



Application for Licence

Division 3, Part V *Environmental Protection Act 1986*

Licence Number	L9166/2018/1
Applicant	CW Water Management Group Pty Ltd
ACN	167 178 627
File Number	DER2018/000550-1
Premises	Yelverton Bio Industries 388 Yelverton North Road YALLINGUP SIDING WA 6753 Legal description - Lot 10 on Plan 22177 As defined in Schedule 1 of the Licence
Date of Report	7 December 2018
Status of Report	Final

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1. Definitions of terms and acronyms

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

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
Annual period	means a 12 month period commencing from 1 January until 31 December.
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations.
Decision Report	refers to this document.
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.
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the <i>Public Sector Management Act 1994</i> and is responsible for the administration of the <i>Environmental Protection Act 1986</i> along with other legislation.
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
Licence Holder/ Applicant	CW Water Management Group Pty Ltd
m ³	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
MS	Ministerial Statement

Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
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 Decision Report applies, as specified at the front of this Decision Report
Primary Activities	as defined in Schedule 2 of the Licence
Risk Event	As described in <i>Guidance Statement: Risk Assessment</i>
UDR	<i>Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)</i>

2. Purpose and scope of assessment

An application for a new licence was received from CW Water Management Group Pty Ltd (formerly known as Yelverton Bio Industries) for a Category 61 – Liquid waste facility, at Lot 10 on Plan 22177, Yallingup Siding, WA. The application is based on the construction undertaken at the premises in accordance with Works Approval W5731/2014/1.

The Licence is for the operation of a Category 61 liquid waste facility at NuBloom Australia Floriculture Farm which proposes to receive liquid waste for treatment and reprocessing for land application, with a total annual throughput volume of 5,000 tonnes.

2.1 Application details

The following documentation has been submitted to DWER for review as part of the application details for the proposed new licence L9166/2018/1.

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
<p>Email: Licence Application – Yelverton Bio Industries – Waste water Treatment Plant. Submission included six attachments:</p> <ul style="list-style-type: none"> • Attachment 1A – YBI Lease & Title.pdf • Attachment 1B – ASIC CW –YBI.pdf • Attachment 1C – NUBLOOM Authorisation Letter.pdf • Attachment 2 – Fig 2 site layout, site plan.pdf • Attachment 9 – OONIMP – RWQMP – Confidential.pdf • IR-FO9_Application_form_works_approval_licence_YBI.pdf 	<p>Received via email on 22 March 2018 from Pia Linaker, Project/ Construction Administration, Yelverton Bio Industries.</p>
<p>Yelverton Bio Industries Commissioning Report for Works Approval- W5731/2014/1</p> <p>Operations, Odour and Nutrient Irrigation Management Plan (OONIMP)</p>	<p>Received via email on 21 September 2018 from Pia Linaker, Project/ Construction Administration, Yelverton Bio Industries.</p>
<p>Department of Health (DoH) approval for Yelverton Bio Industries Recycled Water Scheme</p>	<p>Received via email on 3 October 2018 from Pia Linaker, Project/ Construction Administration, Yelverton Bio Industries.</p>
<p>Permit to use effluent disposal system- City of Busselton</p>	<p>Received via email on 22 October 2018 from Pia Linaker, Project/ Construction Administration, Yelverton Bio Industries.</p>
<p>Response to DWER request for further information</p>	<p>Received via email on 8 November 2018 from Pia Linaker, Project/ Construction Administration, Yelverton Bio Industries.</p>

3. Background

The applicant CW Water Management Group Pty Ltd, formerly known as Yelverton Bio Industries (YBI), completed construction of a Category 61 - liquid waste treatment facility (facility) within Lot 10 on Plan 22177, 388 Yelverton North Road, Yallingup Siding, City of Busselton, under works approval W5731/2014/1. The premises is located approximately 247km south of Perth.

The compliance and commissioning reports for the Works Approval W5731/2014/1 were received from the applicant on 29 March 2018. DWER determined that insufficient commissioning had been undertaken to ensure the effective operation of the premises and an extension on the commissioning phase was granted until 30 June 2018.

The compliance and commissioning report was again submitted to DWER on 21 September 2018. The applicant was required to provide further information relating to the compliance and commissioning report which was received on 8 November 2018.

The enclosed facility has been designed to have a capacity of 5,000 tonnes per annual period. The following works were undertaken:

1. Construction of a five stage modular system for the treatment of liquid waste that includes
 - Concrete receival and screening tank with wash ring
 - An enclosed injection system and settlement tank;
 - Three enclosed aeration/ sedimentation tanks;
 - Enclosed 'Fujiclean' Aerobic Treatment Units (ATU); and
 - Sand filter and disinfection system.
2. Low permeability, bunded hardstand area for the laydown of biosolid sludge and compost production.

The premises will also undertake composting. The composting facility however does not trigger the threshold values for Category 61A or 67A (> 1,000 tonnes per annual period) under the *Environmental Protection Regulations 1987* and as a result these categories have not been included within the Licence.

The premises is expected to receive liquid waste from numerous sources, consisting of:

- Non-toxic salts in solution;
- Sewage/ septage;
- Grease trap waste; and
- Industrial wash waters from winery waste.

The applicant states that "*Yelverton Bio Industries is the company established to own and operate the wastewater treatment facility. The directors of this company include Mr Damien Crane and Mr Duncan Wood. Mr Crane is a licenced plumber with over twenty years' experience in the water and wastewater industry. He is the licenced supplier and maintenance provider for 'Fuji' wastewater treatment systems and will be the key contact with regard to the operation of the facility. Mr Duncan Wood is the landowner and floriculture farmer who will utilise the treated wastewater through his existing plantings. His commercial scale operation operates under the name NuBloom Pty Ltd.*"

Table 3 lists the prescribed premises category that has been applied for.

Table 3: Prescribed Premises Categories

Classification of Premises	Description	Approved Premises production or design capacity or throughput
Category 61	Liquid waste facility: premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.	5,000 tonnes per annual period

4. Overview of Premises

4.1 Operational aspects

The applicant has defined the treatment process as ‘a closed system’ with all liquid waste received being processed and stored within enclosed systems or tanks prior to application to land. The treatment process will include five stages:

- **Stage one:** Concrete receival and screening tank with wash ring;
- **Stage two:** An injection system for pH buffering and flocculation with a settlement tank with settling cone for removal of biosolid sludge and return of wastewater to treatment system. Sludge is to be removed for composting onsite and/ or removed from site by a licenced controlled waste carrier;
- **Stage three:** Three 32,000L aeration/ sedimentation tanks that are oxygenated with compressed air and then allowed to settle. Settled sludge will be returned to the receival tank and clarified water will be discharge to the activated treatment units or removed from the site by a licenced controlled waste carrier. At the end of stage three it is expected that the water quality has achieved the required parameter standard prior to entering stage four;
- **Stage four:** Wastewater is passed through the three ‘Fujiclean Aerobic Treatment Units’ (ATU) which are rated at 13,698L/ day. The ATUs have a contact filter bed process which is expected to reduce levels of suspended solids (TSS), nutrients (TP and TN) and biochemical oxygen demand (BOD);
- **Stage five:** The treated wastewater will then be passed through a sand filter, ultraviolet disinfection and discharged directly to irrigation which is carried out through subsurface drip feed system to the existing flower farm; and
- The biosolids sludge will be removed to a low permeability, bunded, hardstand area where it will be piled and turned (with additional organic matter added to it) in the creation of compost for supplementation of organic matter to the existing flower farm.

Irrigation of treated liquid wastewater will be supplied across 18 ha of land that has been divided into 5 areas (as shown in Schedule 1: Maps) within the flower farm, during January to end of May (dependent on groundwater depth which will be monitored weekly). From approximately 1 June to end of December, irrigation will be carried out on area 5 only to ensure that potential contamination of groundwater is minimised. Piezometers (11) have been installed across the irrigation areas with four groundwater monitoring bores located around the premises boundary, as identified by the former DoW for the proponent.

The applicant has committed to complying with WQPN 22 and ensuring a separation distance of ≥ 2 m to groundwater at all irrigation areas (as shown in Schedule 1: Maps).

The premises will produce approximately 6 tonnes of biosolids sludge annually which will be incorporated into additional organic matter in the production of approximately 200 tonnes of compost annually for application to land. Application will be undertaken in accordance with the WA Biosolids guidelines for nutrient loading rates and the related REF for the premises.

This volume is well below the trigger value for a Category 61A or 67A as per the requirements of the *Environmental Protection Regulations 1987*.

The premises proposes to accept the following waste types at the facility:

Table 4: Waste type

Waste code	Waste type/ description
K200	Food and beverage processing wastes
K210	Septage waste
K110	Grease waste
D300	Non-toxic salts

4.2 Infrastructure

The Liquid waste facility infrastructure, as it relates to Category 61 activities, is detailed in Table 5 and with reference to the Site Plan (attached in the Licence).

Table 5 lists infrastructure associated with each prescribed premises category.

Table 5: Liquid waste facility Category 61 infrastructure

	Infrastructure	Site Plan Reference
	Prescribed Activity Category 61	
Receival and processing of controlled liquid waste types prior to application to land.		
1	Receival and screening tank	As shown in Schedule 1: Maps
2	Settlement tanks	
3	Aeration/ sedimentation tanks (3 x 32,000 ltr)	
4	'Fujiclean' aerobic treatment systems x 3	
5	Filtration and irrigation system	
6	Groundwater monitoring bores x 4	
7	Piezometers x 11	
	Directly related activities	
Biosolids generated from the liquid waste treatment process will accumulate within the sedimentation tanks, settlement tanks and 'Fujiclean' aerobic treatment systems. The biosolids will be removed regularly and will be processed into compost for application to land at the premises.		
1	Biosolids (compost) storage area	As shown in Schedule 1: Maps
	Other activities	
1	Solid waste receival and composting	Below <i>Environmental Protection Regulations 1987</i> Schedule 1, Part 1 trigger values for Category 61A or 67A.

	Infrastructure	Site Plan Reference
2	Wash down wastewater infrastructure	Applicant to confirm if the following structures are located on site
3	Oil and water separator	
4	Sumps	

4.3 Exclusions to the Premises

The applicant has not been assessed under the proposed Licence for the operation of the composting facility which is currently operating under threshold trigger value, as defined under the Environmental Protection Regulations 1987, Schedule 1, Part 1, for Category 61A or 67A (> 1,000 tonnes per annual period).

The composting facility has therefore not been included within the proposed Licence. However, associated infrastructure from the liquid waste facility will have implications on the application to land due to the waste streams generated from the treatment of the liquid waste processed at the premises. As a result a number of proposed regulatory controls under the treatment of the liquid waste treatment facility will be applicable to the composting facility and its operation.

Key Finding: The exclusion of the composting facility from the proposed Licence does not exclude/ exempt the requirements of the applicant to comply with other regulatory controls as required by DoH or other relevant statutory organisations/requirements or general provisions under the *Environmental Protection Act 1986*.

5. Legislative context

Table 6 summarises approvals relevant to the assessment.

Table 6: Relevant approvals and tenure

Legislation	Number	Subsidiary	Approval
<i>Planning and Development Act 2005</i>	PO55/14 (Lot 78 & 79 on Plan 400640 amalgamated into Lot 101 on Plan 403730)	<i>Owned by Aljim Pty Ltd & Daveben Pty Ltd who are individuals that own Wren Oil.</i>	<i>Planning Approval granted 18 November 2014, with conditions.</i>

5.1 Contaminated sites

Assessment of the proposed prescribed premises under DWER GIS layers has determined that the premises is currently not identified as a contaminated site.

5.2 Other relevant approvals

5.2.1 Planning approvals

Planning approval was granted by the City of Busselton, under the *Planning and Development Act 2005*, on 31 December 2014, conditional on the preparation of an 'Operational, Odour and Nutrient Irrigation Management Plan' for the liquid waste facility.

The City of Busselton gave planning approval for the composting facility at the premises on 13 August 2009, and a permit to use the composting facility was granted on 25 October 2010 to manufacture compost (under reference 100015552, DA09/0062).

5.2.2 Department of Health (DoH)

The Works Approval application was referred by DWER to DoH (dated 5 September 2014). No objection to the application was given provided five recommendations were undertaken (See Appendix 4).

The Works Approval ensured compliance against points 1 and 2 of the DoH recommendations.

The applicant is required to ensure compliance against points 3 and 4 of the DoH recommendations, which includes confirmation of compliance against the *Health Regulations 1974* for construction and installation of the premises, and obtaining DoH approval as per the 'Guidelines for the Non-potable Uses of Recycled Water in WA (2011)'. The Works Approval required the applicant to obtain such approval under condition 1.2.4. Confirmation of compliance with DoH requirements, as stated within the referral, will be required for submission to DWER as part of the proposed Licence.

The DoH regulates recycled water scheme through the *Health Act 1911*.

Approval (number 138/NA000) to use treated wastewater from the Yelverton Bio Industries Wastewater Treatment Plant for irrigation of the Nubloom Australia Floriculture Farm (sub-surface irrigation of 18ha of floriculture plantings) was issued on 25 September 2018 subject to the attached conditions. Condition 5 of the approval sets limits for a range of parameters as shown in appendix 5).

5.2.3 Lease agreement

A lease agreement is in place between the applicant NuBloom Pty Ltd and CW Water Management Group Pty Ltd (formerly known as Yelverton Bio Industries Pty Ltd), trustee of the Yelverton Bio Unit Trust.

The lease was signed 27th June 2016 for the prescribed premises. The lease commenced on 1 July 2016 and terminates on 30 June 2026.

5.3 Part V of the EP Act

5.3.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The guidance statements which inform this assessment are:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Publication of Annual Audit Compliance Reports (May 2016)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

5.3.2 Works approval and licence history

Table 7 summarises the works approval and licence history for the premises.

Table 7: Works approval and licence history

Instrument	Issued	Nature and extent of works approval, licence or amendment
W5731/2014/1	10/12/2015	Works Approval for the construction of a Category 61 – Liquid waste facility
W5731/2014/1	12/06/2018	Amendment Notice 1 - To permit discharge of commissioning liquid waste to the composting pad and undertake administrative changes to the works approval.
L9166/2018/1	7/12/2018	New Licence for the operation of a Category 61 – Liquid waste facility

5.3.3 Key and recent works approvals

A works approval amendment was initiated through Amendment Notice 1 following the submission of the Works Approval commissioning and compliance report, which was determined as insufficient. The applicant therefore requested an extension to the commissioning phase and amendment of specific monitoring parameters. The initial requirement for the applicant to complete a review of environmental factors (REF) was removed as this requirement was deemed adequately addressed through requirements specified by the Department of Health under DoH approval F-AA-20406 EHB14/2225, dated 25 September 2014. The requirement was replaced by the revision of the OONIMP to address issues of application rates and compliance to other regulatory controls in the protection of groundwater resources at the premises.

The amendment permitted additional liquid waste receipt and processing in order to improve the functionality and efficacy of the three treatment trains, which are treating highly variable waste streams.

The extension in the commissioning phase was still within the works approval instrument issuing period, which expires December 2018. A revised OONIMP has been submitted to DWER with the revised Works Approval Commissioning and Compliance Report.

6. Consultation

The application was advertised for public comment on 22 October 2018. No comments were received.

The applicant has undertaken consultation with the City of Busselton and the Department of Health regarding the operation of the proposed facility.

7. Location and siting

7.1 Siting context

The premises is located within a zoned 'agriculture' area under the City of Busselton planning scheme 21, within Lot 10 on Plan 22177, 388 Yelverton North Road, Yallingup Siding, City of Busselton. The premises is located approximately 247km south of Perth.

The premises currently is a floriculture farm which grows a range of plants including hydrangeas, magnolias, eucalyptus and proteaceous species.

7.2 Residential and sensitive Premises

There is no residential property within 2km of the proposed premises. There are areas zoned

recreation within 1km. Tourist and accommodation facilities are situated within 1km. The distances to residential and sensitive receptors are detailed in Table 8.

Table 8: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Residential premises	No residential premises within 2km
Dwelling Lot 11 Yelverton North Road, Yallingup Siding	200m from the southern boundary (416m from the treatment facility)
Cluster of buildings including dwelling Lot 8 Yelverton North Road, Carbunup River	635m from the northern boundary (980m from the treatment facility)
Dwelling Lot 9 Yelverton North Road, Carbunup River	160m from the northern boundary (870m from the treatment facility)
Dwelling and holiday accommodations Lot 2864 Yelverton North Road, Yallingup Siding	160m from the western boundary (608m from the treatment facility) 330m from the western boundary (780m from the treatment facility) 430 m from the western boundary
Dwelling and holiday accommodation Lot 2 Haag Road, Carbunup River	160m from the western boundary (621m from the treatment facility) 620m from the western boundary (995m from the treatment facility)
Dwelling and holiday accommodation Lot 21 Yelverton North Road, Yallingup Siding	Approximately 734m from the southern boundary (920m from the treatment facility)
Dwelling Lot 1161 Blythe Road Yallingup Siding	715m from the western boundary (1,142m from the treatment facility)
Dwelling Lot 342 Electra Road Yallingup Siding	800m from the north western boundary (1191m from the treatment facility)
Dwellings and accommodation Lot 191 Blythe Road Yallingup Siding	852m from the western boundary (1290m from the treatment facility)
Dwelling	880m from the western boundary (1295m from the treatment facility)

Lot 50 Haag Road Carbunup River	
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7.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. There are no threatened ecological communities, flora or fauna adjacent to or in close proximity to the proposed prescribed premises.

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table 9. Table 9 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

Table 9: Environmental values

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

7.4 Groundwater and water sources

The applicant has determined that:

“The superficial aquifer forms an unconfined aquifer with a thin saturated layer with a thickness of less than 5 m and collectively includes the Tamala Limestone, Bassendean Sand, Guildford formation and Yoganup formation. Consequently there is a large variation in permeability, salinity, recharge rates and soil type across the Cowaramup – Vasse subarea.”

This forms part of the Leederville formation which has been defined as *“a multi-layered aquifer system consisting of discontinuous interbedded sequences of sand and clay. Depth of the aquifer ranges from 15–200 m below ground level (below the superficial aquifer) depending on the site location and distance from the coast.”*

The depth to groundwater at the premises has been assessed through the installation of 11 piezometers. The applicant 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 10.

The distances to groundwater and water sources are shown in Table 10.

Table 10: 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.

7.5 Soil type

Table 11 details soil types and characteristics relevant to the assessment.

Table 11: 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, based on available DWER GIS dataset.

The soil permeability¹ 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’ (as shown in Schedule 1: Maps).

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

The phosphorus buffering index (PBI) was determined as shown in Table 12 for testing carried out in February 2014 and Table 13 for testing carried out in July 2018.

Table 12: PBI of the soil

Soil sample/ test area ¹	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

Irrigation area 3 (SS2) – western side of the premises	60.0	Moderate phosphorus buffering capacity	significantly at 0.4 mBGL
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 applicant 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.”*

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.

Table 13: PBI of the soil

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

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

The PBI results in table 13 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.

7.6 Meteorology

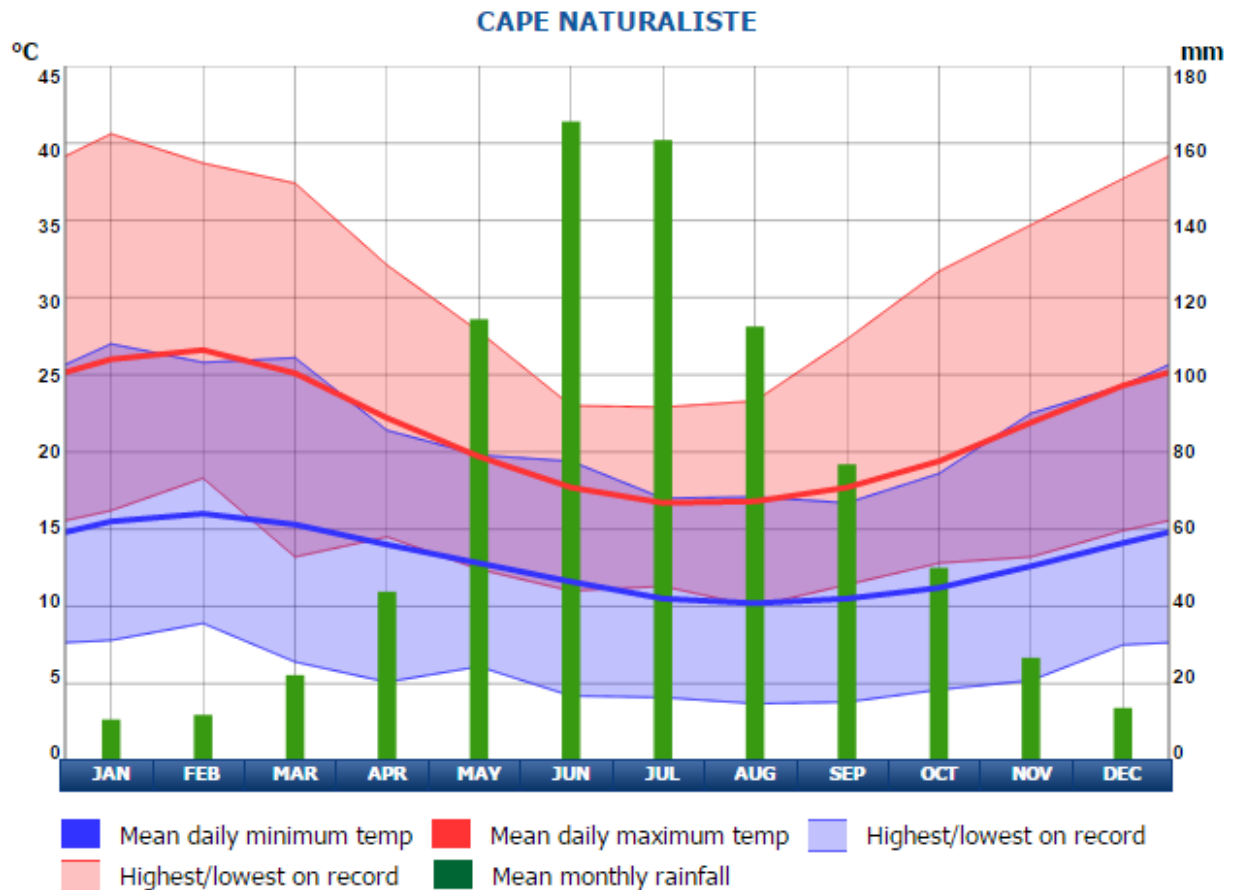
7.6.1 Wind direction and strength

The applicant has stated that “The Cape Naturaliste area (and surrounding region) experiences a varied wind climate with a bias toward an easterly wind component on summer mornings, with winds predominantly from the south west in the afternoons (i.e. sea breezes). Winter winds can manifest from most directions in the mornings and afternoons, but are generally stronger from the west. Spring mornings are characterised by moderate winds from the west, south west and east with afternoons experiencing strong winds from the west and south west. In summer, morning breezes are likely to be strong from the east, south east and south west, with strong afternoon sea breezes from the southwest. Summer sea breezes are frequently quite fresh and often exceed 40 km/h.”

7.6.2 Regional climatic aspects

The applicant has stated that “Yallingup Siding experiences a Mediterranean climate (Köppen climate classification Csa/Csb) which is characterised by moderate temperatures, with a mean maximum temperature of 21.1 °C and a mean minimum of 12.8 °C. The summers are generally hot, with a mean daily maximum of 26.6 °C in February with cooling afternoon sea breezes, and a winter that delivers cooler temperatures with a mean daily minimum temperature of 10.2°C in August. The mean annual average rainfall for Cape Naturaliste (18.5km to the north west of the premises) is 808.7 mm (based on data from 1907 to 2013), with the wettest period being from May to September.”

7.6.3 Rainfall and temperature



Source: Weatherzone: <http://www.weatherzone.com.au/climate/station.jsp?lt=site&lc=9519> on 7 January 2015.

8. Risk assessment

8.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through Table 14.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Table 13 below.

Table 14: Identification of emissions, pathway and receptors during operation

Risk Events					Continue to detailed risk assessment	Reasoning
Sources/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Category 61 – Liquid waste facility	Acceptance of controlled waste substances (K200, K210, K110 and D300)	Odour	No residential premises are located within 2km. Tourist and accommodation properties situated within 1km	Air/ wind dispersion	Health/ Amenity	No The Delegated Officer considers that odour can be adequately regulated by adherence to the existing OONIMP and section 49 of the EP Act.
	Truck movements through the delivery	Noise	No residential premises are located within 2km. Tourist and accommodation properties situated within 1km	Air/ wind dispersion	Amenity	No The primary noise emissions will be generated from the movement of trucks The Delegated Officer considers noise emissions are adequately addressed under the provisions of the Environmental Protection (Noise) Regulations 2002.

Risk Events					Continue to detailed risk assessment	Reasoning
Sources/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
		Dust			Health/ Amenity	No <i>The Delegated Officer considers impacts from dust emissions as not foreseeable. If any impacts eventuate, they can be adequately addressed through the provisions of the Environmental Protection Act 1986.</i>
	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	No <i>All unloading and loading operations will occur within low permeability (1×10^{-9}) 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. Spillage can be adequately regulated by the Environmental Protection (Unauthorised Discharges) Regulations 2004 (UDRs) if required.</i>
Irrigation	Treated liquid waste water applied across 18 ha of land	Discharge to land via irrigation of nutrient rich treated liquid waste water	Contamination of surrounding land, surface water and Groundwater	Direct discharge land and surface waters	Soil contamination inhibiting vegetation growth and survival Surface water contamination	Yes <i>Potential for ponding in the irrigation area and increase in nutrient levels in soil (ultimately discharging off site via perched groundwater) if liquid waste is not sustainably applied. See Section 8.4</i>
		Wastewater containing pathogens	Contamination of surrounding land, surface water and Groundwater Tourist and accommodation properties situated within 1km. Humans visiting the facilities and coming into contact with the treated liquid wastewater.	Direct contact, ingestion of harmful pathogens	Harmful microorganisms can cause disease	No <i>The Delegated Officer is satisfied that there is an insignificant likelihood of the general public contacting treated waste water from the proposal. DoH regulates public health impacts from the re-use scheme.</i>

8.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 15 below.

Table 15: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 16 below.

Table 16: Risk criteria table

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		The following criteria has been used to determine the consequences of a Risk Event occurring:		
			Environment	Public health* and amenity (such as air and water quality, noise, and odour)
Almost Certain	The risk event is expected to occur in most circumstances	Severe	<ul style="list-style-type: none"> onsite impacts: catastrophic offsite impacts local scale: high level or above offsite impacts wider scale: mid-level or above Mid to long-term or permanent impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are significantly exceeded 	<ul style="list-style-type: none"> Loss of life Adverse health effects: high level or ongoing medical treatment Specific Consequence Criteria (for public health) are significantly exceeded Local scale impacts: permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	<ul style="list-style-type: none"> onsite impacts: high level offsite impacts local scale: mid-level offsite impacts wider scale: low level Short-term impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are exceeded 	<ul style="list-style-type: none"> Adverse health effects: mid-level or frequent medical treatment Specific Consequence Criteria (for public health) are exceeded Local scale impacts: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	<ul style="list-style-type: none"> onsite impacts: mid-level offsite impacts local scale: low level offsite impacts wider scale: minimal Specific Consequence Criteria (for environment) are at risk of not being met 	<ul style="list-style-type: none"> Adverse health effects: low level or occasional medical treatment Specific Consequence Criteria (for public health) are at risk of not being met Local scale impacts: mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	<ul style="list-style-type: none"> onsite impacts: low level offsite impacts local scale: minimal offsite impacts wider scale: not detectable Specific Consequence Criteria (for environment) likely to be met 	<ul style="list-style-type: none"> Specific Consequence Criteria (for public health) are likely to be met Local scale impacts: low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	<ul style="list-style-type: none"> onsite impact: minimal Specific Consequence Criteria (for environment) met 	<ul style="list-style-type: none"> Local scale: minimal to amenity Specific Consequence Criteria (for public health) met

[^] Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting*.

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines*.

"onsite" means within the Prescribed Premises boundary.

8.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment table 17 below:

Table 17: Risk treatment table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

8.4 Risk Assessment – Irrigation of treated liquid wastewater

8.4.1 Description of irrigation of treated liquid wastewater

Following treatment through the fujiclean aerobic treatment units, treated wastewater will pass through a sand filter, ultraviolet disinfection and be discharged directly to irrigation areas across 18 ha of land. Irrigation will be through a subsurface drip system to the existing flower farm.

8.4.2 Identification and general characterisation of emission

The key contaminants of concern in treated liquid waste water are BOD, TN, TP and TSS concentrations. Information provided with the application shows that phosphorous supplied from the waste water will replace 17.6% of the required phosphorous and 8% of the nitrogen fertiliser requirements. The balance of the nutrients required will be applied through the use of compost and additional synthetic fertiliser. The anticipated volume to be irrigated annually over 18ha area is 5000 kL (5 ML).

8.4.3 Description of potential adverse impact from the emission

The US EPA 2006 guidelines for the land application of wastewater suggest that the ongoing application of wastewater with high N, P and BOD levels can cause clogging of soil pore spaces with biofilms and the development of anaerobic conditions in soils, limiting both plant growth and the infiltration of water. It is important that sufficient drying periods are allowed between each application of wastewater to allow organic matter to be removed by soil microorganisms and to allow aerobic conditions to be maintained. Excessive application of treated waste water will cause water to drain downwards taking nutrients dissolved with it. This can contaminate the groundwater. Information obtained from Perth groundwater map shows that the groundwater

flows are in the southerly direction and may flow towards the Annie Brook swamp, situated approximately 300 m south of the premises boundary with the remainder going towards another tributary, Station Gully creek, situated approximately 340m from the site. Anaerobic conditions in the soil are also likely to increase the mobilisation of P due to the reductive dissolution of iron oxide minerals in the soil which generally bind most of the P in the soil profile.

8.4.4 Criteria for assessment

Relevant land and groundwater quality criteria include:

- National Environment Protection (Assessment of Site Contamination) Measure 1999;
- NSW EPA 1998 *On-site Sewage Management for Single Households: Environment & Health Protection Guidelines*;
- NSW DEC 2004 *Environmental Guidelines: Use of Effluent by Irrigation*. Technical guidelines produced by the NSW Department of Environment and Conservation;
- US EPA 2006 Process Design Manual, Land Treatment of Municipal Wastewater Effluents. *US EPA Technical Report EPA 625/R-06/016*; and
- Department of Water's Water Quality Protection Note 22 Irrigation with Nutrient Rich Wastewater

8.4.5 Applicant/Licence Holder controls

The Applicant has prepared an Operational, Odour and Nutrient Irrigation Management Plan (OONIMP) which discusses how the irrigation of the treated liquid waste water will be managed to minimise environmental impact.

The applicant is proposing to receive and treat a maximum of 5 ML per year of liquid waste water using an enclosed system with irrigation of final treated wastewater to the existing floriculture farm. The irrigation area comprises 18 ha of floriculture plantings.

The DoH regulates recycled water scheme through the *Health Act 1911*.

Approval (number 138/NA000) to use treated wastewater from the Yelverton Bio Industries Wastewater Treatment Plant for irrigation of the Nubloom Australia Floriculture Farm (sub-surface irrigation of 18ha of floriculture plantings) was issued on 25 September 2018 subject to the attached conditions (see appendix 5). Condition 5 of the approval sets limits for a range of parameters as shown in Table 18 below.

Table 18: Re-use scheme limits

Parameter	Compliance value	Monitoring frequency
Disinfection	Cl ⁻ 0.2 – 2 mg/L UV Intensity drop <25% at 245nm	Daily or continuous online
E. coli	< 1000 cfu/100mL	Monthly
SS	<30 mg/L	Monthly
pH	6.5 – 8.5	Daily or continuous online

*Chlorine measured as total chlorine residual after a minimum contact time of 30 minutes

Treated liquid waste water results provided in table 19 below. As stated above phosphorous supplied from the waste water will replace only **17.6%** of the required phosphorous fertiliser and **8%** of the nitrogen fertilizer requirements.

Table 19: Annual nutrient load

Column 1	Column 2	Column 3
Location	Phosphorous (kg/ha/yr)	Nitrogen (kg/ha/yr)
Irrigation area 1,2 3, 4 & 5	8.3 kg/ha/yr	11.1 kg/ha/yr

The applicant has provided the total nutrient overloading required in all 5 areas. Table 20 below shows the annual nutrient loading applied yearly which includes applications through the use of compost and additional synthetic fertiliser.

Table 20: Annual nutrient load

Column 1	Column 2	Column 3
Location	Phosphorous (kg/ha/yr)	Nitrogen (kg/ha/yr)
Irrigation area 1,2 & 3	30kg/ha/yr	140kg/ha/yr
Irrigation area 4 & 5	17kg/ha/yr	

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 21.

Table 21: 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

The applicant has also confirmed that a groundwater separation distance will always be maintained when irrigating in those 5 areas.

The applicant also proposes to apply nutrients at the lower 10kg/ha rate in the portion of the site which has a potential pathway to the tributary. Given the lower nutrient application rate, and the 400m separation distance any impact on these areas according to the applicant is considered unlikely.

8.4.6 Key findings

The Delegated Officer has reviewed the information regarding irrigation and has found that:

1. *The Applicant only proposes to irrigate 5ML of treated liquid waste water across 18 ha of land.*
2. *The applicant is proposing to dispose a total of 140kg/ha/yr of nitrogen in all 5 areas via irrigation and through the use of compost and additional synthetic fertiliser.*
3. *The applicant is proposing to dispose 30 kg/ha/yr of phosphorus within irrigation areas 1, 2 and 3 via irrigation and through the use of compost and additional synthetic fertiliser.*
4. *The applicant is proposing to dispose 17 kg/ha/yr of phosphorus within irrigation areas 4 and 3 via irrigation and through the use of compost and additional synthetic fertiliser.*
5. *17 kg/ha/yr of phosphorus to be disposed within irrigation areas 4 and 3 may be high however a sound monitoring program will be able to allow for adjustments to ongoing operations;*
6. *Phosphorous supplied from the waste water will replace only **17.6%** of the required phosphorous fertiliser;*
7. *Nitrogen supplied from the waste water will replace only **8%** of the nitrogen fertilizer requirements.*
8. *The groundwater flows are in the southerly direction and Annie Brook swamp is situated approximately 300 m south of the premises boundary.*

8.4.7 Consequence

When irrigation of treated liquid waste water (high concentration of BOD, TN and TP) occurs, the Delegated Officer has determined that the impact of irrigation will be mid-level on-site impacts, low level off-site impacts, minimal off-site wider scale impacts with Specific Consequence Criteria (for Environment) are at risk of not being met. Therefore, the Delegated Officer considers the consequence of irrigation to be **Moderate**.

8.4.8 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of emissions from irrigation could occur at some time. Therefore, the Delegated Officer considers the likelihood of Risk Event to be **possible**.

8.4.9 Overall rating of wash down wastewater emissions

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 14) and determined that the overall rating for the risk of wash down wastewater is **medium**.

8.5 Summary of acceptability and treatment of Risk Events

A summary of the risk assessment and the acceptability or unacceptability of the risk events set out above, with the appropriate treatment and control, are set out in Table 22 below. Controls are described further in section 9.

Table 22: Risk assessment summary

	Description of Risk Event			Applicant controls	Risk rating	Acceptability with controls (conditions on instrument)
	Emission	Source	Pathway/ Receptor (Impact)			
1.	Irrigation of treated liquid waste wastewater – discharge of TP & TN	Irrigation over 18ha area	Directed discharge, plants, soil, surface water and groundwater.	Infrastructure and application area and frequency	Moderate consequence Possible likelihood Medium Risk	Acceptable subject to proponent controls conditioned / outcomes based controls

9. Regulatory controls

A summary of regulatory controls determined to be appropriate for the Risk Event is set out in Table 23. The risks are set out in the assessment in section 10 and the controls are detailed in this section. DWER will determine controls having regard to the adequacy of controls proposed by the Applicant. The conditions of the Licence will be set to give effect to the determined regulatory controls.

Table 23: Summary of regulatory controls to be applied

		Controls (references are to sections below, setting out details of controls)					
		9.1.1 Infrastructure and equipment	9.1.2 Waste Acceptance	9.1.3 Specified actions	10.1.4 Disposal requirements	10.1.5 Monitoring	10.1.6 Reports
Risk Items (see risk analysis in section 8)	1. Irrigation of treated liquid waste water over 18ha area	•	•	•	•	•	•

9.1 Licence controls

9.1.1 Infrastructure and equipment

The applicant will be required to operate and maintain the infrastructure listed in Table 5 in good working condition. The infrastructure was considered by the Delegated Officer in determining the risk of emissions from the Premises and is considered necessary in minimising the risk of liquid waste spillages, dust emission impacts poor quality treated liquid waste water used to irrigate the 5 areas.

9.1.2 Waste acceptance

The Applicant will be limited to accepting a combined total of up to 620 tonnes per year or 6000 litres at any one time of the following waste types:

- K200 Food and beverage processing wastes
- K210 Septage waste
- K110 Grease waste

- D300 Non-toxic salts

9.1.3 Specified actions

The following will be required:

- Emissions specified in the licence can only be discharged from the points identified in the schedule 1 map;
- the applicant will be required to immediately clean any spills of waste on the Premises

9.1.4 Disposal requirements

Condition 6 ensures total nutrient load via irrigation.

Condition 7 ensures that the treated liquid waste water will only be irrigated in those 5 areas across the 18ha irrigation area per annual period, ensure no ponding occurs when irrigating, ensure runoff does not leave the irrigation area.

9.1.5 Monitoring

The treated liquid waste water will be required to be monitored for phosphorous and nitrogen.

The Applicant will be required to monitor treated wastewater parameters pH, TN, TP, BOD, TDS and total residual chlorine disinfection according to Schedule 3. The applicant will also be required to monitor standing water levels in each monitoring bore. Soil quality will also be monitored.

Collected samples will be required to be submitted to a NATA accredited laboratory consistent with condition 9. The sample data will be required to be submit in the AACR under condition 14. The licence holder will also be required to further discuss against monitoring results and the licence limits for each monitoring period. The licence holder will also be required to provide cumulative monthly volumes of treated effluent discharged to the irrigation area, calculation of annual nutrient loading rates applied to the irrigation area, calculations relating to the estimated volume of nutrients exported from the premises and a break-down in nutrient application during winter months (to compare with the growth rates). The licence holder will also be required to provide an assessment of actual plant growth against total nutrient plant uptake. This could help in establishing baseline data to set correct limits if required.

9.1.6 Monitoring reports

The applicant will be required to submit an annual audit compliance report to confirm whether the site has complied with all the licence conditions which also includes results of the monitoring data required under this licence.

10. Determination of Licence conditions

The conditions in the issued Licence in Attachment 1 have been determined in accordance with the *Guidance Statement: Setting Conditions*.

The *Guidance Statement: Licence Duration* has been applied and the issued licence expires in 20 years from date of issue.

Table 24 provides a summary of the conditions to be applied to this licence.

Table 24: Summary of conditions to be applied

Condition Ref	Grounds
Emissions Condition 1	Environmental compliance is a valid, risk-based condition to ensure appropriate linkage between the licence and the EP Act.
Infrastructure and Equipment 2	These conditions are valid, risk-based and contain appropriate controls.
Waste acceptance 3	These conditions are valid, risk-based and contain appropriate controls.
Specified actions 4, 5	These conditions are valid, risk-based and consistent with the EP Act.
Disposal 6 and 7	These conditions are valid, risk-based and consistent with the EP Act.
Monitoring 8, 9, 10 and 11	This condition is valid, risk-based and consistent with the EP Act.
Record keeping 12,13, 14 and15	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the licence under the EP Act.

11. Applicant's comments

The applicant was provided with the draft Decision Report and draft Licence on 30 November 2018. Comments are outlined in Appendix 2.

12. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Based on this assessment, it has been determined that the Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Steve Checker
MANAGER WASTE INDUSTRIES

Delegated Officer
under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

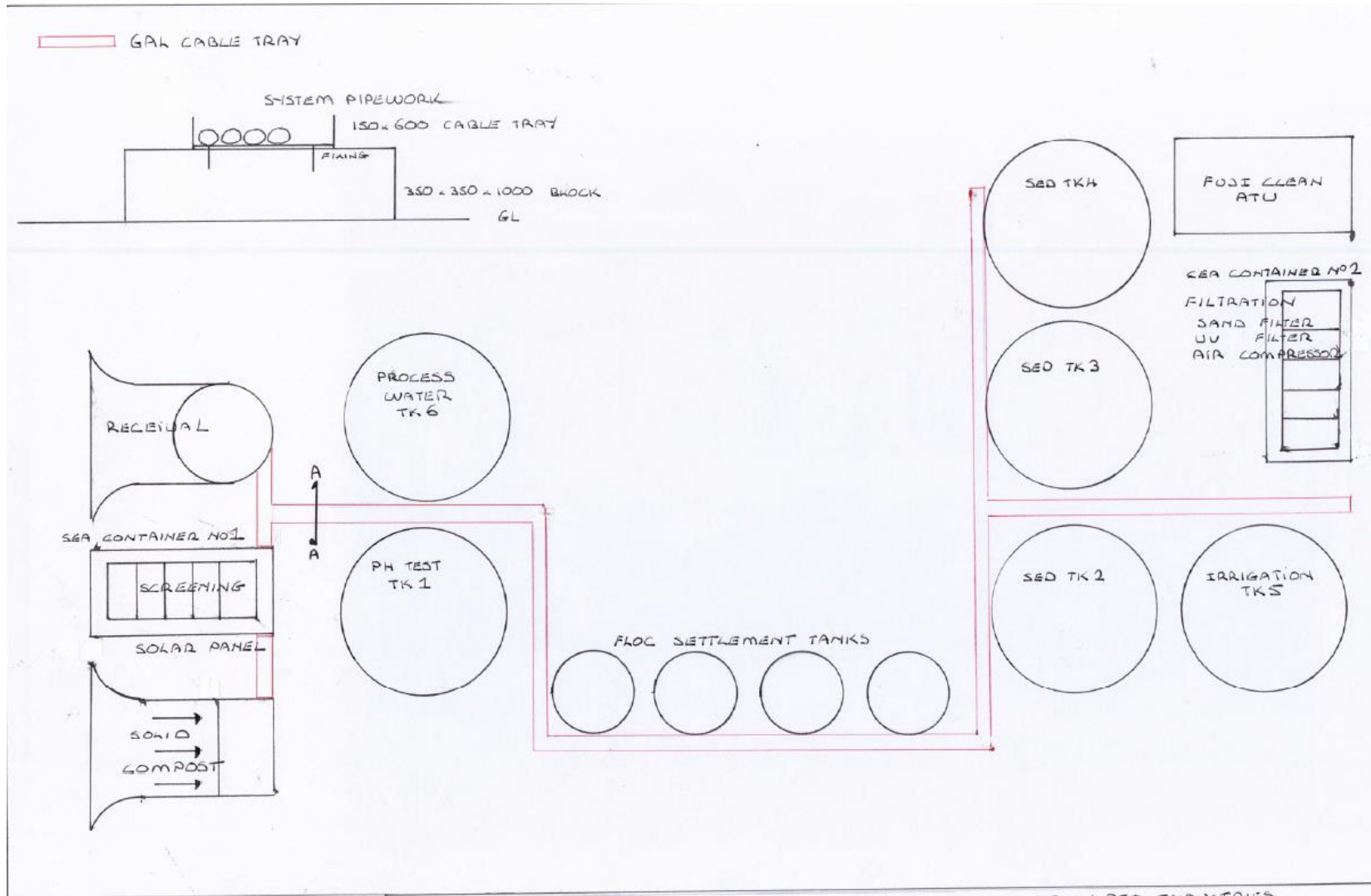
	Document title	In text ref	Availability
1.	Email: S57(1)(a) Environmental Protection Act 1986 – Licence Application and supporting documentation received from Pia Linaker, Project/ Construction Administration, Yelverton Bio Industries.	Licence application and supporting information	DWER records
2.	Works Approval W5731/2014/1 – Yelverton Bio Industries	W5731/2014/1	accessed at www.dwer.wa.gov.au
3.	DER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
4.	DER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Environment Regulation, Perth.	DER 2015b	
5.	DER, August 2016. <i>Guidance Statement: Licence duration.</i> Department of Environment Regulation, Perth.	DER 2016a	
6.	DER, November 2016. <i>Guidance Statement: Risk Assessments.</i> Department of Environment Regulation, Perth.	DER 2016b	
7.	DER, November 2016. <i>Guidance Statement: Decision Making.</i> Department of Environment Regulation, Perth.	DER 2016c	

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder comment	DWER response
Condition 2: Table 3	Soils will be amended in 5 years. Insert 5 years.	Inserted
Condition 3: Table 4	Waste onsite is measured in kL (or m ³) and it may be difficult to report against a 5000t limit	Reporting unit changed to kL
Condition 6	YBI are happy with the total limit of nitrogen applied through irrigated wastewater.	Noted
Condition 7	Consider removing this condition as difficult to monitor and report.	Delegated Officer is aware that the composting operation does not trigger licensing thresholds and that other nutrient sources additional to compact will be used in the commercial farm. The Condition relating to nutrient loading limits from compost has therefore been removed.
Schedule 3: Table 10	It is highly unlikely to detect BOD, <i>E. coli</i> or metals in groundwater as a result of the treatment operations, could the frequency of monitoring of these parameters changed to annually.	Agreed. Sampling frequency changed to annually. <i>E.coli</i> removed.
Schedule 3: Table 11	BOD sampling of soil is not an accredited laboratory procedure and the value of these result is questionable.	The Delegated Officer acknowledges that BOD sampling of soil is not a highly satisfactory method. However DWER is still concerned that high levels of BOD applied to land through irrigated wastewater may impact soil structure and health. DWER expects the applicant to monitor and manage soil health in order for the operation to continue sustainably.

Condition	Summary of Licence Holder comment	DWER response
Decision Document	Additional information regarding the additional PBI results at the site should be included in section 7.5	Additional information and Table 13 added to the decision document.

Appendix 3: Process flow diagram for the proposed licenced facility L9166/2018/1



Appendix 4: DoH comments on referral of Works Approval



Government of **Western Australia**
Department of Health

Your Ref: W5731/2014/1 2014/001489
Our Ref: F-AA-20406 EHB14/2225
Contact: Vic Andrich
Phone: 9388 4978

Mr Neville Welsh
Swan 4 Rd
Department of Environment Regulation
PO Box 1693
BUNBURY WA 6231



Dear Mr Welsh

**WORKS APPROVAL APPLICATION – YELVERTON BIO INDUSTRIES –
W5731/2014/1 - LOT 10 ON PLAN 22177 (#388) YELVERTON NORTH ROAD,
YALLINGUP SIDING**

Thank you for your letter dated 5 September 2014 requesting comment from the Department of Health (DOH) on the above works approval application.

The DOH has no objection provided:

- The DER is satisfied that the facility is adequately maintained to prevent seepage and managed so as to prevent odour, mosquito breeding or other hazards to human health for the life of the facility.
- Although the Fujiclean Aerobic Treatment Unit (ATU) is approved by the DOH for domestic sewage treatment, the proponent needs to demonstrate that the performance of the system, in particular the biological treatment train, will not be impacted by other liquid wastes proposed to be received (winery effluent, fire wash water, non-toxic salts, grease trap waste, vegetable and food processing waste).
- Applicant will need to submit an application to construct or install an apparatus for the treatment of sewerage in accordance to the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974*.
- Reuse of the treated effluent for floriculture on the lot will require a DOH approval as per the *Guidelines for the Non-potable Uses of Recycled Water in WA (2011)*.
- Use of sludge from the ATU system for composting is required to comply with the Western Australia guidelines for biosolids management (2012) and AS 4454 Compost, soil conditioners and mulches.

If produced compost is of a grading quality less than Pathogen grade 1 (<P1) or Contaminant grade 1 (<C1) a Review of Environmental Factors (REF) needs to be submitted to the DOH for approval prior to compost application.

Environmental Health Directorate
Grace Vaughan House 227 Stubbs Terrace SHENTON PARK Western Australia 6006
PO Box 8172 PERTH BUSINESS CENTRE WA 6849
Telephone (08) 9388 4999 Facsimile (08) 9388 4955
www.health.wa.gov.au

Should you have queries or require further information please contact Vic Andrich on 9388 4978 or vic.andrich@health.wa.gov.au

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Jim Dodds', written over a light blue horizontal line.

for Jim Dodds
DIRECTOR
ENVIRONMENTAL HEALTH DIRECTORATE

25 September 2014

Appendix 5: DoH Approval



Government of **Western Australia**
Department of **Health**

Your ref: YBI-2015-001_RWQMP_001_mp_V1.docx 24 February 2016
Job No: 17793
Our ref: F-AA-37238
Enquiries: Natalia Shishkina (9388 4938)

Director
Nubloom Pty Ltd,
388 Yelverton North Road
Yallingup Siding WA 6282

Dear Sir/Madam,

CONDITIONS OF APPROVAL – YELVERTON BIO INDUSTRIES RECYCLED WATER SCHEME -SHIRE OF BUSSELTON

You are advised that your application for approval to reuse treated wastewater from the Yelverton Bio Industries Wastewater Treatment Plant for irrigation of the Nubloom Australia floriculture farm (sub-surface irrigation of 16.4ha of floriculture plantings) has been approved subject to the attached conditions of approval.

Please note that any future changes or extensions to the reuse scheme to include additional recycled water reuse sites or purposes will require an application to be made to the Chief Health Officer.

If you have any questions relating to the approval or approval conditions, please do not hesitate to contact the Environmental Health Directorate of the Health Department on (08) 9388 4999.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Richard Theobald'.

Richard Theobald
**MANAGING SCIENTIST WATER
PUBLIC AND ABORIGINAL HEALTH DIVISION
DEPARTMENT OF HEALTH**

25 September 2018
cc Shire of Busselton
Yelverton Bio Industries

W:\Public Health\EHD\Water Unit\WASTEWATER MANAGEMENT\RECYCLING\Schemes\F-AA-37238 Yelverton Winery\Typing\F-AA-37238 Approval letter 180918.doc

Environmental Health
All correspondence PO Box 8172 Perth Business Centre Western Australia
Grace Vaughan House 227 Stubbs Terrace SHENTON PARK WA 6008
Telephone (08) 9388 4999 Fax (08) 9388 4955
28 684 750 332



Delivering a Healthy WA

Recycled Water Scheme Approval

APPROVAL NUMBER: I38/NA000

FILE NUMBER: F-AA-37238

COMMENCEMENT DATE OF APPROVAL: 28 September 2018

NAME AND ADDRESS OF RECYCLED WATER SCHEME

Yelverton Bio Industries
Lot 10 (No. 388) Yelverton North Road, Yallingup Siding WA

LOCAL GOVERNMENT: City of Busselton

NAME AND ADDRESS OF WASTEWATER TREATMENT PLANT

Yelverton Bio Industries WWTP (3 X Fuji CE 4200 EX units)
Lot 10 (No. 388) Yelverton North Road, Yallingup Siding WA

NAME AND ADDRESS OF WASTEWATER PROVIDER

Yelverton Bio Industries (ACN 167 178 627)
58 Highway, Busselton WA

NAME AND ADDRESS OF RECYCLED WATER SITE

Nubloom Australia floriculture farm (sub-surface irrigation of 18ha of floriculture plantings)
Lot 10 (No. 388) Yelverton North Road, Yallingup Siding WA

NAME AND ADDRESS OF OWNER (User of the Wastewater)

Nubloom PTY LTD (ACN 135 487 857)
Lot 10 (No. 388) Yelverton North Road, Yallingup Siding WA

NAME OF OPERATORS:

Damien Crane

Mob: 0438 551 919
damien@cranefordplumbing.com.au

Duncan Wood

Mob: 0427 931 054
djlawood@bigpond.com

General Conditions of Approval

1. The wastewater treatment process and recycled water scheme is to be operated in accordance with the submitted Recycled Water Quality Management Plan (RWQMP), the Guidelines for the Non-potable Uses of Recycled Water in Western Australia (2011) and undertakings other than where they may differ from the conditions below.
2. The recycled water supply agreement between the Yelverton Bio Industries as the supplier of the wastewater and the Nubloom Australia as the user of the recycled water shall be reviewed periodically to ensure that the responsibility for provision of the water quantity and quality reflect the Departments conditions of approval.
3. These conditions of approval may be varied or withdrawn at the discretion of the Chief Health Officer.
4. Any future changes or extensions to the reuse scheme to include additional recycled water reuse sites will require a separate approval from the Chief Health Officer.

Monitoring and Reporting Conditions of Approval

5. The quality of recycled water used must comply with the limits in the Table below

Parameter	Compliance Value	Monitoring Frequency
E.coli	< 1000 cfu/100mL	Monthly
SS	<30 mg/L	Monthly
pH	6.5 – 8.5	Daily or continuous online
Disinfection	Cl* 0.2 – 2.0 mg/L UV Intensity drop <25% at 245 nm	Daily or continuous online

*Chlorine measured as total chlorine residual after a minimum contact time of 30 minutes

6. Approval is subject to one monthly sample of the recycled wastewater being submitted for bacteriological examination as per site codes below. The minimum standard for the recycled water shall not exceed 1000 organism per 100 millilitres (< 1000 cfu of MPN/100mL). Copies of all results must be forwarded to the DOH.
7. Sampling should be conducted in accordance with the DOH – “Standard Recycled Water Sampling Technique” pamphlet.
8. The sample code to be used is

Site Code	Description and Coordinates
I38/NA01E	Final 32kL polyethylene irrigation tank Outlet - post disinfection GPS coordinates: UTM Zone 50 H Easting: 326,280 m E and Northing: 6,267,643 m S

9. All recycled water samples must be analysed in a NATA registered laboratory for the analysis of wastewater in accordance with the current

“Standard Method for Examination of Water and Wastewater – APHA-AWWA-WEF” or in a laboratory and by a method approved by the DOH.

10. Disinfection systems must be tested for the required disinfectant level and record that information on the analytical form.

Notifications

11. The scheme manager shall notify the DOH within 24 hours of becoming aware of any:
 - Sewage spill/delivery pipeline leak (ssalert@health.wa.gov.au) with a quantity that has pooled or ponded & can be pumped out as per the *Wastewater Overflow Response Procedures (2013)*.
 - Cessation or incident within the recycling supply scheme by email (wwalert@health.wa.gov.au) and shall include the cause of cessation, the proposed duration, the re-start procedures (for example flushing) and how the water quality is to be validated and verified.
 - If any E.coli samples are exceeded immediate re-sampling should be undertaken and an investigation will be required to determine the cause of the failure.
 - If E.coli are exceeded on two consecutive occasions, supply should cease, an investigation undertaken and corrective action taken. Supply may resume when the problem has been rectified. The action/s taken to rectify the problem should be documented and submitted in the annual report.
 - If other parameters are exceeded, immediate corrective actions should be undertaken and potential causes investigated. A staff notification may be required. The action/s taken to rectify the problem should be documented and submitted in the annual report.

Operation and Maintenance Conditions of Approval

12. Areas to be irrigated should be clearly designated with signs in accordance with AS1319 – 1994 *Safety Signs for the Occupational Environment*. These signs must a minimum size of 20cm x 30cm on a white background with BLACK lettering of at least 20mm in height and worded as follows: ‘Recycled Wastewater – Do not Drink / Avoid Contact’. The sign should also contain the recommended International Public Information – Drinking Water Symbol with the Prohibition Overlay in RED.



13. All above-ground recycled water fittings (pipework, valves, meters, backflow prevention devices, pit covers, solenoid covers etc) must be readily identifiable and distinguishable from potable water piping on the same site. The pipes should be clearly identifiable and coloured lilac in accordance with AS 2700S:1996(P23). Outlets should be labelled, coloured lilac and fitted with locked, keyed or bayonet type locks.

14. Recycled water irrigation should be only undertaken during dry weather conditions and regular inspections should be undertaken to ensure ponding or runoff does not occur.
15. All holding tanks and treatment systems should be bunded and drained to a dedicated sump that can be pumped to ensure that any tank failure, spillage or operational spill and overflow is contained within the bounds of the lot.

Recycled Water Management Plans

16. A Recycled Water Quality Management Plan (RWQMP) shall be regularly reviewed, updated and with all amendments forwarded to the DOH for endorsement when required.
17. Annual reports are required to be sent to the Department of Health by 30 September each year as per the *Guidelines for the Non Potable Uses of Recycled Water in Western Australia 2011*. The report shall contain detail in accordance with Appendix K "Annual Report" of the Recycled Water Quality Management Plan Template.
18. Audit processes shall be conducted to ensure that the management system is functioning satisfactorily. It also provides a basis for review and continuous improvement.
 - **Internal Audit.** An internal Audit of the recycled water supply system and Recycled Water Quality Management Plan (RWQMP) must be conducted every two years from the date of approval. The report shall be submitted to the DOH. The report must contain a plan showing the dual reticulation network supplied by the scheme at that time and any new major infrastructure, pump stations or additional treatment barriers in the system. Detailed information is required for any expansion of the network since the time of approval.
 - **External Audit.** An external audit of the recycled water supply system and the RWQMP must be conducted every five years from the date of approval. The report shall be submitted to the DOH. Plumbing maintenance and alteration audits required once every five years, including backflow and cross-connection auditing if required. The audit shall be conducted by a qualified person or company authorised by the DOH and shall be in accordance with the National Water Quality Management Strategy Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) 2006.



Richard Theobald
delegate of
CHIEF HEALTH OFFICER
Date of Issue: 25 September 2018

Attachment 1: Licence L9166/2018/1
