



Application for Works Approval

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

Works Approval Number W6890/2024/1

Applicant Quanxin Pty Ltd

ACN 670 373 065

File number DER2024/000028

Premises Xenon Recycle
14 Vinnicombe Drive
CANNING VALE 6155

Legal description -
Part of Lot 981 on Deposited Plan 410204
Certificate of Title Volume 2944 Folio 855

Date of report 11 November 2024

Proposed Decision Intent to grant works approval

MANAGER WASTE INDUSTRIES

REGULATORY SERVICES

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

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, Works Approval W6890/2024/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) 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 and overview of premises

On 18 January 2024, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act). The application is to undertake construction works relating to a tyre recycling facility at 14 Vinnicombe Drive, Part of Lot 981 on Deposited Plan 410204 (the premises). The premises is located in the City of Canning Vale.

The applicant proposes to accept waste used tyres from operators such as tyre fitting businesses. Following acceptance, waste tyres will be processed, shredded to a material not more than 150 millimeters, loaded into a shipping container and shipped overseas. The proposed operating hours are 7:00am – 6:00pm between Monday and Friday and 7:00am – 1:00pm on Saturdays, with deliveries of up to 80 trucks per week scheduled during nominated business hours.

Proposed infrastructure includes:

External

- Tyre receipt and over spill storage
- 40 foot shipping container

Internal – Warehouse and Awning

- Tyre shredder
- Tyre de-beader
- Conveyor

The premises relates to the categories and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in Works Approval W6890/2024/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020b) are outlined in Works Approval W6890/2024/1.

2.3 Noise modelling

The applicant commissioned an Environmental Noise Assessment in relation to the proposed activities at the premises. The noise modelling used the SoundPLAN 8.2 software program and CONCAWE algorithm, which applies meteorological conditions, topographic data, facility layout and sound attenuation of building materials as model inputs. Three operating scenarios were chosen for the noise modelling; standard operations with all roller doors open, standard operations with the west roller door closed, and the delivery and unloading of trucks containing tyres.

The modelling results showed that noise emissions during operation would comply with the assigned noise levels at all neighbouring industrial premises for all operating scenarios, except at 18 Vinnicombe Dr (R2) when the west roller door of the warehouse is open and the noise is tonal. This receptor is a neighbouring warehouse building façade, immediately adjacent to the western façade and roller door of the warehouse located on the premises.

To achieve full compliance with the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations), the applicant proposes to close the west roller door during tyre processing operations. This noise mitigation measure was selected to reduce noise emission levels received at R2, as the modelling for this scenario showed compliance with the assigned noise levels.

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 2020b).

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 which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction of bund around perimeter	Air / windborne pathway	<ul style="list-style-type: none"> Dust controls for construction activities not provided.
Noise and vibration	Placement of tyre processing equipment Vehicle movements		<ul style="list-style-type: none"> Construction noise to comply with requirements of the Environmental Protection (Noise) Regulations 1997 (EP Noise Regulations). Premises located in a general industry zone.

Emission	Sources	Potential pathways	Proposed controls
Operation			
Dust	Receival and unloading of used tyres Operation of tyre shredding equipment and machinery Vehicle movements	Air / windborne pathway	<ul style="list-style-type: none"> Processing machinery to be located within an enclosed building. Tyres will be shredded to 150 mm only
Noise and vibration			<ul style="list-style-type: none"> Processing machinery to be located within an enclosed building. Shredder utilises high torque at low speed to minimise noise. Applicable controls recommended in the noise assessment for compliance with the Noise Regulations to be implemented.
Smoke and particulates	Fire incident during waste tyre processing and storage	Air / windborne pathway	<ul style="list-style-type: none"> Tyres stored in consideration with DFES Guidance Note: GN02 Bulk Storage of Rubber Tyres. Shredded tyre product stored in shipping container to separate it from whole stacks. Fire water supply and run-off containment within the property will also be calculated and designed as per DFES guidance. Smoke detectors and firefighting equipment will be installed as per DFES guidance.
Fire embers			<ul style="list-style-type: none"> Fire water run-off containment will be achieved by bunding, with all surfaces sealed and stormwater drains sealed. Fire wash water will be removed and disposed of by a licensed contractor.
Fire wash water		Overland runoff and seepage through soil to groundwater	<ul style="list-style-type: none"> Fire water run-off containment will be achieved by bunding, with all surfaces sealed and stormwater drains sealed. Fire wash water will be removed and disposed of by a licensed contractor.

3.1.2 Receptors

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

Table 2 and Figure 1 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 2020a)).

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

Receptors	Distance from prescribed activity
Human receptors	
Nearest residential receptor	640 m north of premises boundary
Whaleback golf course	540 m north of premises boundary
Commercial premises	Immediately surrounding within the Canning Vale business district
Environmental receptors	
Drainage compensating basin – Vinnicombe Dr dry basin	Immediately adjacent to the east of the premises and connected to the surrounding drainage network
Underlying groundwater – Superficial aquifer (non-potable use) part of the proclaimed Perth Groundwater Area	Based on regional information, groundwater is located approximately 6 mbgl and flows in a north-northeasterly direction towards Bannister Creek
Bannister Creek – Tributary of the Canning River	1.85 km north-northeast of premises boundary
Tom Bateman Reserve Bushland – Tom Bateman wetlands and Bush Forever site 456	2 km north-east of premises boundary
Canning Vale Gardens – Mixed public open space and bushland containing record of Priority 3 flora species	1.1 km south-east of premises boundary
Roadside vegetation – Containing record of Priority 3 flora species	970 m north-west of premises boundary

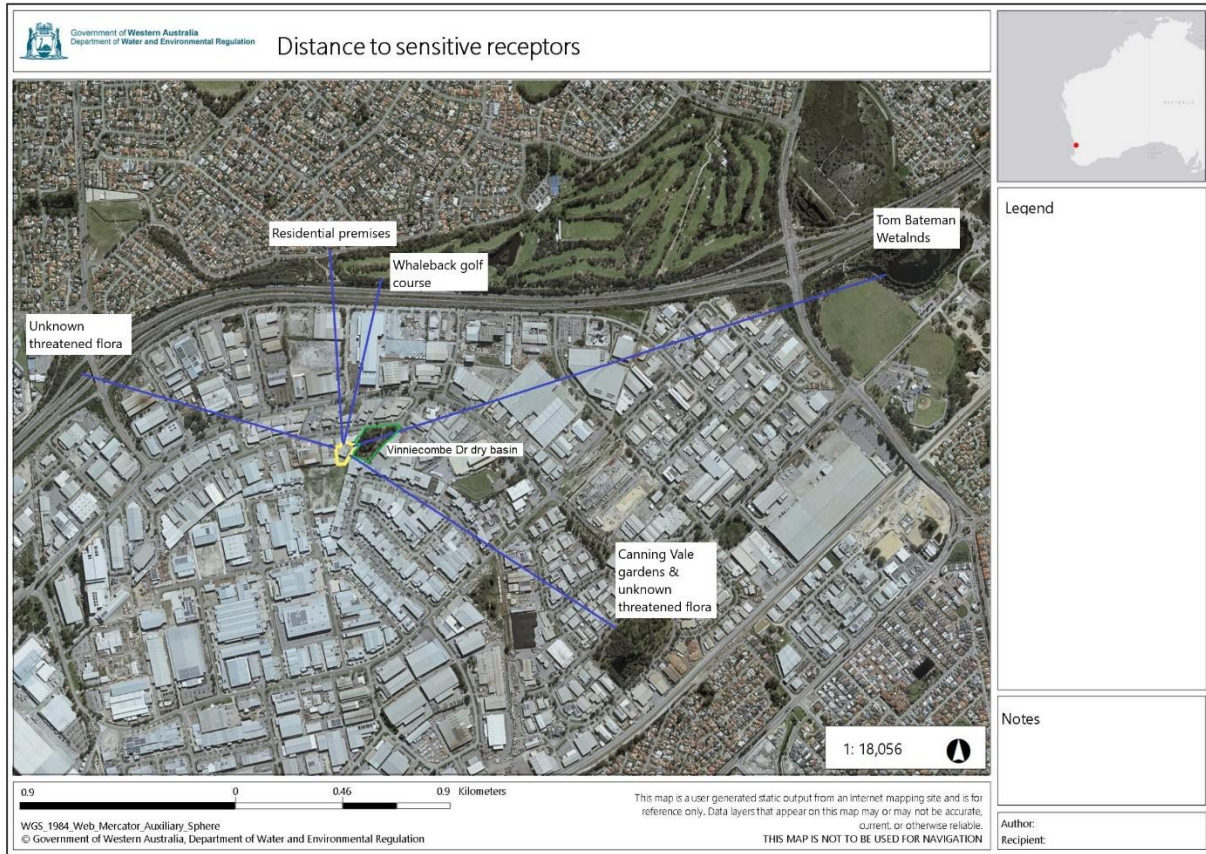


Figure 1: Distance to sensitive receptors

3.2 Risk ratings

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

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works Approval W6890/2024/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 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 decision 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 events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
Construction								
Construction of bunding around perimeter. Placement of tyre processing equipment Vehicle movements	Dust	Air / windborne pathway causing impacts to health and amenity	Human receptors listed in Table 2	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	N/A	The Delegated Officer considers dust emissions associated with construction activities can be adequately regulated by the general provisions of the EP Act.
	Noise and vibration				C = Slight L = Unlikely Low Risk	Y	N/A	The Delegated Officer considers that noise emissions during construction can be sufficiently managed through the <i>Environmental Protection (Noise) Regulations 1997</i> .
Operation (including time-limited-operations operations)								
Receival and unloading of used tyres Operation of tyre shredding equipment and machinery Vehicle movements	Dust	Air / windborne pathway causing impacts to health and amenity	Human receptors listed in Table 2	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	Condition 2, Table 1, 2d Condition 8, Table 3, 2d, 3a and 3b	The Delegated Officer considers that the controls proposed by the applicant will be sufficient to manage the risk associated with dust emissions during operational activities and has included these controls within the works approval as regulatory controls.
	Noise and vibration				C = Minor L = Unlikely Medium Risk	Y	Condition 2, Table 1, 2d Condition 7, Table 2, 2d, 3a and 3b	The Delegated Officer considers with the implementation of the proposed noise mitigation measure (i.e. close the west roller door during the tyre processing operations), the premises is able to achieve compliance with the <i>Environmental Protection (Noise) Regulations 1997</i> .
Fire incident during waste tyre processing and storage	Smoke and particulates	Air / windborne pathway causing impacts to health and amenity	Human receptors listed in Table 2	Refer to Section 3.1.1	C = Major L = Possible High Risk	N	Condition 1, 3 and 4 Conditions 2, 7, 8, 9 and 10	Refer to Section 3.3. Condition 1 has been added to the works approval to require the implementation of a Fire and Emergency Management Plan to prevent discharges of contaminated firewater into stormwater systems, documentation for which is to be lodged with the licence application for assessment of effectiveness of the controls.
	Fire embers	Air / windborne pathway causing impacts to health, amenity and vegetation	Human receptors listed in Table 2 Environmental receptors listed in Table 2 (excluding underlying groundwater)		C = Moderate L = Possible Medium Risk	Y	Conditions 1, 2 Table 1 1b, 6, 7, 10 Table 5 1a ii), b), c), d), e), 3	Conditions 3 and 4 require the submission of an Environmental Compliance Report to verify the works have been constructed in accordance with the relevant requirements.
	Fire wash water	Overland runoff and seepage through soil to groundwater causing ecosystem disturbance or impacting water quality	Drainage compensating basin Underlying groundwater Bannister Creek					

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

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

3.3 Detailed risk assessment for fire events

Tyres are considered a Special Hazard under the provisions of the National Construction Code (Australian Building Codes Board) Volume 1 Part E1.10, whereby when burning, the high calorific value stored in tyres is released during combustion as heat and smoke and typically results in a very hot fire with enormous volumes of black smoke being generated.

The Department of Fire and Emergency Services (DFES) published *Guidance Note: GN02 Bulk Storage of Rubber Tyres Including Shredded and Crumbed Tyres* (DFES 2020) to set the minimum fire safety recommendations for the storage of rubber tyres, including those in open yards (external) or stored within buildings and structures (internal).

The applicant has liaised with DFES in conjunction with submission of the works approval application giving consideration to GN02 (29 December 2022, Saraceni Fire Engineering Group) detailing fire safety engineering, and identifying and documenting the fire safety measures likely to be required for the facility.

Fire safety measures include:

- Adherence to the requirements of GN02 which includes tyre separation distances between stacks/piles and minimum boundary and building clearances.
- A minimum of 3 fire hydrant outlet installations in the external yard and 2 fire hose reels installed in the tyre storage warehouse in accordance with AS 2419.1.
- A minimum water storage volume of 432,000 L for the fire hydrant system to operate a peak flow rate of 10 L per second at all hydrants simultaneously for a minimum of four hours.
- An alarm system connected to the Direct Brigade Alarm system
- Site access points are to be kept clear and maintained to ensure adequate access by emergency response vehicles.

Firewater containment measures include:

- Concrete bunding around the internal perimeter of the premises to ensure surface water is contained.
- Isolation valves installed on sub-surface storage pits connected to the fire control system, to isolate firewater from entering the soakage pits in the event of a fire.
- A premises hardstand and surface water drainage system with the ability to provide a minimum containment volume of 432,000 L to contain contaminated water runoff.

Key findings:

The Delegated Officer has reviewed the information regarding fire management and has found:

1. Aspects of the applicant controls and GN02 will be applied as conditions within the works approval to ensure the risk of fire events are mitigated, and in the case of a fire event, that the fire can be effectively contained and extinguished.
2. Conditions have also been added to the works approval to require the implementation of a Fire and Emergency Management Plan to adequately manage emergency events, documentation for which is to be lodged with the licence application for assessment of effectiveness of the controls.
3. After consultation with DFES, the applicant's proposed firefighting systems have been determined to be adequate for the proposed facility.

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 19 February 2024	<p>One submission received on 11 March 2024 highlighting concerns about the proposal.</p> <p>The following points were stated for department consideration:</p> <ul style="list-style-type: none"> • Development Application approval is required for change of use. • Fire hydrants required as per <i>DFES GN 02</i> • Firewater containment controls and infrastructure not sufficient • Noise emission concern relating to western door operations • Operational requirements relating to storage and production rates will exceed a maximum tyre storage of 48 tonnes at any one time. • Sensitive receptors and required buffer zones are not in accordance with <i>Guidance for the Assessment of Environmental Factors Western Australia - Separation Distances between Industrial and Sensitive Land Uses</i> 	<p>The applicant provided DA approval documentation on 29 July 2024.</p> <p>The fire hydrant and firewater containment conditions in the attached works approval comply with <i>DFES Guidance Note: GN 02</i>.</p> <p>The department believes that implementing the proposed noise mitigation measure ie. closing the west roller door during tyre processing, will ensure full compliance with the Noise Regulations.</p> <p>Passenger tyres received will weigh a maximum of 10 kg each, with a maximum storage of 4,800 tyres, totalling 48 tonnes. This amount is within the proposed storage and production limits.</p> <p>The department has assessed sensitive human and environmental receptors, as detailed in Table 2 of the site-specific risk assessment per the <i>Guideline: Risk Assessments Guideline</i> (DWER 2020b). The buffer distances to these receptors are deemed sufficient and align with the City of Canning's land use scheme.</p>
Local Government Authority advised of proposal on 27 February 2024	<p>The City of Canning replied on 12 March 2024 commenting:</p> <ul style="list-style-type: none"> • Storm water isolation valve for the ability to retain firefighting chemicals and water on site. Valve should be of durable construction and inspected/tested regularly. • Storm water protection to prevention of rubber fines in drains • Lock box for firefighting at property in event of an emergency 	<p>Noted</p> <p>The department notes the applicant provided DA approval documentation on 29 July 2024.</p>

	<ul style="list-style-type: none"> • Compliance with Environmental Protection (Noise) Regulations 1997. • Development Approval (DA) application has been submitted to the City (DA 105.1854) 	
Department of Fire and Emergency Services (DFES) advised of proposal 27 February 2024	DFES replied on 18 March 2024 stating that the proposal has addressed relevant sections of the DFES <i>Guidance Note: GN 02</i> that apply to this application.	Noted
Applicant was provided with draft documents on 30 September 2024	The applicant replied on 18 October 2024. Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Fire and Emergency Services (DFES) 2020, *Guidance Note (GN02) Bulk storage of rubber tyres including shredded and crumbed tyres Version 1. 2020*, November 2019, Perth, Australia.
3. Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Decision Making*, Perth, Western Australia.
4. DWER 2019, *Guideline: Industry Regulation Guide to Licensing*, Perth, Western Australia.
5. DWER 2020a, *Guideline: Environmental Siting*, Perth, Western Australia.
6. DWER 2020b, *Guideline: Risk Assessments*, Perth, Western Australia.

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Condition 7, Table 2, 4 a)	The proponent would like to confirm with DWER that the following isolation valve (DrainSAFE Stormwater Isolation Device - 200mm) would be acceptable to satisfy this condition.	The department does not condition the type of isolation valve required to be installed. The applicant is responsible to ensure all infrastructure equipment is fit for purpose. Recommend the applicant check with the manufacturer and/or installer to confirm suitability of the isolation valve.
Condition 7, Table 2, 5 c)	The proponent requests this condition be removed. There is no requirement from DFES (whom has assessed this proposal in regards to all fire and safety management) for a detection system – the building is considered too small for this to be necessary. DFES generally requires detection systems for buildings 18,000 m ² or larger, the factory shed in this case is only 1,034 m ² .	Noted and agree. Condition removed.
9, Table 4 d)	The proponent does not propose to use bulk bags to store the product, however if bulk bags were to be used, they would be stored no deeper than 3 m. It is proposed to have stockpiling of shredded and crumbed used tyres within the awning area, however the stockpiles will be temporary as the storage will be primarily in shipping containers. The specification for 150 mm is for exporting purposes (the shreds cannot be >150 mm) and as such the shreds are likely to be <150 mm, however they would be >100 mm.	Noted. Condition has been reworded to not include external storage whilst allowing bulk bag use to be optional and tyres not to be shredded smaller than 100 mm. Condition reworded to: d) <i>All shredded and crumbed used tyres outside of shipping containers must be stored in accordance with GN02 as follows:</i> (i) <i>Must be stored within the warehouse and/or awning area;</i> (ii) <i>If bulk bags are used the shredded and crumbed tyres must be stored no deeper than 3 m;</i> (iii) <i>Must be free of tyre remains subjected to fire, oil, grease, petrol and diesel fuels, fibrous organic matter or other material that could create a fire hazard; and</i> (iv) <i>A minimum of 3 m is to be maintained from internal building walls.</i> (v) <i>Tyres must not be shredded smaller than 100 mm.</i>