



Licence number	L9266/2020/1
Licence holder	Department of Justice
Registered business address	Department of Justice, Western Australia Great Eastern Highway WOOROLOO WA 6558
DWER file number	DER2020/000059
Duration	06/08/2021 to 05/08/2031
Date of issue	06/08/2021
Premises details	Wooroloo Prison Farm Wastewater Treatment Plant Great Eastern Highway Wooroloo WA 6558 Legal description - Lot 29175 on deposited plan 192782; register number 29175/DP192782, Volume LR3117 Folio 247. Reserve under management order Reserve description: 14083 All whole: Volume (Folio) - 3117 (247), 3144 (50), 3144 (51), 3144 (52), 3144 (53), 3144 (54), 3144 (55), 3144 (56) As defined by the map and coordinates provided in Figure 1

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed design capacity
Category 54: Sewage facility: premises — (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	220 m ³ per day

This licence is granted to the licence holder, subject to the attached conditions, on 06/08/2021, by:

Stephen Checker

MANAGER WASTE INDUSTRIES

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

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Licence history

Date	Reference number	Summary of changes
11/04/1996	L6615/1992/1	Licence issued – category 54 Sewage facility
23/04/1997	R530/1992/1	Registration – cat 85 Sewage facility
23/03/1998	W2348/1992/1	Works approval issued – category 54 Sewage facility
02/02/1999	W2612/1998/1	Works approval issued – category 54 Sewage facility
06/08/2021	L9266/2020/1	New licence for expanded WWTP issued - category 54 Sewage facility

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

- 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

Premises infrastructure and equipment	Infrastructure and equipment specifications	Operational requirements
Sewage inflow, Outflow and Conveyance pipes	<ul style="list-style-type: none"> Accommodate and average dry weather flow (ADWF) of up to 220 m³/d Accommodate a peak wet weather flow (PWWF) or Peak Instantaneous Flow of 10.2 litres per second (880 m³/d) 	<ul style="list-style-type: none"> Do not leak or result in discharge to the environment
Inlet screen and degritting facility	<ul style="list-style-type: none"> inlet screen and degritting facility (a mechanical spiral screw type screen with manual screen bypass and grit classifier) 	<ul style="list-style-type: none"> Solid waste diverted to suitable bin for offsite disposal
Demand Aeration Tanks (DAT)	<ul style="list-style-type: none"> Two 138 m³ tanks Tanks equipped with Jas Engineering SAR310, 7.5 kW surface aerators, dissolved oxygen probe and decanter 	<ul style="list-style-type: none"> Designed to facilitate alum dosing for phosphorus removal, and soda ash dosing to maintain optimal pH
Intermittent Aeration Tanks (IAT)	<ul style="list-style-type: none"> Two 138 m³ tanks 	<ul style="list-style-type: none"> Fitted with two 2.2 kW SEV.80.80.22 returned activated sludge (RAS) pumps for the return of sludge from the IAT to the DAT (one pump kept on standby) Fitted with Gas Locked Syphon Decanter
Returned activated sludge (RAS) pumps	<ul style="list-style-type: none"> One 2.2kW SEV.80.80.22 RAS pump per IAT 	n/a
Waste activated sludge (WAS) pumps	<ul style="list-style-type: none"> One 1.2kW SEG.40.12 WAS pump per IAT 	<ul style="list-style-type: none"> Direct waste activated sludge (WAS) from the IAT to Sludge lagoons

Premises infrastructure and equipment	Infrastructure and equipment specifications	Operational requirements
Sludge lagoons (oxidation ponds)	<ul style="list-style-type: none"> Combined 8,300 cubic metre capacity 	<ul style="list-style-type: none"> Maintained free of emergent or floating vegetation Direct supernatant back to the DATs
Holding pond	<ul style="list-style-type: none"> 1,800 m³ volume HDPE lined Top of pond embankments sloped to direct stormwater away from the ponds. Fixed overflow set 500 mm below top of pond 	<ul style="list-style-type: none"> Maintained free of emergent or floating vegetation Fixed overflow to the irrigation dam kept clear of debris
Irrigation dam	<ul style="list-style-type: none"> 8, 800 m³ volume HDPE lined Top of dam embankments sloped to direct stormwater away from the ponds. 	<ul style="list-style-type: none"> Maintained free of emergent or floating vegetation 600 mm freeboard maintained in the irrigation dam
Chlorination unit	<ul style="list-style-type: none"> Hydramet continuous online chlorinate disinfection system 	<ul style="list-style-type: none"> Situated within enclosed, lockable shed and concrete hardstand. Includes an automated dosing pump, low pressure and thermal overload switches, residual free chlorine analyser and dosing tank with associated pipework infrastructure. Fitted with failure alarm system
Flow monitors	<ul style="list-style-type: none"> Flow meters to be installed for the measurement of sewer inflows and treated wastewater outflows discharged to holding pond 	<ul style="list-style-type: none"> Suitable device for measuring cumulative volumes of inflow to and outflow from the plant
Irrigation areas and reticulation network	<ul style="list-style-type: none"> Sports oval (1 ha) 	<ul style="list-style-type: none"> Colour-coded (lilac) pipework in accordance with AS/NZS 3500.5:2000 Irrigation after 9:00 pm only Pop-up sprinkler system comprising 8 I-41 Hunter gear drive pop-up sprinklers and 6 stations
	<ul style="list-style-type: none"> Prison Visitors' Area (0.1 ha) 	<ul style="list-style-type: none"> Colour-coded (lilac) pipework in accordance with AS/NZS 3500.5:2000 Irrigation after 10:00 pm only Pop-up sprinkler system employing I-20 Hunter pop-up sprinklers. Spray arcs set to avoid spray drift to picnic tables and play equipment

Premises infrastructure and equipment	Infrastructure and equipment specifications	Operational requirements
	<ul style="list-style-type: none"> Citrus orchard (5.2 ha) 	<ul style="list-style-type: none"> Colour-coded (lilac) pipework in accordance with AS/NZS 3500.5:2000 Drip irrigation system Irrigation schedule set to avoid surface ponding and overland flow Bunds maintained to restrict sheet erosion
Groundwater monitoring bores	<ul style="list-style-type: none"> Designed and constructed according to ASTM D5092/D5092M-16 	<ul style="list-style-type: none"> Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination.

2. The licence holder must manage the wastewater treatment vessels such that:
 - (a) overtopping of the vessels does not occur; and
 - (b) stormwater runoff is prevented from entering the vessels; and
 - (c) the integrity of the vessels is maintained; and
 - (d) vegetation and floating debris (emergent or otherwise) is prevented from growing or accumulating in the vessels.
3. The licence holder must manage the wastewater storage ponds such that:
 - (a) overtopping of the ponds does not occur; and
 - (b) a freeboard equal to, or greater than, 600 mm is maintained in the irrigation dam;
 - (c) the integrity of the containment infrastructure is maintained;
 - (d) trapped overflows are maintained on the outlet of ponds to prevent carry-over of surface floating matter; and
 - (e) vegetation and floating debris (emergent or otherwise) is prevented from encroaching onto pond surfaces or inner pond embankments.
4. The licence holder must manage the irrigation of treated wastewater such that:
 - (a) no irrigation generated run-off, spray drift or discharge occurs beyond the boundary of the defined irrigation area(s); and
 - (b) treated wastewater is evenly distributed over the irrigation area;
 - (c) no soil erosion occurs; and
 - (d) irrigation does not occur on land that is waterlogged; and
 - (e) vegetation cover is maintained over the irrigation area.

Premises operation

5. The licence holder must only accept and treat waste which is of a type specified in Table 2, and which does not exceed the approved capacity for that waste type.

Table 2: Waste acceptance table

Waste type	Approved capacity	Waste specification
Sewage	220 m ³ per day	Accepted via sewer inflows only

6. The licence holder must:
- (a) direct all sewage inflow to the demand aeration tanks via the inlet screen and degritting facility;
 - (b) direct all partially treated sewage from the demand aeration tanks to the intermittent aeration tanks;
 - (c) direct all clear wastewater from the intermittent aeration tanks to the holding pond;
 - (d) direct waste activated sludge to the sludge lagoons;
 - (e) direct clear wastewater from the holding pond to the irrigation dam;
 - (f) chlorinate wastewater prior to irrigation;
 - (g) direct chlorinated wastewater to approved irrigation areas only.

Emissions and discharges

General

7. The licence holder must record and investigate the exceedance of any descriptive or numerical limit specified in Condition 11 of this licence.
8. The licence holder shall ensure that odour emitted from the premises does not unreasonably interfere with the health, welfare, convenience comfort or amenity of any person who is not on the premises.

Solid waste disposal

9. The licence holder must dispose of any solid wastes and sludges generated from the inlet works to an appropriately licensed waste facility.

Emissions to land

10. The licence holder must ensure that where waste is emitted to land from the emission points in Table 3 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this licence.

Table 3: Emission points

Emission point reference (and located on map of emission points)	Emission point reference on map of emission points	Description	Source (including abatement)
Sludge lagoons (oxidation ponds)	Sludge lagoons (Figure 3)	Three unlined, earthen storage and evaporation ponds	Excess activated sludge
Irrigated water sample point (citrus orchards)	Citrus orchard (Figure 4)	Irrigation of citrus orchard	Treated wastewater

Emission point reference (and located on map of emission points)	Emission point reference on map of emission points	Description	Source (including abatement)
Irrigated water sample point (visitors' area and sports oval)	Prison visitors' area (Figure 5) and sports oval (Figure 6)	Discharge to turfed oval and nominated landscaped areas	Treated wastewater

11. The licence holder must not cause or allow emissions to land greater than the limits listed in Table 4.

Table 4: Emission limits

Emission point reference	Parameter	Limit (including units)	Averaging period
Irrigated water sample point (citrus orchards)	Total Suspended Solids	30 mg/L	Annual
	Biological Oxygen Demand	20 mg/L	Annual
	Total Nitrogen	24 mg/L	Annual
	Total Phosphorus	4 mg/L	Annual
	Thermotolerant Coliforms	1, 000 cfu/100 ml	n/a
	Total Nitrogen applied to land	300 kg/ha/year	Annual
	Total Phosphorus applied to land	50 kg/ha/year	Annual
Irrigated water sample point (visitors' area and sports oval)	Total Suspended Solids	30 mg/L	Annual
	Biological Oxygen Demand	20 mg/L	Annual
	Total Nitrogen	24 mg/l	Annual
	Total Phosphorus	4 mg/L	Annual
	Thermotolerant Coliforms	1, 000 cfu/100 ml	n/a
	Total Nitrogen applied to land	300 kg/ha/year	Annual
	Total Phosphorus applied to land	50 kg/ha/year	Annual

Monitoring

Monitoring of emissions to land

12. The licence holder must ensure that:
 - (a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
 - (b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
 - (c) all groundwater sampling is conducted in accordance with AS/NZS 5667.11;
 - (d) all microbiological samples are collected and preserved in accordance with AS/NZS 2031;
 - (e) all soil sampling is conducted in accordance with AS 4482.1 and AS 4482.2 as relevant; and
 - (f) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.
13. The licence holder must ensure that:
 - (a) quarterly monitoring is undertaken at least 45 days apart; and
 - (b) annual monitoring is undertaken at least 9 months apart.
14. The licence holder must, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.
15. The licence holder must undertake the monitoring in Table 5 according to the specifications in that table.

Table 5: Emissions monitoring

Emission point reference	Parameter	Units	Frequency	Averaging period
Irrigated water sample point (Sports oval and Visitors' area) and Irrigated water sample point (citrus orchards)	Volume discharged	m³	Daily	Daily
	Thermotolerant Coliforms	CFU/100 ml	Quarterly	Spot sample
	pH	-	Monthly	Spot sample
	Total Suspended Solids	mg/L		Spot sample
	Total dissolved Solids			Spot sample
	Biological Oxygen Demand			Spot sample
	Total Nitrogen			Spot sample
	Total Phosphorus			Spot sample
	Ammonia			Spot sample
	Arsenic			mg/L
	Cadmium	Spot sample		
	Chromium	Spot sample		
	Copper	Spot sample		

Emission point reference	Parameter	Units	Frequency	Averaging period
	Lead			Spot sample
	Nickel			Spot sample
	Selenium			Spot sample
	Zinc			Spot sample

Monitoring of inputs and outputs

16. The licence holder must undertake the monitoring in Table 6 according to the specifications in that table.

Table 6: Input and output monitoring

Input/output	Monitoring point reference	Parameter	Units	Averaging period	Frequency
Sewage inflows	Inflow meter	Volumetric flow rate (cumulative)	m ³	Monthly	Continuous
Treated wastewater discharged to irrigation	Outflow measuring unit	Volumetric flow rate (cumulative)	m ³	Monthly	Continuous

Process monitoring

17. The licence holder must undertake monitoring in Table 7:
- at the corresponding monitoring location;
 - in the corresponding unit;
 - at no less than the corresponding frequency; and
 - using the corresponding method,
- as set out in Table 7 according to the specifications in that table.

Table 7: Process monitoring

Process description	Parameter	Frequency	Method
Irrigation system	The licence holder must ensure that the irrigation system is maintained and the following checked: <ul style="list-style-type: none"> Pumping system pressure; Routine leak inspection; Waterlogging; and Tree and turf health. 	Weekly	None specified
Citrus orchard irrigation area	<ul style="list-style-type: none"> Weather conditions preceding and at the time of the inspection; Details of when the irrigation area was last irrigated; 	June – September (bi-weekly)	None specified

Process description	Parameter	Frequency	Method
	<ul style="list-style-type: none"> Damage to or blockage of irrigation pipelines, sprinklers and/or dripper line emitters (and details of when these issues were rectified); Ponding on the surface; and Runoff (including details of where this water flows to). 	October – May (monthly)	

Ambient environmental quality monitoring

18. The licence holder must monitor groundwater for concentrations of the parameter(s) listed in Table 8

- (a) at the corresponding monitoring location;
 - (b) in the corresponding unit;
 - (c) at no less than the corresponding frequency; and
 - (d) using the corresponding method,
- as set out in Table 8.

Table 8: Monitoring of ambient groundwater quality

Monitoring well location	Parameter	Unit	Frequency	Averaging period	Method
<i>MB01s</i> <i>MB01d</i> <i>MB02s</i> <i>MB02d</i> <i>MB04</i> <i>MB05</i> (as depicted in Figure 7)	Standing Water Level ¹	M(AHD)	Quarterly	Spot sample	Spot sample, in accordance with AS/NZS 5667.1 and 5667.11
	pH ¹	pH			
	Electrical conductivity ¹	µS/cm			
	Redox potential ¹	mV			
	Dissolved Oxygen ¹	mg/L			
	Total Phosphorus				
	Total Nitrogen				
	Ammonium – Nitrogen				
	Nitrate				
	Total dissolved solids				
	Biochemical oxygen demand	mg/L			
	Aluminum				
	Arsenic				
	Cadmium				
	Chromium				
	Cobalt				
	Copper				
	Lead				
	Nickel				

Monitoring well location	Parameter	Unit	Frequency	Averaging period	Method
	Selenium				
	Zinc				
	<i>E. coli</i>	cfu/100 ml			

Note 1: In-field non-NATA accredited analysis permitted

- 19.** The licence holder must monitor topsoil for concentrations of the parameter(s) listed in Table 9
- (a) at the corresponding monitoring location;
 - (b) in the corresponding unit;
 - (c) at no less than the corresponding frequency; and
 - (d) using the corresponding method,
- as set out in Table 9.

Table 9: Monitoring of ambient soil quality

Monitoring point description and location	Parameter	Unit	Frequency	Averaging period	Method
SB01 SB02 SB03 (as depicted in Figure 7)	pH ¹	pH	Quarterly	Spot sample	Spot sample, in accordance with AS 4482.1 and AS 4482.2
	Electrical conductivity ¹	μS/cm			
	Total Phosphorus	mg/L			
	Total Nitrogen				
	Aluminum				
	Arsenic				
	Cadmium				
	Chromium				
	Cobalt				
	Copper				
	Lead				
	Nickel				
	Selenium				
	Zinc				

Note 1: In-field non-NATA accredited analysis permitted

Records and reporting

- 20.** The licence holder must record the following information in relation to complaints received by the licence holder (whether received directly from a complainant or

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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.

21. 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 60 days after the end of that annual period an Annual Audit Compliance Report in the approved form.

22. 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) any maintenance of infrastructure that is performed in the course of complying with condition 1 of this licence;
- (c) monitoring programmes undertaken in accordance with conditions 15,16,17, 18 and 18 of this licence; and
- (d) complaints received under condition 20 of this licence.

23. The books specified under condition 22 must:

- (a) be legible;
- (b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;
- (c) be retained by the licence holder for the duration of the licence; and
- (d) be available to be produced to an inspector or the CEO as required.

Specified Actions

24. Within 6 months of the date of licence issue, the licence holder must engage a suitably qualified hydrogeological consultant to prepare a detailed Water and Nutrient Balance Model and updated Nutrient and Irrigation Management Plan in accordance with the required updates set out in Schedule 1, Table

25. The licence holder shall submit the CEO a copy of the Water and Nutrient Balance Model and updated Nutrient and Irrigation Management Plan required under Condition 24 within 18 months of the first anniversary of this licence.

Definitions

In this licence, the terms in Table 10 have the meanings defined.

Table 10: Definitions

Term	Definition
ACN	Australian Company Number
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
AS/NZS 2031	means the Australian Standard AS/NZS 2031 Selection of containers and preservation of water samples for microbiological analysis
AS/NZS 3500.5:2000	means the Australian Standard AS/NZS 3500.5-2000 AMDT 2 <i>National plumbing and drainage code - Domestic installations</i>
AS 4482.1	means the <i>Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds</i>
AS 4482.2	means the <i>Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances</i>
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples
AS/NZS 5667.10	means the Australian Standard AS/NZS 5667.10 <i>Water Quality – Sampling – Guidance on sampling of waste waters</i>
AS/NZS 5667.11:1998	means the Australian Standard AS/NZS 5667.11 <i>Water Quality – Sampling – Guidance on sampling of groundwaters</i>
ASTM D5092/D5092M-16	Means the <i>Standard Practice for Design and Installation of Groundwater Monitoring Wells</i>
books	has the same meaning given to that term under the EP Act.

Term	Definition
CEO	means Chief Executive Officer of the Department. “submit to / notify the CEO” (or similar), means either: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 or: info@dwer.wa.gov.au
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
HDPE	High-density polyethylene
licence	refers to this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained within.
licence holder	refers to the occupier of the premises, being the person specified on the front of the licence as the person to whom this licence has been granted.
monthly period	means a one-month period commencing from the 15 th of a month until 14 th of the immediately following month.
premises	refers to 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.
prescribed premises	has the same meaning given to that term under the EP Act.
waste	has the same meaning given to that term under the EP Act.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in and defined by the coordinates the map below (Figure 1).

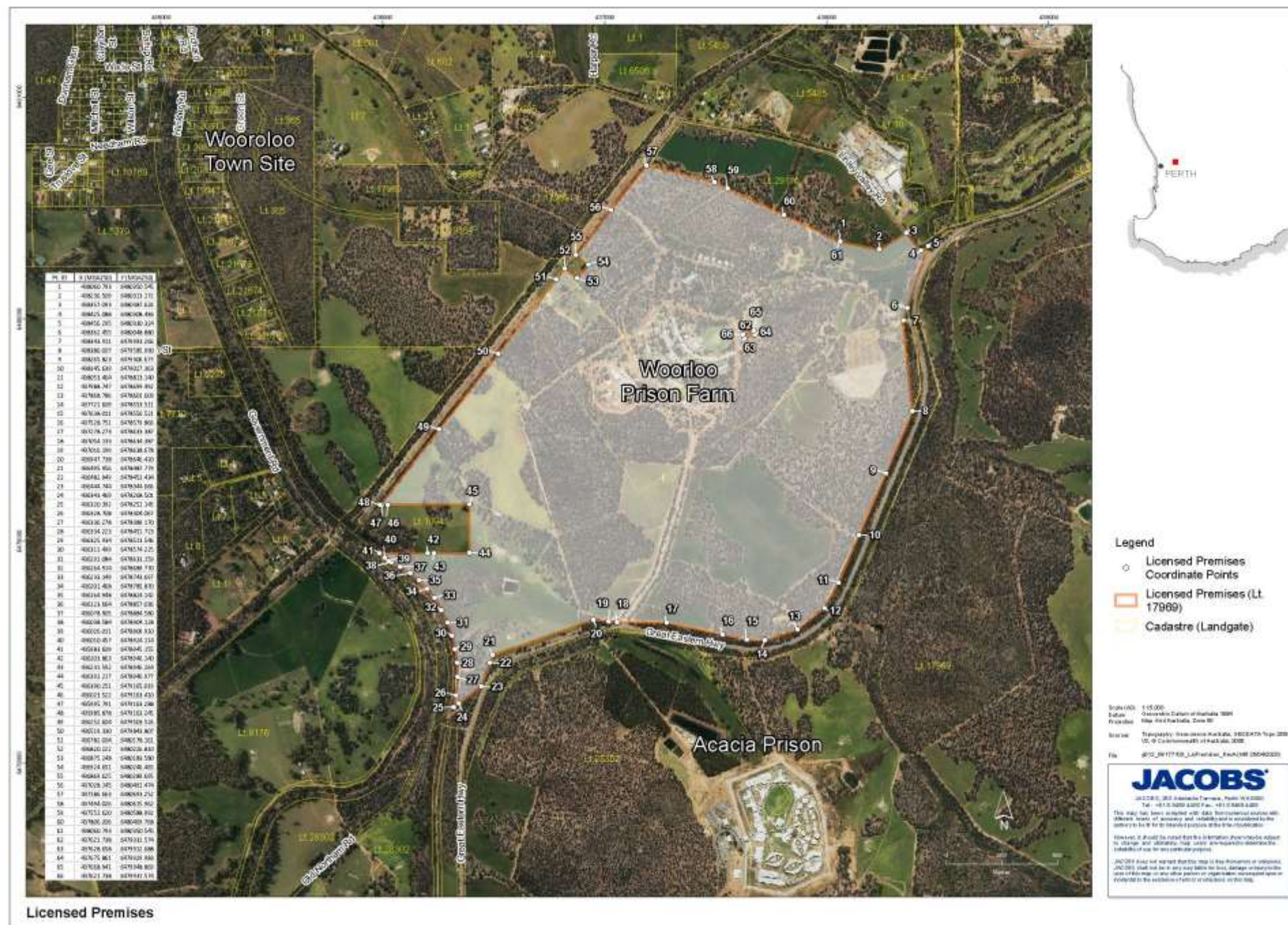


Figure 1: Map of the boundary of the prescribed premises

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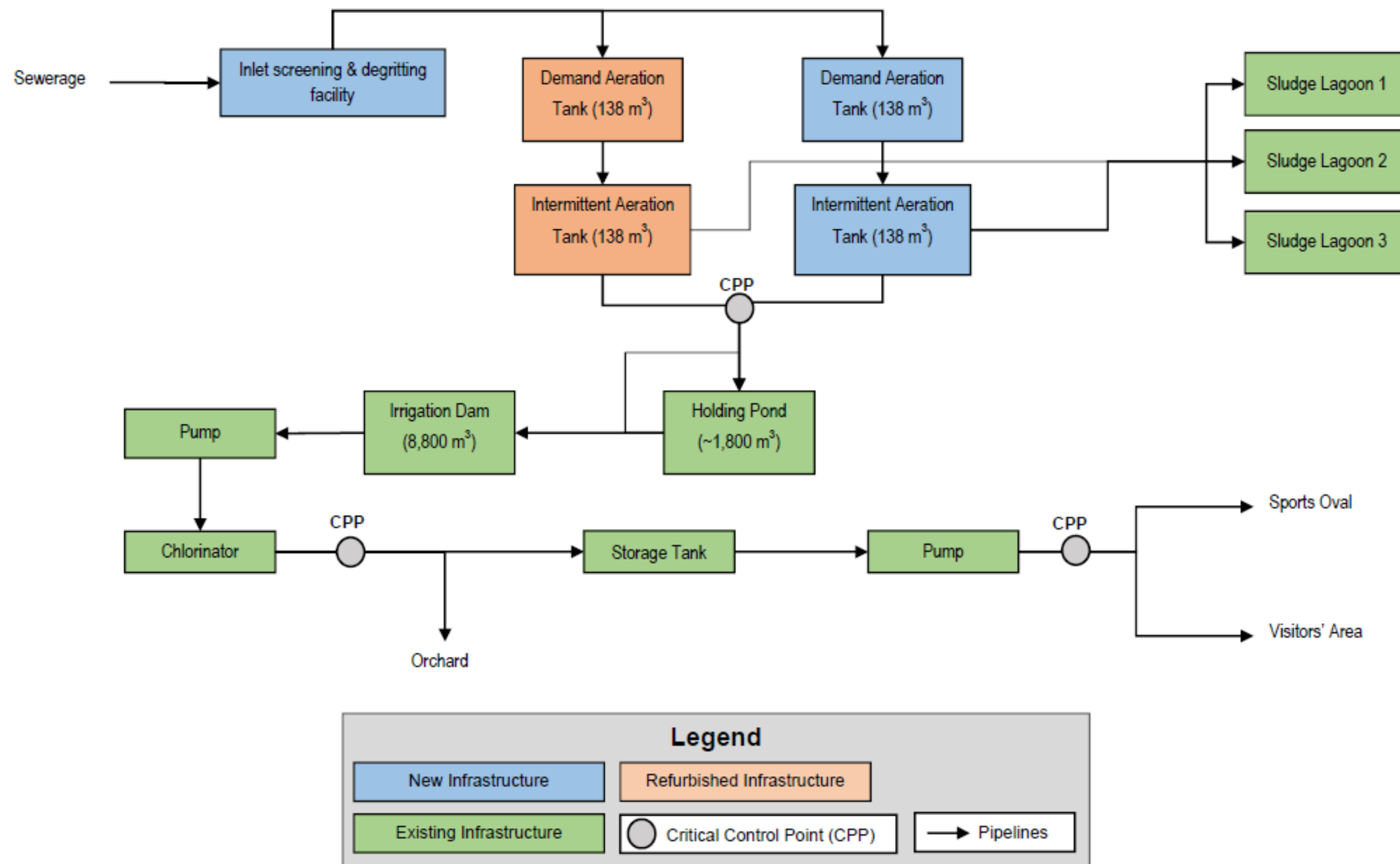


Figure 2: Recycled wastewater scheme process diagram



Figure 3: Wastewater treatment plant and sludge lagoons



Figure 4: Citrus orchard approved irrigation area



Figure 5: Visitor's area approved irrigation area



Figure 6: Sports oval approved irrigation area



Figure 7: Soil and Groundwater sampling locations

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Shedule 1: Water and Nutrient Balance Model and Nutrient and Irrigation Management Plan requirements

Table 11: Water and Nutrient Balance Model and Nutrient and Irrigation Management Plan specifications

Aspects of premises operation to be addressed	Specifications
Onsite soil investigations	<p>Revised NIMP to:</p> <ul style="list-style-type: none"> Outline a soil monitoring program aimed at the identification of any potential impact resulting from nutrient loading under long-term irrigation scenarios. Identify current (background) topsoil quality outside of irrigation areas for the purpose of identifying contaminant accumulation over time as part of ongoing monitoring. Identify and address any erosion impacts associated with current operations and how these may be resolved through prescribed management actions.
Confirmation of maximum plant design and performance capacity in m ³ /day expressed as both maximum daily (24 hr) and monthly averages	<ul style="list-style-type: none"> N/A
Calculations of future maximum Wastewater Treatment Plant (WWTP) inflow volumes	<ul style="list-style-type: none"> Revised NIMP to include revised figures based on actual maximum projected plant throughput.
Treated wastewater quality data	<ul style="list-style-type: none"> Latest monitoring data to be incorporated in revised NIMP

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Aspects of premises operation to be addressed	Specifications
Management of Nutrient loadings	<ul style="list-style-type: none"> Updated nutrient loadings based on expanded (required) irrigation area to be incorporated into revised NIMP. Current winter irrigation practices discharging water in excess of plant requirements considered problematic, resulting in nutrient/contaminant export from soil over wettest months.
Runoff and surface water quality management	<ul style="list-style-type: none"> Revised NIMP to include a revised, accurate water balance based on projected throughput. Detail treated effluent will be managed during winter months. Orchard application in excess of infiltration rates and plant moisture requirements is currently required to maintain pond freeboard over winter. Revised NIMP to assess the adequacy of existing engineering solutions, and incorporate agreed options to manage impacts of and/or reduce winter irrigation. Revised NIMP should also address how identified soil water repellence and water erosion might be addressed through appropriate management actions.
Installation of appropriate groundwater monitoring bores	<ul style="list-style-type: none"> Noted that 6 monitoring bores have been installed at the premises, however additional shallow bores are required to identify any breach of containment (sludge lagoons and storage ponds). Revised NIMP to address adequacy of existing bores for ongoing groundwater (perched aquifer) monitoring, and agreement from premises occupier that monitoring shall be undertaken.
Development of a comprehensive monitoring program to assess the status of groundwater upstream and downstream of the WWTP and irrigation areas and, if necessary, conduct a hydrological study to establish the groundwater flows and associated water quality with good certainty	<ul style="list-style-type: none"> Revised NIMP to confirm that a monitoring program will be prepared and adopted, and that the program will cover any potential, expanded irrigation and impacts from sludge lagoon infiltration. Revised NIMP will also need to include reference to any additional monitoring bores required to monitor potential impacts.

Aspects of premises operation to be addressed	Specifications
Provision for reconstruction of the existing sludge lagoons to ensure a permeability less than or equal to 1×10^{-9} m/s	<ul style="list-style-type: none"> • Refurbishment of lagoons such that they are appropriately lined to achieve a target permeability of less than 1×10^{-9} m/s to be addressed within the revised NIMP.