



# Amendment Report

<b>Licence Number</b>	L9166/2018/1
<b>Licence Holder</b>	CW Water Management Group Pty Ltd
<b>File Number:</b>	DER2018/000550
<b>Premises</b>	Yelverton Bio Industries 388 Yelverton North Road  YALLINGUP SIDING WA 6282  Legal description - Lot 10 on Plan 22177  As defined in Schedule 1 of the Licence
<b>Date of Report</b>	27 March 2020
<b>Status</b>	FINAL

# 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 Environment Report
Amendment Report	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CS Act	<i>Contaminated Sites Act 2003 (WA)</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.
DoH	Department of Health
DWER	Department of Water and Environmental Regulation
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
Licence Holder	CW Water Management Group Pty Ltd
Minister	the Minister responsible for the EP Act and associated regulations
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
TN	Total Nitrogen
Occupier	has the same meaning given to that term under the EP Act.
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.
PBI	phosphorus buffering index

Term	Definition
P&DC	Production and Design Capacity
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>
WQPN 22	DoW Water Quality Protection Note 22 – Irrigation with Nutrient Rich Wastewater (July 2008)

## 2. Amendment Description

The following guidance statements have informed the assessment and decision outlined in this Amendment Report.

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

### 2.1. Purpose and scope of assessment

The Licence Holder has applied for a licence amendment to the Existing Licence L9166/2018/1. The Licence Holder has requested an amendment to the Existing Licence for:

- The expansion of the Irrigation Area by 2.75 ha;
- An increase in Category 61 Production and Design Capacity (P&DC) from 5000 kL per annual period to 7000 kL per annual period; and
- An increase in TN loading to the irrigation area from 11.1 kg/ha/yr to 50 kg/ha/yr.

Currently 18 ha of the premises are used for the production of cut flowers, foliage and timber. Due to strong product demand an additional 2.75 ha has been identified for production purposes. This area includes an expansion of the existing irrigation Area 2 and three new irrigation areas; Areas 6, 7 and 8.

The Licence Holder has been accepting liquid waste from December 2018. The AER for 2019 advises that during the 2019 period a total of 2190.4 kL of liquid waste was received. While the volume of liquid waste remains significantly lower than the Existing Licence P&DC, the Licence Holder would like the flexibility in its licence to maximise the operational capacity of the wastewater treatment system. For example, during September 2019 a total of 423kL or 14.1kL/day was processed. During September high levels of treatment were maintained while still allowing sufficient plant downtime thus demonstrating that significant extra capacity exists within the treatment plant. As a result the Licence Holder has confidence that the equipment onsite has the capacity to treat a maximum of 1000kL/month or 33kL/day.

The Existing Licence has limits for TN at 11.1kg/ha/yr. The original works approval found the irrigation system phosphorus limited, with the limits derived from the expected treated wastewater quality from the treatment plant. The current TN limit is extremely low for commercial agriculture and data from a year of operation demonstrates the treated wastewater concentrations can be used specifically for the irrigation system. As such the Licence Holder is requesting the TN irrigation limit be amended to 50kg/ha/yr.

No other aspects of the Existing Licence are proposed or will change.

### 2.2. Consolidation of Licence

As part of this amendment package DWER has consolidated the licence by transferring the Existing Licence into the latest DWER Licence template. Apart from the requested amendment changes there are no other material changes from the Existing Licence to the proposed amended licence.

### 3. Amendment history

Table 2 provides the amendment history for L9166/2018/1.

**Table 2:** Licence amendments

Instrument	Issued	Amendment
L9166/2018/1	7/12/2018	Licence issued
L9166/2018/1	27/04/2020	Licence amendment for an increase in P&DC, irrigation area and TN loading.

### 4. Location and receptors

Table 3 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 3: Receptors and distance from activity boundary**

Residential and sensitive premises	Distance from Prescribed Premises
Dwelling Lot 11 Yelverton North Road, Yallingup Siding	200 m from the southern boundary (416 m from the treatment facility)
Cluster of buildings including dwelling Lot 8 Yelverton North Road, Carburnup River	635 m from the northern boundary (980 m from the treatment facility)
Dwelling Lot 9 Yelverton North Road, Carburnup River	160 m from the northern boundary (870 m from the treatment facility)
Dwelling and holiday accommodations Lot 2864 Yelverton North Road, Yallingup Siding	160 m from the western boundary (608 m from the treatment facility) 330 m from the western boundary (780 m from the treatment facility) 430 m from the western boundary
Dwelling and holiday accommodation Lot 2 Haag Road, Carburnup River	160 m from the western boundary (621 m from the treatment facility) 620 m from the western boundary (995 m from the treatment facility)
Dwelling and holiday accommodation Lot 21 Yelverton North Road, Yallingup Siding	Approximately 734 m from the southern boundary (920 m from the treatment facility)
Dwelling Lot 1161 Blythe Road Yallingup Siding	715 m from the western boundary (1,142 m from the treatment facility)
Dwelling Lot 342 Electra Road Yallingup Siding	800 m from the north western boundary (1191 m from the treatment facility)
Dwellings and accommodation Lot 191 Blythe Road Yallingup Siding	852 m from the western boundary (1290 m from the treatment facility)
Dwelling	880 m from the western boundary (1295 m

Lot 50 Haag Road Carbunup River	from the treatment facility)
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Table 4 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 4: Environmental receptors and distance from activity boundary**

Specified ecosystems	Distance from the Premises
Haag Nature Reserve	Located approximately 340 m south of the premises and directly adjacent to the eastern boundary of the premises.
Environmental Protection (South West Agriculture Zone Wetlands) Policy 1998	Located approximately 60.5 m west of the premises boundary.
Environmental Protection (Swan Coastal Plain Lakes) Policy 1992	Located within the boundary of the Policy area.
Threatened Ecological Communities and Priority Ecological Communities	Nil located within or adjacent to the premises. Priority Ecological Communities (PEC's) are located within the Haag Nature Reserve, approximately 340 m south of the premises.
Biological component	Distance from the Premises
Threatened/Priority Flora	Nil located within or adjacent to the premises.
Threatened/Priority Fauna: Crustaceans – Schedule 2; Mammal – Schedule 1.	Located approximately 388 m south and 852 m south consecutively, of the premises boundary

#### 4.1 Depth to Groundwater

The Existing licence requires a groundwater separation of greater than two metres prior to irrigation. In order to measure separation to groundwater in each irrigation area, each area has at least one piezometer. Depth to groundwater at the premises is assessed through the 11 piezometers and ensuing irrigation is managed through utilizing/cycling different irrigation areas at the premises.

The Licence Holder has determined that highest groundwater level will vary by 0.1-0.2 m on the groundwater levels assessed over the September to December 2015 figures shown in Table 5.

The distances to groundwater and water sources are shown in Table 5.

**Table 5: Groundwater and water sources**

Groundwater and water sources	Distance from Premises	Environmental value
Surface water: Annie Brook – swamp (non-perennial)	Approximately 310 m south of the premises boundary, based on available DWER GIS dataset.	Proclaimed under RIWI Act 1914. Discharges into Geographe Bay.

Surface water: Station Gully – major tributary	Approximately 338 m north west of the premises boundary, based on available DWER GIS dataset.	Proclaimed under RIWI Act 1914. Discharges into Geographe Bay.
Surface water: Mary Brook – significant stream	Approximately 2.37 km south of the premises boundary, based on available DWER GIS dataset.	Proclaimed under RIWI Act 1914.
Groundwater	Depth to groundwater across the premises varies between 0.66 to >2.78m with an additional variation of not more than 0.1 to 0.2m expected at approximately highest seasonal water level period (Assessment undertaken during September to December 2015 of the premises by the applicant).	Water utilised for other business operations (Aquaponics) and general agricultural land use practices.

## 4.2 Soil type

In depth soil types and characteristics were provided in the original Works Approval application and assessed for the Existing Licence. Table 6 details soil types and characteristics relevant to the assessment.

**Table 6: Soil and sub-soil characteristics**

Groundwater and water sources	Distance from Premises	Environmental Value
Soil type classification	N/A	Predominantly laterite and associated quartz sand (undifferentiated), with alluvium soils also found in the south east corner of the premises, <i>based on available DWER GIS dataset.</i>

The soil permeability<sup>1</sup> was tested at the premises at two sites (SS1 & SS2) in February 2014 and identified gravels and sands with an indicative drainage class as 'rapidly drained'.

The PBI of the soils at the premises was tested to determine the capability of the soils to retain nutrients applied to the soil profile.

The PBI was determined as shown in Table 7 for testing carried out in February 2014 and Table 8 for testing carried out in July 2018.

**Table 7: PBI of the soil**

Soil sample/ test area <sup>1</sup>	PBI score (average)	Result (at 0.1- 0.4 mBGL)	Comment
Irrigation area 5 (SS1) – eastern side of the premises	2.6	Low phosphorus buffering capacity	Phosphorus buffering capacity diminishes significantly at 0.4 mBGL
Irrigation area 3 (SS2) – western side of the premises	60.0	Moderate phosphorus buffering capacity	
SS1 - Amended	73.1	Moderate to high phosphorus buffering capacity	Soil profile amended with clay and compost to a depth of 0.1 m

Note 1: Soil permeability measured in accordance with AS1547:2000.

The application details that soil survey conducted in July 2018 was considerably more comprehensive than the previous sampling carried out in 2014. This investigation involved the excavation of ten pits with the aim of characterising the soil types present on site and it provided in Table 8.

**Table 8: PBI of the soil**

Location/test area <sup>1</sup>	Depth (mBGL)	Characteristics	PBI
Western irrigation areas 1,2 and 3 (7.6ha)	0-0.1 m	Loamy Sand	55
	0.2-0.5 m	Clayey Sand	240
	0.5-3.0 m	Medium Clay	340
Eastern irrigation areas 4 and 5 (10.4ha)	0-0.15 m	Sand	40
	0.15-3.0 m	Sand	26
	3.0-3.2 m	Coffee Rock	1800

Note 1: Soil permeability measured in accordance with AS1547:2000.

The PBI results in Table 8 show that the western irrigation areas has a medium to high PBI to a depth of 3m. The PBI of the eastern irrigation area is low due to the sandy characteristics of the soil, with the consolidated ironstone underlying the sand having a high PBI.

The Licence Holder has also had current nutrient content of the soil structure tested at the premises, by 'SWEP Pty Ltd.' against requirements for floriculture, and identified that *“the soils were found to have significantly lower than desirable levels of available nitrogen and phosphorus.”* This indicates negligible amounts of nutrient have leached to the subsoil given historic nutrient application rates.

### 4.3 Hydraulic loading

Existing Licence condition 6 provides annual loading rates for TN of 11.1kg/ha/yr. The Licence Holder has limited capacity to store treated wastewater at the premises so to increase the irrigation throughput consistent with an increase in P&DC, acceptance of liquid waste needs to



correspond to the irrigation requirements of the vegetation. The Licence Holder estimates the total annual water requirement in an average rainfall year is 69 ML for a 20.9 ha farm which equals 3.3 ML/ha. The proposed irrigation schedule provided in the application indicates the Licence Holder will irrigate treated wastewater to irrigation Areas 1, 2, 3, 4, 6, 7 and 8 for the period December to May and irrigation to Area 5 only from June to November. Area 5 can be irrigated during his time as it has consistently shown a groundwater separation distance of 2m. Given the proposed irrigation rates at the P&DC of 7 ML/yr, wastewater irrigation represents only 10% of the total irrigation requirement with a monthly contribution of 18% during August. As a consequence the deficit water requirement will need to be sourced from alternate water resources.

Table 9 provides the annual nutrient load for the irrigation areas at 7ML/yr based on a TN concentration of 120 mg/L which has been sourced from average operational treatment plant concentrations for the 2019 year.

**Table 9 Nutrient Loading to Irrigation Area**

Irrigation Area	TN Nutrient Loading
1, 2, 3, 4, 6, 7 and 8	45.9 kg/ha
5	12.5kg/ha

For comparison the nutrient loading rates for the WQPN 22 provides an overview to determine the vulnerability categories of the properties and corresponding maximum recommended nutrient application rates. Under this guidance, vulnerability categories for the Premises are both A and C. The applicable WQPN nutrient application criteria for receiving environment risk categories is provided in Table 10.

**Table 10: WQPN 22 Nutrient application criteria**

RISK CATEGORY	MAXIMUM INORGANIC NITROGEN (AS N)	MAXIMUM REACTIVE PHOSPHORUS (AS P)
	APPLICATION RATE (KG/HA/YR)	APPLICATION RATE (KG/HA/YR)
A	140	10
B	180	20
C	300	50
D	480	120

A review of the proposed new loading rate for TN (50kg/ha/yr) against the WQPN Risk Category A indicates the proposed loading is well below the prescribed maximum rate of 140kg/ha/yr (36% of the nutrient application criteria).

## 5. Risk assessment

Tables 11 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

**Table 11: 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					
Category 61 – Liquid waste facility	Dust	Air/windborne pathway causing impacts to health and amenity of closest human receptors. No residential premises are located within 2 km. Tourist and accommodation properties situated within 1 km	Yelverton Road is sealed. Any truck movement within the premises is limited in speed so dust emissions will be limited. The amendment application equates to an increase in one truck every two days which is insignificant.	Slight	Rare	Low	The Delegated Officer considers that the increase of an additional truck every second day presents a low risk of additional dust emissions.	The Delegated Officer considers impacts from dust emissions can be adequately addressed through the provisions of the <i>Environmental Protection Act 1986</i> .
Category 61 – Liquid waste facility	Noise	Air/windborne pathway causing impacts to health and amenity of closest human receptors. No residential premises are located within 2 km. Tourist and accommodation properties situated within 1 km	Liquid waste facility operations for receivals occur between 7 am and 5 pm seven days a week. There are no significant noise emissions from the treatment plant facility.	Slight	Unlikely	Low	The Delegated Officer considers that there will be no additional noise emissions from the Liquid waste treatment plant. The additional truck movement will not cause significant noise emissions. The Delegated Officer considers that the increase in P&DC will not significantly alter noise emissions from the premises.	The Delegated Officer considers the <i>Environmental Protection (Noise) Regulations 1997</i> sufficient to regulate noise emissions from the premises.
	Odour	Air/windborne pathway causing impacts to health and amenity of closest human receptors. No residential premises are located within 2 km. Tourist and accommodation properties situated within 1 km	Liquid waste treatment facility is fully enclosed. There is no waste storage at the premises prior to treatment.	Slight	Unlikely	Low	The Delegated Officer considers that allowing a P&DC increase will not significantly alter odour emissions from the premises.	The Licence Holders existing odour mitigation controls are likely to be sufficient at mitigating odour emissions. The Delegated Officer considers that the provisions of Section 49 of the <i>Environmental Protection Act 1986</i> are sufficient to regulate odour emissions.

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					
<b>Category 61 – Liquid waste facility</b>	Seepage	Spills from unloading / loading activities  Terrestrial ecosystems  Direct discharge to land  Groundwater and soil contamination inhibiting vegetation growth, and survival and health impacts to fauna	Low permeability (1x10 <sup>-9</sup> ) hard stand area.	Minor	Unlikely	Low	All unloading and loading operations will occur within low permeability (1x10 <sup>-9</sup> ) hard stand area and the activity will require personal attendance at all times. If a spill or leak occurs it can be cleaned off immediately; spill kits are available on site. The amendment will not alter any procedures or activities.	Spillages can be adequately regulated by the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> if required.
<b>Category 61 – Irrigation</b>	Treated liquid waste water applied across 20.86 ha of land	Leachate causing impacts to groundwater from the increase of predominantly nutrients but also metals and heavy metals  Groundwater depth at the Premises is 0.66 m.	Operational Odour and Nutrient Management Plan.  DoH approval (138/NA000) and attached conditions for re-use scheme limits.  Existing four bores and 11 piezometers at the premises.  Groundwater separation of at least 2 m before irrigation can occur.  No discharge to irrigation areas 1-4 and 6-8 during winter months (June to August)	Moderate	Possible	Medium	The Applicant's proposed seepage mitigation controls are likely to be sufficient at mitigating additional seepage emissions.  The Delegated Officer considers that allowing the increase in P&DC to 7000ML per annual period, increasing irrigation area by 2.75ha and increase in TN loading rate to 50kg/ha/yr will not significantly impact emissions from the premises.	Licence conditions 2, 3, 4, 6, 7, 8, 9, 10, 11 and 14.

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					
	Wastewater containing pathogens	Contamination of surrounding land, surface water and Groundwater No residential premises are located within 2 km. Tourist and accommodation properties situated within 1 km.  Direct contact, ingestion of harmful pathogens causing disease	Operational Odour and Nutrient Management Plan. DoH approval (138/NA000) and attached conditions for re-sue scheme limits.  Liquid waste treatment plant is fully enclosed.	Slight	Unlikely	Low	<i>E. coli</i> data from 2019 AER provides average concentration at 4 cfu/50mL.  The Delegated Officer considers that allowing the increase in P&DC to 7000ML per annual period will not significantly alter emissions from the premises.	DoH administer public health impacts.

## 6. Consultation

**Table 12: Summary of consultation**

Method	Comments received	DWER response
Applicant referred draft documents on 19 March 2020.	Applicant submitted response 23 March 2020 that they had no comments and to waive consultation period.	N/A
Department of Health referred Application on 30 January 2020 for comment. Response due 19 February 2020.	<ul style="list-style-type: none"> <li>Recycled water approval 38/NA000.</li> <li>Should the Applicant aim to increase the wastewater treatment processing capacity irrigation areas, an application to extend the recycled water scheme will need to be submitted to the Department for approval.</li> </ul>	Noted
City of Busselton referred Application on 30 January 2020 for comment. Response due 19 February 2020.	No comment received.	N/A

## 7. Conclusion

The Delegated Officer considers that allowing the increase in P&DC from 5000kL to 7000kL per annual period and increasing the TN loading and additional irrigation areas will not significantly alter emissions from the premises.

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.

### 7.1. Summary of amendments

Table 13 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.

**Table 13: Licence amendments**

Condition No.	Proposed amendments
1	Change to include new irrigation areas 6, 7 and 8
2	Change P&DC from 5000kL to 7000kL per annual period
3	Change to include new irrigation areas 6, 7 and 8
5	Change to include new irrigation areas 6, 7 and 8 and increase TN from 11.1 kg/ha/yr to 50 kg/ha/yr

7	Change to include new irrigation areas 6, 7 and 8
8	Change monitoring bores to coincide with map numbers
9	Change to include new irrigation areas 6, 7 and 8
10	Change to include new irrigation areas 6, 7 and 8
Schedule 1 map	New map based on amendment

Table 14 provides a summary of the Existing licence condition conversion to the new DWER licence template. All changes have been incorporated into the Revised Licence as part of the amendment process.

**Table 14: Revised Licence conversion**

Existing Licence Condition No.	Proposed Amended Licence Condition No.
2	1
3	2
4	3
5	4
6	5
7	6
8	11
9	12
10	13
11	14
12	15 and 16
13	17
14	18
15	-
Schedule 3	7
Schedule 3	8
Schedule 3	9
Schedule 3	10

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

*An officer delegated by the CEO under section 20 of the Environmental Protection Act 1986*

## Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L6912/1997/11 – Broome Refuse Site	L6912/1997/11	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
2	DER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Environment Regulation, Perth.	DER 2015a	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
3	DER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Environment Regulation, Perth.	DER 2015b	
4	DER, August 2016. <i>Guidance Statement: Licence duration.</i> Department of Environment Regulation, Perth.	DER 2016b	
5	DWER, February 2017. <i>Guidance Statement: Risk Assessments.</i> Department of Environment Regulation, Perth.	DER 2017b	
6	DWER, June 2019 <i>Guidance Statement: Decision Making.</i> Department of Environment Regulation, Perth.	DER 2019a	
7	DWER, June 2019. <i>Guideline: Industry Regulation Guide to Licensing.</i> Department of Water and Environmental Regulation, Perth.	DER2019b	