future stages. Solids will be thickened, dewatered and disposed off-site and all of the Stage 1A treated wastewater will be disposed via an ocean outlet pipeline existing via the Sepia Depression Ocean Outlet Landline (SDOOL). Treated wastewater through the SDOOL is subject to Part IV conditions under EPA Bulletin 1135, Statement No.665, dated 28 October 2004 and therefore not regulated under Part IV of the Act.

The main emissions during operation of Stage 1A there are odour emissions, noise emissions and discharges to water as treated effluent will be discharged directly to the ocean via SDOOL. WC has submitted an Odour Management Plan and Nosie Assessment in which odour and noise was assessed during commissioning of the ERWWTP. WC have submitted the Commissioning Report required under W5377.

This Licence is for the operation of a new facility established under works approval W5377/2013/1.

The licences and works approvals issued for the Premises since 14/06/2013 prior to issue of this Licence are:

Instrument log		
Instrument	**Issued**	**Description**
W5377/2013/1	14/06/2013	New Works Approval application
W5377/2013/1	06/08/2015	Works Approval amendment to remove the reference to "approval by the Director" and a number of other amendments have been made to align the works approval with an updated DER works approval template.
L8960/2016/1	30/05/2016	New Licence application

Severance
It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION

Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986;*

'AHD' means the Australian height datum;

'annual period' means the inclusive period from 1 July until 30 June in the following year;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;*

'AS/NZS 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters;*

'averaging period' means the time over which a limit is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means;

Chief Executive Officer
Department Administering the Environmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Telephone: (08) 9333 7510
Facsimile: (08) 9333 7550
Email: info@der.wa.gov.au

'hardstand' means a surface with a permeability of 10^{-9} metres/second or less;

'Licence' means this Licence numbered L8960/2016/1 and issued under the Act;

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'Premises'means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'quarterly' means the 4 inclusive periods from1 July to 30 September, 1 October to 31 December and in the following year, 1 January to 31 March and 1 April to 30 June;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated; and

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.2 Premises operation

1.2.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit in this section.

1.2.2 The Licensee shall only allow waste to be accepted on to the Premises if:
(a) it is of a type listed in Table 1.2.1;
(b) the quantity accepted is below any limit listed in Table 1.2.1; and
(c) it meets any specification listed in Table 1.2.1.

Table 1.2.1: Waste acceptance

Waste	Quantity Limit	Specification
Sewage	None Specified	Accepted through sewer inflow(s) only

1.2.3 The Licensee shall ensure that the wastes accepted onto the Premises are only subjected to the process(es) set out in Table 1.2.2 and in accordance with any process requirements described in that table.

Table 1.2.2: Waste processing

Waste type	Process	Process requirements
Sewage	Biological, physical and chemical treatment	Treatment of sewage and septage waste shall be at or below the treatment capacity of 20ML per day
Sewage sludge	Storage	None specified

1.2.4 The Licensee shall ensure that waste material is only stored and/or treated within vessels or compounds provided with the infrastructure detailed in Table 1.2.3.

Table 1.2.3: Containment infrastructure

Vessel or compound	Material	Requirements
Inlet works	Grit and Screenings	Stored in a sealed bin (spirotainers) which is surrounded by a bunded hardstand area which returns sludge leachate to the start of the treatment process
Bio-selector	Wastewater	Impervious concrete
2 oxidation ditches		
Clarifier distribution chamber		
2 fully equipped clarifier tanks		
2 unequipped clarifier tanks to be used as balancing storage		
Dissolved Air Floatation Thickener (DAFT) unit		
Sludge blending tank		
Sludge discharge hopper	Sewage sludge	Impervious concrete floor

1.2.5 The Licensee shall manage the wastewater treatment vessels such that:
(a) overtopping of the wastewater treatment vessels does not occur; and
(b) stormwater runoff is prevented from entering the wastewater treatment vessels.

2 Monitoring

2.1 General monitoring

2.1.1 The licensee shall ensure that:
(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10; and
(c) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured [unless indicated otherwise in the relevant table].

2.1.2 The Licensee shall ensure that :
(a) monthly monitoring is undertaken at least 15 days apart; and
(b) quarterly monitoring is undertaken at least 45 days apart;

2.1.3 The Licensee shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications and the requirements of the Licence.

2.1.4 The Licensee shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

2.2 Monitoring of inputs and outputs

2.2.1 The Licensee shall undertake the monitoring in Table 2.2.1according to the specifications in that table.

Table 2.2.1: Monitoring of inputs and outputs

Input	Monitoring point reference and location on map in Schedule 1	Parameter	Units	Averaging period	Frequency
Sewage received via sewer inflows to the wastewater treatment system	Wastewater inflow monitoring site (IMS)	Volumetric flow rate	m^3/day	Monthly	Continuous

2.3 Process monitoring

2.3.1 The Licensee shall undertake the monitoring in Table 2.3.1 according to the specifications in that table.

Table 2.3.1: Process monitoring

Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
Monitoring location for the final effluent M1	pH;	pH units	Spot sample	Quarterly
	Total Phosphorus (TP); Total Suspended Solids (TSS); Biochemical Oxygen Demand (BOD); Total Nitrogen (TN); Ammonium-nitrogen; and Nitrate+Nitrite-nitrogen. Oil and Grease; Arsenic; Cadmium; Copper; Chromium; Lead; Mercury; Nickel; and Zinc.	mg/L		
	E. Coli	cfu/100ml		

3 Information

3.1 Records

3.1.1 All information and records required by the Licence shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 3.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
  - (i) off-site environmental effects; or
  - (ii) matters which affect the condition of the land or waters.

3.1.2 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

3.1.3 The Licensee shall:
- (a) implement a complaints management system that shall record the following information (if known or provided) about complaints received at the Premises concerning any environmental impact of the activities undertaken at the Premises:
  - (i) name and address of the complainants (if consented);
  - (ii) date and time of complaint;
  - (iii) date and time of alleged incident;
  - (iv) alleged source of the incident;
  - (v) general description of the alleged incident, including any environmental or health impacts reported by the complainant;
  - (vi) wind direction, wind speed and temperature at time of alleged incident;
  - (vii) likely source of the alleged incident; and

(viii) actions taken by the Licensee to address the complaint, including the outcome of any investigation(s) and action(s) to verify any impacts.

(b) complete an annual analysis and review of complaints recorded under 3.1.3(a) to identify any common factors and root cause of complaints and proposals to address these.

3.2 Reporting

3.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 63 calendar days after the end of the annual period. The report shall contain the information listed in Table 3.2.1 in the format or form specified in that table.

Table 3.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form[1]
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Table 1.2.2 and 2.2.1	Summary of any treatment capacity being exceeded and any action taken	None specified
Table 2.3.1	Monitoring of process parameters	None specified
3.1.2	Compliance	Annual Audit Compliance Report (AACR)
3.1.3	Complaints summary	None specified

Note 1: Forms are in Schedule 2

3.2.2 The Licensee shall ensure that the Annual Environmental Report also contains an assessment of the information contained within the report against previous monitoring results and Licence limits.

3.2.3 The Licensee shall submit the information in Table 3.2.2 to the CEO according to the specifications in that table.

Table 3.2.2: Non-annual reporting requirements

Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form[1]
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licensee from third parties

Note 1: Forms are in Schedule 2

3.3 Notification

3.3.1 The Licensee shall ensure that the parameters listed in Table 3.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 3.3.1: Notification requirements

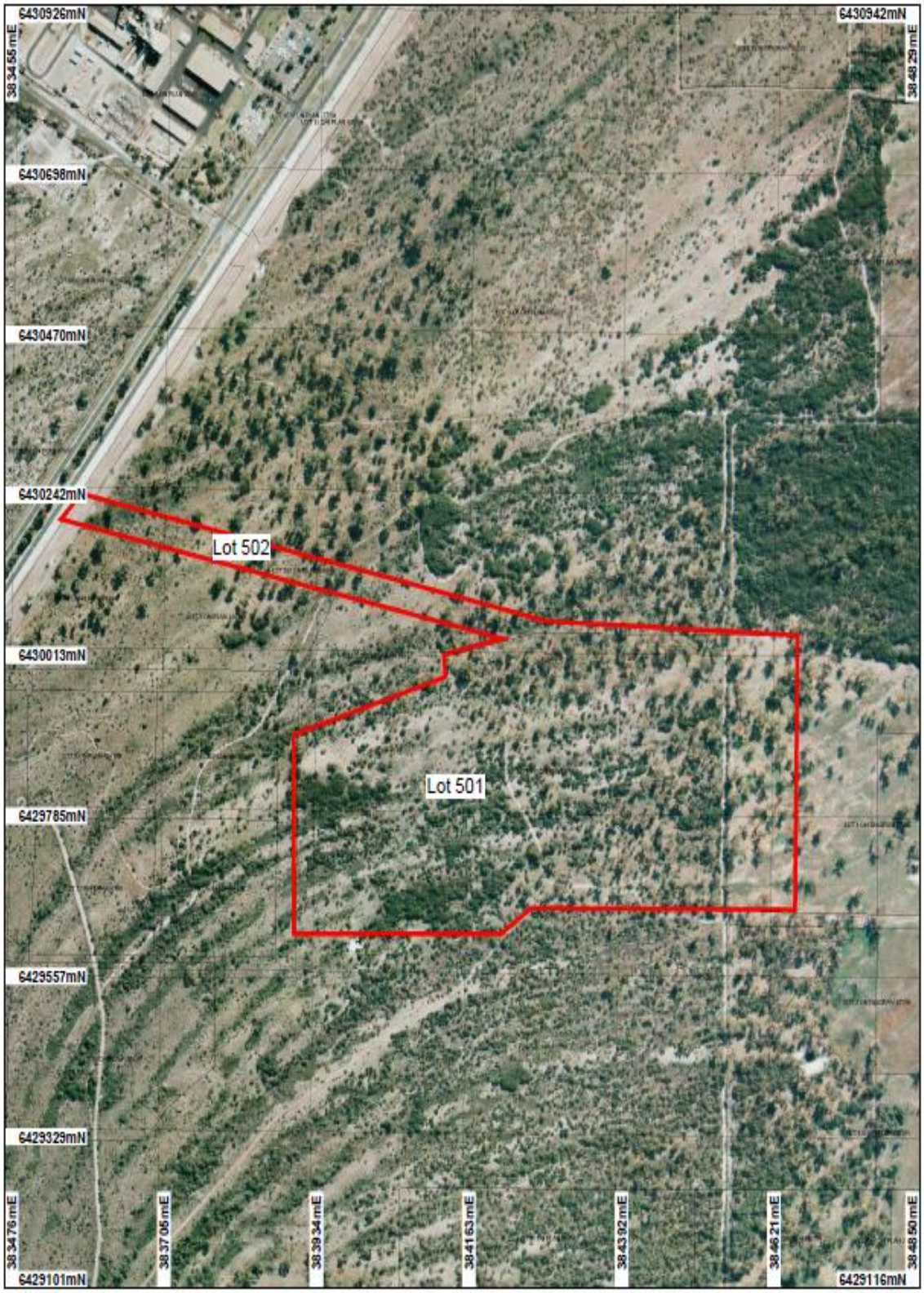
Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
-	Taking process equipment offline for maintenance works that may result in increased odour emissions	No less than 72 hours in advance of works	None Specified
2.1.4	Calibration report	As soon as practicable	

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act
Note 2: Forms are in Schedule 2

Schedule 1: Maps

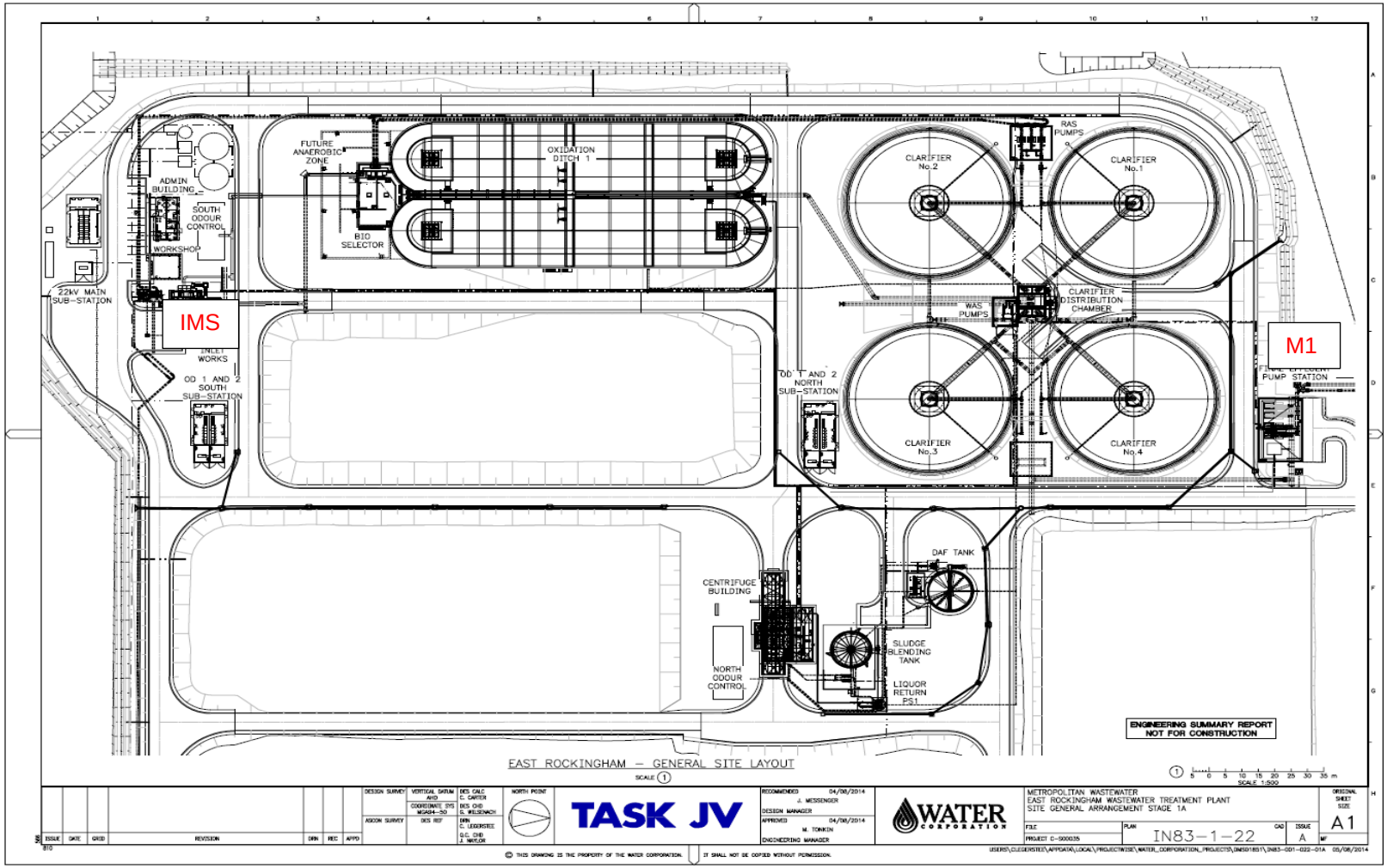
Premises map

The Premises is shown in the map below. The red line depicts the Premises boundary.



Map of monitoring locations

The locations of the monitoring points defined in Table 2.2.1 and 2.3.1 are shown below.



Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name: Trading as:	ABN:
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of the Licence complied with within the reporting period? (please tick the appropriate box)

Yes ☐ Please proceed to Section C

No ☐ Please proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:

SECTION B

DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each Licence condition that was not complied with.

a) Licence condition not complied with:	
b) Date(s) when the non compliance occurred, if applicable:	
c) Was this non compliance reported to DER?:	
☐ Yes ☐ Reported to DER verbally Date _____ ☐ Reported to DER in writing Date _____	☐ No
d) Has DER taken, or finalised any action in relation to the non compliance?:	
e) Summary of particulars of thenon compliance, and what was the environmental impact:	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram):	
g) Cause of non compliance:	
h) Action taken, or that will be taken to mitigate any adverse effects of the non compliance:	
i) Action taken or that will be taken to prevent recurrence of the non compliance:	

Each page must be initialled by the person(s) who signs Section C of this AACR

Initial:

SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) may only be signed by a person(s) with legal authority to sign it. The ways in which the AACR must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	□	by the individual licence holder, or
	□	by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	□	by affixing the common seal of the licensee in accordance with the *Corporations Act 2001*; or
	□	by two directors of the licensee; or
	□	by a director and a company secretary of the licensee, or
	□	if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or
	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	□	by the chief executive officer of the licensee; or
	□	by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of $50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SEAL (if signing under seal)

Licence: L8960/2016/1 Licensee: Water Corporation
Form: N1 Date of breach:

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide.
Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of Water Corporation	
Date	

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Water Corporation

Licence: L8960/2016/1

Registered office:	3rd Floor, John Tonkin Water Centre 629 Newcastle Street LEEDERVILLE WA 6007
Premises address:	East Rockingham Wastewater Treatment Plant (ERWWTP) Lot 501 on Deposited Plan 61891 Chesterfield Road and Pipeline Outlet Corridor located on Lot 502 Vol 2733 Folio 845 Deposited Plan 61891 Patterson Road East Rockingham WA 6168
Issue date:	Friday, 3 June 2016
Commencement date:	Monday, 6 June 2016
Expiry date:	Tuesday, 5 June 2036

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER) has decided to issue a licence. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by:	Damian Thomas Licensing Officer
Decision Document authorised by:	Caron Goodbourn Delegated Officer

Contents

1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☒ Licence amendment ☐ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)** 54	**Assessed design capacity** 20ML per day
Application verified Application fee paid	Date: 19/02/2016 Date: 21/03/2016	
Works Approval has been complied with Compliance Certificate received	Yes☒ No☐ N/A☐ Yes☒ No☐ N/A☐	
Commercial-in-confidence claim	Yes☐ No☒	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes☐ No☒	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☒ No☐	Referral decision No: Managed under Part V☐ Assessed under Part IV☒
Is the proposal subject to Ministerial Conditions?	Yes☒ No☐	Ministerial statement No: 665 EPA Report No: 1135 MS 665 only refers to the SDOOL within Lot 5012; not the ERWWTP premises on Lot 502
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☒ No ☐	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☒ No☐ Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 (revoked 2015)		
Is the Premises subject to any EPP requirements? Yes☐ No☒		

3 Executive summary of proposal and assessment

Water Corporation (WC) (Applicant) has constructed Stage 1A the East Rockingham Wastewater Treatment Plant (ERWWTP) in the Kwinana Industrial Area at East Rockingham under Works Approval 5377/2013/1 (W5377). Accordingly WC has applied for a licence to operate the ERWWTP. This licence application assessment is for Stage 1A which has a total design capacity of 20ML per day, causing it to be a 'prescribed premises' Category 54 Sewage facility under Schedule 1 of the *Environmental Protection Regulations 1987*. The final fourth stage is planned for 2070 with a design capacity of 160ML per day and there is the potential for augmentation with a water reclamation plant. Construction of Stage 1A commenced in May 2014 and due to the potential for best practice technology to change, future staged constructions will require separate works approval and licence amendment applications.

The ERWWTP will treat sewage to an advanced secondary standard by the activated sludge process, achieving a high degree of nitrogen removal where the treatment processes include preliminary treatment, consisting of screening and grit removal and secondary treatment in oxidation ditches. Table 1 below provides a summary of ERWWTP effluent quality. Solids will be thickened, dewatered and disposed off-site and all of the Stage 1A treated wastewater will be disposed via an ocean outlet pipeline existing via the Sepia Depression Ocean Outlet Landline (SDOOL). Treated wastewater through the SDOOL is subject to Part IV conditions under EPA Bulletin 1135, Statement No.665, dated 28 October 2004. Figure 1 provides an overview of the ERWWTP and SDOOL.

Table 1 ERWWTP effluent quality.

Treated Effluent quality	**Concentration**	**Loads annual average in (kg/day) or (cfu/d)**
BOD	10mg/L	400kg/day
Suspended Solids	15mg/L	600kd/day
Total Nitrogen	10mg/L	400kg/d
Total Phosphorus	10mg/L	400kg/d
E. coli (cfu/d)	100,000	4.00E+13
Treated Wastewater Disposal		In the absence of reuse options 100% of the treated wastewater will be disposed through the ocean outlet
Ocean Outlet		A pipeline connecting the ERWWTP to the existing SDOOL has been constructed.

The proposal was referred to the Commonwealth for assessment under the *Environmental Protection and Biodiversity Act 1999*, where a decision not to assess was made on 20 November 2009. It was also referred to the State Environmental Protection Agency (EPA) under Section 38, Part IV of the *Environmental Protection Act 1986* where the decision "Not Assessed – No Advice Given" was provided on 28 November 2011.

The ERWWTP footprint is also located within an area of land covered by the now revoked *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (EPP) where there are seven wetlands with a management category of 'Conservation' located up to 1km south east of the site. This is due to the presence of the TECs but none of the wetlands in the immediate vicinity of the ERWWTP are protected by the EPP. The closest Bush Forever site is located 0.7km WSW of the site. Figure 2 provides an overview of the surrounding zones.

During operation of Stage 1A there is the potential for odour emissions to impact on nearby odour sensitive premises and discharges to water as treated effluent will be discharged directly to the ocean via SDOOL. WC has submitted an Odour Management Plan (OMP) in which odour was assessed during commissioning of the ERWWTP. WC submitted the Commissioning Report required under W5377.

This Decision Document is based on an assessment of the Applicant's application for East Rockingham Wastewater Treatment Plant Licence Application – Supporting Document dated 30 October 2015 and the Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application dated December 2012.

This Decision Document identifies the risks of the Application and the proposed controls for these risks. In Summary:

- The Licence will be granted subject to the controls and likely conditions for the Licence described in section 4 of this draft Decision Document; and
- Subsequent construction of the additional 3 stages up to the maximum production and design capacity of 160ML will require separate (individual) works approvals and subsequent licence amendments in due course with construction timeframes.

Location and siting

The ERWWTP premises location current features are:

- Geology: The site is located in an area of low dunes formed by unconsolidated , fine to medium grained quartz and shell fragments (Safety Bay Sand) that extend to a depth of about 12.5m (-9mAHD). The basal 2m consists of clayey sand. The Safety Bay Sand overlies medium to coarse grained sand and limestone of the Tamala Limestone which extends down to about 26.5m (-23mAHD) and overlies the Leederville Formation near the eastern edge of a Tertiary channel deposit.
- Hydrology: The hydrology of the site includes 30 wetlands within the vicinity and 7 wetlands within one km of the site, with the closest located 200m south of the plant's footprint, which covers a surface area of 28.07 ha. The ERWWTP is expected to have an elevation of 6m AHD where approximately 80-90% of the total surface area will be impervious.
- Land use: The site is a Wastewater Treatment Plant.
- Topography: Topographic conditions have not been described by the Applicant.
- Zoning: The ERWWTP site will be 35 kms south of Perth and located within the Rockingham Industrial Zone (RIZ). The ERWWTP is located on Lot 501 and a pipeline connecting to the SDOOL is located on Lot 502. The area is zoned heavy and general industrial in both the City of Rockingham Town Planning Scheme and the Metropolitan Region Scheme.

The Environmental Protection Authority Guidance for the Assessment of Environmental Factors Separation Distances between Industrial and Sensitive Land Uses No. 3 June 2005 document identifies that separation distances for sewage facility (100m^3 or more per day) for gaseous, noise and odour emissions buffer studies are in progress to determine appropriate separation distance.

Potential sensitive receptors in the vicinity of the ERWWTP premises are:

- Groundwater: The Safety Bay Sand and Tamala Limestone form part of the Superficial aquifer of the Perth Basin. Although the Superficial aquifer is considered to be a single aquifer system, the clayey sand at the base of the Safety Bay Sand greatly restricts the movement of groundwater between the formations. The Safety Bay Sand is moderately permeable, whereas the Tamala Limestone is generally highly permeable due to the presence of karstic features such as solution channels. Groundwater levels have been monitored at nine wells across the site from February 2012. Monitoring shows that groundwater levels below fluctuate between 1.8 and 2.5m below surface (or 1 to 1.7mAHD). Groundwater within the surrounding area is alkaline with pH ranging from 8.30-8.77 and the shallow groundwater is predominantly fresh, with a salinity of less than 1,000 mg/L TDS (total dissolved solids).

- Surface water: The site has no permanent surface water features present, with rainfall mostly infiltrating directly into the underlying sand deposits. The ERWWTP footprint is also located within an area of land covered by the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* (EPP) where there are seven wetlands with a management category of 'Conservation' located up to 1km south east of the site..
- Existing residences and landowners: The closest receptors are:
  - The closest residents are the Hillman and Rockingham Village Caravan Parks, located approximately 1,100m south and 1,700m west of the site respectively.
- Bushland: An area of land south of the ERWWTP has been set aside as a 'Conservation Area' (hence no development) and will act as an off-set and buffer to the ERWWTP. This Conservation Area will be managed by Landcorp and is subject to Part IV conditions under EPA Report #1390, "Rockingham Industrial Zone – Strategic Environmental Assessment" dated April 2011. This Report recognises key environmental values within the RIZ area as having high environmental value and includes Threatened Ecological Community (TEC) 19 *Sedgelands in Holocene Dune Swales of the Southern Swan Coastal Plan* vegetation.

Operational works

The ERWWTP comprises the following facilities:

- Temporary inlet works with 2 inlet screens and 1 grit tank, including screenings and grit basins for short term store and transport off-site (covered);
- Inlet works drainage pump station (covered);
- Secondary treatment facility with:
  - 1 bio-selector (covered)
  - 2 oxidation ditches (uncovered, provision for future covers)
  - 1 clarifier distribution chamber (uncovered)
  - 2 fully equipped clarifier tanks (uncovered)
  - 2 unequipped clarifier tanks to be used as balancing storage (uncovered)
- WAS thickening and storage facilities with:
  - 1 dissolved air floatation thickener (DAFT) unit (uncovered, provision for future covers)
  - 1 DAFT sludge transfer pump station (uncovered)
  - 1 sludge blending tank (covered)
  - 1 return liquor pump station (uncovered)
- Sludge dewatering storage and disposal facilities with:
  - 2 sludge dewatering centrifuges (covered)
- 2 sludge storage hoppers for short term storage (the dewatered sludge will be transported off site for further processing or disposal) (covered)
- Effluent pressure main and a temporary effluent pump station (uncovered)
- 2 decentralised odour control treatment units (North and South) with foul air extraction, ductwork, treatment and stacks:
  - 1 for sludge thickening area (North)
  - 1 for the inlet works and bio-selector area (South) and
- Administrative buildings and utility connections.

Potential emissions

Potential emissions as a result of the operation of the works at the ERWWTP are:

- General conditions Stormwater: Potential emissions may arise from the operation of the ERWWTP;
- Discharges to Surface water: Potential emissions may arise from the operation of the ERWWTP;
- Odour: Potential emissions may arise from the operation of the ERWWTP; and
- Noise: Potential emissions may arise from the operation of the ERWWTP.

Further details of emissions and regulatory controls for the ERWWTP are detailed within section 4 of the Decision Table.

Occupation and planning approval

The Premises is currently occupied by the Applicant.

The City if Rockingham has provided the following comments regarding Planning Approval:

As the works were considered 'Public Works', in accordance with section 6 of the Planning and Development Act 2005 and given the land was reserve under the Metropolitan Region Scheme, it was exempt from requiring approval under the City's Town Planning Scheme and the Metropolitan Regions Scheme.

Consultation

DER referred the Application to the following:

- City of Rockingham on 04/04/2016.

No response was received.

This Decision Document and the Licence specifies the assessment of the Application and regulatory requirements for the ERWWTP operations to proceed.

4 Decision table

All applications are assessed in line with the *Environmental Protection Act1986*, the *Environmental Protection Regulations 1987*and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
General conditions	N/A	**Operation** Emission Description *Emission: S*tormwater contaminated with sediment, sewage or treated effluent from wastewater operations. *Impact:* Contamination of surrounding land and surface water drainage systems. Potential impacts on ecology of surface water from the addition of sediments, nutrients and metals. *Controls:* The site drainage network will consisting of catchment drainage gully grates connecting to an underground pipe system. This system will connect to open channels around the perimeter which will feed into two recharge basins. During extreme rainfall events, the recharge basins will spill over into the surrounding swales and wetland systems where it will evaporate or infiltrate into the underlying groundwater system. The pipe drainage system will be designed for a 5-year ARI event and the open channels and roadways will be constructed to convey a 100 year ARI event such that the facilities and buildings at the ERWWTP will not be inundated. Risk Assessment *Consequence*: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Regulatory Controls No specified conditions for Stormwater emissions have been included on this licence as the risk is minor stormwater emissions can be sufficiently regulated under section 49 of the *Environmental Protection Act 1986* and the *Environmental Protection (Unauthorised Discharge) Regulations 2002* for sewage and sediment. Residual Risk *Consequence:* Insignificant *Likelihood:* Unlikely *Risk Rating:* Low	
Premises operation	L1.2.1 – 1.2.5	**Operation** Licence conditions 1.2.1 – 1.2.5 have been drafted into the licence to allow the Proponent to accept and process sewage waste. Condition 1.2.1 requires any limit breach to be investigated. Condition 1.2.2 allows for sewage waste acceptance only through the sewer inflow. Condition 1.2.3 identifies waste process requirements of 20MLD for ERWWTP. Condition 1.2.4 identified ERWWTP containment infrastructure. Condition 1.2.5 regulates the management of the ERWWTP treatment vessel.	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application
Point source emissions to air including monitoring	N/A	**Operation** Refer to Appendix A for the detailed risk assessment for Odour emissions which includes reference to point source emissions to air.	Application supporting documentation W5377/2013/1

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
			Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application FOS
Point source emissions to surface water including monitoring	N/A	**Operation** Treated wastewater will be discharged to the SDOOL. A pipeline approximately 750m in length has been constructed, leading from the ERWWTP and traversing through Lot 502 Patterson Road which meets up with the main SDOOL pipeline. EPA Ministerial Statement 665 requires that the treated wastewater meet specific levels at the SDOOL diffuser. Licence condition L3.3.1 (Process monitoring) has been included to monitor the nutrient loading of the treated wastewater prior to entering the SDOOL pipeline. In the event of any issues with the ERWWTP treatment process, WC has some capacity (a few hours) to withhold discharge through the SDOOL The quality of the discharge will be regulated under Part IV (EPA Ministerial Statement No.665) where the treated wastewater is required to achieve the Australian and New Zealand Environment Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) 80% species protection guideline trigger level for bio-accumulating toxicants at the SDOOL diffuser and 99% species protection guideline trigger levels (apart from Cobalt, where a 95% guideline applies) within the Zone of High Ecological Protection (which is beyond a 100 m radius from the diffuser).	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application Ministerial Statement 665

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		No conditions for discharges to surface water are required as DER does not condition licences that are regulated by other Legislation.	
Fugitive emissions	N/A	**Operation** Emission description: *Emission:* Dust arising from vehicle movements on internal dirt roads etc during the operations at the ERWWTP. *Impact:* Reduced local air quality from airborne particulates is possible. The closest residents are the Hillman and Rockingham Village Caravan Parks, located approximately 1,100m south and 1,700m west of the site respectively. *Controls:* The ERWWTP premises is mostly constructed with a hardstand impervious base so there is minimal exposed bare earth in which vehicle movements etc will generate dust so this greatly reduces the potential for dust emissions to be generated on site. Risk assessment: *Consequence:* Insignificant *Likelihood:* Possible *Risk Rating:* Low Regulatory controls: No specified conditions for Fugitive dust emissions have been included on this licence as the emissions can be sufficiently regulated under section 49 of the *Environmental Protection Act 1986.* Residual risk: *Consequence:* Insignificant *Likelihood:* Possible *Risk Rating:* Low	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Odour	N/A	**Operation** Refer to Appendix A for the detailed risk assessment	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application Odour Management and Monitoring Plan
Noise	N/A	**Operation** Refer to Appendix B for the detailed risk assessment	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
			Environmental Noise Monitoring
Monitoring general	L2.1	**Operation** Monitoring general conditions have been added to the licence as monitoring of inputs and outputs and process monitoring is required.	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application
Monitoring of inputs and outputs	L2.2.1	**Operation** Condition 2.2.1 has been added to the licence to monitor sewage inflows.	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Process monitoring	L2.3.1	**Operation** WC corporation was required to sample process parameters during commissioning of the ERWWTP under W5377 to ensure the ERWWTP performs as constructed. Accordingly, condition 2.3.1 has been added to the licence to monitor process parameters such as pH, Total Phosphorus (TP), Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), Total Nitrogen (TN), Ammonium-nitrogen, Nitrate+Nitrite-nitrogen, Oil and Grease, Arsenic, Cadmium, Copper, Chromium, Lead, Mercury, Nickel, Zinc and *E. coli*.	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application
Information	L3.1.3	**Operation** Condition 3.1.3 has been added to the licence as the licence application states WC will be implementing a detailed complaints register which will include a phone survey of up to 150 local residents within with 2km of the buffer zone which will be conducted every two years during Stage 1 and 2 and a 24 hour phone line will allow any member of the public to report an odour compliant at any time. If there are three or more odour complaints within a three month period from the ERWWTP WC will investigate the odour matter.	Application supporting documentation W5377/2013/1 Water Corporation East Rockingham Wastewater Treatment Plant Works Approval Application
Licence Duration	N/A	In accordance with DER's Guidance Statement on Licence Duration the licence has been granted for 20 years. There are no issues that warrant a lessor duration. As above, the ERWWTP is exempt from requiring approval under the City's Town Planning Scheme and the Metropolitan Regions Scheme.	

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
04/04/2016	Application advertised in West Australian (or other relevant newspaper)	No submissions or comments received.	N/A
04/04/2016	Application referred to interested parties listed: • City of Rockingham	No submissions or comments received	N/A
04/05/2016	Proponent sent a copy of draft instrument	Minor typographical amendments provided on 17/5/2016. • Condition 1.1.2 'Quarterly' definition should be changed to encompass the 1 July – 30 June reporting year. Please change to '…the 4 inclusive periods from 1 July to 30 September, 1 October to 31 December and in the following year, 1 January to 31 March and 1 April to 30 June'. • Table 1.2.3 Clarification required on what comprises the sewerage sludge compound. The sludge stream comprises of WAS pump station, DAFT (concrete tank), TWAS pump station, thickened sludge storage tank (steel infused glass tank), centrifuge feed pumps, centrifuges, hopper and loadout. This is a closed system and should only have leachate run-off in a malfunction. The entire infrastructure is on a compacted	Incorporated into licence and decision document as advised below: • Changed as requested. • In discussion with the Proponent wording changed to Sludge discharge hopper only which is housed within a shed on a concrete floor.

Date	Event	Comments received/Notes	How comments were taken into consideration
		limestone hardstand. • Condition 2.1 Sheet metal fence: concerns expressed about necessity to install this fence based on the following: ▪ The noise is created by a standby generator which is only used in power outages; ▪ Noise doesn't exceed the fire break between the existing fence and the bushland; ▪ Installing a sheet metal fence creates a security risk as it creates a blind spot in the CCTV coverage and publicly accessible bushland. • Condition 3.2.1 Units specify m^3/d, therefore the parameter should state "volumetric flow rate" (not volume). Alternatively use Volume as the parameter but change the unit to m^3. • Condition 3.3.1 Please adjust to monthly or quarterly, in line with all other Water Corporation Licenced wastewater treatment plants. • Table 3.3.1. *Please* including "Note 1. In-field non-NATA analysis permitted" for pH to be consistent with other Water Corporation licences. • Change submission date of AER to **1 September** or within 63 calendar days (not *"within 62 calendar days"* which	• Removed condition from the licence as the risk has been assessed as low taking into consideration the Proponent comments. Condition 3.1.3 requires the Proponent implement a detailed Complaint Register. If complaints are registered DER will be informed and if substantiated DER can amend the licence to require the sheet metal fence be constructed and noise monitoring be implanted. • Changed to volumetric flow rate • Changed as requested. • No change as this is only implemented for remote premises as they cannot meet the six hour holding times. ERWWTP is located within distance to a testing laboratory to meet the six hour holding time. • Changed

Date	Event	Comments received/Notes	How comments were taken into consideration
		makes it 31 August) • ERWWTP does not have photo-ionisation as part of their odour control facility. Remove all references to photo-ionisation. • North OCF unit has combined design flow rate of 22,000m^3/hr. This includes return liquor PS#1, DAFT tank, DAFT sludge collection tanks, sludge blending tank, sludge dewatering building and sludge storage hopper. Amend paragraph to reflect this and remove reference to 5,750m^3/hr air treatment capacity for North OCF.	• Changed • Changed

6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 2: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High

Appendix A

Odour emissions

The principal issue associated with the ERWWTP will be odour emissions. During operation, hydrogen sulphide and other sulphur-containing compounds will cause most of the odour from the inlet sewer, inlet works, secondary treatment units and sludge treatment area.

An Odour Management Plan and Mitigation Strategy (OMPS) designed to satisfy odour control requirements for W5377 condition 4.1.1 IR2 has been developed and submitted to DER. The OMPS describes the design criteria of the odour control facilities, a summary of which is provided in Table 3 below:

Table 3 Design criteria for Odour Scrubbers

Odour Source	**Design target – scrubber discharge**
Activated carbon scrubbers	Less than 500 ou for 99.9% of the time Less than 0.2ppm H_2S for 99% of the time
Biofilters	Less than 2,000 ou for 99.9% of the time Less than 0.9ppm H_2S for 99% of the time

WC was required to conduct a Field Odour Survey (FOS) for the ERWWTP and submitted the FOS as part of the W5377 Commissioning Report. This Field Odour Survey consists of two parts:

1. Baseline FOS (Baseline FOS) consisting of a field assessment to determine pre-existing odours in the vicinity of the ERWWTP prior to receiving activated sludge at the facility.
2. Commissioning FOS (Commissioning FOS) consisting of both a field assessment and a source assessment to determine potential odours generated by the ERWWTP.

Emission Assessments Pty Ltd (EAPL) was engaged by Task JV (Contractor constructing the ERWWRP) to prepare a FOS Plan and conducted the Baseline and Commissioning FOSs in accordance with this plan. The aim of the Baseline FOS was to identify existing odours present in the vicinity of the ERWWTP site prior to the site's acceptance of activated sludge and wastewater. In this way, an existing representative odour profile (for this pre-operational period) around the East Rockingham site could be determined. This Baseline FOS provided information on pre-existing odours, which was used to conduct the Commissioning FOS. The Commissioning FOS aims to assess if there has been an odour impact in the community due to the ERWWTP becoming operational. The methodology and scope of the FOSs was developed by Emission Assessments based on discussions with Task JV and key DER comments.

Three assessment areas were defined for this project.

1. ***Area A*** is bordered by Mandurah Road, Office Road, Patterson Road and Dixon Road, and represents the area closest to the ERWWTP and hence is the area most likely to be impacted by odours. This area has also been identified to include the closest residential receptor, Rockingham Holiday Village.
2. ***Area B*** is located south of Dixon Road and includes a number of residential streets in the township of Hillman.
3. ***Area C*** is located west of the ERWWTP, adjacent to the Rockingham foreshore. Although almost 2km away from the ERWWTP, this area has been included in the Field Odour Survey as it is frequented by the public, especially during warmer months when odour generation may be significant.

A summary of the odour types used for the ERWWTP FOS is summarised in the following Table 4 below.

Table 4 Odour types

Odour Category	Baseline FOS	Commissioning FOS
Background Odours	• No odour • Other industry • Other odour	• No odour • Other industry • Other odour
WWTP Odours	• None	• WWTP Inlet • WWTP Secondary Treatment • WWTP Dewatering • WWTP Unassigned

A summary of the odour intensity used for the ERWWTP FOS is summarised in Table 5 below.

Table 5 summary of odour intensity

Perceived Odour Strength	Intensity Level Rating	Instructions to Assessors
Not Perceptive	0	No odour
Very Weak	1	The odour type is clearly recognisable, but very weak.
Weak	2	The odour type is clearly recognisable, and stronger than very weak.
Distinct	3	The odour type is clearly and immediately recognisable.
Strong	4	The odour type is clearly and immediately recognisable. For an offensive type of odour, exposure to this level is considered unpleasant/undesirable to the point that action to mitigate against further exposure is considered.
Very Strong	5	The odour type is clearly and immediately recognisable. For an offensive type of odour, exposure to this level would be Considered unpleasant/undesirable, with potential action to move away.
Extremely Strong	6	The odour type is clearly and immediately recognisable. For an offensive type of odour, the reaction would be to mitigate against further exposure. This remains the dominant thought and motivation until the exposure level is reduced. Exposure to the odour many cause a physical response, e.g. nausea.

The odour impact, for each of the odour types assessed, is measured by calculating the 'Percentage Odour Time' (*Pod*). This is a measure of frequency of detection for each odour type during each 10- minute odour assessment, according to the following:

$$Pod = \frac{Number\ of\ Positive\ Odour\ Detections}{Number\ of\ Readings\ Taken} \times 100$$

The findings of the FOS indicate pre-existing sources of odour near the ERWWTP were identified in the Baseline FOS and these included:

- Miscellaneous industries north of the ERWWTP, along Office Road;
- Miscellaneous industries south of the ERWWTP, for example in the area bounded by Dixon Road and Crompton Road;
- Vegetative sources; and
- Traffic sources.

These odours were detected again during the Commissioning FOS at varying 'Percentage Odour Times'.

During the Baseline and Commissioning FOS most frequently, no odour was detected in all of the areas assessed. This data suggests that the ERWWTP is located in an area with minimal existing odour impact and the surrounding areas are not being impacted from odour sourced from the ERWWTP.

In Area A, 'Other Industry' impacts were observed both north and south of the ERWWTP. No 'Other Industry' odours were detected at the boundary of the ERWWTP or near the Rockingham Holiday Village.

In Area B, the residential streets of Hillman, no 'industrial' odours or ERWWTP sourced odours were detected in the Baseline or Commissioning FOSs.

In Area C, the East Rockingham foreshore, no 'industrial' odours or ERWWTP sourced odours were detected in the Baseline or Commissioning FOSs

It is noted in the assessment that the following limitations apply to the FOS:

1. The Baseline FOS was conducted in winter, when pre-existing odour generation is considered to be at its lowest. Also, some businesses in the area may operate seasonally, and hence may not have been in operation during the three-week period of the Baseline FOS. The consequence of this limitation is that the report and its findings are biased for the cooler seasons. The Commissioning FOS was completed in November 2015, and hence the Commissioning FOS Report is biased towards the warmer seasons. The seasonal bias in each report will need to be taken into account when comparing the Baseline and Commissioning FOS data.
2. The wind speed during some of the odour assessments was below recommended wind speed. This occurred when the weather forecast predicted suitable wind speed but the local conditions were below recommended. This data has been incorporated into the report and is highlighted.
3. No odour assessments in Area C (Rockingham foreshore) were conducted in the Baseline FOS. The Area was surveyed during the Commissioning FOS only. A background assessment has not been conducted for this Area.
4. Malfunction of the portable anemometer/wind vane on Baseline Measurement Day 2 resulted in no 1-minute wind speed and wind data being available. A single instantaneous wind speed value that was manually recorded was reported from the same instrument. This recording was taken at a time that was subjectively selected as being representative of the most persistent wind condition during the measurement cycle. This data has been highlighted in the report.
5. The ERWWTP began receiving activated sludge in October 2015. During the Commissioning FOS the feed rate to the plant was approximately 2-3ML/day. This is below the production capacity of Stage 1A of 20ML/day. This may bias the results of the Commissioning FOS as higher feed rates have the potential to increase the odour concentration of potential odour sources within the Facility.
6. The DAF tank and downstream Dewatering process had been commissioning but were not operating under normal conditions during the Commissioning FOS. These processes have been identified as being possible contributors to odour impact in the community and hence the results from the Commissioning FOS may be biased without these processes operating to capacity.

Emission Description

Emission: Odour arising from operation of the ERWWTP

Impact: Unreasonable odour that may interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the premises. The closest residents are the Hillman and Rockingham Village Caravan Parks, located approximately 1,100m south and 1,700m west of the site respectively.

Controls: WC intend to manage odour emissions through a variety of measures including mechanical (coverings and ventilation ducts), chemico-physical (activated carbon scrubbers [ACS]) and biological treatment which will also include polishing ACS. All preliminary treatment units will be covered where foul air from the covered areas will be ventilated to the odour scrubber system.

Odour extraction points will be located in the removable covers located on the screenings plant, vortex degritters, bioselectors, sludge storage tanks and the inflow/outflow channels. The covers will be under negative pressure and designed to minimise leakage under normal operating conditions. Odour will be extracted directly from each of the band screen, wash presses, grit conveyors and grit bins.

Extracted air will be ducted to an odour treatment system where the scrubbers are expected to remove >95% H_2S at a combined foul air flow of up to approximately 17,750m^3/hour for Stage 1, during both peak and average loading conditions. This will reduce odour level to less than 800 OU/m^3 before it is discharged to the environment through two emission stacks which will be at a height not exceeding 20m, where the actual height will depend on the scrubbing technology used. Continuous monitoring of H_2S will be carried out during operations at the entry and discharge point to all odour treatment systems and at the entry point to the stack.

Two decentralised odour control treatment units (North and South) with foul air extraction, ductwork, treatment and stacks. Stage 1 with the South Unit treating foul air from the bioslector, sludge storage, return liquor PS#2, spirotainers and inlet works. Expected throughput is ~12,000m^3/hour. The North Unit will treat air from return liquor PS#1, DAFT tank, DAFT sludge collection tanks, sludge blending tank, sludge dewatering building and sludge storage hopper, at a rate of a combined flow of 22,000m^3/hour. The units are a continuously operating oxidation and scrubbing system. Initially, the air passes through a dust filter prior to entering a UV compartment where, in conjunction with a catalyst, chemical reactions result in a reduction of odour.

Risk Assessment

Consequence: Insignificant

Likelihood: Unlikely

Risk Rating: Low

Regulatory Controls

No specified conditions for Odour emissions or monitoring (Discharges to Air) have been included on this licence. Odour emissions can be sufficiently regulated under section 49 of the *Environmental Protection Act 1986.*

Condition 4.1.3 has been added to the licence as the licence application states WC will be implementing a detailed complaints register which will include a phone survey of up to 150 local residents within with 2km of the buffer zone which will be conducted every two years during Stage 1 and 2 and a 24 hour phone line will allow any member of the public to report an odour compliant at any time. If there are three or more odour complaints within a three month period from the ERWWTP WC will investigate the odour matter.

It is noted from the above review of the FOS limitations that the FOS was conducted when commissioning throughput was 3MLD, not 20MLD as the licence will allow. Licence condition 4.1.3 requires WC to formalise and implement a detailed complaints management system. If the ERWWTP receives complaints about odour the licence can be amended to include Stack testing and regular (annual) FOS is undertaken and the report submitted as part of the Annual Environmental Report. The Licence application states that Stage 1 will be partially covered while future stages (Stage 2, 3 and 4) will be fully covered so this will reduce odour emissions in the long term.

It is also noted from the licence application that a Contract of Sale has been submitted as Annex M and legally binding condition 5.9 to 5.15 provide binding conditions for a Special Control Area (SCA) that limits development to industries that are compatible with the ERWWTP with within the zone; which incorporates an odour buffer zone. The requirement with the SCA is agreed (and legally binding) with the land owner Landcorp. DER Land Use Planning Guidance Statement point 1 advises that *DER will support the establishment and maintenance of buffer areas by planning authorities as a key measure to minimise and manage the risk of harm to public health or the environment arising from the matters DER regulates*.

Residual Risk
Consequence: Insignificant
Likelihood: Unlikely
Risk Rating: Low

Appendix B

Nosie emissions

WC has submitted an Environmental Noise Assessment (ENA) for the ERWWTP as part of the Commissioning Report required under W5377. TASK JV commissioned Herring Storer Acoustics to carry out acoustic modelling of noise emissions for Stage 1 of the ERWWTP for pre (background noise monitoring) and post commissioning. The acoustic modelling is based on measured noise levels for the plant prior to and following commissioning and following supplier rectification of Generator noise control. The purpose of the assessment is to determine whether the project complies with the requirements of the *Environmental Protection (Noise) Regulations 1997* (Noise Regs). Background noise monitoring was requested to provide an indication of existing noise in the areas potentially affected by any noise emissions from the ERWWTP. Figure 3 provides an overview of the ENA ERWWTP location compared to residential areas monitored.

Noise emissions are required to comply with the requirements of the Noise Regs. These regulations have objective criteria for noise emissions received at other premises; traffic noise is excluded from the regulations. In some circumstances the level of noise emission from other premises can affect the acceptable noise emission from the ERWWTP due to regulation 7 (2) of the Noise Regs which places responsibilities on premises that are 'significantly contributing' to an exceedance in combination with others. The criterion used is in accordance with the Noise Regs and is provided in Table 6. The Noise Regs stipulate maximum allowable external noise levels, nominally the statistical L_{Amax}, L_{A1} and L_{A10} noise levels measured as A-weighted with slow response setting and determined by the calculation of an influencing factor. The influencing factor is calculated for the usage of land within the two circles, having radii of 100m and 450m from the premises of concern.

Table 6 Assigned outdoor noise levels

Type of premises receiving noise	**Time of day**	**Assigned level (dB)**		
		L_{A10}	**L_{A1}**	**L_{Amax}**
Nosie sensitive premises: highly sensitive area (i.e. within 15m of a dwelling	0700 to1900 hours Monday to Friday	45 + IF	55 + IF	65 + IF
	0900 to 1900 hours Sunday and public holidays	40 + IF	50 + IF	65 + IF
	1900 to 2200 hours all days	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35 + IF	45 + IF	55 + IF
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial and utility premises other than those in the Kwinana Industrial Area	All hours	65	80	90
Industrial and utility premises in the Kwinana Industrial Area	All hours	75	85	90

Note: The L_{A10} noise level is the noise that is exceeded for 10% of the time.
The L_{A1} noise level is the noise that is exceeded for 1% of the time.
The L_{Amax} noise level is the maximum noise level recorded.
IF = Influencing Factor

It is a requirement that noise from the site be free of annoying characteristics (tonality, modulation and impulsiveness) at other premises, defined below as per regulation 9 of the Noise Regs. Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises as presented in Table 7.

Table 7 Adjustments for annoying characteristics when music is not present

Where tonality is present	Where modulation is present	Where impulsiveness is present
+ 5dB	+ 5dB	+ 10dB

A summary of determined 'influencing factors' are shown in Table 8.

Table 8 determined night-time L_{A10} assigned levels

Description	Influencing Factor	Night-time Assigned level L_{A10} dB(A)
North Rockingham – corner Roe St & Lewington St	1	36(31)
Calume Street (Hillman)	3	38(33)
Rockingham Holliday Village – Dixon Rd	11	46(41)
Leda – corner Runnymede Gate & Gilmore Ave	0	35(30)

Note: (30) Compliance level for individual industry so as not to be classed as 'significantly contributing' if the cumulative premises emission exceeds the 'assigned level' or has tonal characteristic. If ERWWTP predicted noise emission complies with this level then it is clearly compliant.

The influencing factors take into account the 'industrial' zoned land, the Kwinana 'Area B' area, and for noise sensitive locations near major roads such as Dixon Road the appropriate 'Traffic Factor' in accordance with Schedule 3 of the Noise Regs. It is also noted that the area immediately surrounding the ERWWTP is within 'Area A' of the Kwinana Industrial Area which has an 'assigned level' of L_{A10} of 75 dB(A), being higher than the standard level of L_{A10} 65dB(A).

Noise levels were predicted using the acoustic software SoundPlan for worst case wind conditions in accordance with the superseded Department of Environment Draft 8 Guidelines. It is noted that 'worst case' wind conditions refer to conditions where there is a temperature inversion in conjunction with light winds in the direction from noise source to receiver, resulting in effective sound propagation receiver locations. The sound power levels used in the acoustic modelling are provided in Appendix A of the ENA. To determine cumulative noise emissions (from non-traffic noise sources) the Kwinana Industrial Council (KIC) 2010 noise emission predictions for 'worst case' night-time wind conditions were used. WC is a member of KIC and therefore able to access the KIC 2010 noise modelling predictions and the comprehensive Kwinana and surrounds background verification noise measurements electronically.

A summary of the predicted residential receiver noise levels are shown in Table 9.

Table 9 Predicted noise levels night worst case

Description	Night-time Assigned Level L_{A10} dB(A)	ERWWTP Predicted L_{A10} dB(A) No Generator	ERWWTP Predicted L_{A10} dB(A) With Generator	KIC 2010 Predicted 'worst case' L_{A10} dB(A)	Measured Background L_{A10} dB(A) (25/6/2015)
North Rockingham – corner Roe St & Lewington St	36(31)	27	28	41	41
Calume Street (Hillman)	38(33)	31	32	36	33
Rockingham Holliday Village – Dixon Rd	46(41)	33	34	37	-
Leda – corner Runnymede Gate & Gilmore Ave	35(30)	11	12	32	30
ERWWTP South Boundary	75(70) all times	62	72	46	40[47]

Notes: 1. Noise levels not adjusted for tonal characteristic.
2. [47] Noise level due to freight train NW of site

3. Measured background noise under light wind conditions with minimal traffic noise, background levels are often higher due to traffic noise. Measured levels are a combination of industrial and traffic noise.
4. (30) Compliance level for individual industry so as not to be classed as 'significantly contributing' if the cumulative premises emission exceeds the 'assigned level' or has tonal characteristic. If ERWWTP predicted noise emission complies with this level then it is clearly compliant.

Predicted emissions are increased compared to the initial assessment report. The increase is associated with a number of plant items exceeding the manufacturer's noise levels – including the aerator motors and emergency generator.

Table 9 shows that the predicted noise emissions from the ERWWTP under worst case night-time wind conditions are at least 5 dB(A) below the L_{A10} 'assigned level' at far-field receptor locations. This demonstrates that regardless of pre-existing background noise from other premises the ERWWTP noise emissions comply with the Noise Regs at far-field receptors.

The generator noise emission was measured at 71.5 dB(A) at the southern boundary following supplier rectification for excessive noise emissions. The adjoining space to the south is zoned as a conservation reserve. Technically this is regarded as a premises under the Noise Regs, and after adjustment for 'tonal characteristic' the noise emission exceeds the L_{A10} 'assigned level' when the generator is operating. The area of exceedance is relatively small, approximately 3.5m into the fire break for a 20m section of the boundary. If required a section of solid (sheet metal) fencing could be installed to achieve compliance.

The monitoring spot measurements taken around midnight 25/26th June 2015 during almost calm conditions are consistent with the KIC 2010 predicted levels, albeit that the measurement conditions were not 'worst case' and there was some contribution from distant traffic. Comparison of the predicted noise emissions from the ERWWTP and the background noise levels shows that it is unlikely that the noise emissions from the ERWWTP will be audible or make a significant contribution to existing noise levels at far-field noise sensitive receptors. It is possible that emissions may be faintly audible to the south around the Calume Street residences in the very early morning when traffic noise is at a minimum if winds are light from the north under temperature inversion conditions. The predicted noise level of 31 dB(A) is relatively low and unlikely to be noticed by residents at this time.

Operation

Emission description:

Emission: Noise arising from the operation of the ERWWTP and associated plant infrastructure such as aerators, effluent pumps, generators, odour fans, odour stacks and RAS pumps.

Impact: Interference with the health, welfare, convenience, comfort or amenity of sensitive residential receptors. The closest residents are the Hillman and Rockingham Village Caravan Parks, located approximately 1,100m south and 1,700m west of the site respectively.

Controls: The Applicant has provided an ENA as part of the Commissioning Report required for W5377 that models and assesses operations at the ERWWTP. The conclusions of the ENA indicate:

The assessment shows that noise emissions to all residential receivers will comply with the night-time regulation 'assigned levels' for all wind conditions. The predicted acoustic impact of the ERWWTP Stage 1 is relatively insignificant. Based on the assessment of Stage 1 which contains most of the noise generating infrastructure for future stages it is expected that the full development of the site will also comply (while some infrastructure is uncovered for Stage 1 future Stage 2-4 infrastructure will all be covered so noise emissions should be further limited). It is noted that any additional fan systems will need to be selected to limit the emitted sound power to below 110 dB(A) or be assessed by an acoustic consultant.

The generator noise emissions currently exceed the assigned level at the edge of the conservation reserve abutting the southern boundary. The area of exceedance is small, extending up to 3.5m into the firebreak on the outside of the southern boundary fence for approximately 20m of the southern boundary. The area is only rarely occupied by passers-by, usually trail bike riders. The generator is an emergency generator which operates infrequently but will be tested on a regular basis (potentially monthly) during weekdays.

It is concluded that Stage 1 at ERWWTP generally complies with the requirements of the Noise Regs at all times. The Emergency Generator noise emission exceeds the 'assigned level' at the edge of the adjacent conservation reserve and if required a section of solid fencing could be installed to achieve compliance.

Risk assessment:
Consequence: Insignificant
Likelihood: Possible
Risk Rating: Low

Regulatory controls:
It is considered that the commitments in the ENA and WC's commitment to designing and operating the ERWWTP to meet all of the provisions of *Environmental Protection (Noise) Regulations 1997* are sufficient to warrant a licence conditions to regulate noise emissions during operation as noise emissions exceed the Nosie Regs at the southern premises boundary when the emergency generator is used.

Licence condition 3.1.3 requires WC to formalise and implement a detailed complaints management system. If the ERWWTP receives complaints about noise the licence can be amended to include the construction of a section of solid fencing to achieve compliance on the above mentioned southern boundary and noise monitoring can be undertaken with the provision of the monitoring report submitted as part of the Annual Environmental Report. The Licence application states that Stage 1 will be partially covered while future stages (Stage 2, 3 and 4) will be fully covered so this will reduce noise emissions in the long term.

Residual risk:
Consequence: Insignificant
Likelihood: Possible
Risk Rating: Low

Figure 1 ERWWTP and SDOOL location. The ERWWTP is represented by the red line while the Sepia Depression Ocean Outlet Landfill is the blue line and the Sepia Depression Ocean Outlet is the perforated blue line

Figure 2 ERWWTP location overview

Figure 3 ERWWTP and residential area used for ENA monitoring