Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L8081/2006/4
Licence holder	Summer Honey Pty Ltd
ACN	141 184 947
Registered business address	433 Riverton Drive East SHELLEY WA 6148
DWER file number	ILS2014/000016-1~4
Duration	22/03/2024 to 21/03/2044
Date of amendment	30/06/2025
Premises details	Boston Brewing Co at Willoughby Park 678 South Coast Highway, HAY, WA 6333 Legal description - Lot 42 on Plan 93593 As defined by the premises maps in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production capacity**
Category 25 Alcoholic beverage manufacturing: premises on which an alcoholic beverage is manufactured and from which liquid waste is or is to be discharged onto land or into waters.	567 kL per annual period of beer (210 kL) and ready to drink beverages (357 kL)

This licence is granted to the licence holder, subject to the attached conditions, on 30 June 2025, by:

Caron Goodbourn

Digitally signed by Caron Goodbourn
Date: 2025.06.30 10:27:57 +08'00'

Manager, Process Industries

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

Licence history

Date	Reference number	Summary of changes
17/03/2016	L8081/2006/3	Licence reissued (renewed) wine production with an approved production capacity of 1050kL/year. A micro-brewery was installed in 2011 without a works approval.
09/09/2016	L8081/2006/3	Amendment Notice 1. Licence holder-initiated amendment to decommission existing wastewater ponds and replace with two 62kL steel wastewater tanks. In 2017 wine production ceased altogether and in 2018 beer production increased to 414kL/year.
25/02/2019	L8081/2006/3	Amendment Notice 2. CEO initiated amendment to extend the licence expiry date by 5 years.
15/07/2022	L8081/2006/3	Licence holder-initiated amendment to increase beverage production (beer only) from 1050kL/year to 1,340kL/year, install new wastewater treatment infrastructure and an additional wastewater irrigation area (L3) planted to citrus to maximise phosphorus uptake
09/01/2024	L8081/2006/4	Licence reissued (renewed)
30/06/2025	L8081/2006/4	Licence holder-initiated amendment for upgrades to the premises wastewater treatment system (WWTS), brewery production and cannery shed and to change the prescribed premises boundary by removing Lot 1 on Plan 72333 and wastewater irrigation area L3. With additional amendments requested to relocate irrigation area L2, installation of brewery infrastructure and decrease assessed production capacity.

Interpretation

In this licence:

(a) the words ‘including’, ‘includes’ and ‘include’ in conditions mean “including but not limited to”, and similar, as appropriate;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a condition, each row in a table constitutes a separate condition;

(d) any reference to an Australian or other standard, guideline, or code of practice in this licence:

(i) if dated, refers to that particular version; and

(ii) if not dated, refers to the latest version and therefore may be subject to change over time;

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and

(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

The licence holder must ensure that the following conditions are complied with:

Infrastructure and equipment

1. The licence holder must ensure that the site infrastructure and equipment listed in Table 1 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 1.

Table 1: Infrastructure and equipment requirements

	Site infrastructure and equipment	Operational requirements	Infrastructure location- Schedule 1, Figure 1
Brewery production and cannery shed			
1	1x 1,800L brew kit (mash tun and kettle combined)	(a) All plant and equipment used for the production and packaging of beverages (excluding water tanks) must be operated within the brewery building. (b) The brewery building floor must be graded to receive all wastewater and spillages from the brewery operations and direct it to the sludge tanks via the solids collection sump.	Shown as: brewery.
	1x Mill		
	Fermentation vessels 1 x 1,200 L 3x 1,800 L 5x 3,600 L 3x 7,000 L		
	Bright tanks 1x 7,000 L 2x 2,000 L		
	Cool room		
	Six head canning line		
	Canning storage tanks 5x 8,000 L 3x 3,600 L		
	Tunnel pasteuriser		

	Site infrastructure and equipment	Operational requirements	Infrastructure location- Schedule 1, Figure 1
Ready to make alcohol			
2	1,000 L flexi alcoholic spirit containers.	(a) All spirits must be stored within the brewery production shed. (b) Distillation must not take place on the premises.	Shown as: brewery.
Wastewater treatment system			
3	1 solids collection sump 2x 100,000 L PVC lined steel settling/aerobic tanks 4x inline filters within transfer pipes 1 x 500,000 L line steel winter wastewater storage tank	(a) Sludge tanks must be covered to exclude rainfall whilst holding wastewater. (b) Limestone and sludge within the pH tank must be removed and replaced when infiltration is inhibited by precipitated solids. (c) No discernable seepage or leakage of wastewater from any tank or interconnecting pipes. (d) Wastewater to be pumped in a recirculation loop in the aeration tank. (e) Inline filters must be maintained in working condition free of solids. (f) Level sensors connected to high level alarms maintained in working order to alert before overtopping occurs within each of the storage, aeration and settling tanks. (g) Wastewater and sludge removed offsite must be disposed of at a licensed liquid waste facility.	Shown as: 100 kL tanks. 500kL storage tank
Solids management			
4	Impervious solid's bin (1 tonne)	(a) All spent grains and hops mut be stored within the solids bin located within the docking area. (b) Solids bin must be emptied on a weekly basis for offsite disposal.	
Irrigation of wastewater			
5	Irrigation areas (1.9 ha) L1, and L2 (once installed) including irrigation system. L1: 25 x sprinklers L2: Dripline irrigation along vine rows (once installed) Pump Flow meter (FM1) on outlet from the 2 x 100 kL irrigation tanks	(a) Flow meter must be maintained to enable the cumulative volume of wastewater discharged to the irrigation area to be accurately measured. (b) Flow meter must be calibrated according to manufacturer's specifications. (c) Irrigation manual valve, pumps, pipelines, and other fittings must be maintained and inspected daily for ruptures or leaks when irrigating. (d) Wastewater irrigation must not occur between 1 June and 31 August (inclusive). (e) Irrigation in May must not exceed a total of 200 kL and applied no greater than 2.2 mm per day. (f) Irrigation in September must not exceed a total of 200 kL and applied no greater than 3.1 mm per day. (g) Irrigation is not undertaken 12 hours before, during, or 24 hours immediately after a rainfall event over 2 mm. (h) Irrigation occurs on a rotational basis ensuring that areas are not irrigated for at least 24 hours between applications.	Shown as: L1 and L2 FM1

Site infrastructure and equipment		Operational requirements	Infrastructure location- Schedule 1, Figure 1
		(i) No irrigation generated run-off occurs beyond the boundary of the irrigation areas. (j) Olive trees in irrigation area L1 must be pruned and the pruning's removed from the irrigation area at least once per annual period. (k) Grapevines in the irrigation area L2 must be pruned and pruning's (canes) removed from the irrigation area at least once per annual period. (l) Fruit (olives and grapes) must be picked and removed from irrigation area L1 and L2 each annual period (m) Grasses in irrigation area L1 and L2 must be mowed and grass clippings removed from the irrigation areas at least once during months September - May. (n) The estimated weight of each Biomass harvested from L1 and L2 must be recorded including the methodology used to calculate the weight. (o) No soil erosion occurs. (p) Healthy vegetation is maintained over irrigation areas. (q) No stock to be held or grazed on irrigation areas.	
Monitoring wells			
6	Monitoring wells MW01, MW02 and MW03 (once installed)	(a) Monitoring wells must be maintained to be capable of measuring water level and collecting groundwater samples.	Shown as: MW01, MW02 and MW03

Works

2. The licence holder must install the equipment and infrastructure listed in Table 2, by 12 June 2026, in accordance with the requirements set out in Table 2:

Table 2: Infrastructure construction and installation requirements

	Infrastructure	Construction and installation requirements	Infrastructure location- Schedule 1.
1	5 Tower BioGill system and wastewater treatment plant consisting of: 8.5 kL sump, 6.5 kL sump, 1 kL sump, pumps, 2.5kL settling tank, 4kL pH balance tank, 27 kL overflow waste tank, solids strainer, and existing 100 kL wastewater storage tanks	(a) Must be constructed and installed as per the flow diagram with associated infrastructure (tanks, sumps, piping, pumps, meters, etc) shown in Schedule 1, Figure 2. (b) All tanks and sumps must be constructed of impervious material. (c) A high-level alarm installed in the 8.5 kL and 6.5 kL sumps, waste overflow tank, and the existing 2 x 100 kL and 1 x 500 kL wastewater storage tanks.	Shown in Figure 1.
2	Wastewater piping and irrigation system for the purposes of conveying wastewater to irrigation area L2 and irrigating the treated wastewater to the	(a) Irrigation infrastructure must be installed that is capable of evenly distributing wastewater over the whole of irrigation area L2. (b) Conveyance pipeline must be connected to flowmeter (FM1) and be free of leaks.	Shown in Figure 1 as: L2

	Infrastructure	Construction and installation requirements	Infrastructure location- Schedule 1.
	grapevines in irrigation area L2		

3. The licence holder must, within 30 calendar days of the infrastructure required by condition 2 being installed:

(a) undertake an audit of their compliance with the requirements of condition 2; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

4. The Environmental Compliance Report required by condition 3, must include as a minimum the following:

(a) certification by a person authorised to represent the licence holder that each item of infrastructure or component thereof, as specified in condition 2, have been installed in accordance with the relevant requirements specified in condition 2;

(b) photographs of installed equipment and a map showing the installation location of all equipment, including all three sumps, wastewater irrigation piplines and irrigators; and

(c) be signed by a person authorised to represent the licence holder and contains the printed name and position of that person.

Installation of monitoring well

5. The works approval holder must design, construct, and install groundwater monitoring well (MW03) in accordance with the requirements specified in Schedule 2, Figure 3 and in the location specified in Schedule 1, Figure 1.

6. The licence holder must within 30 days of installing a groundwater monitoring well in accordance with condition 5, being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 5.

7. The report required by condition 6 must:

(a) be certified by the driller that the monitoring bore meets the corresponding specifications in accordance with condition 5 and is constructed with no material defects; and

(b) be signed by a person authorised to represent the licence holder and contains the printed name and position of that person within the company.

8. The licence holder must ensure that emissions from the discharge point listed in Table 3 for the corresponding parameter do not exceed the corresponding limit when monitored in accordance with condition 9.

Table 3: Emission and discharge limits of treated wastewater

Discharge point	Parameter	Limit
Irrigation areas L1 and L2. as shown Schedule 1, Figure 1.	pH	≥6 and ≤9
	Total nitrogen[1]	Not more than 140 kg/ha/annual period
	Total phosphorus[1]	Not more than 10 kg/ha/annual period
	Biochemical oxygen demand[1]	Not more than 1500kg/ha/month

Discharge point	Parameter	Limit
	Sodium Absorption Ratio: EC (SAR)[2]	Within the "stable soil structure" range depicted in Schedule 1, Figure 3.

Note 1: See Schedule 3 Nutrient Loading Calculator

Monitoring

Monitoring of emissions to land

9. The licence holder must monitor emissions in accordance with the requirements specified in Table 4 and record the results of all such monitoring.

Table 4: Emissions and discharges monitoring

Discharge point	Monitoring location	Parameter	Units	Frequency	Averaging period	Method
Irrigation area (L1 and L2) as shown in Schedule 1 Figure 1.	Wastewater sampling point	Volumetric flow rate (cumulative)	L/day	Continuous when discharging	Daily	N/A
		pH[1]	-	Monthly	Spot sample	AS/NZS 5667.1 and AS/NZS 5667.10
		Electrical conductivity[1]	dS/m			
		Total nitrogen	mg/L			
		Total phosphorus				
		Total dissolved solids				
		Total suspended solids				
		BOD				
		Sodium ion (Na^+)				
		Calcium ion (Ca^{2+})				
		Magnesium ion (Mg^{2+})				
		Potassium				
		Sodium adsorption ratio	-			

[1] In field non-NATA accredited analysis permitted for pH and electrical conductivity.

Monitoring of ambient soil

10. The licence holder must monitor soil during for concentrations of the identified parameters in accordance with Table 5: and record the result of all such monitoring.

Table 5: Monitoring of ambient soil concentrations during time limited operations

Monitoring location as shown in Schedule 1 Figure 1	Parameter	Unit	Frequency
Irrigation areas L1 and L2 Composite sample of each major soil horizon of at least 5 samples per	pH[1]	-	Once per year in March each year.
	Electrical Conductivity[1]	dS/cm	
	Total Nitrogen	mg/kg	
	Total Available Nitrogen		

Monitoring location as shown in Schedule 1 Figure 1	Parameter	Unit	Frequency
horizon down to 60 cm.	Total Phosphorus		
	Total Available Phosphorus (Colwell method)		
	Phosphorus Buffer Index measured using the Phosphorus Buffering Index (PBI) soil test		
	Cation Exchange Capacity (CEC) converted to Exchangeable Sodium Percentage (ESP%)	-	
	Heavy Metals, Organochlorine (OC) and Organophosphate (OP) contaminants by a NATA accredited laboratory.		Once every four years in March.

[1]In-field non-NATA accredited analysis permitted.

Monitoring of ambient groundwater

11. The licence holder must monitor groundwater for concentrations of the identified parameters in accordance with Table 6 and record the results of all such monitoring.

Table 6: Groundwater monitoring

Monitoring well location	Parameter or measurement	Units	Frequency	Averaging period	Sampling method
MW01 and MW02, as shown in Schedule 1 Figure 1. New groundwater monitoring bore (once installed) MW03.	Standing water level	m AHD; and mbgl	Monthly until 12 months of consecutive data has been recorded, then quarterly thereafter in (March, June, September and December)	Spot sample	In-field measurement
	pH[1]	-	Quarterly (March, June, September, and December)	Spot sample	AS5667.1 AS5667.11
	Electrical conductivity[1]	dS/m			
	Total nitrogen	mg/L			
	Ammonia nitrogen				
	Nitrate nitrogen				
	Total phosphorus				
	Reactive phosphorus (or orthophosphate)				
	Total dissolved solids				
	Arsenic				

[1] In field non-NATA accredited analysis permitted for pH and electrical conductivity.

12. The licence holder must ensure that all non-continuous analysis undertaken

pursuant to conditions 9, 10 and 11 is undertaken by a holder of a current accreditation from the National Association of Testing Authorities (NATA) for the methods of analysis relevant to the corresponding relevant parameter.

13. The licence holder must ensure that:

(a) monitoring is undertaken in each monthly period such that there are at least 15 days in between the days on which samples are taken in successive months; and

(b) monitoring is undertaken in each quarterly period such that there are at least 45 days in between the days on which samples are taken in successive quarters.

Records and reporting

14. The licence holder must record the following information in relation to complaints received by the licence holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:

(a) the name and contact details of the complainant, (if provided);

(b) the time and date of the complaint;

(c) the complete details of the complaint and any other concerns or other issues raised; and

(d) the complete details and dates of any action taken by the licence holder to investigate or respond to any complaint.

15. The licence holder must:

(a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and

(b) prepare and submit to the CEO by no later than 30 March after the end of that annual period an Annual Audit Compliance Report in the approved form.

16. The licence holder must maintain accurate and auditable books including the following records, information, reports, and data required by this licence:

(a) the calculation of fees payable in respect of this licence;

(b) the works conducted in accordance with condition 2 of this licence;

(c) any maintenance of infrastructure that is performed in the course of complying with condition 1 of this licence;

(d) monitoring programmes undertaken in accordance with conditions 9, 10 and 11 of this licence; and

(e) complaints received under condition 14 of this licence.

17. The licence holder must submit to the CEO by no later than 30 March after the end of each annual period, an Annual Environmental Report (AER) for that annual period for the conditions listed in Table 7, and which provides information in accordance with the corresponding requirement set out in Table 7.

Table 7: Annual environmental report

Condition or table	Requirement
1	Volume (in m^3 or kL) of wastewater removed for off-site disposal

Condition or table	Requirement
	Amount (tonnes) of sludge removed from the sludge drains, settling/aerobic tanks for off-site disposal. Weight of biomass (and TN and TP) removed from irrigation areas L1 and L2 each annual period including how they were calculated.
2	A progress update on the construction of infrastructure in the works condition.
8, 9	Volume (m^3 or kL) of wastewater applied to irrigation area (L1 and L2). Wastewater monitoring data in tabulated and graphical form including the sampling date. Tabulated loadings of nitrogen, phosphorus and BOD applied to irrigation area (L1 and L2) including an explanation of the basis for determining loading rates. An assessment and interpretation of the data including comparison to historical trends and loading limits. Copies of laboratory sample analysis reports. Log reports of details of vegetation removal from the irrigation areas.
10	Soil monitoring data in tabulated and graphical formats including the sampling date. An assessment and interpretation of the data including comparison to historic trends. Copies of laboratory sample analysis reports.
11	Groundwater monitoring data in tabulated and graphical formats including the sampling date. As assessment and interpretation of the data including comparison to historical trends. Copies of laboratory sample analysis reports.
14	A summary of complaints recorded for the annual period.
-	During irrigation months, monthly photographic evidence of the irrigation flow meter, illustrating the date, the flow meter serial number and flow meter reading (FM1) (ensuring the number is readable).

Definitions

In this licence, the terms in Table 8 have the meanings defined.

Table 8: Definitions

Term	Definition
ACN	Australian Company Number
AHD	Australian height datum
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website).
annual period	a 12 month period commencing from 1 January until 31 December of the same year.
AS 1726	means the current version of Australian Standards AS 1726: *Geotechnical site investigations*
AS/NZS 4482.1	means the current version of Australia / New Zealand Standard AS/NZS 4482.1 *Guide to the investigation and sampling of sites with potentially contaminated soil*

Term	Definition
AS/NZS 5667.1	means the current version of Australian / New Zealand Standard AS/NZS 5667.1 *Water Quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.10	means the current version of Australian / New Zealand Standard AS/NZS 5667.10 *Water Quality – Sampling, Part 10: Guidance on sampling of waste waters*
AS/NZS 5667.11	means the current version of Australian / New Zealand Standards AS/NZS 5667.11 *Water Quality – Sampling, Part 11: Guidance on sampling of groundwaters*
ASTM D5092/D5092M-16	means the ASTM international standard for *Standard practice for design and installation of groundwater monitoring bores (Designation ASTM D5092/D5092M-16)*
averaging period	means the time over which a limit is measured or a monitoring result is obtained
BGL	below ground level
Biomass	refers to the form of vegetation removed from the irrigation area (e.g. grass, stalks, fruit, branches etc)
BOD	biochemical oxygen demand
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer of the Department. "submit to / notify the CEO" (or similar), means either: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 or: info@dwer.wa.gov.au
Department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
dS/m	decisiemens per metre
emission	has the same meaning given to that term under the EP Act.
harvest	means the quantity of a natural product gathered in a single season.
kg/ha	kilograms per hectare
kL	kilolitres
L/day	litres per day
licence holder	means the occupier of the premises, being the person to whom this licence has been granted, as identified on the front of this licence
m	metres
mbgl	metres below ground level
Mg^{2+}	magnesium ion

Term	Definition
mg/L	milligrams per litre
monthly	means a one-month period from the first day of a month until the last day of that same month
Na^+	sodium ion
NATA	means the (Australian) National Association of Testing Authorities
NATA accredited	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis
OC	Organochlorines
OPs	Organophosphates
premises	means the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1) in Schedule 1 to this licence
pruned	means the activity of cutting off branches from a plant, to encourage growth, export nutrient and to maintain or increase productivity.
quarterly	means the 4 inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December in the same year
rainfall event	means greater than or equal to 2 mm of precipitation within a 24-hour period
spot sample	means a discrete sample representative at the time and place at which the sample is taken
µS/cm	microsiemens per centimetre
waste	has the same meaning given to that term under the EP Act
Treated wastewater	means water that has passed through the wastewater treatment system

END OF CONDITIONS

Schedule 1: Figures

Premises and site layout map

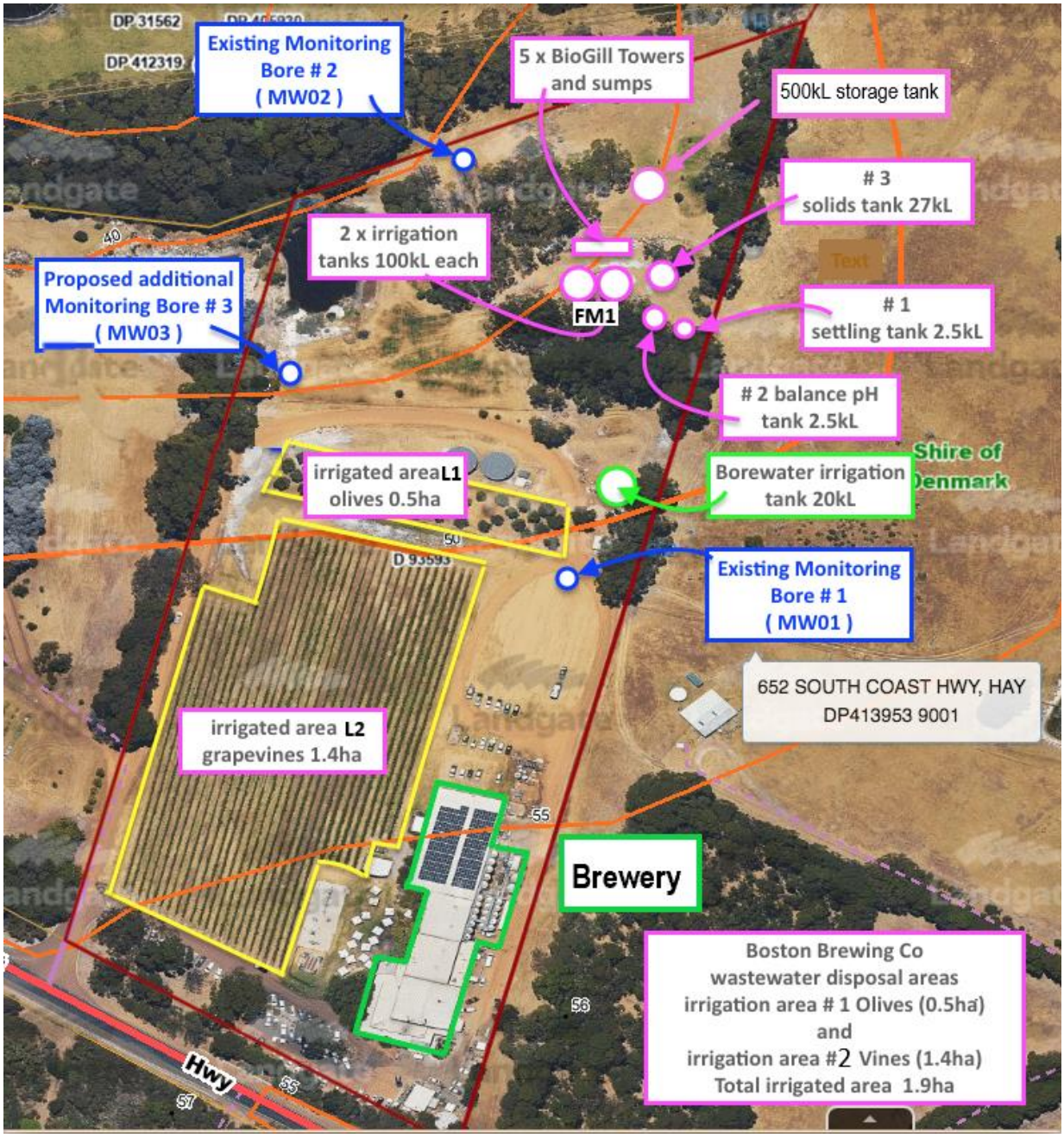

Figure 1: Prescribed premises boundary (red line), brewery (green line), irrigation area (yellow line), monitoring bore locations and wastewater treatment infrastructure layout.

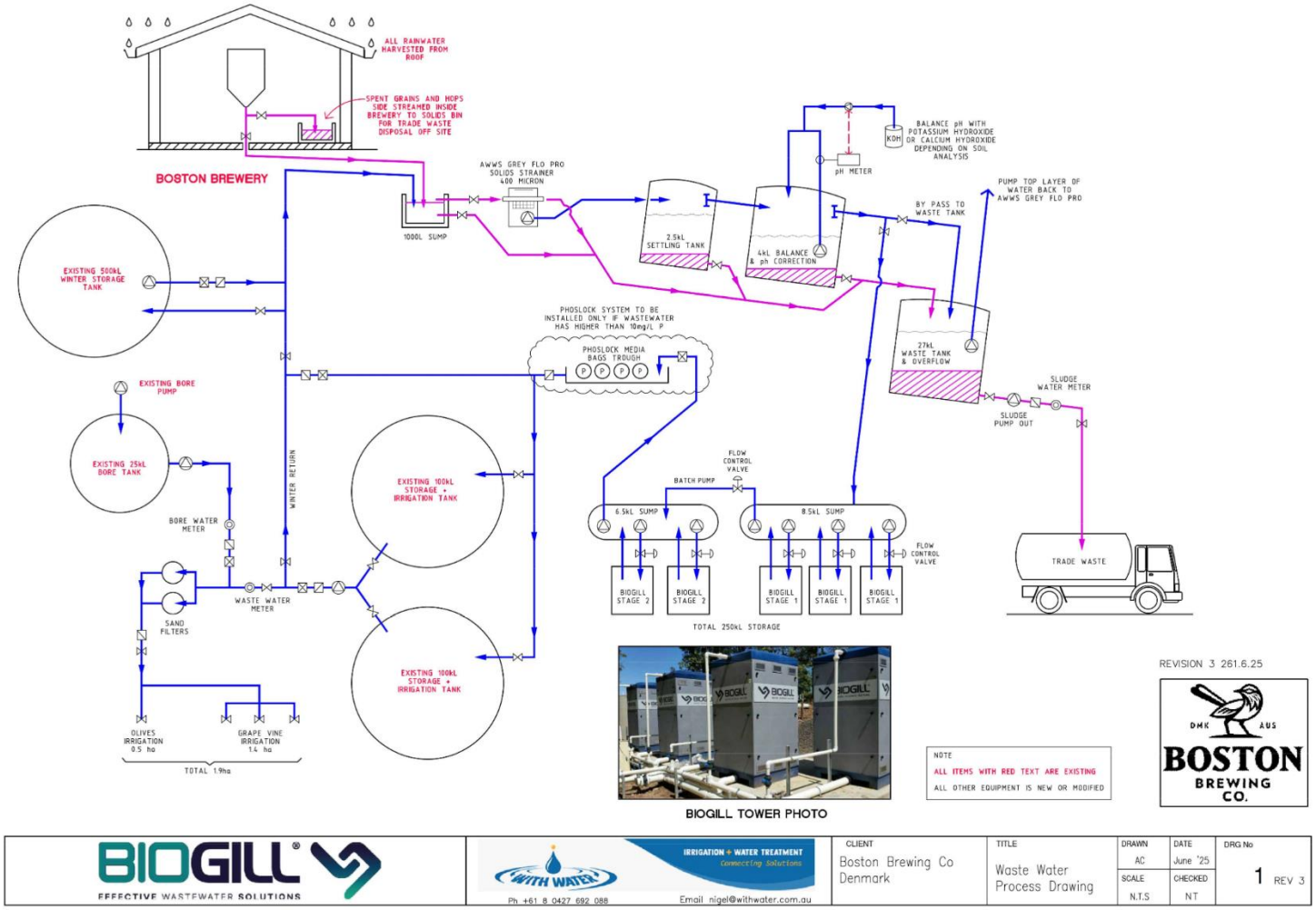

Figure 2: Wastewater treatment plant process flow diagram with direction of wastewater flow shown by the arrows in blue and solids flow as arrows in pink.

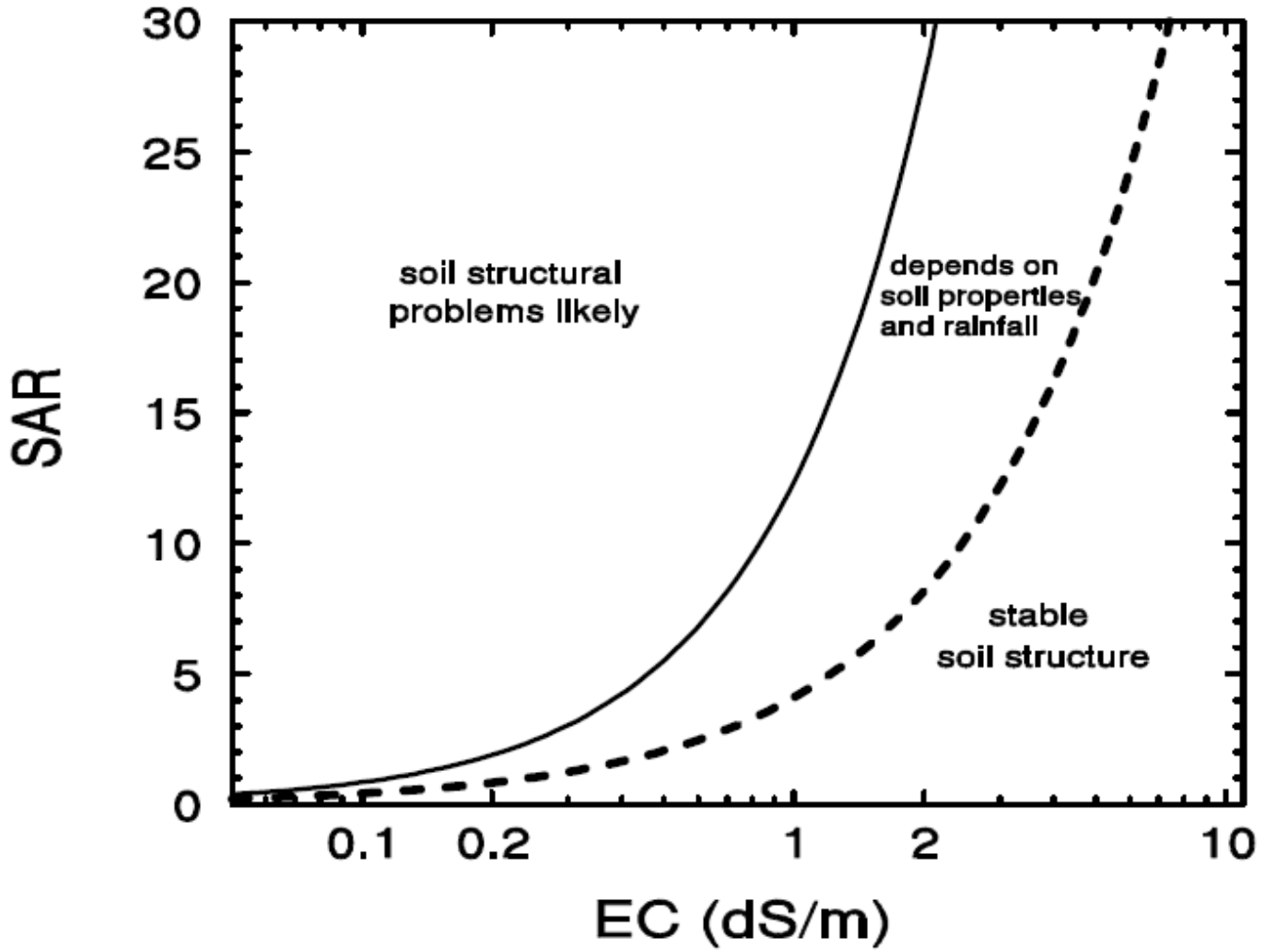

Figure 3: Soil structure, SAR and EC relationship.

Schedule 2: Monitoring well installation

The following diagram illustrates generic monitoring bore installation requirements

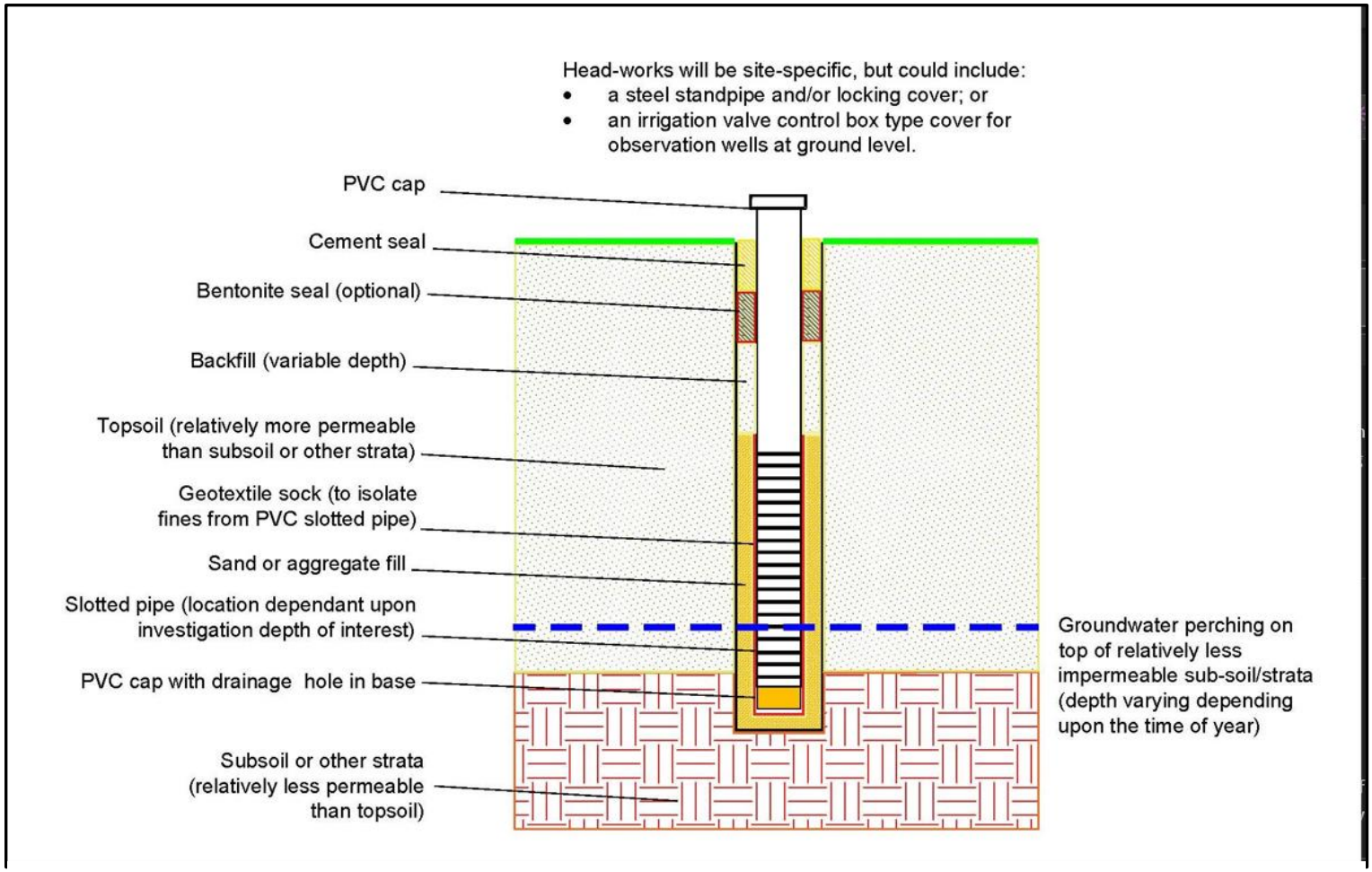

Figure 4: monitoring bore installation requirements.

Schedule 3: Nutrient loading calculator

Irrigation areas[1]: size, volume irrigated, irrigation days				Annual period (as defined by your licence)[2]												Volume irrigated during annual period (kL)[3]
	Size (ha)			January	February	March	April	May	June	July	August	September	October	November	December	
EXAMPLE irrigation area:	*25*	*volume irrigated*	*kL*	*20,000*	*20,000*	*18,000*	*15,000*	*0*	*0*	*0*	*0*	*15,000*	*18,000*	*20,000*	*25,000*	*151,000*
		days of irrigation	*days/month*	*29*	*28*	*30*	*25*	*0*	*0*	*0*	*0*	*20*	*25*	*30*	*27*	
Irrigation Area 1:		volume irrigated	kL													
		days of irrigation	days/month													
Irrigation Area 2:		volume irrigated	kL													
		days of irrigation	days/month													
Irrigation Area 3:		volume irrigated	kL													
		days of irrigation	days/month													
Wastewater quality[4]	*EXAMPLE sampling date:*			*20/01/2022*	*15/02/2022*	*17/03/2022*	*19/04/2022*	*12/05/2022*	*12/06/2022*	*9/07/2022*	*15/08/2022*	*12/09/2022*	*15/10/2022*	*13/11/2022*	*7/12/2022*	
	EXAMPLE total nitrogen	*mg/L*		*13.2*	*21.3*	*17.6*	*19.2*	*42.4*	*25.1*	*30.4*	*40.3*	*34.8*	*38.7*	*44.6*	*47.3*	
	EXAMPLE BOD	*mg/L*		*4.8*	*12.1*	*6.1*	*4.9*	*4.8*	*4.1*	*3.3*	*5.2*	*4.4*	*5.2*	*5.1*	*7.5*	
	Sampling date:															
	For wineries to indicate sampling period:[5]															
	Total nitrogen	mg/L														
	Total phosphorus	mg/L														
	Biochemical oxygen demand	mg/L														

Nutrient and BOD loadings[6]			January	February	March	April	May	June	July	August	September	October	November	December	kg/ha/annual period[7]
EXAMPLE total nitrogen loadings			*10.6*	*17.0*	*12.7*	*11.5*					*20.9*	*27.9*	*35.7*	*47.3*	*183.5*
EXAMPLE BOD loadings		*kg/ha/month*	*3.8*	*9.7*	*4.4*	*2.9*					*2.6*	*3.7*	*4.1*	*7.5*	*38.8*
		kg/ha/day	*0.13*	*0.35*	*0.15*	*0.12*					*0.13*	*0.15*	*0.14*	*0.28*	
Irrigation Area 1	Total nitrogen	kg/ha/month													
	Total phosphorus	kg/ha/month													
	Biochemical oxygen demand	kg/ha/month													
		kg/ha/day													
Irrigation Area 2	Total nitrogen	kg/ha/month													
	Total phosphorus	kg/ha/month													
	Biochemical oxygen demand	kg/ha/month													
		kg/ha/day													
Irrigation Area 3	Total nitrogen	kg/ha/month													
	Total phosphorus	kg/ha/month													
	Biochemical oxygen demand	kg/ha/month													
		kg/ha/day													

Licence limits[8]				
		kg/ha/annual period	kg/ha/month	kg/ha/day
Irrigation area 1	TN			
	TP			
	BOD			
Irrigation area 2	TN			
	TP			
	BOD			
Irrigation area 3	TN			
	TP			
	BOD			

Explanatory notes and calculations:

White cells should be filled in where applicable. Pale yellow cells will calculate automatically.

NOTE 1 - Where there is irrigation to more than 3 areas, additional copies of this sheet should be completed.

NOTE 2 - This sheet should be completed for your annual period as defined by your licence. *E.g. If your annual period is from 1 October to the 30 September in the following year, for the 2022-2023 annual period, you should include data from January - September 2023, and October - December 2022.*
NOTE 3 - Volume irrigated during the annual period (kL), for each irrigation area is the sum of the monthly volumes irrigated to that area. *E.g. For the example shown: Volume irrigated during annual period = 20,000 (Jan) + 20,000 (Feb) + 18,000 (Mar) + 15,000 (Apr) + 15,000 (Sep) + 18,000 (Oct) + 20,000 (Nov) + 25,000 (Dec) = 151,000 kL. Noting that for the example there was no irrigation during the months of May, June, July or August.*
NOTE 4 - The sampling and analysis of your wastewater quality should be undertaken in accordance with your licence conditions. For sampling less often than monthly, i.e. quarterly, 6-monthly, or annually: for months where no sampling is required, wastewater quality should be taken to be equivalent to the most recent sample taken. *E.g. Quarterly sampling during Feb, May, Aug and Nov - total nitrogen concentrations were analysed to be 7, 11, 8 and 13 mg/L respectively in the wastewater. For March and April, as February was the most recent sample taken, total nitrogen concentration is estimated to be 7 mg/L. Similarly, for June and July, as May was the most recent sample, total nitrogen concentration is estimated to be 11 mg/L. There will be no sampling date associated with non-sampling months.* If your licence requires you to monitor loading rates for additional parameters (e.g. inorganic nitrogen, reactive phosphorus etc.) additional copies of this sheet should be completed for the additional parameters.
NOTE 5 - For wineries to indicate sampling period - this row is only required to be completed if your licence condition specifies a sampling period e.g. pre-vinatge, peak vintage, late vintage, post vintage, non-vintage. Indicate which sampling date corresponds with which period.
NOTE 6 - Parameter loading (TN, TP or BOD) each month per hectare for each irrigation area (kg/ha/month): monthly concentration of parameter (TN, TP or BOD) in mg/L * monthly volume of wastewater irrigated to irrigation area (kL) ÷ 1000 size of irrigation area *E.g. Using the example shown, for total nitrogen for January: 13.2 mg/L * 20,000 kL / 1,000 = 264 kg/month. 264 / 25 ha = 10.6 kg/ha/month (for January).* Loading of parameter (BOD) each day per hectare for each irrigation area (kg/ha/day): BOD loading (kg/ha/month) ÷ number of days of irrigation during that month. *E.g. Using the example shown, for BOD for October: 3.7 kg/ha/month / 25 days of irrigation during October = 0.15 kg/ha/day (for October)*
NOTE 7 - To calculate annual loading of parameter (TN, TP or BOD) per hectare (kg/ha/annual period): sum of monthly loadings (kg/ha/month). You should calculate an annual loading (kg/ha/annual period) for each relevant parameter for each irrigation area. *E.g. Using the example shown, for total nitrogen: 10.6 (Jan) + 17 (Feb) + 12.7 (Mar) + 11.5 (Apr) + 20.9 (Sep) + 27.9 (Oct) + 35.7 (Nov) + 47.3 (Dec) kg/ha/month = 183.5 kg/ha/annual period*
NOTE 8 - Relevant licence limits to be entered. Where TN = total nitrogen, TP = total phosphorus, and BOD = biochemical oxygen demand. Once applicable licence limits have been entered, the calculated loadings will become red text if they exceed the relevant limit.

Note: Licence holders can request a digital Excel spreadsheet (with in-built formulas) on request.

Send all requests to info@dwer.wa.gov.au

Attention: Process Industries and quote the licence number.