



Application for Works Approval Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number W6490/2021/1

Works Approval Holder Derby Industries Pty Ltd

ACN 009 033 612

File Number DER2020/000621-1

Premises Talloman Rendering Facility
Lot 115 Lakes Road
HAZELMERE WA 6055

Legal description

Lot 20 on DP73040 and Lot 116 on DP4553

Certificate of Title Volume 2814 Folio 696 and Certificate of Title Volume 1243 Folio 89

As defined by the coordinates in Schedule 1 of the works approval

Date of Report 18 October 2023

Decision Revised works approval granted

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1. Decision summary

Works Approval W6490/2021/1 is held by Derby Industries Pty Ltd (Works Approval Holder) for the Talloman Rendering Facility (the Premises), located at Lot 115 Lakes Road Hazelmere.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during construction and operation of the new clarifier tank. As a result of this assessment, revised Works Approval W6490/2021/1 has been granted.

The revised Works Approval issued as a result of this amendment consolidates and supersedes the existing Works Approval previously granted in relation to the Premises.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary

On 17 August 2023, the Works Approval Holder submitted an application to the department to amend Works Approval W6490/2021/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- installation of 2 new 32m³/hour clarifier tanks within the Biological Nutrient Reduction (BNR) portion of the wastewater treatment system (WWTS)¹.

This amendment is limited to changes to the existing Category 16: Rendering operations from the existing Works Approval. This amendment seeks to improve the level of treatment of wastewater within the WWTS by targeting the BNR plant specifically.

Upon finalisation of all the works specified in this Works Approval to the satisfaction of the CEO, namely construction of the new poultry processing line and the dedicated poultry biofilters (not part of the current amendment), the maximum throughput capacity will be increased to 180,000 tonnes per annum.

Throughput capacity

The Delegated Officer notes that the plant operated at slightly above its maximum approved throughput capacity (by 879 tonnes) over the 2022- 2023 annual reporting period due to the premises accepting materials that were unexpectedly diverted from another rendering plant that had temporarily closed in December 2022. This increase may have contributed to the increase in odours from the premises, and increased odours and the incidence of overflows from the WWTS specifically.

Through the activities prescribed under this works approval, the authorised throughput

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- ¹ The BNR plant is also referred to onsite as the Wastewater Treatment Plant (WWTP) however the entire wastewater treatment system includes many other infrastructure including but not limited to the Covered Anaerobic Lagoons, the Dissolved Air Floatation plant, gross solids screens, the final effluent holding ponds and the water corporation discharge sewer.

capacity will increase from 160,000 tonnes per annum to 180,000 tonnes per annum upon CEO endorsement that all the construction works have been completed satisfactorily to the standards specified in W6490/2021/1 (issue Date 16 June 2022). The proposed chicken rendering plant will allow for approximately 60,000 tonnes per annum of chicken abattoir waste to be rendered using a low temperature rendering process (of approximately 95°C). Low temperature rendering reduces the volume and strength of effluent generated, the volume of non-condensable off gases requiring treatment, the amount of energy consumed heating material, and reduces the amount of proteinaceous material lost to the effluent stream so the final product is also of a higher saleable quality. The current a high temperature rendering process occurs at approximately 140°C.

Odour complaints

Between the 1 January 2023 and 30 September 2023 there were over 27 odour incidents recorded for the premises. More than half (14) relate to a sewage type of odour that could be from any part of the WWTS as shown in Figure 1. The occupier conducts twice daily inspections of the premises for early detection of unreasonable odour emissions and during the course of this period a number of potential sources were identified that are associated with the WWTS. These include a BNR plant overflow, emptying of sludge tanks, holes in the Variable Depth Reactor (VDR) tank cover, overloading of the BNR plant when required to empty the of Covered Anaerobic Lagoon (CAL) 2 by the 31 August 2023 as required by Licence Condition 1.3.2 (amended date: 22 August 2023).

Clarifier additions to Biological Nutrient Reduction Plant

The wastewater generated from rendering operations is a high strength effluent with very high Total Dissolved Solids (TDS) and high Biological Oxygen Demand (BOD). The wastewater undergoes various stages treatment prior entering the BNR plant as shown in Figure 1. Upstream processing includes various stages of gross solids and fat screening within the washdown and collection pits, the contra shear, Dissolved Air Flootation (DAF) plant and then enters and anaerobic treatment phase in the Covered Anaerobic Lagoons (CAL) of which primarily function is to reduce BOD from approximately 5,000mg/L to approximately 500mg/L in the wastewater stream but which also remove some TDS as a secondary function. The water from the cooking gases (condensate) is then added into the effluent stream. At this stage the wastewater is sent to the BNR plant which serves to strip remaining nutrients from the wastewater stream using bacteria. Nitrifying and denitrifying bacteria remove nitrogen through the activator tanks and variable depth reactor (VDR) tank respectively. Phosphate accumulating bacteria are encouraged grow in the VDR tanks and these are removed from the wastewater in the clarifiers in a bacteria laden sludge. Under the original configuration the wastewater passes through are two stages of activator tanks and VDR tanks prior to sludge removal.

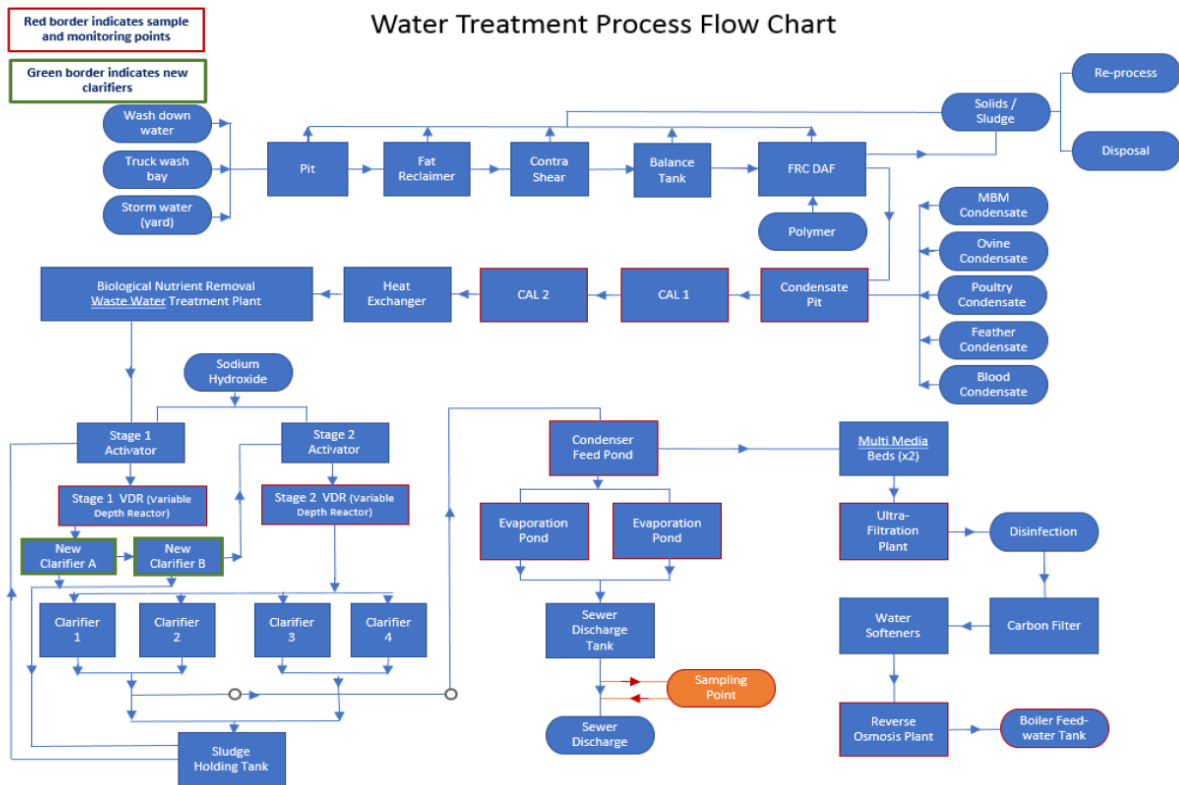


Figure 1: Wastewater treatment system at the Tallomans premises

The amendment is for the installation of two 32m³/h Lamella clarifiers which operate in between stage 1 and stage 2 (see Figure 2 and 3) using inclined plates to remove fine sized particles from solution which then collect at the bottom of the clarifier at the collection hopper. The Lamella clarifiers are thought to be up to 20 times more efficient than conventional clarifier tanks. The existing clarifiers 1, 2, 3 and 4 are tank clarifiers and each have a capacity of 8.33m³/hour and will continue to operate in their current configuration relative to stage 2 of wastewater treatment. The new clarifiers will significantly increase the removal of biological loading between the two stages of treatment and improve the quality of final treated effluent from the BNR. Water will be of a higher quality reducing odour and will allow for greater water reuse on site.

Construction work will include the platforms and stairs around the two new clarifier tanks as shown in Figure 2. The works include associated pumps, pipe works and valves. The two new clarifier tanks will be located within the existing BNR footprint area.

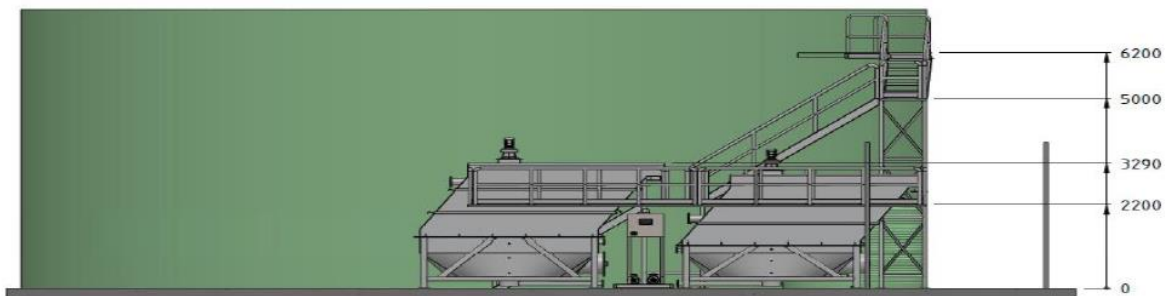


Figure 2: Two Lamella Clarifiers and associated platforms and staircases.

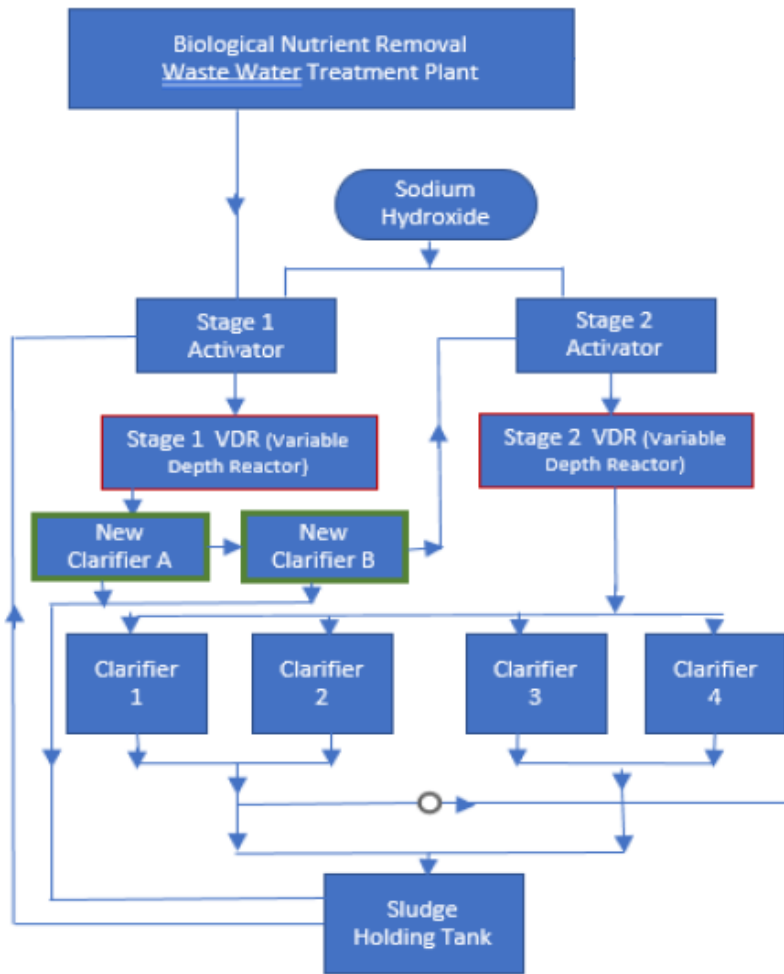


Figure 3: Flow diagram detailing the BNR plant and location of 2 new clarifiers A and B

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

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.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation of the two new lamella clarifiers which have been considered in this Amendment Report are detailed in

Table 1 below.

Table 1 also details the proposed control measures the Works Approval Holder has proposed to assist in controlling these emissions, where necessary.

Table 1: Works Approval Holder controls

Emission	Sources	Potential pathways	Proposed controls
Noise	Minor construction works including installation of two new clarifier tanks, additional platforms, stairs pipework, pumps, electrical and PLC monitoring equipment	Air/windborne pathway causing impacts to health and amenity Residences 420m north and 800m south-east	Works to occur during normal business hours Short duration of works.
	Operation of two new clarifiers within existing wastewater treatment process		No additional controls proposed. The new tanks will occur within the existing BNR footprint area surrounded by tanks
Odour	Operation of two new clarifiers within existing wastewater treatment process		No additional controls proposed
Wastewater discharge to environment	Operation of two new clarifiers within existing wastewater treatment process	Groundwater between 0.5 - 3 mbgl Hazelmere Lakes (South and North) are situated 450m and 790m west of the premises Downstream bore water users	New tanks will be situated within a bunded cement lined area allowing for capture and reprocessing of overflow or accidental release of wastewater

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Works Approval Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Rural residential dwellings	360m to 460m west of the premises boundary on Vale Road Hazelmere
Hazelmere urban residential area	715m NW
South Guildford urban residential area	1000m NE
Environmental receptors	Distance from prescribed activity
Geomorphic Wetlands, Swan Coastal Plain: <ul style="list-style-type: none"> • Hazelmere Lakes – Resource Enhancement wetlands • Helena River – conservation category 	The Hazelmere Lakes (South and North) are situated 450m and 790m west of the new premises boundary, The Helena River is 1km north-east of the premises boundary
Rights in Water and Irrigation Act 1914: Perth Groundwater Area	Depth to is between 0.5- 3 mbgl across the site

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are incomplete they have not been considered further in the risk assessment.

The Revised Works Approval W6490/2021/1 that accompanies this Amendment Report authorises construction and time limited operation of the new clarifiers. The conditions in the Revised Works Approval have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the Premises. A risk assessment for the operational phase has been included in this Amendment Report, however licence conditions will not be finalised until the department assesses the licence application.

Table 3: Risk assessment of potential emissions and discharges from the Premises during construction and operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
Construction								
Minor construction works including installation of two new clarifier tanks, additional platforms, stairs pipework, pumps, electrical and PLC monitoring equipment	Noise	Air/windborne pathway causing impacts to health and amenity	Residences 420m north and 800m south-east	Refer to Section 3.1.1	C = Slight L = Rare Low Risk	Y	Works Approval conditions 1, 2 and 3	Standard Works approval construction compliance and reporting conditions apply
Operation- including time-limited-operations operations								
Operation of two new clarifiers within existing wastewater treatment process	Noise	Air/windborne pathway causing impacts to health and amenity	Residences 420m north and 800m south-east	Refer to Section 3.1.1	C = Slight L = Rare Low Risk	Y	Works Approval conditions 10 and 11 to report on time limited operation and any complaints received.	Environmental Protection (Noise) Regulations 1997 apply
	Odour	Air/windborne pathway causing impacts to health and amenity	Residences 420m north and 800m south-east	Refer to Section 3.1.1	C = Slight L = Rare Low Risk	Y	Works Approval conditions 10 and 11 to report on time limited operation and any complaints received. Licence Condition 2.3.2 requires the occupier to cease any emission of unreasonable odour that results from malfunction or failure of equipment.	The new clarifiers are expected to significantly reduce odour emissions from wastewater treatment Environmental harm (s and pollution provisions of the EP Act apply

Risk Event					Risk rating ¹ C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
Operation of two new clarifiers within existing wastewater treatment process	Wastewater discharge to environment	Direct discharge to soil, Infiltration to groundwater	Groundwater between 0.5 - 3 mbgl Hazelmere Lakes (South and North) are situated 450m and 790m west of the premises Downstream bore water users	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	Works Approval conditions 10 and 11 to report on time limited operations and any complaints or incidents received. Licence Condition 1.2.2 requires the occupier to recover and dispose of spills outside of engineered containment systems	Environmental Protection (Unauthorised Discharge) Regulations 2004 apply

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

4. Consultation

The Works Approval Holder was provided with a copy of the Draft amended Works Approval and Amendment Report on 11 October 2023. Correspondence was received on the 13 October 2023 requesting the remainder of the comment period be waived and that the amended Works Approval be issued as soon as possible.

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Works Approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 4 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Works Approval as part of the amendment process.

Table 4: Summary of works approval amendments

Condition no.	Proposed amendments
1	Inclusion of infrastructure construction and operation requirements for the 2 Lamellar clarifiers as row 5 in Table 1.
10	Inclusion of subsection (v) specifying the two new Lamellar clarifiers to be included within any compliance reporting documentation