Environmental Assessment and Management Plan

Armadale Tyre Recycling Plant

Prepared for Tyre Recycling Perth Pty Ltd

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1 Introduction

Talis Consultants Pty Ltd (Talis) has been engaged by Tyre Recycling Perth Pty Ltd (TRP) to prepare this Environmental Assessment and Management Plan (EAMP) to support a Works Approval application under Part V of the Environmental Protection Act 1986 for the proposed establishment of a tyre recycling plant at Unit 1, 12 Dickens Place, Armadale (the Site).

The Site is located within the Armadale industrial area and is proposed to be developed within an existing industrial unit which was previously used for industrial purposes with the last operation being plastics manufacturing. The proponent intends to repurpose the unit to operate as a facility involving the acceptance of used tyres, mechanical cutting, debeading, shredding, and temporary storage of shredded tyres and steel beads. Apart from the installation of the processing equipment no construction activities are proposed. The outputs of this process are steel beads and tyre shreds which will be regularly transported off-site to reprocessing facilities in domestic and international markets.

TRP and Talis has been engaging with the City of Armadale on the town planning aspects for the proposal. The Site is zoned 'General Industry' under the City of Armadale's Town Planning Scheme No. 4 (TPS 4), and the proposed use is consistent with the objectives and permissible land uses within the zone.

1.1 Purpose of the Report

This EAMP has been developed to support the application for a Works Approval and Licence required for the development of the Facility. The objectives of this EAMP are to:

- Describe the current environmental and social values on and surrounding the Site;
- Describe in detail the proposed development, including design, operations and associated benefits;
- Identify any potential impacts to environmental and social aspects associated with the construction and operation of the Facility;
- Develop environmental engineering and management measures to ensure that all potential impacts are managed to appropriate standards; and
- Understand the residual risks following the proposed management measures.

2 Site Information

This section provides background information in relation the location, current and proposed site infrastructure, development area, licencing, zoning, surrounding land uses and industry separation distances.

2.1 Site Location, Access and Existing Infrastructure

The Site is located on Lot 756 on deposited Plan 21630 at Unit 1, 12 Dickens Place, Armadale. Access to the Site is via Dickens Place, a local industrial cul-de-sac road that connects to Southwestern Highway approximately 500 m to the east, providing direct connectivity to the broader regional road network, including Tonkin Highway.

The Site comprises an enclosed industrial unit with concrete flooring and sufficient internal clearance to accommodate processing equipment and vehicle movement. An administration office is located adjacent to the main open-plan area. The premises were previously used for industrial purposes, most recently for plastics manufacturing. The Site is serviced by sealed internal access roads and hardstand areas suitable for truck manoeuvring and loading.

Truck access into the premise is facilitated by a single roller door located on the western side of the building. Two pedestrian access doors are also provided for staff entry. All operational vehicle movements, including waste tyre delivery and tyre shred and steal beads removal, will be contained within Site/Unit boundaries. The existing infrastructure and the proposed operations are discussed in more detail in Sections 5 and 6.

The location of the Site is shown in Figure 1 in Appendix B.

2.2 Ownership and Licencing

The Site is currently leased by TRP for the purpose of operating a small-scale facility within the existing industrial unit.

A prescribed premises licence under Part V of the Environmental Protection Act 1986 will be required, as the proposed operations exceed the thresholds outlined in Schedule 1 of the Environmental Protection Regulations 1987. The estimated annual throughput of the facility is approximately 3,000 tonnes of used tyres (based on up to 1,200 tyres a day). Table 2-1 summarises the relevant prescribed premises categories and applicable thresholds.

Table 2-1: Proposed Prescribed Premises Categories

Category	Category Description	Production or Design Capacity
62	Solid waste depot: premises on which waste is stored or sorted, pending final disposal or re-use.	500 tonnes or more per year
61A	Solid waste facility: premises (other than premises within category 67A) on which solid waste produced on other premises is stored, reprocessed, treated, or discharged onto land.	1,000 tonnes or more per year

Category	Category Description	Production or Design Capacity
57	Used tyre storage (general): premises (other than premises within category 56) on which used tyres are stored.	100 tyres or more

2.3 Zoning and Surrounding Land Uses

The Site is privately leased and is located within an established industrial precinct in the City of Armadale. The property is zoned 'General Industry' under the City's Town Planning Scheme No. 4, consistent with the zoning of adjacent industrial lots.

Land immediately adjacent to the Site is zoned 'Industrial Business' to the north and 'General Industry' to the south, east and west. Land approximately 300m to the east and west of the Site is zoned 'Residential' or 'Parks and recreation'.

Auscon Metals, a scrap metal recycling facility, is located immediately south of the Site, while a large-scale roofing and brick manufacturing business is situated directly to the north.

The surrounding land zoning and uses are shown in Figure 3 in Appendix B.

2.4 Separation Distances

The WA Environmental Protection Authority's (EPA's) *Guidance Statement No. 3 – Separation Distances between Industrial and Sensitive Land Uses 2005* (Guidance Statement 3) contains the recommended minimum separation distances between industrial activities, including waste management facilities and sensitive land uses.

Sensitive land uses are defined as those that are sensitive to industrial emissions and include residential developments, schools, hospitals, shopping centres and other public areas and buildings. The recommended minimum separation distances between sensitive land uses and the proposed industry activities for the Site is shown in Table 2-2.

Table 2-2: EPA Recommended Separation Distances from the Proposed Industry Activities

		Gaseous	Noise	Dust	Odour	Risk	
62	Solid waste depot		✓	✓	✓		200
61A	Solid waste facility	✓	✓		✓	✓	case by case
57	Used tyre storage (general)	✓	✓	✓	✓	✓	100-200, depending on size

The closest residential dwelling is approximately 308m west of the facility on the opposite side of a train track and Wungong Road while the second closest residential dwelling is located 337m to the east. The sensitive receptors are shown in Figure 4 in Appendix B.

The Site can comply with the recommended separation distances for the both the Category 57 (Used Tyre Storage) and Category 62 (Solid Waste Depot). The recommended separation for Category 61A

(Solid Waste Facility) is on a case-by-case basis, recognising the wide range of waste facility types that could be considered within this category including organics and residual waste processing. Talis is of the view that the separation distances for the Category 62 (Solid Waste Depot) is more than sufficient for this facility.

Odour is not considered a relevant impact due to the nature of the materials handled. The potential impacts of to the community from noise, dust and other aspects from the proposed waste management activities will be managed to appropriate best practice standards and are discussed further within Section 8. However, considering the scale of the surrounding industrial facilities, as discussed in Section 2.3, the Facility should not have impacts on surrounding sensitive receptors.

3 Environmental Attributes

The following sections outline the environmental attributes of the Site with relevance to the establishment of the facility.

3.1 Climate

The local climate is characterised by hot, dry summers and mild, wet winters, with low to moderate and highly variable annual rainfall, predominantly occurring during the winter months. The average monthly rainfall, the mean maximum and mean minimum temperatures and Pan evaporation from 1994 to 2024 are provided in Table 3-1. This data has been sourced from SILO, which is a database of Australian climate data from 1889 to the present that is hosted by the Queensland Department of Environment and Science (DES). SILO constructs datasets from observational data obtained from BOM, using mathematical interpolation techniques to infill gaps in time series and construct spatial grids.

Table 3-1: Monthly Climate Statistics Summary from 1994 – 2024

Mean Rainfall (mm)	13	16	20	42	97	146	167	130	85	46	29	10	801
Mean Evaporation (mm)	284	238	202	124	82	59	62	75	100	150	203	262	1841
Mean Max Temp (˚C)	32	32	30	26	22	19	18	18	20	23	26	29	25
Mean Min Temp (˚C)	17	18	16	14	11	9	8	8	9	11	13	16	13

The average annual rainfall recorded at the Site since records began is 801 mm, with the minimum and maximum values ranging from 13 mm and 167 mm per month, respectively. The average annual potential evaporation rate is approximately 1,841 mm, which is nearly three times the average annual rainfall and occurs at higher rates during the warmer, drier months of the year.

The wind direction generally ranges from easterly to northeasterly in the morning (9am), changing direction to south-westerly to westerly in the afternoon (3pm). Winds at the Site are typically moderate in the morning and the afternoon. The wind rose for morning and afternoon winds can be seen in Diagram 4-1. The provided wind data was recorded at Gosnells weather station (BOM Station Number: 009106).

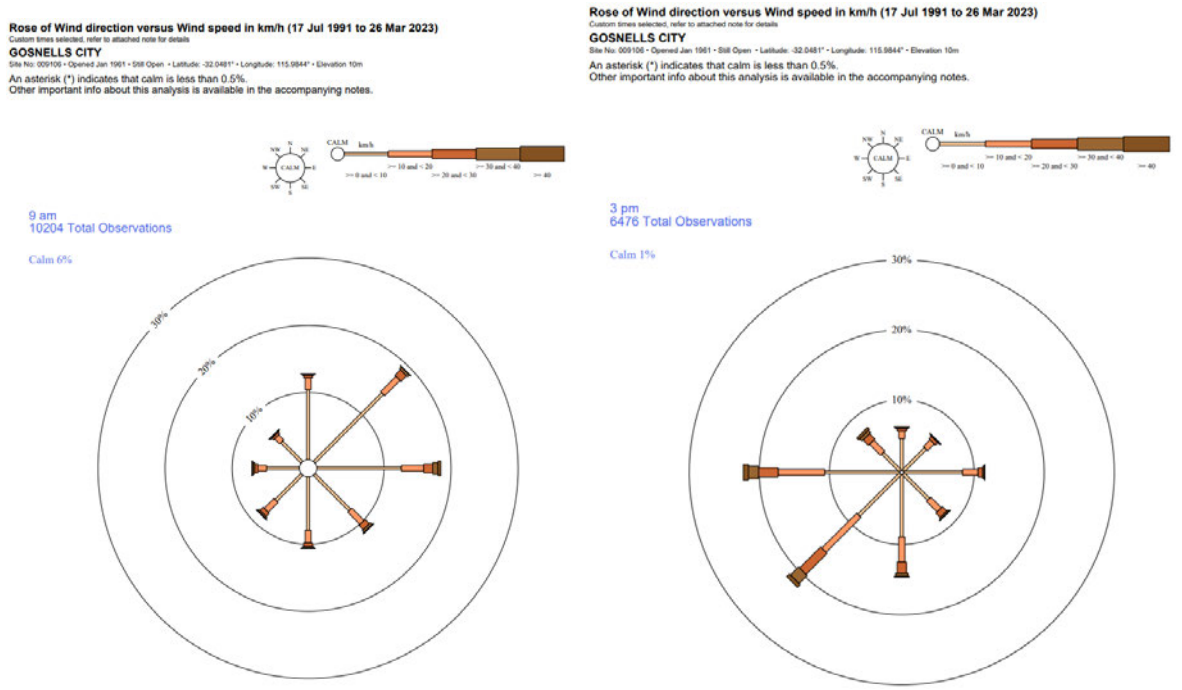

Diagram 4-1: 9am (left) and 3pm (right) Wind Rose for Gosnells Station

3.2 Topography

The topography at the Site is generally flat and sits at 60 meters Australian height datum as shown in Figure 5 in Appendix B.

3.3 Surface Water

There are no permanent natural surface water bodies on the Site. The nearest surface water body, a non-perennial water course, is located approximately 100 m south of the Site. Since this water course is extending through the industrial area it is highly unlikely that the operations on Site will affect it in any way.

The surface water bodies surrounding the Site is shown in Figure 6 in Appendix B.

3.4 Environmentally Sensitive Areas and Fauna

Environmentally Sensitive Areas (ESAs) are declared in Environmental Protection (Clearing of Native Vegetation) Regulations 2004 as areas that cover any and/or all of the following conservation significant areas:

- A declared World Heritage property as defined in section 13 of the *Environment Protection and Biodiversity Conservation Act 1999*;
- An area that is included on the Register of the National Estate, because of its natural heritage value under the *Australian Heritage Council Act 2003*;
- A defined wetland and the area within 50 metres of the wetland;
- The area covered by vegetation within 50 metres of rare (threatened) flora, to the extent to which the vegetation is continuous with the vegetation in which the rare (threatened) flora is located;
- The area covered by a threatened ecological community (TEC);

- A Bush Forever site listed in "Bush Forever" Volumes 1 and 2 (2000), published by the WA Planning Commission, except to the extent to which the site is approved to be developed by the WA Planning Commission;
- The areas covered by the following policies:
- The Environmental Protection (Gnangara Mound Crown Land) Policy 1992 - available from EPA website. This policy has been repealed;
- The Environmental Protection (Western Swamp Tortoise) Policy 2002 - refer to the "EPP 2003 Western Swamp Tortoise Policy Boundary";
- The areas covered by the lakes to which the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 applies. This policy has been repealed;
- Protected wetlands as defined in the Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998. This policy has been repealed; and
- Areas of fringing native vegetation in the policy area as defined in the Environmental Protection (Swan and Canning Rivers) Policy 1998. This policy has been repealed.

The Site is not located within a mapped ESA under the Environmental Protection (ESA) Notice 2005. The nearest ESA is located 360 meters to the south of the Site. Several Priority 4 mammals, a Priority 3 reptile, some Threatened bird species and an ESA are mapped to the east and south of the Site but not in its immediate vicinity. The closest TEC is located 115 meters northeast of the Site while a Priority 3 reptile has been recorded 400 northeast of the Site.

The ESAs and Threatened and Priority Fauna surrounding the Site are shown in Figure 7 in Appendix B.

3.5 Bushfire Prone Areas

The Department of Fire and Emergency Services (DFES) has developed Bushfire Prone Areas mapping to identify land in WA that has the potential to be impacted by bushfires. Additional planning and building requirements may apply to new developments within a Bushfire Prone Area. A further assessment of bushfire risk may also be required to ensure future developments in Bushfire Prone Areas are safer.

As shown in Figure 8 in Appendix B, the Site is partly located in a bushfire prone area. It is assumed that this bushfire prone area is in relation to the undeveloped lot located 100 meters west of the Site. As there is a buffer of 100 meter of industrial land in between the Site and the undeveloped area and no vegetation present on the Site itself, the potential bushfire risk is considered low.

Fire management measures are discussed in Section 8.5.

4 Social Attributes

The social attributes of the Site include Native Title, Aboriginal Heritage, European Heritage and Mining Tenements and are discussed in the following section.

4.1 Native Title

Under Australian Law, Native Title is a form of land title that recognises the unique connections Aboriginal groups have to the land. Native Title exists where Aboriginal people have maintained a traditional connection to their land and waters, since sovereignty, and where acts of government have not removed it.

The Site is located on freehold land held under the *Transfer of Land Act 1893*. As such, Native Title has been extinguished and is not applicable to the Site. A search of National Map (nationalmap.gov.au) indicates that no Native Title claims or determinations are registered over the Site.

4.2 Aboriginal Heritage

Aboriginal Heritage sites (registered or not) are protected under the *Aboriginal Heritage Act 1972* (AH Act) and the *Aboriginal Cultural Heritage Act 2021* (ACH Act). An Aboriginal Heritage Site under Section 5 of the AH Act is defined as:

> *(a) any place of importance and significance where persons of Aboriginal descent have, or appear to have, left any object, natural or artificial, used for, or made or adapted for use for, any purpose connected with the traditional cultural life of the Aboriginal people, past or present;*
>
> *(b) any sacred, ritual or ceremonial site, which is of importance and special significance to persons of Aboriginal descent;*
>
> *(c) any place which, in the opinion of the Committee, is or was associated with the Aboriginal people and which is of historical, anthropological, archaeological or ethnographical interest and should be preserved because of its importance and significance to the cultural heritage of the State;*
>
> *(d) any place where objects to which this Act applies are traditionally stored, or to which, under the provisions of this Act, such objects have been taken or removed.*

A search for relevant Aboriginal Heritage sites was conducted using the Department of Aboriginal Affairs (DAA) online Aboriginal Heritage Inquiry System (AHIS). Reported Aboriginal Heritage sites are categorised according to the assessment status of each place under the AH Act, as listed in Table 4-1.

Table 4-1: Aboriginal Heritage Site Assessment Categories

Registered Aboriginal Site	N/A	Site has been assessed as meeting Section 5 of the AH Act	Yes
Other Registered Place	Lodged	Information has been received. Assessment has not been completed to determine if a site meets Section 5 of the AH Act	Yes (temporary)

	Stored Data/Not a Site	Site has been assessed as not meeting Section 5 of the AH Act	No

The results of the search indicated that the Site is not located within or close to an area classified of aboriginal heritage.

4.3 European Heritage

To protect cultural heritage places in WA, the Heritage Council maintain a list of places that are either 'Statutory Listings' or 'Other Listings and Surveys'. Statutory Listings are heritage places that can affect or may affect the use and development of land and buildings, and Other Listings and Surveys include heritage places that do not have any effect on the use and development of land and buildings (HC, 2017).

A search of the Government of WA Heritage Council's inHerit online database indicated that Heritage site Armadale State Brickworks Dust Room & Machinery Shed (Place ID 9537) is located adjacent to the Site as shown in Figure 9 in Appendix B.

5 Infrastructure Description and Design

The following section provides a description of the Site and its key infrastructure elements. It is important to note that TRP is not proposing any infrastructure changes to the existing premises and solely the installation of the tyre shredding plant, including mechanical debeading, cutting and shredding units and conveyor belt system, within the existing building.

The following existing infrastructure will support the proposed operations:

- Enclosed industrial unit with concrete flooring and sufficient internal clearance to accommodate processing equipment and vehicular movement. The unit is divided into an administration area and a processing area;
- Sealed hardstand and accessways, already existing on site, for vehicle movement;
- Sealed staff parking;
- Existing stormwater drainage infrastructure, directing clean runoff away from operational areas; and
- Fire safety infrastructure, including extinguishers and hose reels in accordance with regulatory requirements.

5.1 Entrance and Exit

The processing area is accessible via one roller door for truck access and one pedestrian door located on the western side of the unit. The administration area is also accessible from the western side and includes an internal pedestrian access to the processing area from the south. Trucks will enter via the Site entrance from Dickens Place and access the processing area via the roller doors to either drop off used tyres or to pick up the tyre shred and steal beads.

5.2 Processing Area

The internal footprint of the processing area is approximately 17m × 17m (289m²). The unit is constructed of concrete and steel frame and features a sealed hardstand floor throughout. One roller door (3.5 m wide) on the western side of the Processing Building, providing access for tyre deliveries and vehicle movements. Two pedestrian doors, one located on the western side and one on the southern side, are for staff access and emergency egress.

Tyre storage at the Site will comply with *DFES Guidance Note: GN02 Bulk Storage or Rubber Tyres including Shredding and Crumbed Tyres*, where applicable, as well as Part 6 – Tyres of the *Environmental Protection Regulations 1987*. The storage design has incorporated the relevant DFES requirements, including:

- A minimum 3 m separation gap between the stack and walls;
- Tyre stacks do not exceed a height of 3.7 m and a footprint of 30m^2.

Delivered tyres are stored on sealed floors in the north-western corner of the processing area. Tyres are manually fed into a tyre debeader which removes the steel bead wires, which are then collected for recycling. Debeaded tyres are fed into a cutting machine to achieve the required size, after which the shredder further processes them into rubber shreds. Two short conveyor belts facilitate material transfer to the shredder, and from the shredder toward the tyre shred bagging station. Shredded tyre product is collected in bulka bags and store in the designated storage area which is approximately 30 m² area located adjacent to the processing equipment on the southern area of the processing building. The shredded tyre product is then moved into the collection trucks by a forklift.

The current external Site layout is shown in Figure 2 in Appendix B. Internal Layout is shown in Drawing C-100.

5.3 Surface Water Management System

The external hardstand is graded towards drainage gullies to discharged to the surrounding stormwater system for the industrial area.

The layout for this proposed SWMS is shown in Drawing W-101 provided in Appendix C.

5.3.1 Fire Management

The building will be equipped with fire protection features including fire hydrants, carbon monoxide (CO) detectors, and smoke sensors to ensure early detection and response in the event of a fire.

5.3.2 All Other Supporting Infrastructure

Other infrastructure required to support the operation and environmental management of the Site include the provision of external lighting and security cameras/CCTV monitoring.

5.4 Project Timeline

The current estimated project timeline is shown in Table 5-1 based on the assumption that the DWER can complete the works approval assessment within the current target timeframe of 80 days. The timeframe shown in Table 5-1 includes the environmental approvals as well as the purchase and commissioning of the tyre recycling plant.

Table 5-1: Project Timeline

Works Approval Assessment	3 months	August 2025	October 2025
Installation of Trye Recycling Plant	1 week	October 2025	October 2025

5.5 Time Limited Operations

TRP requests that the DWER grant approval for time limited operations through the Works Approval for the Facility until such time a licence is granted. It is understood that the maximum period for time limited operations is 180 days and therefore TRP requests this timeframe to mitigate any potential risks associated with delays during the assessment stage for the licence application. This request has been reflected within Part 4 of the DWER Application form. As it is TRP's aim to establish the Facility as soon as possible, the time limited operations period will ensure the Site is operational as soon as it is constructed, in accordance with the Works Approval conditions and detailed designs.

6 Operational Aspects

The following sections outline the operational aspects of the Facility, including estimated material volumes, waste acceptance, equipment and machinery, materials transport, staffing and operational hours.

6.1 Estimated Material Volumes

The Facility will accept and process used tyres generated from tyre fitting facilities across the Perth metropolitan area and ensure that these materials are recovered. No other waste material will be accepted at the Facility. Table 6-1 sets out the anticipated volumes of used tyres for the Facility which are estimated to 3000tpa.

Table 6-1: Estimated Tyre Volumes

57	Tyres	T140	3,000
61A			
62			

6.2 Equipment and Machinery

The Facility will consist of a small-scale tyre processing plant installed entirely within the enclosed warehouse building, on sealed concrete flooring. The equipment will follow an L-shaped configuration, allowing efficient use of internal space while maintaining safe separation from storage and access areas.

The tyre recycling plant will include:

- A tyre debeading machine for removal of steel beads;
- Tyre cutting machine;
- A shredder to reduce tyres into tyre shreds;
- A bagging station where tyre shreds are discharged into bulka bags; and
- Two inclined conveyors to transfer material into the shredder and from the shredder to the bagging station.

All stationary equipment will be electrically powered. Tyres will be manually loaded into the debeader, cutting machine, and onto the conveyor which transports the material to the shredder, before it is conveyed to the bagging station. A forklift will be used for internal handling of tyres and finished tyre shred and steal beads.

The layout is designed to allow a smooth processing flow while ensuring that all operational activities are safely contained indoors and separated from pedestrian pathways and exits.

6.3 Materials Transport

Both the delivery of scrap tyres and the pick-up of the tyre shred and scrap metal will be conducted by semi-trailers or similar trucks.

6.4 Staffing

It is anticipated that a minimum of four (No. 4) staff members will be required for the full operation. The anticipated management structure for the Site is shown in Diagram 6-1.

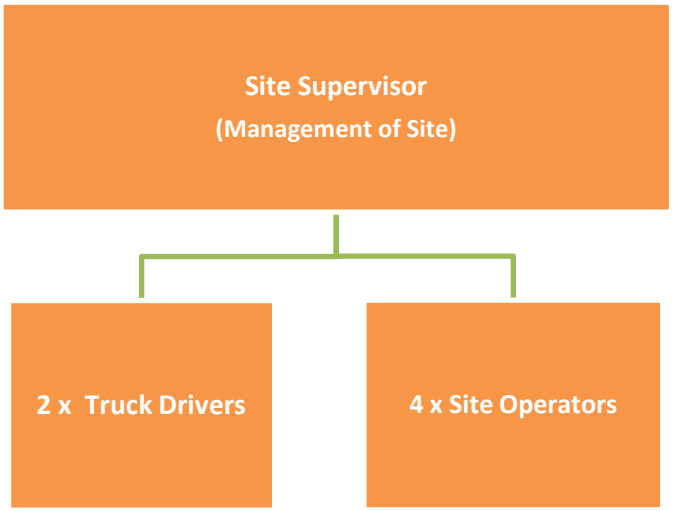

Diagram 6-1: Management Structure and Responsibilities

All staff will be suitably qualified and/or trained to undertake their relevant roles. Onsite training will include health, safety and environmental management.

6.5 Operational Hours

The proposed hours for Site operations will be:

- Monday to Saturday: 7am to 6pm
- Sundays and Public holidays (excluding Christmas Day and Good Friday): Closed

7 Benefits

There are a number of benefits associated with the establishment of the Facility, which includes alignment with the *Waste Avoidance and Resource Recovery Strategy 2030* (WARR Strategy), alignment with the Waste Hierarchy, resource recovery, reducing environmental impacts, and job opportunities. Each of these benefits is discussed further in the following subsections.

7.1 Alignment with Strategic Waste Objectives

The project supports the objectives of the WARR Strategy by facilitating the recovery and reuse of end-of-life tyres, reducing the volume of waste directed to landfill. It aligns with the Waste Hierarchy by prioritising resource recovery over disposal, enabling valuable materials such as steel and rubber to be extracted and reintroduced into the manufacturing and construction sectors.

7.2 Environmental benefits

Recycling tyres instead of landfilling reduces long-term environmental risks, such as fire hazards and pollution. The Facility enables the recovery of steel and rubber for reuse, supporting the circular economy and reducing reliance on virgin materials. By processing tyres locally in an enclosed system, the facility also helps cut transport emissions and protects surrounding land and water.

7.3 Job Opportunities

Jobs will be created both directly and indirectly through operation of the facility. Skills and services required will include equipment suppliers and installation and a number of employed full-time staff once operational. In addition, two speciality haulage vehicle drivers are expected to be contracted by TRP for transport of used tyres and tyre shred and steal beads from and to the Site.

8 Environmental Aspects and Management

The establishment and operation of the facility has the potential to result in or cause impacts to the following:

- Noise;
- Dust;
- Stormwater;
- Traffic;
- Fire;
- Security; and
- Vehicle Emissions.

To ensure the potential environmental impacts identified are avoided and/or minimised, TRP will implement a variety of engineering and management measures, which are described in the following sub-sections. In addition, it is important to note that TRP is committed to achieving best practice outcomes at the facility to mitigate potential environmental and social risks.

8.1 Noise

Noise emissions will be generated from the operation of the proposed tyre recycling facility. These emissions will primarily arise from equipment operation and vehicle movements within the Site, including deliveries and staff access.

An Environmental Noise Impact Assessment (ENIA) was undertaken by Talis to determine if the facility will comply with the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations). The ENIA, provided in Appendix A, considered the equipment specifications, operating hours, site layout, vehicle access, and the proximity of sensitive receptors. The assessment was based on a worst-case scenario with all equipment operating simultaneously during day-time periods.

The ENIA concluded that noise emissions associated with the proposed operations will comply with the assigned levels of the Noise Regulations at all times during approved operating hours:

- 7:00am to 5:00pm, Monday to Saturday.

To ensure that noise emissions are minimised, the following noise emission management measures will be implemented:

- All waste acceptance and tyre processing operations, including the debeader, cutter, shredder, and conveyors, will be conducted inside the fully enclosed TRF building with the roller door kept closed during operations;
- Operations will be limited to daytime hours only, as defined by the Environmental Protection (Noise) Regulations 1997;
- All trucks and mobile equipment to be fitted with broadband noise reversing alarms to minimise the impact from vehicle reversing alarms;
- Vehicles will be restricted to a maximum speed of 10km per hour (km/hr) unless otherwise signed;
- Noise reducing workplace procedures will be adopted such as slow unloading of materials from the lowest height possible;
- All material handling will be confined to the designated areas;
- All equipment and machinery will be maintained in good working condition; and
- Staff and visitors will be provided with appropriate personal protective clothing (PPE) to mitigate any noise impacts associated with the Site activities.

It is anticipated that these noise management measures will enable TRP to appropriately manage noise emissions onsite and offsite and ensure compliance with the Noise Regulations.

8.2 Dust

Activities at the Site have the potential to generate minor levels of dust, primarily during operations including material handling, and the mechanical shredding of tyres as well as vehicle movements. However considering the small scale of the Facility and that all operations will be contained within the building, the risk of dust generation is inherently low.

Given the Site's location within the Armadale Industrial Area and its separation from sensitive land uses, the potential for off-site impacts is also considered low. Dust emissions are expected to be confined to the immediate Site and its workforce, with minimal risk to nearby industrial premises or vegetation. Nevertheless, it remains important to manage any dust emissions to avoid nuisance, maintain workplace safety, and comply with relevant environmental standards.

To address and mitigate potential dust impacts, the following key management measures that will be implemented include:

- Maintaining all materials acceptance and processing activities within an enclosed building;
- Implementing a regular housekeeping schedule to reduce dust accumulation;
- Minimising vehicle speeds and movements within the premises;
- Ensuring raw and processed materials are handled carefully to avoid unnecessary disturbance; and
- Monitoring for any visible dust and responding promptly with mitigation (e.g. spot mopping or misting, if necessary).

These measures are expected to be sufficient to control dust generation and ensure the Site operates in accordance with environmental and occupational health standards.

8.3 Stormwater

Surface water run-off will be generated as a result of precipitation and storm events, which has the potential to cause flooding within the Site and result in damage to infrastructure. As all waste handling and storage activities will occur within the fully enclosed building, rainfall and surface water contact with the used tyres will be eliminated.

The external asphalt hardstand surrounding the Building is graded so that surface water drains away to the surrounding pit and discharged to the surrounding stormwater system for the industrial area.

TRP will implement stormwater management measures to ensure appropriate treatment and/or discharge, where relevant. It should be noted the exact specifications will be determined at the detailed design stage of the Project and therefore these measures are the minimum requirements. The proposed stormwater and leachate management measures include:

- All waste acceptance and processing facilities will be contained within the fully enclosed building to minimise exposure of tyres rainfall;
- Stormwater generated from external hardstand areas will be directed away from the Building via graded surfaces to onsite gullies connected to the local stormwater system;

- The external perimeter of the building is sloped away from doorways and openings to prevent ingress of surface water during rainfall events; and
- All stormwater engineering features will be inspected regularly, and maintenance works scheduled appropriately.

These management measures will allow TRP to effectively manage stormwater at the Site.

8.4 Traffic

Traffic movement on site will be minimal, with only two trucks operating to deliver tyres and one truck per day collecting the tyre shreds and steel beads. Internally, the only vehicle movements will involve a forklift transporting bagged tyre shred and steal beads from the processing line to the storage area or truck loading point. Onsite traffic movements have the potential to generate noise and create an occupational health and safety risk to staff. The following traffic movements are anticipated to occur onsite:

- Delivery of used tyres by trucks (up to 3 movements per day);
- Collection of bagged tyre shred by trucks (1–2 movements per day); and
- Forklift movements within the building for internal handling of processed material.

The flow through of traffic has been considered during the assessment of the Site designs to ensure any potential traffic issues are minimised as much as practicable. To minimise any potential impacts of traffic movements at the Site, the following management measures will be implemented:

- Signage providing directions, traffic control measures and safety instructions will be established and maintained at appropriate locations around the Site;
- Vehicles will be restricted to a maximum speed limit of 10km/hour, unless otherwise signed;
- Employees and contractors shall wear high visibility and reflective clothing when working in areas where vehicle movement occurs;
- All vehicles will be maintained in good working condition and drivers instructed to use conservative driving techniques; and
- All employees and contractors will be inducted with the Site's Occupational Health and Safety (OHS) and traffic management procedures.

Through the adoption of these management measures, all potential impacts associated with traffic movements on and surrounding the Site will be controlled to appropriate standards.

8.5 Fire

Fires may occur at waste management facilities through faulty equipment, machinery, waste acceptance, fires or arson. Fire may cause damage to infrastructure and pose a threat to staff and customers. The risk of fires at the Facility is low based on its small scale and the tyre processing facility adopted. The management measures to mitigate the risk and response to fires onsite include the use of:

- Fire alarms;
- Fire extinguishers;
- Fire hose reels;
- Site emergency response procedure; and

- Evacuation procedure.

In addition to external fire management equipment listed above, Staff will also be adequately inducted and trained to respond to fire and smoke.

It is anticipated that these management measures will enable TRP to appropriately manage potential fire risks at the Site.

8.6 Security

A breach of security may result in injury to persons or damage to infrastructure. To minimise potential security breaches, the following management measures will be implemented:

- Appropriate signage will be installed at the Site entrance;
- Lighting and CCTV will be installed in relevant areas including at the Site access road and key buildings;
- All access points to the building will be locked securely outside of operational hours.

Through the adoption of these management measures all potential security impacts will be appropriately controlled.

8.7 Vehicle Emissions

The operation of gas-powered vehicles within the processing building will generate a range of emissions predominantly carbon monoxide (CO), carbon dioxide (CO_2), oxides of nitrogen (NO_x) and sulphur dioxide (SO_2). Diesel emissions (from trucks reversing up to the roller doors) will also generate a mixture of other irritant gases, particulate matter (PM) and heat. These emissions can impact on amenity and present health risks. To manage the occupational, health and safety (OHS) of personnel, there are range of management measures that will be employed, including the following:

- The processing building is equipped with passive ventilation infrastructure, including roof-mounted vents, to promote natural air circulation;
- The forklift operating within the building will have emission standard engines, particulate filters, catalytic converters and/or wet scrubbers;
- Emissions will also be reduced through minimising idling times;
- Regular maintenance of mobile fand vehicles; and
- Low emission fuels and sulphur lubricants will be used as much as practicable.

It is anticipated that these management measures for vehicle emissions will enable TRP to appropriately manage its potential impacts.

8.8 Summary of Proposed Management Measures

A summary of the proposed management measures to be implemented at the Site is shown in Table 8-1.

Table 8-1: Summary of Proposed Management Measures

Noise	• All waste acceptance and tyre processing operations, including the debeader, shredder, cutter and conveyors, will be conducted inside the fully enclosed TRF building with the roller door kept closed during operations; • Operations will be limited to daytime hours only, as defined by the Environmental Protection (Noise) Regulations 1997; • All trucks and mobile equipment to be fitted with broadband noise reversing alarms to minimise the impact from vehicle reversing alarms; • Vehicles will be restricted to a maximum speed of 10km per hour (km/hr) unless otherwise signed; • Noise reducing workplace procedures will be adopted such as slow unloading of materials from the lowest height possible; • All material handling will be confined to the designated areas; • All equipment and machinery will be maintained in good working condition; and • Staff and visitors will be provided with appropriate personal protective clothing (PPE) to mitigate any noise impacts associated with the Site activities.
Dust	• Maintaining all materials acceptance and processing activities within an enclosed building; • Implementing a regular housekeeping schedule to reduce dust accumulation; • Minimising vehicle speeds and movements within the premises; • Ensuring raw and processed materials are handled carefully to avoid unnecessary disturbance; • Monitoring for any visible dust and responding promptly with mitigation (e.g. spot mopping or misting, if necessary).
Stormwater	• All waste acceptance and processing facilities will be contained within the fully enclosed building to minimise exposure of tyres rainfall; • Stormwater generated from external hardstand areas will be directed away from the Building via graded surfaces to onsite gullies connected to the local stormwater system; • The external perimeter of the building is sloped away from doorways and openings to prevent ingress of surface water during rainfall events; and • All stormwater engineering features will be inspected regularly, and maintenance works scheduled appropriately.
Traffic	• Signage providing directions, traffic control measures and safety instructions will be established and maintained at appropriate locations around the Site; • Vehicles will be restricted to a maximum speed limit of 10km/hour, unless otherwise signed; • Employees and contractors shall wear high visibility and reflective clothing when working in areas where vehicle movement occurs; • All vehicles will be maintained in good working condition and drivers instructed to use conservative driving techniques; and • All employees and contractors will be inducted with the Site's Occupational Health and Safety (OHS) and traffic management procedures.
Fire	• Fire alarms;

	• Fire extinguishers; • Fire hose reels; • Site emergency response procedure; and • Evacuation procedure.
Security	• Appropriate signage will be installed at the Site entrance; • Lighting and CCTV will be installed in relevant areas including at the Site access road and key buildings; • All access points to the building will be locked securely outside of operational hours.
Vehicle Emissions	• The Processing Building is equipped with passive ventilation infrastructure, including roof-mounted vents, to promote natural air circulation; • The forklift operating within the building will have emission standard engines, particulate filters, catalytic converters and/or wet scrubbers; • Emissions will also be reduced through minimising idling times; • Regular maintenance of mobile plant and vehicles; and • Low emission fuels and sulphur lubricants will be used as much as practicable.

9 Residual Risk Assessment

Each of the potential risks was assessed as per the DWER *Guidance Statement: Risk Assessments - Part V, Division 3, Environmental Protection Act 1986 (February 2017)* (Risk Assessment Guideline). The objective of the Residual Risk Assessment is to ensure the potential risks associated with the proposed activities are understood and managed appropriately so that there is no unacceptable residual risks. The sources of hazards, pathways and receptors of hazards identified are outlined in the following sub-sections.

9.1 Sources of Hazards

For the purpose of this assessment, a source is defined as a primary risk with the potential to cause significant contamination or harm to the environment. With regards to the environment and public health, sources and its potential hazards which may arise from the various future activities have been identified and are shown in Table 9-1.

Table 9-1: List of Potential Hazards

Noise	• High levels of occupational noise can impact personnel onsite; and • Noise can cause reduced amenity for surrounding sensitive receptors.
Stormwater	• Excessive stormwater not properly managed can lead to flooding and damage to infrastructure.
Traffic	• Possibility for vehicles to collide with Site personnel, customers, structures or other vehicles; and • Poor design of traffic flow and operations can lead to unpredictable traffic routes and create safety hazards for Site personnel and users.
Fire	• Potential for onsite fires in offices/workshops, equipment and waste storage areas; and • Potential for offsite bushfires impacting Site staff, users, equipment and infrastructure
Security	• Unauthorised personnel may access the Site resulting in a security breach of the Site facilities, plant and equipment.
Vehicle Emissions	• Exhaust emissions generated within the Processing Building can accumulate causing health impacts to staff

9.2 Pathways for Hazards

For the purpose of this assessment, a pathway for a hazard is defined as the route by which potential contamination or harm can migrate. The key migration pathways at a waste facility generally include the following:

- Surface, along which the sources of contamination or harm can travel or be present at (e.g., surface water run-off ,or persons walking or working over the surface); and
- Sub-surface, whereby the underlying soils, bedrock, aquifers and infrastructure permit infiltration of leachate, chemicals and other hazardous materials.

9.3 Receptors of Hazards

For the purpose of this assessment, a receptor is defined as the location where the impact of the contamination or harm is registered. The possible generic receptors of the contamination or harm cause by the identified hazards are summarised in Table 9-2.

Table 9-2: Generic Receptors that may be Impacted by Potential Contamination or Harm

Surrounding Land Users	• People who work or live beyond the boundary of the Site. Some of these are referred to as sensitive receptors.
Site Users	• Persons authorised to traverse across the Site, including: o Customers using the site; o Operational staff; o Contractors carrying out maintenance or monitoring; and o Visitors inspecting the Site.
Site Infrastructure	• Buildings that are semi-permanently or permanently occupied and used for work or residential purposes; and • Site management systems (i.e., stormwater).
Vegetation	• Offsite vegetation and flora species.
Fauna	• Fauna species whose habitat is within or surrounding the Site.
Groundwater	• Groundwater that exists beneath the Site either as a local perched system or as a regional aquifer from which a water supply may be extracted for industrial or potable purposes.

9.4 Risk Analysis and Management

As outlined previously, this Risk Assessment has been undertaken to identify and evaluate the potential environmental and health risks associated with the proposed activities and to determine the risk rating following development of the Site. The risk assessment methodology analyses potential 'Source-Pathway-Receptor' scenarios to determine what level of risk may exist following the development works.

Where there is no complete linkage between source, pathway and receptor, there is no definitive risk of an impact occurring. Where there is a potential linkage then a risk of an impact may arise. In the absence of detailed investigations to support the Risk Assessment a risk level can only be subjectively assessed, and potential risks flagged.

9.5 Risk Rating Matrix

To assess the various risks, the potential hazards identified in Table 9-2 were classified according to the DWER's Risk Assessment Guideline shown in Table 9-3.

Table 9-3: Risk Rating Matrix

	Consequence				
	Slight	Minor	Moderate	Major	Catastrophic

Probability						
	Almost Certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	High	Extreme
	Possible	Low	Medium	Medium	High	Extreme
	Unlikely	Low	Medium	Medium	Medium	High
	Rare	Low	Low	Medium	Medium	High

9.6 Risk Profile

Risk management measures refers to the key management strategies that will be adopted onsite to ensure that all hazards and potential risks identified are controlled to an appropriate level, and that strategies are in place to react to any potential incidents or accidents. In most cases these risk management measures decrease the probability and/or consequence of identified hazards and therefore lower the risk rating.

The current risk rating and revised probability and consequence for each identified hazard following the implementation of defined management measures is shown in Table 9-4.

Table 9-4: Residual Risk Profile

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
Noise	Site Staff	Air	Noise impacts from activities onsite	Possible	Moderate	Medium	• All waste acceptance and tyre processing operations, including the debeader, cutter, shredder, and conveyors, will be conducted inside the fully enclosed TRF building with the roller door kept closed during operations; • Operations will be limited to daytime hours only, as defined by the Environmental Protection (Noise) Regulations 1997; • All trucks and mobile equipment to be fitted with broadband noise reversing alarms to minimise the impact from vehicle reversing alarms; • Vehicles will be restricted to a maximum speed of 10km per hour (km/hr) unless otherwise signed; • Noise reducing workplace procedures will be adopted such as slow unloading of materials from the lowest height possible; • All material handling will be confined to the designated areas; • All equipment and machinery will be maintained in good working condition; and • Staff and visitors will be provided with appropriate personal protective clothing (PPE) to mitigate any noise impacts associated with the Site activities.	Possible	Slight	Low
	Surrounding land users	Air		Possible	Minor	Medium		Rare	Slight	Low
Dust	Site Staff	Air	Visibility may be impaired and inhalation of dust may occur during site activities	Unlikely	Minor	Medium	• Maintaining all materials acceptance and processing activities within an enclosed building; • Implementing a regular housekeeping schedule to reduce dust accumulation; • Minimising vehicle speeds and movements within the premises; • Ensuring raw and processed materials are handled carefully to avoid unnecessary disturbance; • Monitoring for any visible dust and responding promptly with mitigation (e.g. spot mopping or misting, if necessary).	Rare	Slight	Low
Stormwater	Site Infrastructure	Surface	Excessive stormwater that is not properly managed can lead to flooding onsite resulting in damage	Possible	Moderate	Medium	• All waste acceptance and processing facilities will be contained within the fully enclosed building to minimise exposure of tyres rainfall; • Stormwater generated from external hardstand areas will be directed away from the Building via graded surfaces to onsite gullies connected to the local stormwater system; • The external perimeter of the building is sloped away from doorways and openings to prevent ingress of surface water during rainfall events; and • All stormwater engineering features will be inspected regularly, and maintenance works scheduled appropriately.	Rare	Slight	Low
	Groundwater, Vegetation and Flora	Surface	Wash water that interacts with waste can result in leachate causing contamination of surrounding environment	Possible	Moderate	Medium		Rare	Minor	Low
Traffic	Site Staff	Surface	Poor design of traffic flow and operations can lead to unpredictable traffic routes and	Rare	Major	Medium	• Signage providing directions, traffic control measures and safety instructions will be established and maintained at appropriate locations around the Site;	Rare	Slight	Low

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
			create safety hazards for site personnel				• Vehicles will be restricted to a maximum speed limit of 10km/hour, unless otherwise signed; • Employees and contractors shall wear high visibility and reflective clothing when working in areas where vehicle movement occurs; • All vehicles will be maintained in good working condition and drivers instructed to use conservative driving techniques; and • All employees and contractors will be inducted with the Site's Occupational Health and Safety (OHS) and traffic management procedures.			
Fire	Site Users	Surface	Risk of fires onsite arising from tyre acceptance, waste stockpiles, faulty equipment/machinery, bushfires	Unlikely	Major	Medium	• Fire alarms; • Fire extinguishers; • Fire hose reels; • Site emergency response procedure; and • Evacuation procedure.	Rare	Minor	Low
	Site Infrastructure	Surface		Unlikely	Major	Medium		Rare	Minor	Low
	Vegetation/Flora	Surface		Unlikely	Major	Medium		Rare	Minor	Low
	Fauna	Air	Potential for fauna to ingest waste	Unlikely	Minor	Medium		Rare	Minor	Low
Security	Site Infrastructure	Surface	Unauthorised personnel may access the site resulting in a security breach of the site facilities, plant and equipment. There is a security fence surrounding the whole site	Unlikely	Minor	Medium	• Appropriate signage will be installed at the site entrance; • Lighting and CCTV will be installed in relevant areas including at the main Site access road and key buildings; • A perimeter fence will be established around the Site; • The perimeter fence will be monitored and maintained on a regular basis; and • All access gates and buildings will be locked securely outside of operational hours.	Unlikely	Slight	Low
Vehicle Emissions	Site Staff	Air	Vehicle emissions impacting the health of operators within the Processing Building	Likely	Moderate	Medium	• The building is equipped with passive ventilation infrastructure, including roof-mounted vents, to promote natural air circulation; • The forklift operating within the building will have emission standard engines, particulate filters, catalytic converters and/or wet scrubbers;	Possible	Minor	Low

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
							• Emissions will also be reduced through minimising idling times; • Regular maintenance of mobile plant and vehicles; and • Low emission fuels and sulphur lubricants will be used as much as practicable.			

9.7 Residual Risk Assessment Conclusion

The Residual Risk Assessment identified the current sources of hazards as well as possible sources of hazards arising from the proposed works. The risk rating prior to the implementation of management measures ranged from 'Low' to 'Medium'. The revised risk ratings were all downgraded to 'Low' once management measures were applied. Given the proposed management measures, TRP will ensure any potential health, environment, and amenity impacts are avoided or minimised.

10 Conclusion

The Facility will receive used tyres from commercial sources and process them into rubber shreds and recovered steel for regular transport off-site to reprocessing facilities in domestic and international markets. In doing so, the operation will support local recycling capability and contribute to Western Australia's transition toward improved resource recovery and circular economy outcomes.

TRP intends to have the facility operational in October 2025, providing a compliant and safe recycling outlet for used tyres within an established industrial area. The facility will operate as a permanent processing site, helping to reduce reliance on landfill disposal and stockpiling of tyres.

The facility will receive tyres for immediate processing and short-term storage only. All handling and processing activities will occur within the enclosed Building on site. Surrounding the site is a sealed asphalt hardstand and a stormwater management system.

The Site is located within a General Industry zone and is surrounded by compatible industrial land uses, including a scrap metal recycler and other waste-related operations that are considerably more noise intensive than the proposed development. Environmental constraints are limited, as the Site comprises a historically disturbed land parcel within an established industrial precinct. Overall, the environmental sensitivity of the Site is considered low.

Environmental risks such as noise, dust, and fire will be mitigated through appropriate engineering controls, operational procedures, and management practices as outlined in this EAMP. As activities will occur within the enclosed Building, emissions to land, air, or water are not anticipated to pose significant risks.

Given the Site's location, alignment with planning and zoning provisions, the low-risk nature of the proposed activities, and the inclusion of appropriate environmental safeguards, the development and operation of the Facility can be achieved in a manner that appropriately manages environmental impacts.

References

Department of Water and Environmental regulation (2017). Guidance Statement: Risk Assessments - Part V, Division 3, Environmental Protection Act 1986 (February 2017)

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Environmental Protection Authority (Western Australia) (2015). Draft Environmental Assessment Guideline for Separation Distances between Industrial and Sensitive Land Uses (September 2015)

Sustainability Victoria (2009) Guide to Best Practice at Resource Recovery Centres; Melbourne, Victoria

Waste Authority (2019). Waste Avoidance and Resource Recovery Strategy 2030, February 2019

Waste Management Association Australia (2009) Guidelines for Management Workplace Health and Safety within the Waste Management and Recycling Industries in Western Australia

APPENDIX A
Site Investigation Reports

- Environment Noise Assessment

APPENDIX B
Figures

Figure 1: Site Locality

Figure 2: Site Layout

Figure 3: Zoning

Figure 4: Sensitive Receptors

Figure 5: Topography

Figure 6: Hydrology

Figure 7: Environmentally Sensitive Areas

Figure 8: Bushfire Prone Areas

Figure 9: European Heritage

APPENDIX C
Drawings

Drawing C-100: General Arrangement

APPENDIX D
Site Management Plans

Stormwater Management Plan

Assets | Engineering | Environment | Noise | Spatial | Waste

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