Environmental Assessment and Management Plan

Neerabup Resource Recovery Precinct - Stage 1

Prepared for City of Wanneroo

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1 Introduction

The City of Wanneroo (the City) is progressing the development of its long-term waste management strategy through the establishment of the Neerabup Resource Recovery Precinct (NRRP) on Lot 600, 570 Wattle Avenue, Neerabup (the Site). Talis Consultants (Talis) previously assisted the City in preparing the NRRP Master Plan, which outlines the staged delivery of key waste infrastructure to address capacity shortfalls in Perth's northern suburbs. The City has engaged Talis to prepare an Environmental Assessment and Management Plan (EAMP) to support a Works Approval application for the following infrastructure (the Proposed Infrastructure):

- Waste transfer station (WTS): to consolidate residual waste from the City's kerbside collection services, and potentially other local governments, for bulk transport to recovery facilities in the southern Perth metropolitan area;
- Materials recovery facility (MRF): to accept and process co-mingled recyclables from kerbside collections for downstream reprocessing;
- Community Recycling Centre (CRC): to provide residents with a safe and accessible location to drop-off household items for reuse, recycling or appropriate disposal;
- Supporting infrastructure including:
  - Shared weighbridge;
  - Access roads and services areas;
  - Surface Water and Leachate Management System (SWLMS).
  - Administration Centre and Workshop; and
  - Security (Closed Circuit Television [CCTV], fencing, etc).

Together, the Proposed Infrastructure will reduce haulage distances, improve diversion rates and support the City's transition away from reliance on Tamala Park landfill, which is expected to reach capacity in the coming years. Future stages will incorporate an Energy Recovery Facility (ERF) and the private development of additional resource recovery and waste processing facilities in the northern proportion of NRRP. However, it is important to note that the City' is just seeking approval for the Stage 1 Proposed Infrastructure only that this stage which will represents a critical step in achieving the objectives of the NRRP Master Plan and addressing the resource recovery and waste management needs of the City and surrounding northern suburbs.

1.1 Background

The NRRP was initiated in response to a recognised shortfall in local waste processing infrastructure within Perth's northern corridor. With the impending closure of Tamala Park Landfill anticipated in the near future, the City identified the need to consolidate residual waste locally prior to transport to one of the two ERFs in the southern metropolitan area. Currently, commingled recyclables are transported to the Resource Recovery Group (RRG) MRF in Canning Vale, resulting in significant transport-related emissions and financial costs for the City.

To bridge the immediate gap, an interim WTS is being progressed in Wangara. However, the permanent WTS, CRC and MRF at the NRRP will deliver a long-term, integrated solution to support the City's waste services. These facilities will reduce transport costs and emissions, improve local waste handling efficiency, and provide residents with accessible, fit-for-purpose infrastructure to responsibly manage household waste.

The development of the Proposed Infrastructure marks a critical step in delivering the NRRP Master Plan vision and addressing the City's long-term resource recovery and waste management needs. Delivery of the Proposed Infrastructure is being staged to align with key milestones and supported by enabling works for power, water and road infrastructure. These enabling works are scheduled for completion during 2025 and 2026 to prepare the Site for construction. Commissioning of the WTS is expected to commence in mid to late 2027, followed by the CRC in early 2028 and the MRF in late 2028. Residual waste will be consolidated at the WTS for transport to one of the two ERFs in the southern Perth Metropolitan Area until the ERF at the NRRP becomes operational, anticipated towards the end of the 2030s. This phased approach will enable a transition away from reliance on external processing facilities and toward a fully integrated, locally managed waste system at the NRRP.

The City will develop, own, and operate the CRC and WTS, including all associated supporting infrastructure and environmental responsibilities. In contrast, the MRF will be delivered by a private proponent under a lease and Recycling Processing Agreement with the City. The private operator will fund, construct, and operate the MRF and will be responsible for meeting all relevant regulatory, performance, and environmental compliance obligations. Environmental approvals for all three facilities are being sought concurrently through this Works Approval application.

1.2 Purpose of the Report

This EAMP has been prepared to support the City's application for a Works Approval for the Stage 1 Proposed Infrastructure including WTS, MRF, CRC and Supporting Site Infrastructure under Part V of the *Environmental Protection Act 1986*. The objectives of this report are to:

- Describe the environmental and social context on and surrounding the Site;
- Detail the design and operational characteristics of the proposed facilities;
- Identify potential impacts associated with construction and operation of these facilities;
- Summarise community consultation activities and outcomes;
- Outline engineering and management measures to mitigate environmental risks; and
- Assess residual risks following implementation of proposed controls.

2 Site Information

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

2.1 Site Location and Access

The Site is located at Lot 600 on deposited plan 302260 at 570 Wattle Avenue, Neerabup, within the Neerabup Industrial Area, approximately 39 km north of the Perth CBD. It is zoned 'Public Purpose – Special Use (Energy Generation)' under the City's District Planning Scheme and is owned and managed by the City. Access to the Site is provided via Trandos Road, which intersects with Old Yanchep Road and connects to major traffic routes like Joondalup Drive and Mitchel Freeway.

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

2.2 Development Area

The Stage 1 Proposed Infrastructure will be constructed within the southeastern portion of Lot 600 (the Stage 1 Development Area) which spans 9.3 hectares (ha). The Stage 1 Development Area has been established with consideration of multiple easements related to utility services, pipelines, and power infrastructure, as well as environmental constraints, which are discussed in Section 3.7.2. A Clearing Permit for the Stage 1 Development Area has been lodged with the Department of Water and Environmental Regulation (DWER) Native Vegetation Branch. The required clearing on Site is discussed in Section 9.7.

The extends of the Stage 1 Development Area is shown in Figure 2 while the easements are shown in Figure 3 in Appendix B. The layout of the Proposed Infrastructure is shown in Drawing C-500 in Appendix C.

2.3 Surrounding Land Uses & Planning

The Site is located within a predominantly industrial area and is zoned 'Public Purpose – Special Use (Energy Generation)'. Land to the south and southwest is zoned 'General Industry', with the Neerabup Power Station located immediately adjacent to the south. Lots to the west, east and north are zoned 'Regional Open Space', while land further north is zoned 'State Forests'. The Site is bounded to the northeast by Wattle Park (a Type 3R reserve) and to the northwest by the Wanneroo International Kartway.

Talis has engaged with the City's Town Planning officers. The Proposed Infrastructure is consistent with the intended land use for Lot 600 and is compatible with the surrounding zoning and development context. For the WTS and CRC planning approval the City will utilise a Public Works Exemption which is consistent with the Planning and Development Act 2005. The City engaged with relevant representatives of the Western Australia Planning Commission on this approach.

Planning approval will be required for the MRF, with the City scheduled to submit the Development Approval application in September 2025.

The zoning in and around the Site is shown in Figure 4 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 is shown in Table 2-1.

Table 2-1: EPA Recommended Separation Distances from the Proposed Industry Activities

Category	Industry	Impacts					Recommended Separation Distance (m)
		Gaseous	Noise	Dust	Odour	Risk	
62	Solid waste depot		✓	✓	✓		200
57	Used tyre storage			✓		✓	100-200, depending on size

The closest sensitive receptor to the Site is a rural residential dwelling located approximately 960 m north of the Site boundary, along Old Yanchep Road (Residence No. 1). All other surrounding receptors are located at greater distances and well beyond the recommended buffer.

The proposed development complies with the EPA's recommended separation distances. Potential impacts from odour, noise and dust will be managed through best-practice design and operational controls, as described in Section 8.

The sensitive receptors are shown in Figure 5 in Appendix B.

2.5 Ownership and Licencing

The Site is freehold land owned by the City. It is not currently licensed for waste processing activities under Part V of the Environmental Protection Act 1986.

As part of this application, the City will seek a Works Approval for Prescribed Premises Category 62 (solid waste depot) and Category 57 (Used tyre storage (general)), as applicable to the WTS, CRC and MRF operations, as shown in Table 2-2. Time Limited Operations will also be sought through the Works Approval for the various facilities to support operations commencing as soon as possible for these much needed facilities. During the Time Limited Operations, the City will apply for an Operating Licence to support the ongoing operation of the Proposed Infrastructure.

Table 2-2: Proposed Prescribed Premises Categories

Category	Category Description	Production or Design Capacity
Waste Transfer Station		
62	Solid waste depot: premises on which waste is stored, or sorted, pending final disposal or re-use.	500 tonnes or more per year
Community Recycling Centre		

62	Solid waste depot	Premises on which waste is stored, or sorted, pending final disposal or re-use.
57	Used tyre storage (general)	Premises (other than premises within category 56) on which used tyres ae stored.
Materials Recovery Facility		
62	Solid waste depot: premises on which waste is stored, or sorted, pending final disposal or re-use.	500 tonnes or more per year

2.6 Stakeholder Consultation

The City is commencing an extensive community consultation process, which will include the presentation of 3D renders of the proposed infrastructure together with detailed project information. The consultation aims to ensure that residents and stakeholders are well informed about the planned development, have the opportunity to provide feedback, and can meaningfully contribute to shaping the final design and delivery of the project. While this Works Approval application will be submitted prior to completion of the consultation, the outcomes of the process will be documented and provided to the DWER once available.

2.7 Site Investigations

Prior to lodging this application, a series of desktop and field investigations were undertaken to assess the environmental suitability of the Site. These investigations informed the siting, design and management measures for the proposed development. The investigation reports that were prepared to support this EAMP and the environmental approval application for the Proposed Infrastructure are listed in Table 2-3 and included in Appendix A.

Table 2-3: Site Investigation Reports & Management Plans

Study/Discipline	Author	Status
Odour Impact Assessment	Environmental & Air Quality Consulting Pty Ltd (EAQ)	Complete
Environment Noise Assessment	Talis	Complete
Basic Fauna and Targeted Black Cockatoo Habitat Assessment	Western Environmental Pty Ltd	Complete
Native Vegetation Clearing Permit supporting documentation and Addendum	Talis	Complete

3 Environmental Attributes

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

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

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Rainfall (mm)	13	14	18	35	92	129	151	119	75	39	24	8	716
Mean Evaporation (mm)	303	257	221	138	91	64	65	80	107	163	218	280	1985
Mean Max Temp (˚C)	31.3	31.6	29.4	25.7	22.0	19.1	18.1	18.6	20.2	22.8	26.1	29.0	24.5
Mean Min Temp (˚C)	17.6	18.1	16.7	13.9	11.3	9.6	8.9	8.8	9.6	11.0	13.5	15.8	12.9

The average annual rainfall recorded at the Site since records began is 716 mm, with the minimum and maximum values ranging from 8 mm and 151 mm per month, respectively. The average annual potential evaporation rate is approximately 1,985 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 northerly 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 Pearce RAAF (Station Number: 009053), approximately 21km to the east.

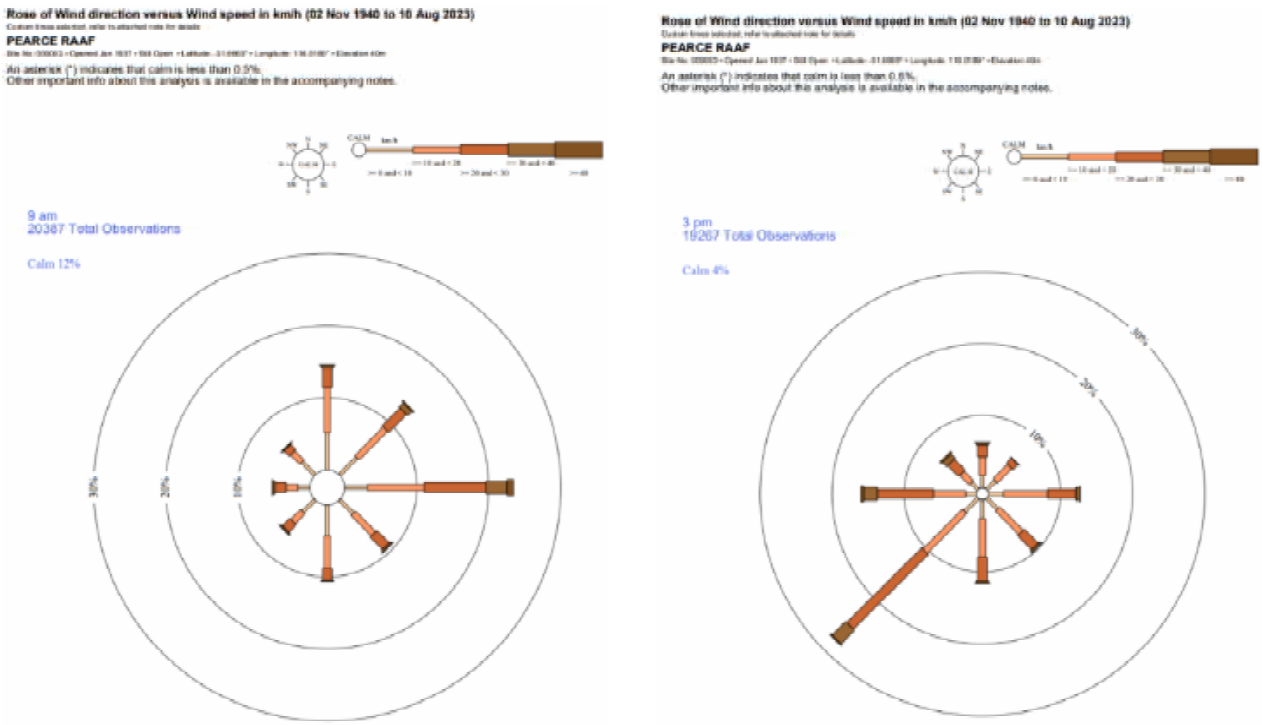

Diagram 4-1: 9am (left) and 3pm (right) Wind Rose for Pearce RAAF

3.2 Topography

The topography across the Site is flat, with elevations ranging from 56 metres Australian Height Datum (mAHD) in the south-western corner, to 44mAHD on the eastern border of the Site. Within Stage 1 Development Area the topography is between 45 to 46mAHD.

The topography for the Site is shown in Figure 6 in Appendix B.

3.3 Geology

Based on the published regional geology (1:50,000 Department of Mines and Industry Regulation and Safety Map of Muchea 2020), Lot 600 is located within an area of sand with a majority of Karrakatta Sand Grey phase and small parts of Karrakatta Sand Yellow phase in the south-west part of the Site.

The surface geology at the Site is shown in Figure 7 in Appendix B.

3.4 Acid Sulfate Soils

Acid Sulfate Soils (ASS) are naturally occurring soils that contain iron sulphide (iron pyrite) minerals that, if disturbed and exposed to air (i.e., by excavation, dewatering or drainage), can be oxidised resulting in release of acidity and potentially causing adverse environmental impacts.

ASS risk mapping considers existing geomorphological, geological and hydrogeological information to develop broad scale mapping for regions of the State for planning purposes. ASS risk mapping data generated by the DWER shows that the Site is not located in an ASS rated area. The closest ASS risk area is mapped alongside the eastern Site boundary intersecting with the northeastern boundary of Lot 600 and mapped as 'high to moderate risk'. Therefore, while it may be unlikely that ASS is present

in the Stage 1 Development Area, any ASS encountered will be managed in accordance with the DWER's guidelines on 'Treatment and management of soil and water in acid sulfate landscapes' (June 2015).

The ASS mapping surrounding the Site is shown in Figure 8 in Appendix B.

3.5 Hydrogeology

Lot 600 is situated within the Gnangara Groundwater System, specifically in the Wanneroo Proclaimed Groundwater Area and borders to the Gnangara Proclaimed Groundwater Area in the north, as pictured in Figure 9 in Appendix B.

The anticipated maximum depth to groundwater varies from 18 metres below ground level (mbgl) in the southwestern corner to 4mbgl on the eastern border of Lot 600. Within the Stage 1 Development Area, groundwater is expected to occur at depths between 4 and 7 mbgl. The groundwater contour lines, detailed in Figure 9 in Appendix B, are based on publicly available data from the DWER from 2021.

3.6 Surface Water

Lot 600 is in the Swan Avon Lower Swan catchment and partially intersects the Lake Pinjar geomorphic wetland in the east. No drainage lines or other hydrological features intersect the survey area of Lot 600.

The Public Drinking Water Source Area Gnangara Underground Water Pollution Control is located 250m north of the site boundaries. A significant stream connected to Lake Pinjar extending 250 meters from Site alongside the eastern Site boundary.

The Surface Water around Lot 600 is shown in Figure 10 in Appendix B.

3.7 Flora and Vegetation

The flora species on Lot 600 are:

- Outside the boundaries of the Site on the premises of the neighbouring Kartway:
  - BaMW: Banksia attenuata and B. menziesii mid woodland;
  - BiMW: Banksia ilicifolia mid woodland.
- Inside the boundaries of the Site:
  - EtLMW: Eucalyptus todtiana and Nuytsia floribunda mid mallee woodland;
  - MpMW: Melaleuca preissiana and Eucalyptus rudis subsp. rudis mid woodland.

In total there were two surveys undertaken on Lot 600:

- A targeted flora survey conducted by Eco Logical Australia (ELA) in 2013; and
- A flora and vegetation survey was conducted by James Tsakalos, Senior Environmental Scientist, during October 2020.

Within the entirety of the Stage 1 Development Area the vegetation condition is classified as degraded or previously cleared. The main factor affecting vegetation condition was disturbance from weeds and

vehicles as evidenced by the number of vehicle tracks observed within the survey area and project area (Ecoscape, 2021).

The vegetation units are shown in Figure 11 while vegetation condition is detailed in Figure 12 in Appendix B.

3.7.1 Threatened and Priority Ecological Communities

In WA 'Threatened Ecological Communities' (TECs) are defined by the WA Threatened Ecological Communities Scientific Advisory Committee and are assigned to one of four categories (Presumed Totally Destroyed, Critically Endangered, Endangered, Vulnerable). While they are not afforded direct statutory protection at a state level (unlike Declared Rare Flora under the WC Act) their significance is acknowledged through other State environmental approval processes (i.e., Environmental Impact Assessment process pursuant to Part IV of the *Environmental Protection Act 1986*). Priority Ecological Communities (PECs) are ecological communities that are under consideration for listing as a TEC, but do not yet meet the criteria. The PEC is placed into a Priority Rating between 1-5 that ranks the PEC based on known occurrences, threats and management of the community.

The DBCA database search within Lot 600 revealed TECs within approximately half of the Stage 1 Development Area.

Due to the degraded condition of the entire vegetation on the Site and the good to very good condition of vegetation in the neighbouring areas it can be concluded that the vegetation within the Site is of low significance. The location of TECs is provided in Figure 13 in Appendix B.

The City submitted a Clearing Permit for the Stage 1 Proposed Infrastructure to the DWER in March 2025 with an amendment submitted in July 2025 to include three habitat trees as discussed in Sections 3.8 and 9.1.

3.7.2 Environmentally Sensitive Areas

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 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.

Multiple ESAs surround the Site have been identified. On the eastern Site boundary, a bush forever area borders the Site without intersecting it, as well as a conversation category wetland area which partially intersects the eastern boundary. As shown in Figure 12, this area has been historically cleared in regard to a gas pipeline within the eastern boundary of Lot 600. Additionally, as shown in Figure 14, while the Stage 1 Development Area is intersecting the 50m boundary of the conservation area, the design of the Proposed Infrastructure has been defined to avoid any encroachment into the actual conservation area. This commitment was included in the Clearing Permit submitted to the DWER Native Vegetation branch in March 2025.

The ESA's and state forest areas within and surrounding the Site are shown in Figure 13 while the Wetland is shown in Figure 14 in Appendix B.

3.7.3 Threatened and Priority Flora

The survey by Eco Logical Australia did not record any Threatened or Priority Flora within the survey area (Ecoscape, 2021). Prior to the flora and vegetation survey a desktop assessment undertaken by Ecoscape (Australia) Pty Ltd (Ecoscape) identified the likelihood of four conservation-listed flora to occur within the survey as 'Possible'. The flora and vegetation survey, conducted by James Tsakalos, Senior Environmental Scientist, during October 2020, identified no threatened Flora under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) or the Western Australian Biodiversity Conservation Act (BC Act). Additionally, no priority-listed flora was found. Post-survey, the likelihood of four initially possible conservation-listed flora occurring in the area was revised to unlikely due to vegetation condition, grazing, weeds, and other disturbances. The nearest threatened species was recorded 2.59 km northwest, while the nearest priority species, classified as priority 2, was recorded 2.34 km east of the Site.

The threatened and priority flora near Lot 600 is detailed in Figure 15 in Appendix B.

3.8 Fauna

The desktop assessment undertaken by Ecoscape indicated that, based on habitat requirements, the following species were considered to have a high likelihood of occurring in the survey area:

- Carnaby's Cockatoo;
- Forest Red-tailed Black Cockatoo;
- Quenda; and
- Western Brush Wallaby (Ecoscape, 2021).

A Basic Fauna and Targeted Black Cockatoo Habitat Assessment, provided in Appendix A, was undertaken by Western Environmental Pty Ltd in August 2024 to identify potential habitat within the NRRP site. The Site lies within the modelled range of Carnaby's and forest red-tailed black cockatoos,

Trees suitable for breeding by Black cockatoos were surveyed across the proposed clearing area. Each tree was assessed for the potential to provide breeding habitat for the Black Cockatoo species (Forest Red-tailed Black Cockatoo, Baudin's Cockatoo and Carnaby's Cockatoo) as per Commonwealth guidelines. The survey area was also assessed for quality of foraging habitat where the degraded woodland was assessed as may be utilised as roost sites and as foraging resources. No evidence of Black Cockatoo presence was found during the survey.

Three potential breeding trees (the Habitat Trees) were located within the proposed development area. All three of the recorded Eucalyptus rudis trees were classified as class 5 when scored using the scale developed by Dr Mike Bamford (Bamford 2016). The Habitat Trees do not currently exhibit the characteristics necessary for Black Cockatoo use for nesting however, due to the trees being of a suitable size to potentially provide suitable nesting hollows in the future, they were recorded during the survey.

Based on Landgate data, a threatened species was recorded in the northern section of the Site outside of the Stage 1 Development Area and 167 meters north, while a Priority 4 species was found 639 m southeast of the Site. The threatened and priority fauna in and around the Site is detailed in Figure 16 in Appendix B.

3.9 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 18 in Appendix B, the entirety of the Site is located within a bushfire prone area. Fire management is discussed in Section 9.7.

4 Social Attributes

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

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.

A search of National Map (nationalmap.gov.au) indicates that Native Title does not exist within the Site and in the surrounding area as shown in Figure 17 in Appendix B.

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

Category	Sub- Category	Assessment Status	Protected under the AH Act
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 two Aboriginal Cultural Heritage (ACH) Places close to Lot 600:

- The lodged place Lake Neerabup, ID number 3693, classed as culturally sensitive and located approximately 2km west of the current prescribed premises boundary;
- The registered heritage place Honey Possum Site, ID number 3503, classed as not culturally sensitive and located approximately 2.3km west of the current prescribed premises boundary.

The Heritage sites are shown in Figure 17 in Appendix B.

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 there are no European Heritage sites located within the Site. The closest European Heritage site, Albert Thomas House, is located over 2km east of the Site as shown in Figure 17 in Appendix B.

5 Infrastructure Description and Design

The following section provides a description of the Proposed Infrastructure for the Site and its key design elements.

5.1 Drawings

The following drawings have been submitted to support this EAMP:

- Drawing C-500: WTS, MRF and CRC Concept Layout
- Drawing C-501: WTS, MRF and CRC Concept Swept Path
- Drawing C-502: General Arrangement
- Drawing C-103: WTS Floor plan and Sections
- Drawing C-105: MRF Floor plan and Sections
- Drawing S-100: HHW Layout
- Drawing S-000: Residual Waste Drop Off Facility Floor Plan and Sections
- Drawing S-109: Recycling Drop off Layout
- Drawing C-121: WTS Drainage Layout
- Drawing C-122: Green Waste Bunker Drainage Layout

5.2 Overall Best Practice Design Principles

The following is a summary of the key design principles that were used to guide the development of the NRRP Master Plan. These design principles have been devised based on Talis' experience on our delivery on a range of similar projects, aligning with the waste management hierarchy and other legislative framework.

- Maximise the source separation of materials to maximise diversion from landfill;
  - Maximise the separation of materials into clean waste streams for reuse, recycling or recovery. Encourage the separation of materials before it arrives at the NRRP where possible.
- Adopt best practice design and operational standards including:
  - Promote sustainable waste management operations (NRRP set out in relation to the waste management hierarchy);
  - Design of waste management infrastructure for efficient and safe disposal;
  - Appropriate signage to provide clear advice to users;
  - Separate NRRP operations from areas intended for community interaction (separate front and back of house as far as reasonably practicable);
  - Police waste acceptance activities while minimising staff resources;
  - Minimise combining heavy and light traffic;
  - Promote work health and safety (WH&S) aspects across the NRRP;
  - Incorporate environmental measures to minimise any potential impacts;
- Support linkages/flows between various NRRP operations to improve operational efficiency and minimise the onsite material handling requirements;

- Minimise development footprints to reduce excessive costs;
- Design access roads to cater for queuing of traffic;
- Promote occupational health and safety (OH&S) aspects of the NRRP;
- Incorporate environmental measures to minimise any potential impacts;
- Visual amenity to be maximised to present a facility the community should be proud of;
- Incorporate environmentally sustainable design principles across the NRRP;
- Design elements to be modular to accommodate future technological improvements, enable staging of construction and allow flexibility; and
- Optimise data collection.

5.3 Waste Transfer Station

A key piece of infrastructure proposed for the Site is the WTS, where waste will be accepted, and temporarily stored and/or sorted before being transported to the other facilities for further treatment. The purpose of the WTS is to provide waste generators, waste collectors and waste handlers options to dispose of their materials within relatively close proximity to where these materials are generated. The WTS will reduce the travelling requirements of the waste generators and collection vehicles and also reduce the number of vehicles travelling to and from the downstream processing facilities.

The WTS is positioned next to the CRC, isolated from public access areas; therefore, the community will not be granted access to the WTS due to the risk associated with potential conflicts between heavy and light vehicles within the confines of the WTS.

5.3.1 Design Principles

The following best practice design principles have been applied to the development of the WTS:

- Fully enclosed, structurally sound building;
- Suitable access in and out of the building, with high-speed roller doors;
- Adequate ventilation for maintaining air quality;
- Extraction and exhaust system providing four air changes per hour;
- Limited interaction between waste collection trucks and other vehicles;
- Durable surfaces for the handling of waste;
- Sufficient space for machinery to operate safely and efficiently;
- Designated waste bunkers to maximise the separation of materials into clean waste streams for reuse, recycling or recovery;
- Leachate collection system; and
- Stormwater collection system.

5.3.2 Entrance and Exit

Vehicles destined for the WTS will enter the Site via the main Site entrance. This entrance and the weighbridge are shared with the MRF and service vehicles for the CRC. The vehicles will follow the road to the weighbridge for inspection and data collection prior to proceeding to the WTS. The weighbridge staff will inform the drivers which door to use to enter the WTS building.

5.3.3 WTS Building

The WTS will be a fully enclosed warehouse building with a footprint of 1,890m^2 (35m x 54m). The height will vary but the building will have a minimum clearance height of 8m at the eaves. The design height of the facility ensures that sufficient clearance is provided for collection vehicles as they unload onto the tipping floor within the WTS. The preferred model for the WTS is a Flat Floor configuration. The materials will be deposited directly onto the concrete hardstand floor of the WTS and then stored in the designated bunker prior to being loaded into specialist haulage vehicles (B-Double or similar road train configurations). There are two load out lanes: the western loadout lane is designed as a drive through bulk haulage configuration and the eastern includes a compaction system that requires the transfer trailers to reverse in.

The WTS has been designed to a capacity of approximately 195,000 tonnes per annum (tpa) of residual waste, with one-day storage capacity based on 6 days of operation.

The WTS floor will be constructed with reinforced 200mm thick (minimum) concrete. The floor of the waste storage bunker area has been designed with a fall to allow water to flow towards collection points and divert potential leachate to a containment tank below ground external to the WTS, which will be pumped out as required. Stormwater will be managed through a pit and pipe system across the WTS and directed to the adjacent lined detention basin which will overtop into the unlined detention basin as needed. In the event of a fire, the valve between these basins will be shut, containing all fire wash water within the WTS and the lined detention basin, minimising potential contaminants entering the surrounding environment.

Ridge ventilators will be installed along the roof of the WTS to provide natural ventilation within the building.

Internally, the WTS building consists of three key areas:

- Unloading/tipping area;
- Waste storage bunker area; and
- Bulk load out area.

The unloading/tipping area is located in the northern section of the building. The unloading area is accessible via the kerbside collection vehicles entrance at the north of the WTS building. The entrance consists of a reversing apron of 1,200m^2 external to the building that leads to four access doors. These are high speed roller doors that will minimise fugitive emissions from the WTS. The slope of the reversing apron falls away from the WTS building to prevent the ingress of stormwater.

The kerbside collection vehicles will access the WTS building via one of the four access doors. The kerbside collection vehicles use the reversing apron to make a comparatively simple reverse turn into the WTS. Once completely inside the building, the roller door closes. The kerbside collection vehicles reverse into the unloading area whereupon it end-tips the waste on the concrete floor. Upon completion, the driver returns the kerbside collection vehicles body to its normal position and drives out the WTS in a straight manner. If required, the drivers can sweep out the kerbside collection vehicles. Once outside, the kerbside collection vehicles turn left and leaves the NRRP via the weighbridge.

The waste storage bunker area is located in the southern section of the building and is bounded on three sides by 5m high precast reinforced concrete walls.

When necessary, the waste storage bunker area will be washed down. The runoff will flow towards collection points and divert potential leachate to a containment tank below ground external to the WTS.

After the kerbside collection vehicles tips the waste onto the floor and leaves the unloading area, the front-end loader within the building will either transport the waste to the appropriate stockpile within the waste storage bunker area or transfer the waste directly into the transfer trailer or compaction system. If the waste is stockpiled, it will typically not remain in the WTS building for long periods of time to mitigate odour and reduce the attraction of vermin and feral animals.

A summary of the WTS design specifications is shown in Table 5-1.

Table 5-1: WTS Design Specifications

Aspect	Details
Size	1,890m^2 (35m x 54m)
Design Capacity	195,000 tpa
Maximum estimated input	195,000 tpa (2029/30 Financial Year)
Storage	1 day

The WTS conceptual design and structural drawings are provided in Appendix C.

5.3.3.1 *Ventilation System*

EAQ provided a preliminary ventilation design to mitigate odour emissions and provide adequate internal worker comfort. The WTS will be equipped with a mechanical ventilation system designed to achieve at least four (4) air changes per hour. This is accomplished via a network of extraction fans discharging through a series of short stacks (6 of) positioned on the roof of the WTS building. Each stack will potentially be 3 metres above the roofline, have a diameter of 0.9 metres, and operate with an exhaust velocity of 10 metres per second (EAQ, 2025).

This general design enables effective capture and upward dispersion of odorous air from within the WTS, particularly during the active periods of waste receival, stockpiling, and truck loading. The system operates to provide negative pressure inside the WTS to reduce fugitive odour emissions through doorways and openings (EAQ, 2025).

The total estimated internal volume of the WTS building, based on the rectangular and roof-triangle cross sections, is approximately 29,934 cubic metres (m^3). To maintain odour control through adequate air exchange, the WTS is proposed to be fitted with 6 roof-mounted extraction stacks. Each stack, with a 0.9 m diameter and 10 m/s exit velocity, provides approximately 22,902 m3 per hour of airflow. Together, the 6 stacks provide an estimated total exhaust capacity of 137,413 m^3/h (EAQ, 2025).

Based on the estimated internal volume, this configuration achieves an air change rate of approximately 4.6 air changes per hour (ACH), exceeding the design target of 4 ACH and indicating a robust ventilation strategy (EAQ, 2025).

The WTS design exceeds both the DWER and WHO benchmarks, indicating a robust system capable of effectively managing indoor air quality and odour levels during waste handling operations (EAQ, 2025).

5.4 Community Recycling Centre

CRCs are integrated facilities that provide a full range of recycling and waste acceptance services to the community. Modern integrated facilities typically include features such as a reuse or tip shop, waste education centres, a dedicated recycling area, bulk waste acceptance, hazardous waste acceptance, and residual waste disposal. By offering these services, CRCs facilitate community engagement with the full waste hierarchy, promoting a greater understanding of waste management practices.

CRC's complement vergeside services, providing additional avenues for waste reduction and recycling. Various strategies can be employed to achieve these outcomes, ensuring that CRCs effectively support sustainable waste management practices in the community.

Numerous successful CRCs are currently operating across Perth and are extensively utilised by the surrounding communities. There is an increasing expectation from the community for local governments to offer these facilities, especially in areas where such services are not yet available.

5.4.1 Best Practice Design Principles

The following sections provide details on the best practice design principles that have been adopted in the development of the CRC.

5.4.1.1 *Waste Hierarchy*

The Waste Hierarchy (Diagram 5-1) is an internationally recognised concept and its principles underpin all modern sustainable waste management strategies. It provides a structure for prioritising waste management practices in relation to maximising the value of the various materials, with the most preferred or most sustainable (top of the hierarchy) to the least preferred or least sustainable (bottom of the hierarchy).

Diagram 5-1: Waste Hierarchy Representation

The Waste Hierarchy has been adopted for the design of the Site as a basis for determining the flow and priority order of waste management services that are provided at the Site to maximise the value of the materials accepted.

5.4.2 Entry and Exit

The community will access the CRC via a separate site access from the south off Trandos Road and pass through a roundabout with incoming customers turning right. Service vehicles access the CRC Site via the WTS Site access, passing the weighbridge followed by a right turn to access the CRC service lane.

After passing through the roundabout customers will access a one-way loop road. This loop road is designed to ensure a continuous flow through the CRC, minimising traffic conflicts and promoting ease of use. The sealed road will feature a public access gate at the entrance, which staff will open daily. After entering the loop road customers pass by the kiosk.

The CRC is divided into a Free and Paid Drop-off Areas. The Free Drop-off Area includes Reuse Shop, Recycling Drop-off Hardstand, HHW Shed and free Recyclables Drop-off, which all customers pass through after the kiosk. The Paid Drop-off Area includes Paid Bulky Recyclables Drop-off, Green Waste Bunker and the Residual Waste Drop-off.

A sealed two-way service lane is located at the rear of each area of the CRC to allow staff only access to service the various receptacles and community drop-off areas. The lane loops around the perimeter of the facilities from the Green Waste Bunker and ends after the rear of the recyclables drop-off where a turning point is located. The rear of the Residual Waste Drop-off Facility has been designed to be shared with the WTS operations for improved traffic and waste flows around the Site.

The public parking area, to be used by customers of the Reuse Shop, staff and groups coming to the CRC to use the Education Centre, is accessible via the first left turn after the roundabout which allows customers to enter when they first enter the CRC or after they completed the whole loop. The 2,800m^2 parking area will have 52 parking bays, 9 parks for ute and trailer and 11 staff/visitor parking spots. The public parking area has an additional access point which allows customers to enter after they pass the Free Bulky Drop-off. The exit is connected to a crossroad in between Free Drop-off Area and Paid Residual Waste Drop-off and leads back to the roundabout at the CRC entrance/exit.

5.4.3 Kiosk

A kiosk will be located at the community entrance to the CRC, where site staff will direct customers to the required drop-off area. The kiosk can also facilitate the management of traffic, inspection of materials presented and acceptance of payment from customers who wish to drop-off materials at the facility.

The kiosk is a fully enclosed building that will measure 27m^2.

5.4.4 Reuse Shop, Administration & Education Centre

At the Reuse Shop, customers have the option to buy or drop-off used goods. The facility also handles the storage, sorting, and display of the goods for sale. The Reuse Shed will consist of a 420 m^2 enclosed building and a 250 m^2 sealed forecourt area. The Reuse Shop will be established at the front of the CRC to allow drop-off of materials for reuse/resale in accordance with the waste management hierarchy.

There will be numerous entrances to the Reuse Shop to access the different drop-off areas. A large, sealed parking area will be located next to the Reuse Shed for the transfer of bulkier materials or for customers wanting to browse longer at the facility. Alternately customers can pass through the kiosk and divert from traffic to a 25m stopping lane where items can be dropped-off to the Reuse Shop.

The Education Centre adjoining the reuse shop will provide an area for meetings and groups to visit and learn more about sustainable waste management practices, the NRRP, and its initiatives. It will feature a 420m^2 Education Centre which will house the Administration centre, Reception, and staff Crib Room. The entrance to the building will be from the public parking area at the most eastern side.

5.4.5 Recycling Drop-off Hardstand Area

An open-air concrete hardstand area will be established to allow customers to drop-off a range of recyclable materials in designated areas. Two lanes have been provided through this section to allow customers to divert from the flow of traffic into a stopping lane alongside the various receptacles. For materials such as e-waste, car batteries and gas cylinders, cages will be provided. Other materials, like inert waste, plastics, glass, and cardboard, can be dropped off into designated receptacles such as hook lift bins.

5.4.6 Household Hazardous Waste Shed

A fully enclosed HHW Shed will be established for the safe acceptance and storage of hazardous materials such as oil, paint, batteries, fluorescent tubes and globes, aerosols, and pesticides etc. The HHW is located at the southeast corner of the CRC with a series of parallel parking bays provided alongside. The service lane runs behind the building allowing service vehicles access for collection. Customers have access to the canopy overhang area to drop-off their HHW. The enclosed areas are only accessible for staff.

The shed should be designed in accordance with the DWER's *Guidelines For The Design And Operation Of Facilities For The Acceptance And Storage Of Household Hazardous Waste (DWER, 2013).*

HHW Shed comprises of a 145m^2 undercover hardstand. It will have three enclosed areas each designed to suit the requirement of the type of waste to be stored. Two of the areas, divided by chain link fencing, will have in total three 3m wide roller doors. The remaining enclosed area is divided into two sections, and will have two full height fire wall partitions, one between the two sections and the other between the adjacent enclosed area.

Each area will have designated storage receptacles and distinct areas for each waste stream, designed specifically for the type of HHW to be stored. This will include racking and shelving, cages, and storage containers. The customers drop-off items at the 42 m^2 canopy overhang area which features a drop-off table which provides space for materials to be sorted into their respective streams.

The HHW Shed will feature an appropriate spill containment system with grading, bunding, drainage and drainage pits. A security fence with locks on all gates and doors will be installed around the facility holding the HHW. As per requirements the HHW Shed will have an emergency shower and eye wash station.

5.4.7 Bulky Recyclables Drop-off Hardstand Areas

Large bulky items such as white goods and C&D will be dropped off at the Free Bulky Recyclables Area while tyres, mattresses and pallets will be dropped off at the Paid Bulky Recyclables Area. Both drop-off areas are uncovered concrete stand areas.

On the completion of the free drop-off, customers can turn left, enter the reuse shop car park or exit via the roundabout and head back towards the entrance of the CRC. Customers who wish to drop-off larger quantities of recyclables, residual waste or green waste can follow the loop to the gate house touch point and proceed to the green waste bunker and the Residual Waste Drop- off Facility.

5.4.8 Greenwaste Bunker

After the Paid Recyclables Drop-off, customers proceed to the green waste bunker, which features L-shaped 2 m-high push walls and a bunded, graded hardstand (15 m × 30 m). All surface water runoff from the bunker area will be treated as leachate and collected via sumps and directed to the adjacent evaporation pond system. The bunker is designed to hold approximately two weeks' worth of green waste. A contractor will collect the material for off-site for processing at fortnightly intervals.

5.4.9 Residual Waste Drop-off Facility

A Residual Waste Drop-off Facility will provide customers with facilities to deposit residual waste or even bulkier recyclable items such as scrap metal. The facility is located on the western side of the CRC and is the last facility on the CRC loop. A weighbridge will be installed at both the entrance and the exit of the facility to ensure accurate quantification of all material deposited. The facility will contain 10 car bays with a 5.4 m^3 'L bin' at each bay . Sufficient room has been provided for queuing /manoeuvring area in front of the bins as well as line markings to guide reversing movements.

The Residual Waste Drop-off Facility will be an approximately 3,680m^2 hardstand and will have a canopy above the parking bays to protect customers from the weather.

The Residual Waste Drop-off Facility will allow for domestic customers to reverse their vehicles and unload waste materials into 'L bins' located at each bay. Vehicles will be able pull forward to aligning themselves with the bins, then reverse into bays and drop-off materials into the dedicated receptacles. There will be a proprietary raised platform which the "L" bins will reside on to assist with servicing the hydraulic tailgates of vans (thrifty or similar). The 'L bins" will be picked up by the front-end loader and the materials deposited into the designated hook lift bins at the rear of the facility.

5.4.10 Long-Term Stockpiling Area

The Long-Term Stockpiling Area is located west of the greenwaste bunker. It is anticipated that there will be designated stockpiles for tyres, white goods and C&D waste.

Access to this area will be limited to commercial vehicles only, with the majority of users being heavy commercial vehicles and the City's operators. Commercial customers will pass through the weighbridge to access the Stockpile and Processing Area. This area has been strategically located to provide logical linkages between the acceptance and processing areas for these key materials and to minimise the internal travel distances.

It is anticipated that mobile bollards and cones will be used to direct traffic to the appropriate stockpiles and maintain clear separation of the front-of-house and back-of-house operations. Site staff will manage and supervise this activity to ensure that traffic conflicts are minimised.

Future expansion areas have also been included to cater for potential increased volumes of these materials.

5.5 Materials Recovery Facility

Another key piece of infrastructure proposed for the Site is the MRF, where commingled kerbside recyclables will be accepted, processed and consolidated via a baling system. The baled materials, including plastics (HDPE/PET), paper, cardboard, glass, and tin/aluminium, will be stored until there is sufficient material for transport offsite for further recycling by third-party contractors.

5.5.1 Project Delivery Model

As outlined previously, the MRF facility will be delivered by a suitable private waste service provider that will be determined through a competitive Public Tender that is scheduled to be released in early 2026. Arising from this process, the selected contractor will be required to deliver and operate the MRF facility on the land leased from the City, as well as accepting the City's commingled recyclables. To expedite the delivery of this much need facility, the City has prepared conceptual design of the MRF and Performance Specification that the MRF contractor will need to comply with in relation to the design and operations of the facility. The Conceptual Designs of the MRF have been used to support the Works Approval and Planning Approval applications.

5.5.2 Entrance and Exit

Vehicles destined for the MRF will enter the Site from the south off Trandos Road via the main site entrance shared with the WTS and CRC. The vehicles will follow the road to the weighbridge for inspection and data collection prior to proceeding to the MRF. The weighbridge staff will inform the drivers which door to use to enter the MRF.

5.5.3 MRF Building

The MRF will comprise two distinct fully enclosed warehouse buildings: one building for material receival, processing and baling (the Receival and Processing Building), and a separate building directly to the north for the storage and dispatch of recycled products (the Storage and Dispatch Building). Separate buildings have been proposed to minimise the potential fire risks, through the separation of the fuel loads at the facility.

A free standing canopy will link the two buildings, allowing for sheltered forklift transfer between them. This separation has been adopted to improve fire safety by isolating processed material storage from operational areas as detailed in Section 5.6.4.

The Receival and Processing Building will have a footprint of 4,000m² (50m x 80m), with a variable roof height and a minimum clearance of 8 m at the eaves. The design height of the facility ensures that sufficient clearance is provided for collection vehicles as they unload onto the tipping floor within the MRF. The materials will be deposited directly onto the concrete hardstand floor and then feed through the MRF's processing and sorting system with a front end loader.

Internally, the Receival and Processing Building consists of the following key areas:

- Receival area;
- Storage bunker area for unprocessed materials;
- Separate bunker for cardboard; and
- Processing area for the separation and baling of materials;

The unloading/tipping area is located in the southern section of the building. The unloading area is accessible via the entrance roller doors at the east of the MRF building. The entrance consists of a reversing apron of approximately 1,800m^2 external to the building that leads to four access doors. These are roller doors that will minimise fugitive emissions from the MRF. The slope of the reversing apron falls away from the MRF building to prevent the ingress of stormwater.

Kerbside collection vehicles use the reversing apron to make a comparatively simple reverse turn into the MRF. The kerbside collection vehicles reverse into the unloading area whereupon it end-tips the recycling materials on the concrete floor. Upon completion, the driver returns the kerbside collection vehicles body to its normal position and drives out the MRF in a straight manner. If required, the

drivers can sweep out the kerbside collection vehicles at the bunker. Once outside, the kerbside collection vehicles turn left and leaves the NRRP via the weighbridge.

The temporary storage bunker area is located in the southeastern section of the building and is bounded on two sides by 5m high precast reinforced concrete walls to provide sufficient capacity.

After the kerbside collection vehicles tips the recyclables onto the floor and leaves the unloading area, the front-end loader within the MRF building will either consolidate the materials within the temporary storage bunker area or transfer the materials directly into the hopper to feed the materials into the processing area. Recoverable materials will be sorted, processed and consolidated by a range of plant and equipment as detailed in Section 6.3. Baled material will be transferred by forklift to the Storage and Dispatch Building for temporary storage and eventual load-out.

The Storage and Dispatch Building will be a fully enclosed warehouse building with a footprint of 2000m^2 (40m x 50m). Internally, the Building consists of the following key areas:

- Storage area for separated baled material;
- Loading area for semi-trucks; and
- Dispatch for the storage and load out of materials.

The internal floors of both the MRF Receival and Processing building as well as the Storage and Dispatch building will be constructed with reinforced 200mm thick (minimum) concrete.

Stormwater in the MRF will be managed through a pit and pipe system and directed to the adjacent lined detention basin, which will overtop into an unlined detention basin as needed. In the event of a fire, the valve between these basins will be shut, containing all fire wash water within the MRF and the lined detention basin, minimising potential contaminants entering the surrounding environment.

5.6 Supporting Infrastructure

5.6.1 Weighbridge

All commercial vehicles will pass over the weighbridge, where each load will be inspected and directed to the appropriate facilities on site such as the MRF or WTS. Operational vehicles transporting waste materials from the CRC to the WTS and/or MRF will also pass over the weighbridge prior to material drop-off at the respective facility. To manage the expected traffic volumes a double access weighbridge, with a bypass lane has been proposed.

5.6.2 Truck Washdown Station

To support site operations and maintain vehicle cleanliness, the City proposes to construct two truck washdown stations north of the WTS adjacent to the reversing apron. Constructed on bunded hardstands with surface runoff collection, the washdown facility will also prevent the offsite transfer of debris and hydrocarbons, thereby reducing the risk of environmental contamination.

5.6.3 Surface Water Management System

The clean surface water runoff from all Site infrastructure will be directed into the Site's surface water management system (SWMS) to mitigate onsite flooding of the Site while controlling discharge rates of stormwater from the Site.

The SWMS will consist of the following key features:

- A network of open channel drains diverting surface water run-off towards the Site's seven surface water ponds and stormwater basin; and
- 3 x HDPE lined surface water ponds to cater from run off from the Greenwaste bunker area and stormwater from the MRF and WTS. The lined ponds at the MRF and WTS will also capture any potential fire wash water and ensure it is not released into the environment. Valves will allow for the containment of the any contaminated water within the MRF and WTS and their adjacent lined ponds;
- 4 x onsite stormwater retention/ infiltration basins which will be unlined with an uncompacted base to promote infiltration. This preliminary sizing of basins is based a nominal depth of 2m and 1V:4H side slopes.

The layout for this proposed SWMS is shown in Drawing C-500 provided in Appendix C.

The SWMS has been designed to contain and control surface water runoff from a 1-in-100-year annual exceedance probability (AEP) storm event, with allowance for 140mm rainfall over a 24hr period.

All ponds will be enclosed by fencing to ensure safety for works conducted near these ponds.

Further details regarding the Site's proposed surface water management system is outlined in the Stormwater and Leachate Management Plan, provided in Appendix D.

5.6.4 Fire Management

The fire safety strategy for the Proposed Infrastructure is currently being developed in consultation with a registered Building Surveyor and will align with the National Construction Code (NCC) 2022, Volume 1. The MRF and WTS buildings will be considered higher-risk areas on-site. Given this, the following key fire safety measures will include:

- Automatic fire sprinkler system at the MRF and WTS;
- Fire hydrants: Full internal coverage provided in accordance with AS 2419.1 and NCC E1.3, with minimum flow and pressure of 20 L/s at 200 kPa. Existing site water pressure will be verified during the detailed design stage of the project including site specific requirements;
- Fire hose reels: Installed to achieve full coverage of internal areas in accordance with AS 2441;
- Portable fire extinguishers: Positioned to ensure a maximum travel distance of 20 metres from any point within the building, in accordance with AS 2444 and NCC Table E1.6;
- Fire detection and alarm systems: To include smoke, heat and carbon monoxide (CO) detectors inside the MRF and WTS. The system will be integrated with the Building Management System (BMS) in accordance with AS 1670.1 and NCC E2.2a;
- Emergency lighting and exit signage: Emergency luminaires and illuminated exit signs will be installed throughout the facility in accordance with AS 2293.1 to ensure visibility in the event of power loss;
- Exit provisions:
    - A minimum of two pedestrian access (PA) doors will be provided at ground level in MRF and WTS to ensure all egress travel distances comply with NCC Part D1;
    - A third egress route via an external stair or ladder will be provided where required for access to elevated or roof-mounted areas; and
    - All exits will be clearly marked, unobstructed, and equipped with compliant hardware.

All fire-protection equipment will be installed, commissioned and maintained by accredited contractors, and the Facility Integrity Plan (FIP) will include six-monthly and annual inspection regimes.

Any water used for fires within the MRF and WTS has the potential to contain contaminants. In the event of a fire, all fire wash water in these areas will be contained to limit discharge into the environment. Details on the management of fire-water runoff from any incident is discussed in Section 9.7.

5.6.5 All Other Supporting Infrastructure

Other infrastructure required to support the operation and environmental management of the Site include the provision of access roads, services areas, a perimeter fence around each of the Proposed Infrastructure, ablutions, external lighting and security cameras/CCTV monitoring.

5.7 Project Timeline

The current estimated project timeline is shown in

Table 5-2 based on the assumption that the DWER can complete the works approval assessment within the current target timeframe of 6 months. The timeframe shown in

Table 5-2 includes the environmental approvals, procurement, and construction phases for the Proposed Infrastructure.

Table 5-2: Project Timeline

Task		Duration	Start	End
Works Approval Assessment		6 months	February 2026	July 2026
Detailed Design	CRC and WTS	7 months	October 2025	May 2026
	MRF	7 months	September 2026	May 2027
Procurement (Advertisement, Evaluation, Award and Contractor Mobilisation)	WTS and CRC	3 months	April 2026	September 2026
Construction	WTS	12 months	October 2026	November 2027
	CRC	19 months	October 2026	May 2028
	MRF	18 months	May 2027	October 2028

5.8 Time Limited Operations

The City requests that the DWER grant approval for time limited operations for the WTS, CRC and MRF until such time a licence is granted. It is understood that the maximum period for time limited operations is 180 days and therefore the City wish to seek this timeframe to mitigate any potential risks associated with delays during the assessment stage for the amended Licence application. This request has been reflected within Part 4 of the DWER Application form. As it is the City's aim to establish the WTS and CRC 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 infrastructure at the Site, including estimated material volumes, waste acceptance, equipment and machinery, materials transport, staffing and operational hours.

6.1 Estimated Material Volumes

Each area of the NRRP has been designed to adequately handle the projected/estimated throughputs based on the City's historical data. Table 6-1 sets out the estimated material volumes for the proposed infrastructure.

Table 6-1: Estimated Waste Volumes

Cat No.	Facility	Waste Types Accepted	Waste Codes (where relevant)	Maximum Estimated Throughput (tonnes per annum)
62	WTS	Residual waste	N/A	195,000
	MRF	Clean (commingled) recyclables	N/A	100,000
	CRC	Homewares; Wastes accepted under the HHW program and asbestos (wrapped); White goods, e-waste, drums, mattresses, tyres, etc.; General waste, scrap metal, and greenwaste; and C&D waste.	N/A	40,000
57	CRC (Recycling Drop-off Area)	Tyres	T140	200

6.2 Waste Acceptance and Management of Areas

Site staff will monitor incoming loads for the CRC through the Reuse Shop / Education Centre Kiosk, and municipal waste will be monitored when vehicles pass over the weighbridge. Any ineligible waste will be directed to be taken offsite immediately.

The CRC allows customers to drop-off items to the Reuse Shop for on sale to the community or any recyclable materials. Any cleaning or repair of items accepted at the Reuse Shop will be performed prior to sale. All electrical items suitable for sale will be tested and tagged to ensure the safety of consumers to guarantee good working order. Any items received that are deemed unsuitable for resale will be taken to the designated area for recycling or be redirected to the weighbridge to be disposed of at the Mixed Waste Residual Waste Drop-off Facility.

The CRC will allow for the following items to be recycled by residential and small commercial (light vehicle) customers:

- HHW, including but not limited to, the following:
  - Acids and Alkalis;
  - Aerosols;
  - Batteries (household);
  - Engine Coolants & Glycols;
  - Fire Extinguishers - Non halon (red) only;
  - Flammables;
  - Flares;
  - Fluorescent Lamps & Tubes (CFLs);
  - Gas Cylinders (small household);
  - Household Chemicals and Cleaners;
  - Paint;
  - Pesticides/Herbicides;
  - Poisons/Toxics;
  - Pool Chemicals;
  - Smoke Detectors; and
  - Unknown Chemicals (must be in sealed, chemical resistant containers).
- Co-mingled Recyclables (incl. cardboard/paper, plastics, aluminium/tin cans, etc.);
- Bulky Items (incl. e-waste, white goods, mattresses, tyres, scrap metal, furniture, etc.);
- C&D waste; and
- Greenwaste.

The CRC's drop-off areas will be supervised by Site staff to ensure waste is correctly disposed of within designated hook lift bins and hardstand areas.

6.2.1 Bulky Items

Mattresses will be collected within the CRC area and processed by a third-party contractor offsite.

The City intends to allow for e-waste storage receptacles within the CRC's Recycling Drop-off Area. Once full, the receptacle will be relocated to a back-of-house storage area to prevent unauthorised persons rifling through the materials and to await collection from the e-waste processing contractor. E-waste items will be stored in the receptacles, collected periodically and transported to a Perth processing facility by a third-party contractor.

Fridges and freezers are stored on-site within a designated area in the Free Bulky Recyclables Drop-off. The City will engage a third-party contractor to degas the white goods prior to their placement within the long-term white goods stockpile.

6.2.2 Tyres

With regards to tyre management, the purpose of the CRC will be to facilitate the temporary storage of tyres received from domestic customers prior to their transfer to the long-term stockpile area. It is assumed that tyres from the CRC will be transferred on a frequent basis to the long-term tyre stockpile as part of Site operations. Once sufficient material has been stockpiled, a third-party contractor will transfer tyres offsite for further processing and/or disposal to a licenced facility.

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*.

6.2.3 Greenwaste

Domestic greenwaste will be brought to the designated drop-off area (Greenwaste Bunker) within the CRC. The materials will be inspected by the City's supervising staff prior to depositing within the bunker. Any contamination will be removed and disposed of either in the refuse receptacles at the Mixed Waste Residual Waste Drop-off Facility or at the WTS. If major contamination is detected the load will not be accepted, reloaded into the customer's vehicle (if relevant) and a fine / additional charge issued.

The Greenwaste stockpile within the bunker will have a maximum width of 15m, height of 2m and length of 25m and will maintained daily with the front end loader. Once the stockpile reach a sufficient size, the Site Supervisor will arrange for the greenwaste processing contractor to collect it and process it externally.

6.3 Equipment and Machinery

This section outlines the plant and equipment that will be utilised during the operation by each of the Proposed Infrastructure. The equipment has been selected to enable safe and efficient handling of materials, reduce manual handling requirements, and support compliance with environmental and operational performance standards.

- The WTS will utilise the following plant and equipment:
  - Front-end loader;
  - Excavator or similar to maximise compaction;
  - Compactor;
  - Ventilation system; and
  - Lighting and CCTV.
- The CRC will utilise the following plant and equipment:
  - Various receptacles including but not limited to 'L Bins', hook lift bins, mobile garbage bins, etc;
  - Forklift;
  - Manual handling tools, trolleys, etc.; and
  - Use oil tank and racking for HHW.
- The MRF plant design will be delivered by the MRF contractor based on their expertise on the design and operation of MRF facilities. Talis anticipates that MRF plant and equipment will consist of a combination of the following:
  - Feed hopper and conveyors;
  - Old corrugated cardboard (OCC) screen;
  - Glass breaker Screen;
  - Ballistic screen;
  - Near-Infrared optical sorter;
  - Magnet;
  - Eddy current separator;
  - Baler;
  - Forklifts for baled product; and
  - Ventilation.

6.4 Materials Transport

Reuse items from the CRC will be transported offsite following purchase by customers. HHW will be removed from Site by a qualified contractor for appropriate treatment and/or disposal. Baled commingled recycling, white goods, scrap metal, tyres and e-waste will be removed from Site by a contractor for recycling. Once operational commingled recycling from the CRC will be transferred to the MRF for processing or directly offsite. Greenwaste will be stockpiled at the Greenwaste bunker, while C&D waste will be stockpiled at the long-term stockpiling area. Both materials will be removed from the Site by the City or approved contractor for recycling and reuse. Mixed waste from the CRC will be taken to the WTS for consolidation.

Residual waste from the WTS will be loaded out in bulk haulage or specialist waste transfer trailers destined for the waste to energy facilities in either Kwinana or East Rockingham. Materials that cannot be accepted at the waste to energy facilities will be directed to licenced landfills for appropriate disposal.

6.5 Staffing

Staffing numbers required for the CRC and WTS will be determined by the City while the MRF staffing will be determined by the private operator. It is anticipated that a minimum of sixteen (No. 16) staff members will be required across all the Proposed Infrastructure. The anticipated management structure for the Site is shown in Diagram 6-1.

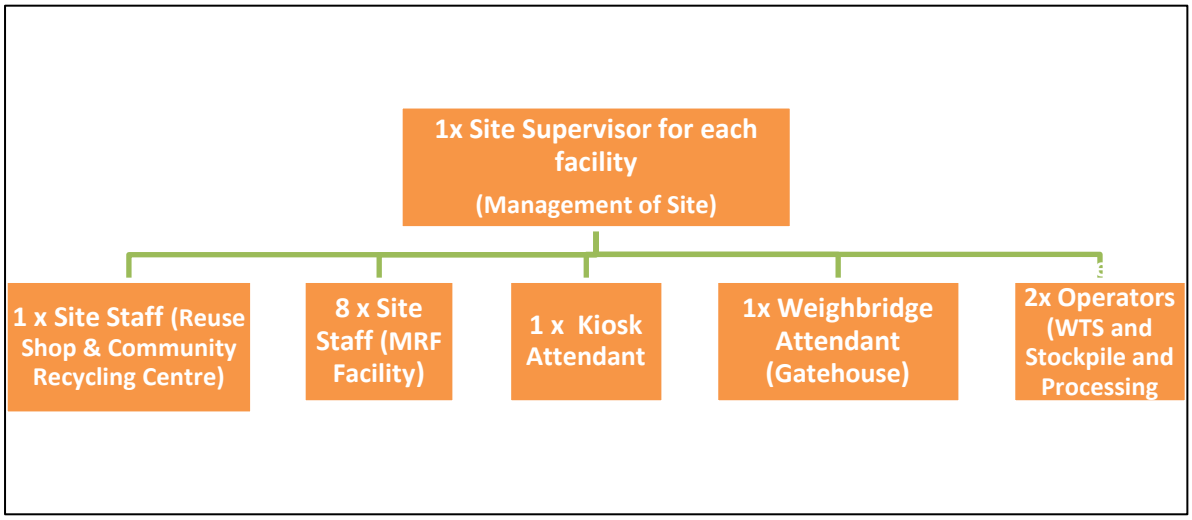

Diagram 6-1: Management Structure and Responsibilities

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

6.6 Operational Hours

The proposed hours for Site operations will be different for each facility.

6.6.1 Waste Transfer Station

The WTS operational times are:

- Monday to Friday: 6am to 6pm;
- Saturday, 6am – 6pm (as required);

- Sunday, closed; and
- Public holidays 6am to 6pm (Excluding Christmas Day, Good Friday and New Years Day).

6.6.2 Community Recycling Centre

The CRC the operational times are:

- Monday to Friday: 8am to 4pm;
- Saturday, Sunday and Public Holidays:
  - Summer (September to April): 10am to 3pm; and
  - Winter (May to August): 11am to 3pm.

6.6.3 Materials Recovery Facility

The MRF operational times are:

- Monday to Sunday: 6am to 7pm; and
- Public holidays 6am to 7pm (Excluding Christmas Day, Good Friday and New Years Day).

7 Benefits

The establishment of the Proposed Infrastructure delivers several significant benefits aligned with the City's Waste Avoidance and Resource Recovery Strategy 2030 (WARR Strategy), the waste hierarchy, and broader goals of improving resource recovery, reducing environmental impacts, and enhancing local service delivery. Key benefits are outlined within the following sections.

7.1 Co-Location of Waste Services

The co-location of the WTS, CRC and MRF within the NRRP enables operational efficiencies through shared infrastructure, streamlined traffic flow, and centralised management. Integrating key waste functions at a single precinct reduces duplication, allows for more coordinated service delivery, enhanced resource recovery and supports best-practice environmental controls across the Site.

7.2 Centralised Collection Point

The NRRP is centrally located between the City's high-growth northern corridor and its population-dense southern region, with excellent access via major roads. Its location supports efficient aggregation of recyclables and residual waste close to the point of generation, minimising travel distances to downstream treatment and disposal facilities.

The WTS within the NRRP enables the consolidation of waste locally, improving the efficiency of transport to facilities typically located on the metropolitan fringe. Residual waste will be transferred from the WTS into high-capacity trailers for bulk haulage to the East Rockingham ERF. This reduces the number of vehicle movements required, resulting in lower transport-related emissions, fuel consumption and road wear.

With the future addition of an ERF at the NRRP, the need for long-haul waste transport to external recovery facilities will be further reduced.

7.3 Local Processing and Transport Efficiency

The NRRP enables a more efficient and sustainable model for waste transport and processing. The MRF will allow for the local sorting and processing of kerbside commingled recyclables and materials delivered via the CRC, reducing reliance on external facilities such as the RRG MRF in Canning Vale. This minimises long-distance haulage, lowering transport-related emissions and financial costs, while ensuring recyclables are managed closer to their point of generation. Processing materials onsite also reduces lifecycle impacts associated with virgin material extraction and supports circular economy principles by retaining resource value.

Similarly, the WTS at the NRRP will facilitate the local consolidation of residual waste from kerbside collection services. Instead of multiple collection vehicles travelling long distances to disposal or recovery sites, waste will be aggregated at the WTS and transferred via high-capacity trailers for bulk haulage to an ERF in southern Perth. This significantly reduces heavy vehicle movements, road wear, fuel consumption and associated emissions.

7.4 Job Opportunities

Jobs will be created both directly and indirectly through the construction and operation of the NRRP. Skills and services required will include civil contracting, material handling, administration, accounting,

equipment and earthworks suppliers and operators. New and existing suppliers in the area will have the opportunity to tender for contracts to assist with the construction as well as the operation and maintenance aspects of the facility.

Furthermore, the Site is expected to employ approximately 10 full-time staff to support the operation of the CRC, WTS and weighbridges. In addition, a number of speciality haulage vehicle drivers are expected to be contracted by the City for transport of the waste material from the NRRP to the recovery facilities.

7.5 Alignment with the WARR Strategy

The Waste Authority released the Waste Avoidance and Resource Recovery Strategy 2030 (Waste Strategy 2030) on the 10th of February 2019. The WARR Strategy sets the overarching objectives of *avoid*, *recover and protect* in relation to the management of the State's waste. In May 2024, the Consultation Draft Waste Strategy (the Draft Strategy 2030) was released as part of the State Waste Strategy review process to refine the existing Waste Strategy 2023. The Proposed Infrastructure supports the WARR Strategy's objective to *avoid* and *recover* materials, including the WTS that will divert waste to the ERFs located in the southern suburbs. The project also supports the objective to *protect* through best practice handling and storage of waste to avoid environmental impacts associated with illegal dumping. The Draft Strategy WARR strategy provides new and revised targets to achieve by 2030 for the recovery of waste which are shown in Table 7-1.

Table 7-1: Draft WARR Strategy Targets

Objectives	Community	Government	Industry
AVOID	Reduction in MSW generation per capita by 10%	Reduction in C&D waste generation per capita by 30% by 2030 Reduction in C&I waste generation per capita by 10% **New target:** Adopt national circular economy metrics (as they are developed) to measure avoidance and circularity **New target:** Develop avoidance measures and targets for specific materials consistent with national targets	2030 – All waste is managed and/or disposed using better practice approaches
RECOVER	Increase MSW material recovery to 70% in the Perth and Peel regions, 60% in major regional centres	C&I sector – Increase material recovery to 80% by 2030 C&D sector – Increase material recovery to 80% by 2030 **New target:** Continue to deliver household and commercial FOGO/FO collection and recycling services in Perth, Peel and major regional centres	2030 – All waste facilities adopt resource recovery better practice
PROTECT	Move towards zero illegal dumping	No more than 15% of waste generated in Perth and Peel is landfilled	2030 – No more than 15% of Perth and Peel regions' residual waste is disposed to landfill

	Move towards zero littering		2030 – All waste facilities adopt environmental protection better practice **New target:** Adopt the 2030 litter reduction target to be developed through the next litter prevention strategy (2025–30)

Recognising these targets, there is a collective and positive national shift towards diverting more materials from landfill and aligning waste management practices with the Waste Hierarchy.

The Draft WARR strategy outlines three guiding concepts, namely 'Waste Hierarchy', 'Circular Economy' and 'Behaviour change – knowledge, enabling infrastructure, incentives'. The NRRP aligns with these guiding concepts through its proposed design and operation.

The options within the Waste Hierarchy that are addressed through the project are *reuse*, *reprocessing, recycling and recovery* across the various Stage 1 Proposed Infrastructure. The NRRP also supports the idea of a Circular Economy through the recovery of materials by implementing waste management options at the higher levels of the Waste Hierarchy. The management and recovery of materials will also occur within the area in which they are generated thereby reducing transport costs and providing local employment opportunities.

Behaviour change will be achieved through the construction of the waste education centre adjacent to the Reuse Shop within the CRC, that can accommodate school and other community groups. The CRC will also encourage the community to separate waste, divert materials from ERF, or landfill, and view these materials as a resource rather than waste.

The Project also supports two key principles within the WARR Strategy; 'Better practice' and 'Waste as a resource.' Better practice is defined in the WARR Strategy as "*practices and approaches that are considered by the Waste Authority to be outcomes-focussed, effective and high performing, which have been identified based on evidence and benchmarking against comparable jurisdictions*."

7.5.1 Alignment with the Waste Hierarchy

The NRRP is designed in accordance with the waste hierarchy, which prioritises waste management practices from most to least preferable based on environmental outcomes. The infrastructure promotes reuse and recycling ahead of disposal, with the CRC encouraging the separation of materials by residents, the MRF enabling processing and consolidation of recyclables for downstream reprocessing, and the WTS providing a centralised point for efficient transfer of residual waste to ERFs. This sequencing maximises recovery and minimises environmental impact.

7.5.2 Resource Recovery

Resource recovery is central to the NRRP's design and operation. The CRC will provide residents with the means to divert reusable and recyclable materials from disposal, while the MRF will process commingled recyclables and CRC materials for offsite reprocessing. These activities reduce the volume of waste requiring energy recovery and ensure that materials are managed as close to their source as

possible. This not only supports the circular economy but also decreases lifecycle emissions associated with virgin material production.

Although ERFs offer a viable pathway for managing residual waste, they are lower on the waste hierarchy and do not preserve the full material value of waste streams. The NRRP prioritises reuse and recycling to achieve superior environmental outcomes.

7.5.3 Reducing Environmental Impacts

By capturing materials for reuse and recycling, the NRRP reduces the need for virgin material extraction, lowers emissions from manufacturing and transport, and avoids the impacts of improper disposal. The co-location of the CRC, MRF and WTS enhances the precinct's ability to manage waste streams effectively and respond to environmental risks through consolidated infrastructure, best practice design and informed operational protocols.

7.5.4 Additional Services to the Community

The CRC will provide a range of modern waste management services to the community at a convenient location that will encourage the recovery of resources. Its development will aid the growth of the City by ensuring that modern and cost-effective recycling and waste services can be provided to various industries throughout the City of Wanneroo and surrounding local government areas.

As outlined in Section 5, the CRC will include a Reuse Shop for reusable materials and a Recycling Drop-off Area for recyclable materials as well as the option for the disposal of mixed waste not suitable for recovery. These services will help encourage recycling through a well organised, easy to access and best practice facility.

7.5.5 Useability, Operational Efficiency and Safety

The Site's layout promotes useability and operational efficiency through its organised design, logical configuration and flow through the various key areas of the Site in line with the Waste Hierarchy. Domestic customers in light vehicles will move throughout the CRC through a loop road, dropping off materials in the designated and clearly signed areas. The design ensures that the handling of materials by both customers and Site staff will be minimised, as far as reasonably practicable. The one-way system will encourage customers to flow freely through the key areas smoothly, separated from service vehicle movements by design. Conversely, the operator can service the drop-off areas, from the back of house, unhindered by customer movements. This also creates a clear separation of the community from bulk waste processing and other back of house operations, thereby improving safety by avoiding interaction with commercial vehicles and landfill operations.

7.5.6 Reducing Illegal Dumping

Unfortunately, illegal dumping is a significant problem within the City. Illegal dumping can result in negative impacts to surrounding flora and fauna, as well as reducing amenity in an immediate area. Not only is illegal dumping impacting the environment, but the City is also left with the substantial costs to manage this waste. To help reduce illegal dumping incidents, the CRC will be open 7 days per week to encourage the correct disposal of waste during operating hours. As part of this, the City will also offer free disposal of recyclables along with a number of free vouchers per year for other waste streams. The City can also impose fines for illegal dumping of rubbish, which includes rubbish being blown off the back of uncovered loads. The City believes these management measures, along with the establishment of the new CRC, will mitigate incidences of illegal dumping and any subsequent impacts to the surrounding land.

8 Community Engagement

The City engaged with community stakeholders as part of the project planning process. As a part of the community consultation process, documents were released for public review that included future plans to include a WtE facility. Questions and comments were addressed about the Stage 2 proposed infrastructure of the NRRP, however, Stage 2 is not currently planned for over 10+ years and is not part of this stage of planning and the approval process. Proposed Stage 2 Infrastructure will be included in a later approval process and subject to considerations and regulations at that time. All community engagement and questions addressed can be found in the Community Engagement Council Report in Appendix E.

8.1 Engagement Activities

The follow engagement activities were undertaken with community stakeholders:

- The City's "Your Say" portal available from 27/10/25 – 17/12/25 – https://yoursay.wanneroo.wa.gov.au/neerabup-resource-recovery-precinct;
- Frequently Asked Questions document released;
- Various media releases and direct notices;
- Drop-in information session on 13/11/25; and
- Q&A session on 03/12/25.

The City monitored the online portal to respond to and address questions and comments left by community members. These questions and answers are visible to anyone that visits the site and are still visible following the community engagement period. Approximately 120 questions were posted and answered on the page. There were also media releases in the beginning of the consultation period on the City's social media platforms and an article in Perth Now on 31/10/25. Direct notices were also sent to resident associations within the Banksia Grove, Carramar and Tapping areas.

A drop-in information session was held to give the opportunity for community members to speak directly with the City and Talis about questions and concerns in regard to the project. Approximately 80 community members attended the session and afterwords a FAQ was released responding to a variety of the key questions raised. At the request of the community, the City extended the original community consultation period end date from 21/11/25 to 17/12/25. At the request of the community, the City's also organised in person Q&A session held on the 03/12/25. The Q&A session was facilitated by an independent consultant with technical presentations by Talis. 30 residents were in attendance and for those that couldn't attend, a video of the technical presentations as well as supporting documentation where uploaded to the City's NRRP Have Your Say page.

8.2 Outcomes

Over the course of the engagement period, the community was given multiple opportunities across various platforms to raise questions. Technical documents, FAQs, and videos were provided to ensure the community is well informed on the NRRP proposal. Many of the questions raised concerns around alternative sites, health and odour impacts to the surrounding environment, fear of groundwater contamination and traffic impacts on the surrounding intersections. Information on these concerns and others were provided to the community in various formats to provide a greater understanding of the project with the view to alleviating concerns. The extension of the engagement period allowed more opportunity to provide the residents with a greater understanding of the NRRP and the need for

this infrastructure to support the State Waste Strategy (2030). The City was able to answer all questions raised in person and on their "Your Say" portal over the engagement period.

8.3 Future Engagement

The City is committed to further engagement with the community on the project, particularly around key milestones. In addition, the City has actively informed the community of the external consultation opportunity for the Works Approval assessment process. The City will update the "Your Say" portal to notify interested on when the 28 public advertisement process commences for the project.

9 Environmental Aspects and Management

The construction and operation of the Proposed Infrastructure at the Site have the potential to result in or cause impacts to the following environmental aspects:

- Vegetation, Flora and Fauna;
- Air Emissions:
  - Odour;
  - Noise;
  - Dust;
- Stormwater and Leachate;
- Traffic;
- Weeds;
- Vermin and Feral Animals;
- Fire;
- Litter;
- Security; and
- Vehicle Emissions.

To ensure the potential environmental impacts identified are avoided and/or minimised, the City 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 the City is committed to achieving best practice outcomes at the Site to mitigate potential environmental and social risks.

9.1 Vegetation, Flora and Fauna

To enable site preparation and construction, the City has applied for a Native Vegetation Clearing Permit (NVCP) requesting approval to clear up to 8.92 ha of degraded native vegetation. The clearing footprint has been refined to avoid the mapped wetland conservation area along the east boundary of the Site and the Habitat Trees, as detailed in Sections 3.5 and 3.8. In addition, through the design process, the City has been able to retain 2 of the 3 Habitat Trees. The outcome of the NVCP application is currently pending. The NVCP supporting documentation and Addendum are provided in Appendix A while the clearing areas shown in Figure 19 in Appendix B.

The environmental risks associated with this clearing are considered low, due to the vegetation's condition and limited habitat potential as detailed in Section 3.7 and 3.8. However, the City will adopt a range of additional measures to further minimise the impact of the clearing activities:

- All clearing will be undertaken in accordance with the Clearing Permit, once granted;
- The clearing footprint has been minimised to only that required for essential infrastructure, internal roads and services;
- Two Eucalyptus trees identified as potential future Black Cockatoo roosting habitat have been retained. A 5 m buffer radius has been incorporated into the design to protect the trunks and root zones from disturbance; and
- No clearing will occur within the boundary of the wetland conservation area.

9.2 Air Emissions

9.2.1 Odour

The majority of the proposed activities at the Site will not generate odour emissions including the MRF and the majority of the CRC activities. The key odour emission sources will be generated from of the storage residual waste accepted at the WTS and the Residual Waste Drop-off Facility within the CRC

and the greenwaste bunker. Due to the Site's relative isolation, the potential for offsite receptors to be impacted by odour is considered to be low, and therefore the main receptors likely to be impacted by odour will be onsite, such as Site staff and users.

Regardless, an Odour Impact Assessment conducted by Environmental & Air Quality Consulting Pty Ltd (EAQ) was undertaken to perform a detailed analysis that describes "*the processes, odour emission sources, controls and responses in ameliorating potential odour impacts and the pathway(s) for emissions to impact receivers by an analysis of local meteorological trends and problematic conditions*." The assessment, which is provided in Appendix A, found that onsite impacts were mid-level, offsite impacts on a local scale were low-level, and offsite impacts on a wider scale were minimal. The assessment also concluded that uncontrolled odours released to the environment may only occur in exceptional, rare circumstances. Additionally, the assessment concluded that commingled recyclable waste from kerbside side collections will pose no risk of malodour generation from the MRF within the NRRP.

To minimise the generation of odours the following management measurements will be implemented:

- Greenwaste stockpile will be monitored and managed to ensure these areas do not generate excessive odours;
- Covering of waste loads during transportation of waste materials;
- Residual waste from the Residual Waste Drop-off Facility will be removed within a 48 hour period and taken to the WTS;
- Areas around the Site will be cleaned regularly to ensure good housekeeping standards are maintained;
- The WTS will be a fully enclosed building designed to comply with modern, best practice standards and will include:
    - mechanical ventilation system that will achieve 4 air exchanges per hour
    - roller doors that will only be opened when necessary to minimise fugitive emissions;
- A clean floor policy will be implemented, with no putrescible waste retained overnight or on weekends;
- The floor of the WTS will be swept and washed down as required to limit odour emissions;
- A complaints register will be maintained to ensure that the community can express their comments or concerns regarding the operations of the Site;
- Odour levels across the Site will be continuously monitored by staff and action taken, if required; and
- The City will also ensure that the key procedures nominated in of the Odour Impact Assessment are incorporated.

It is anticipated that these odour management measures will enable the City to appropriately manage potential odour impacts onsite and offsite.

9.2.2 Noise

Noise emissions will be generated from the construction and operation of the Proposed Infrastructure. The majority of these emissions will be generated from material handling, the operation of equipment onsite and from road and engine noise from vehicles entering and exiting the Site.

An Environmental Noise Impact Assessment (ENIA) was undertaken by Talis to determine if the Proposed Infrastructure will comply with the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations). The ENIA, provided in Appendix A, considered the proposed operations within the Site, separation distances, zoning, number and type of vehicles, waste handling processes, equipment and plant. The ENIA concluded that, based on the outcomes of noise modelling and analysis, the Proposed Infrastructure can operate in full compliance with the Environmental Protection (Noise) Regulations 1997 at all times of the day, even under worst-case conditions. Only limited operations are proposed during nighttime hours, and the assessment found that no specific noise mitigation measures are required for either daytime or nighttime activities. Consequently, the operational hours outlined in Section 6.6 are considered compliant.

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

- All noise-generating activities, like heavy vehicle truck movements and moving bins/waste outside, will only take place during day-time operational hours as outlined in the ENIA;
- 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;
- The noisiest activities including the WTS and MRF operations will be confined within buildings;
- 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 the City to appropriately manage noise emissions onsite and offsite and ensure compliance with the Noise Regulations.

9.2.3 Dust

Activities at the Site have the potential to generate dust, with the possibility of impacts to nearby vegetation, reducing amenity and health impacts. Dust may also be generated through clearing, construction and material processing activities. The key activities that will generate dust include the removal of vegetation and topsoil during site clearing, earthworks during construction and the movement of vehicles and machinery throughout the Site. During operations, the transport, material handling and processing of recycling and waste materials may also generate dust. Due to the relative isolation of the Site, the potential for impacts offsite are considered extremely low, with dust impacts restricted to surrounding bushland, Site staff and users.

To manage potential impacts arising from dust, a number of factors were considered including separation distances, clearing, construction, operational and post closure activities, waste types accepted and treatment processes. A summary of the key management measures to be implemented include:

- Vehicles to maintain a maximum speed of 10 km/hr unless otherwise signed;

- All internal roads will be sealed to mitigate dust generated through the movement of vehicles in and out of the facility;
- All roads within the CRC will be sealed and maintained;
- All works and receival of waste will cease during periods of strong winds;
- Waste will be covered at all times during transport;
- All kerbside collected recycling and residual waste will be contained to the MRF and WTS respectively; and
- A water cart will be utilised on the long-term stockpiling area as required.

It is anticipated that the implementation of these management measures will be sufficient to manage potential impacts from dust at the Site.

9.3 Stormwater and Leachate

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 a part of the management plans for stormwater, a rainwater collection and storage system will be implemented to catch stormwater from the WTS, Residual Waste Drop-off, and administration centre roofs. This water will be used locally for landscaping irrigation, toilet flushing, and the truck wash bay.

There is also the potential for this surface water run-off to become contaminated if it comes into contact with waste. The key areas for leachate generation at the Site include the WTS and greenwaste area of the CRC.

The majority of leachate at the WTS will be generated when the floors are routinely cleaned to minimise potential odour emissions. All water that comes into contact with the waste and floor of the WTS is designated as leachate, drained and stored within the underground leachate tank adjacent to the rear of the WTS that will be emptied as needed. The general waste collected at the CRC's Residual Waste Drop-off Facility is deposited within bins that are covered with a canopy, preventing contact with stormwater. All HHW accepted at the Site will be stored within a fully enclosed building.

Two surface water ponds will be located adjacent to both the WTS and MRF, one lined and one unlined. In the event of a fire, the valve between the lined and unlined ponds will be closed which in turn will back up within the drainage system at the Site. The collected fire wash water within the lined pond will then be removed by a qualified contractor.

The greenwaste bunker is constructed with a bunded, graded hardstand, designed to direct all stormwater runoff and wash waters via the sloped surface to the adjacent evaporation pond. Consistent with the overall SWMS, the greenwaste pond is designed to a 1-in-100-year AEP storm event to allow for first flush approach prior to overtopping into an infiltration basis.

If not appropriately managed, contaminated water and leachate could be released into the surrounding environment. This may impact vegetation outside of the facility and cause contamination. Uncontrolled release of contaminated surface water could result in adverse impacts to downstream ecosystems and users of surface water resources. The City will therefore implement stormwater and leachate 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 NRRP and therefore these measures are the minimum requirements that will guide the future design process. The overall SWMS, as discussed in Section 5.6.3, has been designed to contain and control

surface water runoff from a 1-in-100-year AEP storm event, with allowance for 140mm rainfall over a 24hr period.

The proposed stormwater and leachate management measures include:

- Implementation of the Stormwater and Leachate Management Plan (SWLMP), provided in Appendix D;
- Clean surface water runoff will be diverted into infiltration basins;
- The WTS and MRF are fully enclosed buildings that will minimise the generation of leachate;
- The floors of the WTS have been designed with a fall to allow water to flow towards collection points and divert potential leachate to a containment tank below ground;
- The hardstand of the green waste bunker will be bunded and graded to direct all runoff into a sump, which is connected via a pipe to a lined evaporation pond for containment and management;
- The external perimeter of all buildings and areas that hold waste will slope away from any doors or waste storage areas to prevent stormwater ingress;
- The installation of a permanent canopy within CRC's Residual Waste Drop-off Facility to cover all bins will minimise leachate generation;
- HHW will be stored in a fully enclosed building, thereby avoiding interaction with stormwater;
- The installation of a stormwater pit and pipe network surrounding the MRF and WTS will divert surface water run-off to lined ponds prior to flowing into stormwater infiltration basins. Cut off valves on these ponds will contain fire wash water within the MRF and WTS facilities to minimise the discharge into the environment;
- All the remaining areas of the site will include pit and pipe network to capture and divert stormwater to infiltration basins;
- All bins containing residual waste will be kept in good condition to mitigate any leakages;
- The installation of a permanent canopy within the Recycling Drop-off Area to prevent rainfall entering bins and mixing with recyclables;
- All stormwater engineering features will be inspected regularly, and maintenance works scheduled appropriately;
- The road surfaces across the Site will be delineated with kerbs and will utilise suitable slope gradients to direct the flow of surface water to the Site's surface water management system; and
- Weather will be monitored on a daily basis.

These management measures will allow the City to effectively manage stormwater and leachate at the Site. Detailed designs for the Site's stormwater and leachate management systems will be undertaken at a later date by suitably qualified engineers to ensure the final management measures comply with the minimum requirements as detailed above.

9.4 Traffic

The proposed operations will result in continued traffic movements to and from the Site and on the surrounding road network. Data was collected for the traffic entering and existing the Site and the surrounding intersections based on anticipated traffic generation and consideration given to upgrades to Trandos Road that are currently in detailed planning stage. The data indicates that this intersection would maintain a 'satisfactory' Level of Service when considering increased traffic generated by the development. A formal Traffic Impact Assessment will be provided as part of the Development Application for the MRF.

Onsite traffic movements have the potential to generate noise, dust and create an occupational health and safety risk to staff. The following traffic movements are anticipated to occur onsite:

- Community vehicle traffic coming to Site to utilise the offered services;
- External contractor vehicles arriving to Site to either drop-off or remove bulk waste and recyclables;
- A forklift traveling between the MRF and Long-term Product Storage Shed transporting baled recyclables;
- Large bulk-haulage vehicles that will transport general waste to an ERF in the southern Perth metropolitan area; and
- A small number of traffic movements associated with staff, which will be confined to the front car parks; and to minimise car and truck interactions.

The flow through of traffic has been considered during the development 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:

- A one-way system will facilitate free flowing movement of community visitors through the CRC and minimise traffic conflicts among users;
- Community traffic will be separated from service vehicle movements, providing a safe drop-off experience for the community and unhindered access for Site staff or contractors to service the bins/materials;
- 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 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. The swept path is shown on Drawing C-501 in Appendix C.

9.5 Weeds

It is noted that the following key activities have the potential to spread weeds at the Site:

- Construction and establishment of any new infrastructure;
- Vehicle and machinery movement into, within, and exiting the Site;
- Greenwaste operational activities including receival, storage and stockpiling of material, mulching, and distribution of product; and
- Fauna activity within and around the Site.

As a result, the City will implement a variety of environmental management measures to manage, mitigate and control the potential impacts of weeds at the Site; including the following:

- Awareness of weed management through the Site induction for all staff. The Site induction will include information pertaining to weeds occurring at the Site, as well as the hygiene and reporting requirements associated with weed management;
- Vehicles entering/exiting the Site will be free of soil, mud, and vegetative material;
- Use of the Site's Truck Wash Facility, as required, to remove any potential introduced flora plants or seeds from vehicles and/or equipment;
- Vehicles to adhere to established roads and tracks to prevent the spread of weeds within the Site;
- All greenwaste loads to be covered until unloading at the Greenwaste bunker;
- Regular monitoring of weeds across the Site to be undertaken by all Site staff; and
- Regular weed management methods to be undertaken via manual removal and/or or by chemical application prior to flowering periods by a qualified third-party contractor.

It is anticipated that these weed management measures will enable the City to appropriately manage potential weed impacts onsite and offsite.

9.6 Vermin and Feral Animals

Vermin such as rats, mice, birds and insects may be attracted to waste management facilities particularly those with poor housekeeping practices. If uncontrolled, vermin can present a health risk to staff and surrounding land users. Therefore, the City proposed to implement the following management measures to mitigate, minimise, and control the attraction of vermin and feral animals at the Site:

- All waste loads are to be covered during transport to and from the Site;
- Ensuring that wildlife and feral or vermin species have limited opportunities to access food and water at the Site;
- Daily operations will include monitoring for feral cats, foxes and wild dogs;
- Any suspected and/or known shelters or breeding grounds for vermin on the Site will be eliminated;
- Should any feral animal or vermin issues be experienced, professional services will be utilised to implement appropriate control/eradication methods;
- Residual waste from the Residual Waste Drop-off Facility will be regularly transferred to the WTS;

- The roller doors into the WTS will only be open while a vehicle is either entering or exiting the building; and
- Regular litter collections onsite and immediate surrounds as required.

Through the adoption of these proposed management measures, any potential attraction by vermin and feral animals associated with Site operations are anticipated to be adequately managed.

9.7 Fire

Fires can result in serious, adverse impacts to personnel, equipment, plant, and infrastructure. Smoke from a fire at the Site could impact onsite staff and visitors and, depending on the prevailing wind direction, road users along Old Yanchep Road. Smoke from waste fires can contain noxious particulate matter and toxic fumes leading to health impacts to receptors. An onsite fire, if it were to spread beyond the site boundary, could impact the surrounding environment including flora and fauna.

The key proposed fire management measures are as follows:

General Waste Acceptance

- Limited and only pre-approved flammable or explosive waste materials to be accepted at the Site; and
- All waste loads will be inspected on entry at the weighbridge or kiosk.
- Household Hazardous Waste Facility
  - The HHW Facility will be designed in accordance with the DWER Guidelines for the design and operation of facilities for the acceptance and storage of household hazardous waste; and
  - The HHW Facility will consist of a structure with adequate ventilation, storage areas and sumps with sufficient capacity.

Long-term Stockpile Area & Greenwaste bunker

Fires may also occur as a result of indirect events such as lightning and bushfires, or through heat or sparks from equipment or vehicles and cigarettes. In order to adequately manage these risks within the Long-term Stockpile Area, the following measures will be adopted:

- Maintenance of a 100m buffer zone around the stockpile areas, where possible;
- Stockpiles will not be located near known ignition sources;
- Stockpiles will be monitored during extreme weather conditions and total fire ban days;
- Maintenance of a separation distance of 10m between each stockpile;
- No smoking to occur near stockpiles; and
- Induction/training to recognise signs and control green waste fires.

General Fire Risk And Management Awareness

- A Bushfire Emergency Plan and Bushfire Management Plan will be developed for the Site;
- Site inductions will include fire risks and management measures; and
- All staff will be adequately trained to use fire suppression equipment.

General Fire Suppression Equipment, Infrastructure and Buffers:

- Fire extinguishers and hose reels will be located at strategic locations across the Site;
- All fire suppression equipment will be maintained and serviced in accordance with manufacturers specifications;
- A water cart will be available for fire suppression activities if required;
- All buildings will comply with DFES Guideline Site Planning and Fire Appliance Specifications (DFES, 2015); and
- A fire break will be established in accordance with the requirements of the Bushfire Management Plan.

Equipment, Plant, Vehicles and Machinery

There is a risk of fires occurring due to electrical faults in equipment, plant, vehicles and machinery on the Site. In order to adequately manage this risk, the following measures will be adopted:

- Regular maintenance of all equipment, plant, vehicles and machinery;
- Regular pre-start checks to be undertaken on all vehicles and machinery;
- Fire suppression equipment will be installed in all vehicles and machinery and operational areas;
- Fire suppression equipment to undergo regular testing; and
- Induction/training of staff in fire risks, mitigation and response capability.

Fire Wash Water Management

In the unlikely event of a fire onsite, the Site's designs have considered the management of potential fire wash waters and include the following key aspects:

- Fire wash waters from the MRF, WTS, greenwaste bunker or HHW will be managed as per the following:
  - MRF: Two surface water ponds will be located adjacent to the MRF, one lined and one unlined. In the event of a fire, the valve between the lined and unlined ponds will be closed which in turn will back up within the drainage system at the Site. The collected fire wash water within the lined pond will then be removed by a qualified contractor. This pond is servicing both the Receival and Processing Building and the Storage and Dispatch Building.
  - WTS: Fire wash water will be diverted into the loadout lane, which will function as a sump and will be pumped out by a qualified contractor following the fire event.
  - HHW Shed: Due to the nature of materials stored in the HHW shed, specialised foam will be used for fire suppression. This foam is significantly lower in volume than standard fire wash water and will be collected in sumps located within the HHW shed before being removed by a qualified contractor.
  - Greenwaste bunker: Fire wash water will be diverted via the leachate system as discussed in Section 9.3 and collected by a qualified contractor.
- Removed Fire wash waters residues will be disposed to an appropriate licenced facility, as required.

By implementing these management measures, the risk associated with onsite and offsite fires at the Site will be minimised.

9.8 Litter

Litter may be generated as a result of waste acceptance and handling, particularly during windy conditions. As well as reducing visual amenity and causing health problems to wildlife, litter can attract vermin to the Site which may affect surrounding land uses if these vermin migrate offsite.

To ensure that the generation of litter is minimised and appropriately managed at the Site, the following management measures will be implemented:

- All commingled recycling and residual kerbside collected waste will be confined to the MRF and WTS building respectively;
- Unloaded waste and recyclable materials will be confined to the designated drop-off areas and receptacles within the CRC;
- The recycled products will be will confined to the MRF Storage and Dispatch Building prior to dispatch;
- Temporary bin covers will be applied to waste containers during periods of inclement weather;
- Waste loads entering and leaving the Site will be covered to prevent uncontrolled release of litter;
- Any litter generated around and immediately outside the Site will be collected on a regular basis.

These management measures will enable the City to appropriately manage any litter generated at the Site.

9.9 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 main Site access road and key buildings;
- All access gates and buildings will be locked securely outside of operational hours.

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

9.10 Vehicle Emissions

The operation of diesel-powered kerbside collection vehicles within the WTS 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 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:

- To provide natural ventilation within the WTS building and the load out lanes, ridge ventilators will be installed along the roof of the WTS as discussed in Section 5.3.3.1;
- The MRF buildings will also be equipped with adequate ventilation;
- All mobile machinery operating within each 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.

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

9.11 Dangerous Goods and Hazardous Materials

To manage potential risks arising from dangerous goods and hazardous materials, several key aspects have been considered including operational activities, equipment, plant, machinery and vehicles and relevant guidelines and standards.

Fuels and other hydrocarbons will be used onsite through the operation of equipment, plant, machinery and vehicles. HHW will be accepted through the CRC. Spills and inappropriate handling and storage of these materials can present risks to personnel and the environment, as well as a potential fire risk.

Dangerous goods will be handled and stored in accordance with the *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007* (DGS Regulations 2017) and 'Australian Standard 1940:2017 – The storage and handling of flammable and combustible liquids' (AS 1940-2017) to ensure the risks associated within these materials are mitigated. The quantity of chemicals and fuels stored on the Site will be kept to a minimum and stored according to manufacturer specifications.

All staff and visitors to the Site will be required to wear appropriate PPE when handling dangerous goods and hazardous materials. Safety Data Sheets (SDS) will also be required to be reviewed for any chemicals used or stored on the Site. Up to date records of all the SDS will be kept onsite.

To mitigate potential electrical and mechanical faults that may result in hydrocarbon spills, all machinery, plant and vehicles will undergo regular maintenance. In the event that a hydrocarbon spill occurs, appropriately sized hydrocarbon spill kits will be available in suitable locations around the Site.

To ensure all personnel are aware of the appropriate handling, storage or disposal of dangerous goods and hazardous materials, Site inductions and appropriate training will be provided to all relevant staff members.

To manage the risk of fires caused from dangerous goods, fire suppression equipment will be readily available and located in appropriate areas around the Site. Further fire management measures are outlined in Section 9.7.

In summary, the key management measures relating to dangerous goods and hazardous materials that will be implemented at the Site include:

- Site staff will be trained in the safe handling of hydrocarbons and hazardous materials according to the DGS Regulations 2017 and AS 1940-2017;
- Storage of hazardous materials at the facility will be in accordance with AS 1940-2017;
- The materials storage area will be constructed with appropriate bunding with sufficient capacity to capture any spills;

- The quantity of chemicals and fuels stored on the Site will be monitored and kept to a minimum;
- Site staff will be trained in the appropriate use of PPE;
- Site staff will use SDS for recording information on dangerous goods and hazardous materials and will be kept up to date;
- Regular maintenance and inspections of equipment, plant, machinery and vehicles will be undertaken at the Site;
- Suitably sized hydrocarbon spill kits will be located in suitable areas around the Site; and
- Fire suppression equipment will be located in relevant areas across the Site.

These management measures will enable the City to appropriately manage risks associated with the storage and use of dangerous goods and hazardous materials at the Site.

9.12 Summary of Proposed Management Measures

A summary of the proposed management measures to be implemented at the Site is shown in Table 9-1.

Table 9-1: Summary of Proposed Management Measures

Aspect	Management Measures
Vegetation, Flora and Fauna	• All clearing will be undertaken in accordance with the Clearing Permit, once granted; • The clearing footprint has been minimised to only that required for essential infrastructure, internal roads and services; • Two Eucalyptus trees identified as potential future Black Cockatoo roosting habitat have been retained. A 5 m buffer radius has been incorporated into the design to protect the trunks and root zones from disturbance; and • No clearing will occur within the boundary of the wetland conservation area.
Odour	• Greenwaste stockpile will be monitored and managed to ensure these areas do not generate excessive odours; • Covering of waste loads during transportation of waste materials; • Residual waste from the Residual Waste Drop-off Facility will be removed within a 48 hour period and taken to the WTS; • Areas around the Site will be cleaned regularly to ensure good housekeeping standards are maintained; • The WTS will be a fully enclosed building designed to comply with modern, best practice standards and will include: • mechanical ventilation system that will achieve 4 air exchanges per hour • roller doors that will only be opened when necessary to minimise fugitive emissions; • A clean floor policy will be implemented, with no putrescible waste retained overnight or on weekends; • The floor of the WTS will be swept and washed down as required to limit odour emissions; • A complaints register will be maintained to ensure that the community can express their comments or concerns regarding the operations of the Site;

	• Odour levels across the Site will be continuously monitored by staff and action taken, if required; and • The City will also ensure that the key procedures nominated in Table 2-4 of the Odour Impact Assessment are incorporated.
Noise	• All noise-generating activities, like heavy vehicle truck movements and moving bins/waste outside, will only take place during day-time operational hours as outlined in the ENIA; • 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; • The noisiest activities including the WTS and MRF operations will be confined within buildings; • 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	• Vehicles to maintain a maximum speed of 10 km/hr unless otherwise signed; • All internal roads will be sealed to mitigate dust generated through the movement of vehicles in and out of the facility; • All roads within the CRC will be sealed and maintained; • All works and receival of waste will cease during periods of strong winds; • Waste will be covered at all times during transport; • All kerbside collected recycling and residual waste will be contained to the MRF and WTS respectively; and • A water cart will be utilised on the long-term stockpiling area as required.
Stormwater & Leachate	• Implementation of the Stormwater and Leachate Management Plan (SWLMP), provided in Appendix D; • Clean surface water runoff will be diverted into infiltration basins; • The WTS and MRF are fully enclosed buildings that will minimise the generation of leachate; • The floors of the WTS have been designed with a fall to allow water to flow towards collection points and divert potential leachate to a containment tank below ground; • The hardstand of the green waste bunker will be bunded and graded to direct all runoff into a sump, which is connected via a pipe to a lined evaporation pond for containment and management; • The external perimeter of all buildings and areas that hold waste will slope away from any doors or waste storage areas to prevent stormwater ingress; • The installation of a permanent canopy within CRC's Residual Waste Drop-off Facility to cover all bins will minimise leachate generation; • HHW will be stored in a fully enclosed building, thereby avoiding interaction with stormwater;

	• The installation of a stormwater pit and pipe network that will divert surface water run-off into multiple stormwater infiltration basins. • All bins containing residual waste will be kept in good condition to mitigate any leakages; • The installation of a permanent canopy within the Recycling Drop-off Area to prevent rainfall entering bins and mixing with recyclables; • All stormwater engineering features will be inspected regularly, and maintenance works scheduled appropriately; • The road surfaces across the Site will be delineated with kerbs and will utilise suitable slope gradients to direct the flow of surface water to the Site's surface water management system; and • Weather will be monitored on a daily basis.
Traffic	• Community vehicle traffic coming to Site to utilise the offered services; • External contractor vehicles arriving to Site to either drop-off or remove bulk waste and recyclables; • A forklift traveling between the MRF and Long-term Product Storage Shed transporting baled recyclables; • Large bulk-haulage vehicles that will transport general waste to an ERF in the southern Perth metropolitan area; and • A small number of traffic movements associated with staff, which will be confined to the front car parks; and to minimise car and truck interactions.
Weeds	• Awareness of weed management through the Site induction for all staff. The Site induction will include information pertaining to weeds occurring at the Site, as well as the hygiene and reporting requirements associated with weed management; • Vehicles entering/exiting the Site will be free of soil, mud, and vegetative material; • Use of the Site's Truck Wash Facility, as required, to remove any potential introduced flora plants or seeds from vehicles and/or equipment; • Vehicles to adhere to established roads and tracks to prevent the spread of weeds within the Site; • All greenwaste loads to be covered until unloading at the Greenwaste bunker; • Regular monitoring of weeds across the Site to be undertaken by all Site staff; and • Regular weed management methods to be undertaken via manual removal and/or or by chemical application prior to flowering periods by a qualified third-party contractor.
Vermin & Feral Animals	• All waste loads are to be covered during transport to and from the Site; • Ensuring that wildlife and feral or vermin species have limited opportunities to access food and water at the Site; • Daily operations will include monitoring for feral cats, foxes and wild dogs; • Any suspected and/or known shelters or breeding grounds for vermin on the Site will be eliminated; • Should any feral animal or vermin issues be experienced, professional services will be utilised to implement appropriate control/eradication methods; • Residual waste from the Residual Waste Drop-off Facility will be regularly transferred to the WTS;

	• The roller doors into the WTS will only be open while a vehicle is either entering or exiting the building; and • Regular litter collections onsite and immediate surrounds as required.
Fire	**General Waste Acceptance** • Limited and only pre-approved flammable or explosive waste materials to be accepted at the Site; and • All waste loads will be inspected on entry at the weighbridge or kiosk. • Household Hazardous Waste Facility • The HHW Facility will be designed in accordance with the DWER Guidelines for the design and operation of facilities for the acceptance and storage of household hazardous waste; and • The HHW Facility will consist of a structure with adequate ventilation, storage areas and sumps with sufficient capacity. **Long-term Stockpile Area & Greenwaste bunker** • Fires may also occur as a result of indirect events such as lightning and bushfires, or through heat or sparks from equipment or vehicles and cigarettes. In order to adequately manage these risks within the Long-term Stockpile Area, the following measures will be adopted: • Maintenance of a 100m buffer zone around the stockpile areas, where possible; • Stockpiles will not be located near known ignition sources; • Stockpiles will be monitored during extreme weather conditions and total fire ban days; • Maintenance of a separation distance of 10m between each stockpile; • No smoking to occur near stockpiles; and • Induction/training to recognise signs and control green waste fires. **General Fire Risk And Management Awareness** • A Bushfire Emergency Plan and Bushfire Management Plan will be developed for the Site; • Site inductions will include fire risks and management measures; and • All staff will be adequately trained to use fire suppression equipment. • General Fire Suppression Equipment, Infrastructure and Buffers: • Fire extinguishers and hose reels will be located at strategic locations across the Site; • All fire suppression equipment will be maintained and serviced in accordance with manufacturers specifications; • A water cart will be available for fire suppression activities if required; • All buildings will comply with DFES Guideline Site Planning and Fire Appliance Specifications (DFES, 2015); and • A fire break will be established in accordance with the requirements of the Bushfire Management Plan. **Equipment, Plant, Vehicles and Machinery** • There is a risk of fires occurring due to electrical faults in equipment, plant, vehicles and machinery on the Site. In order to adequately manage this risk, the following measures will be adopted: • Regular maintenance of all equipment, plant, vehicles and machinery; • Regular pre-start checks to be undertaken on all vehicles and machinery;

	• Fire suppression equipment will be installed in all vehicles and machinery and operational areas; • Fire suppression equipment to undergo regular testing; and • Induction/training of staff in fire risks, mitigation and response capability. **Fire Wash Water Management** • In the unlikely event of a fire onsite, the Site's designs have considered the management of potential fire wash waters and include the following key aspects: • Fire wash waters from the MRF, WTS, greenwaste bunker or HHW will be managed as per the following: • MRF: Two surface water ponds will be located adjacent to the MRF, one lined and one unlined. In the event of a fire, the valve between the lined and unlined ponds will be closed which in turn will back up within the drainage system at the Site. The collected fire wash water within the lined pond will then be removed by a qualified contractor. This pond is servicing both the Receival and Processing Building and the Storage and Dispatch Building. • WTS: Two surface water ponds will be located adjacent to the WTS, one lined and one unlined. In the event of a fire, the valve between the lined and unlined ponds will be closed which in turn will back up within the drainage system at the Site. The collected fire wash water within the lined pond will then be removed by a qualified contractor. • HHW Shed: Due to the nature of materials stored in the HHW shed, specialised foam will be used for fire suppression. This foam is significantly lower in volume than standard fire wash water and will be collected in sumps located within the HHW shed before being removed by a qualified contractor. • Greenwaste bunker: Fire wash water will be diverted via the leachate system as discussed in Section 8.3 and collected by a qualified contractor. • Removed Fire wash waters residues will be disposed to an appropriate licenced facility, as required.
Litter	• All commingled recycling and residual kerbside collected waste will be confined to the MRF and WTS building respectively; • Unloaded waste and recyclable materials will be confined to the designated drop-off areas and receptacles within the CRC; • The recycled products will be will confined to the MRF Storage and Dispatch Building prior to dispatch; • Temporary bin covers will be applied to waste containers during periods of inclement weather; • Waste loads entering and leaving the Site will be covered to prevent uncontrolled release of litter; • Any litter generated around and immediately outside the Site will be collected on a regular basis.
Security	• 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; • All access gates and buildings will be locked securely outside of operational hours.

Vehicle Emissions	• To provide natural ventilation within the WTS building and the load out lanes, ridge ventilators will be installed along the roof of the WTS as discussed in Section 5.2.3.1; • The MRF buildings will also be equipped with adequate ventilation; • All mobile machinery operating within each 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.
Dangerous Goods and Hazardous Materials	• Site staff will be trained in the safe handling of hydrocarbons and hazardous materials according to the DGS Regulations 2017 and AS 1940-2017; • Storage of hazardous materials at the facility will be in accordance with AS 1940-2017; • The materials storage area will be constructed with appropriate bunding with sufficient capacity to capture any spills; • The quantity of chemicals and fuels stored on the Site will be monitored and kept to a minimum; • Site staff will be trained in the appropriate use of PPE; • Site staff will use SDS for recording information on dangerous goods and hazardous materials and will be kept up to date; • Regular maintenance and inspections of equipment, plant, machinery and vehicles will be undertaken at the Site; • Suitably sized hydrocarbon spill kits will be located in suitable areas around the Site; and • Fire suppression equipment will be located in relevant areas across the Site.

9.13 Complaints Management

The City provides opportunities for community members to offer feedback and raise concerns in order to support continuous improvement in service delivery and performance. Complaints are managed in accordance with the City's *Customer Experience Policy*, which outlines the process for ensuring they are handled professionally, impartially, and in a timely manner.

All complaints relating to environmental management, amenity impacts (such as noise, odour, dust, or traffic), or general concerns regarding Site operations can be submitted through the City's established customer service channels. The following process will be followed:

- All complaints will be logged by the City's Customer Liaison Officer (CLO) and acknowledged. The CLO and/or relevant officers from the appropriate Service Unit will investigate and determine an appropriate course of action. This may include:
  - Taking no further action and advising the complainant of the reasons;
  - Resolving the complaint through mediation, informal discussion, or negotiation; or
  - Discontinuing the assessment if the matter is better referred to another body, with the complainant advised accordingly.
- Anonymous complaints will only be investigated where sufficient detail is provided to enable a meaningful assessment; and

- Where unreasonable conduct is exhibited by a complainant, the City may apply communication restrictions in accordance with its policy on unreasonable complainant behaviour.

This system enables the City to monitor trends, identify recurring issues, and improve environmental performance and operational practices.

10 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 are no unacceptable residual risks. The sources, pathways and receptors of hazards identified are outlined in the following sub-sections.

10.1 Sources of Hazards

For the purpose of this assessment, a source is defined as a primary risk with the potential to cause 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 10-1.

Table 10-1: List of Potential Hazards

Source	Description of Hazards
Odour	• Odour from waste can cause amenity issues.
Noise	• High levels of occupational noise can impact personnel onsite; and • Noise can cause reduced amenity for surrounding sensitive receptors.
Dust	• Dust generated during construction works and operational activities onsite may be inhaled by Site personnel potentially resulting in health impacts and reduced visibility; and • Excessive dust may impact surrounding vegetation and flora.
Stormwater and Leachate	• Excessive stormwater not properly managed can lead to flooding and damage to infrastructure; and • Leachate can contaminate groundwater and impact native fauna and flora if released into the environment.
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.
Weeds	• The spread of weeds may impact surrounding vegetation and flora.
Vermin and Feral Animals	• Putrescible waste can attract vermin which may impact nearby ecological values and present disease risks to humans and animals; • Feral animals can be attracted to putrescible waste causing nuisance; • Introduced flora (weeds) can negatively impact the quality and growth of native vegetation; and • Vegetation clearing can impact the habitat of native fauna and flora.
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

Litter	• Windblown waste can reduce visual amenity; and • Litter may be ingested by fauna.
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 WTS and MRF can accumulate causing health impacts to staff
Dangerous Goods and Hazardous Materials	• Spills and inappropriate handling and storage of these materials can present risks to personnel and the environment including potential fires

10.2 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:

- Air, through which lightweight materials, such as dust, litter and odour can travel;
- Surface, along which the sources of contamination or harm can travel or be present at (e.g., surface water run-off, litter, 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.

10.3 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 10-2.

Table 10-2: Generic Receptors that may be Impacted by Potential Contamination or Harm

Receptor	Description of the Receptor
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.

10.4 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.

10.5 Risk Rating Matrix

To assess the various risks, the potential hazards identified in Table 10-2 were classified according to the DWER's Risk Assessment Guideline shown in Table 10-3.

Table 10-3: 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

10.6 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 10-4.

Table 10-4: Residual Risk Profile

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
Odour	Site Staff	Air	Certain waste streams that are accepted onsite (i.e., residual waste) can produce strong odours	Likely	Minor	Medium	• Greenwaste stockpile will be monitored and managed to ensure these areas do not generate excessive odours; • Covering of waste loads during transportation of waste materials; • Residual waste from the Residual Waste Drop-off Facility will be removed within a 48 hour period and taken to the WTS; • Areas around the Site will be cleaned regularly to ensure good housekeeping standards are maintained; • The WTS will be a fully enclosed building designed to comply with modern, best practice standards and will include: • mechanical ventilation system that will achieve 4 air exchanges per hour • roller doors that will only be opened when necessary to minimise fugitive emissions; • A clean floor policy will be implemented, with no putrescible waste retained overnight or on weekends; • The floor of the WTS will be swept and washed down as required to limit odour emissions; • A complaints register will be maintained to ensure that the community can express their comments or concerns regarding the operations of the Site; • Odour levels across the Site will be continuously monitored by staff and action taken, if required; and • The City will also ensure that the key procedures nominated in Table 2-4 of the Odour Impact Assessment are incorporated.	Rare	Slight	Low
	Surrounding Land Users	Air		Unlikely	Moderate	Medium		Rare	Slight	Low
Noise	Site Staff	Air	Noise impacts from activities onsite	Possible	Moderate	Medium	• All noise-generating activities, like heavy vehicle truck movements, will only take place during day-time operational hours as outlined in the ENIA; • 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	Possible	Minor	Medium	• Vehicles to maintain a maximum speed of 10 km/hr unless otherwise signed; • All internal roads will be sealed to mitigate dust generated through the movement of vehicles in and out of the facility; • All roads within the CRC will be sealed and maintained; • All works and receival of waste will cease during periods of strong winds; • Waste will be covered at all times during transport; • All kerbsdie collected recycling and residual waste will be contained to the MRF and WTS respectively; and • A water cart will be utilised on the long-term stockpiling area as required.	Unlikely	Slight	Low
	Surrounding vegetation	Air	Excessive dust may cause detrimental impacts to surrounding vegetation	Possible	Minor	Medium		Unlikely	Slight	Low

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
Stormwater and Leachate	Site Infrastructure	Surface	Excessive stormwater that is not properly managed can lead to flooding onsite resulting in damage	Possible	Moderate	Medium	• Implementation of the Stormwater and Leachate Management Plan (SWLMP), provided in Appendix D; • Clean surface water runoff will be diverted into infiltration basins; • The WTS and MRF are fully enclosed buildings that will minimise the generation of leachate; • The floors of the WTS have been designed with a fall to allow water to flow towards collection points and divert potential leachate to a containment tank below ground; • The hardstand of the green waste bunker will be bunded and graded to direct all runoff into a sump, which is connected via a pipe to a lined evaporation pond for containment and management; • The external perimeter of all buildings and areas that hold waste will slope away from any doors or waste storage areas to prevent stormwater ingress; • The installation of a permanent canopy within CRC's Residual Waste Drop-off Facility to cover all bins will minimise leachate generation; • HHW will be stored in a fully enclosed building, thereby avoiding interaction with stormwater; • The installation of a stormwater pit and pipe network that will divert surface water run-off into multiple stormwater infiltration basins. Cut off valves on these ponds will contain fire wash water within the MRF and WTS facilities to minimise the discharge into the environment; • All bins containing residual waste will be kept in good condition to mitigate any leakages; • The installation of a permanent canopy within the Recycling Drop-off Area to prevent rainfall entering bins and mixing with recyclables; • All stormwater engineering features will be inspected regularly, and maintenance works scheduled appropriately; • The road surfaces across the Site will be delineated with kerbs and will utilise suitable slope gradients to direct the flow of surface water to the Site's surface water management system; and • Weather will be monitored on a daily basis.	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 create safety hazards for site personnel	Rare	Major	Medium	• Community vehicle traffic coming to Site to utilise the offered services; • External contractor vehicles arriving to Site to either drop-off or remove bulk waste and recyclables; • A forklift traveling between the MRF and Long-term Product Storage Shed transporting baled recyclables; • Large bulk-haulage vehicles that will transport general waste to an ERF in the southern Perth metropolitan area; and • A small number of traffic movements associated with staff, which will be confined to the front car parks; and to minimise car and truck interactions.	Rare	Slight	Low
Weeds	Vegetation & Flora	Surface	The spread of weeds can impact the growth and quality of vegetation and flora onsite	Likely	Slight	Medium	• Awareness of weed management through the Site induction for all staff. The Site induction will include information pertaining to weeds occurring at the Site, as well as the hygiene and reporting requirements associated with weed management; • Vehicles entering/exiting the Site will be free of soil, mud, and vegetative material; • Use of the Site's Truck Wash Facility, as required, to remove any potential introduced flora plants or seeds from vehicles and/or equipment;	Unlikely	Slight	Low

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
							• Vehicles to adhere to established roads and tracks to prevent the spread of weeds within the Site; • All greenwaste loads to be covered until unloading at the Greenwaste bunker; • Regular monitoring of weeds across the Site to be undertaken by all Site staff; and • Regular weed management methods to be undertaken via manual removal and/or or by chemical application prior to flowering periods by a qualified third-party contractor.			
Vermin and Feral Animals	Site Staff	Surface	Exposed waste and water bodies can attract vermin presenting risk of disease and reduced amenity	Possible	Minor	Medium	• All waste loads are to be covered during transport to and from the Site; • Ensuring that wildlife and feral or vermin species have limited opportunities to access food and water at the Site; • Daily operations will include monitoring for feral cats, foxes and wild dogs; • Any suspected and/or known shelters or breeding grounds for vermin on the Site will be eliminated; • Should any feral animal or vermin issues be experienced, professional services will be utilised to implement appropriate control/eradication methods; • Residual waste from the Residual Waste d Drop-off Facility will be regularly transferred to the WTS; • The roller doors into the WTS will only be open while a vehicle is either entering or exiting the building; and • Regular litter collections onsite and immediate surrounds as required.			
	Surrounding Land Users	Surface	Exposed waste and water bodies can attract vermin presenting risk of disease	Possible	Minor	Medium				
Fire	Site Users	Surface	Risk of fires onsite arising from waste acceptance, waste stockpiles, faulty equipment/machinery, bushfires	Unlikely	Major	High	**General Waste Acceptance** • Limited and only pre-approved flammable or explosive waste materials to be accepted at the Site; and • All waste loads will be inspected on entry at the weighbridge or kiosk. • Household Hazardous Waste Facility o The HHW Facility will be designed in accordance with the DWER Guidelines for the design and operation of facilities for the acceptance and storage of household hazardous waste; and o The HHW Facility will consist of a structure with adequate ventilation, storage areas and sumps with sufficient capacity. **Long-term Stockpile Area & Greenwaste bunker** Fires may also occur as a result of indirect events such as lightning and bushfires, or through heat or sparks from equipment or vehicles and cigarettes. In order to adequately manage these risks within the Long-term Stockpile Area, the following measures will be adopted: • Maintenance of a 100m buffer zone around the stockpile areas, where possible; • Stockpiles will not be located near known ignition sources; • Stockpiles will be monitored during extreme weather conditions and total fire ban days; • Maintenance of a separation distance of 10m between each stockpile; • No smoking to occur near stockpiles; and • Induction/training to recognise signs and control green waste fires. **General Fire Risk And Management Awareness**			
	Site Infrastructure	Surface		Unlikely	Major	High				
	Vegetation/Flora	Surface		Unlikely	Major	High				

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
							• Fire extinguishers and hose reels will be located at strategic locations across the Site; • All fire suppression equipment will be maintained and serviced in accordance with manufacturers specifications; • A water cart will be available for fire suppression activities if required; • All buildings will comply with DFES Guideline Site Planning and Fire Appliance Specifications (DFES, 2015); and • A fire break will be established in accordance with the requirements of the Bushfire Management Plan. **Equipment, Plant, Vehicles and Machinery** • There is a risk of fires occurring due to electrical faults in equipment, plant, vehicles and machinery on the Site. In order to adequately manage this risk, the following measures will be adopted: • Regular maintenance of all equipment, plant, vehicles and machinery; • Regular pre-start checks to be undertaken on all vehicles and machinery; • Fire suppression equipment will be installed in all vehicles and machinery and operational areas; • Fire suppression equipment to undergo regular testing; and • Induction/training of staff in fire risks, mitigation and response capability. **Fire Wash Water Management** • In the unlikely event of a fire onsite, the Site's designs have considered the management of potential fire wash waters and include the following key aspects: • Fire wash waters from the MRF, WTS, greenwaste bunker or HHW will be managed as per the following: • MRF: Two surface water ponds will be located adjacent to the MRF, one lined and one unlined. In the event of a fire, the valve between the lined and unlined ponds will be closed which in turn will back up within the drainage system at the Site. The collected fire wash water within the lined pond will then be removed by a qualified contractor. This pond is servicing both the Receival and Processing Building and the Storage and Dispatch Building. • WTS: Two surface water ponds will be located adjacent to the WTS, one lined and one unlined. In the event of a fire, the valve between the lined and unlined ponds will be closed which in turn will back up within the drainage system at the Site. The collected fire wash water within the lined pond will then be removed by a qualified contractor. • HHW Shed: Due to the nature of materials stored in the HHW shed, specialised foam will be used for fire suppression. This foam is significantly lower in volume than standard fire wash water and will be collected in sumps located within the HHW shed before being removed by a qualified contractor. • Greenwaste bunker: Fire wash water will be diverted via the leachate system as discussed in Section 8.3 and collected by a qualified contractor. • Removed Fire wash waters residues will be disposed to an appropriate licenced facility, as required.			

Source	Receptor	Pathway	Risk	Probability	Consequence	Risk Rating	Management Measures	Revised Probability	Revised Consequence	Revised Risk Rating
Litter	Surrounding land users	Air	Windblown litter reducing amenity of surrounding land	Unlikely	Minor	Medium	• All commingled recycling and residual kerbside collected waste will be confined to the MRF and WTS building respectively; • Unloaded waste and recyclable materials will be confined to the designated drop-off areas and receptacles within the CRC; • The recycled products will be will confined to the MRF Storage and Dispatch Building prior to dispatch; • Temporary bin covers will be applied to waste containers during periods of inclement weather; • Waste loads entering and leaving the Site will be covered to prevent uncontrolled release of litter; • Any litter generated around and immediately outside the Site will be collected on a regular basis.			
	Fauna	Air	Potential for fauna to ingest waste	Unlikely	Minor	Medium				
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; • All access gates and buildings will be locked securely outside of operational hours.			
Vehicle Emissions	Site Staff	Air	Vehicle emissions impacting the health of operators within the WTS	Likely	Moderate	High	• To provide natural ventilation within the WTS building and the load out lanes, ridge ventilators will be installed along the roof of the WTS as discussed in Section 5.2.3.1; • The MRF buildings will also be equipped with adequate ventilation; • All mobile machinery operating within each 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			
Dangerous Goods and Hazardous Materials	Site Users & Vegetation	Surface	Spills and inappropriate handling and storage of these materials can present risks to personnel and the environment including potential fires	Possible	Moderate	• Medium	• Site staff will be trained in the safe handling of hydrocarbons and hazardous materials according to the DGS Regulations 2017 and AS 1940-2017; • Storage of hazardous materials at the facility will be in accordance with AS 1940-2017; • The materials storage area will be constructed with appropriate bunding with sufficient capacity to capture any spills; • The quantity of chemicals and fuels stored on the Site will be monitored and kept to a minimum; • Site staff will be trained in the appropriate use of PPE; • Site staff will use SDS for recording information on dangerous goods and hazardous materials and will be kept up to date; • Regular maintenance and inspections of equipment, plant, machinery and vehicles will be undertaken at the Site; • Suitably sized hydrocarbon spill kits will be located in suitable areas around the Site; and • Fire suppression equipment will be located in relevant areas across the Site.			

10.7 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 'High'. The revised and residual risk ratings were all downgraded to 'Low' once management measures were applied. Given the proposed management measures, the City will ensure any potential health, environment, and amenity impacts are avoided or minimised.

11 Conclusion

With NRRP Stage 1, the City is seeking to develop a best-practice, integrated waste management facility comprising a WTS, CRC and MRF. The co-location of these facilities provides a long-term solution for the City's domestic and commercial waste streams, facilitating local acceptance, processing as well as consolidation and transfer of materials to appropriate recovery or disposal destinations, including an ERF in the southern Perth metropolitan area.

The co-location of waste services at the NRRP delivers several key advantages, including improved operational efficiency, reduced transport emissions, and future expansion opportunities. The Proposed Infrastructure allows the City to incorporate environmentally sustainable design principles throughout planning, construction and operation.

The CRC will include a Reuse Shop, Recycling Drop-off Area, and a Residual Waste Drop-off Facility. The CRC aims to increase diversion from landfill by providing the community with accessible and comprehensive recycling and reuse services. Benefits include:

- Alignment with the Waste Hierarchy and WARR Strategy;
- Increased recovery of reusable and recyclable materials;
- Reduced environmental impacts;
- Enhanced community services and accessibility;
- Improved operational safety and efficiency;
- Job creation; and
- Reduced incidence of illegal dumping.

The WTS will function as a local consolidation point for residual waste prior to haulage to downstream treatment or disposal facilities. Key benefits include:

- Efficient aggregation of waste;
- Reduced haulage distances and emissions;
- Continued access to waste services post-Tamala Park landfill closure; and
- Job opportunities.

The MRF will provide centralised processing of commingled recyclables collected via kerbside collection and the CRC, reducing reliance on external facilities and improving local material recovery. Key benefits include:

- Increased resource recovery rates;
- Lower emissions from transport; and
- Creation of local jobs and training opportunities.

Key environmental considerations associated with the development relate to clearing, odour, noise, dust, stormwater and leachate, litter, weeds, vermin, fire risk, and hazardous materials. These potential impacts have been addressed through site selection, best-practice facility design, and engineering and management controls outlined in this EAMP.

Given the Site's compliance with recommended separation distances, the avoidance and mitigation measures implemented, and the low residual risk levels assessed, the proposed development can be

delivered and operated in a manner that meets appropriate environmental standards and supports the City's strategic waste goals.

References

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

Environmental Protection (Noise) Regulations 1997

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

Odour Impact Assessment

Environment Noise Assessment

Basic Fauna and Targeted Black Cockatoo Habitat Assessment

Native Vegetation Clearing Permit supporting documentation

Native Vegetation Clearing Permit Addendum

APPENDIX B
Figures

APPENDIX C
Drawings

Drawing C-500: WTS, MRF and CRC Concept Layout

Drawing C-501: WTS, MRF and CRC Concept Swept Path

Drawing C-502: General Arrangement

Drawing C-103: WTS Floor plan and Sections

Drawing C-105: MRF Floor plan and Sections

Drawing S-100: HHW Layout

Drawing S-000: Residual Waste Drop-off Facility Floor Plan and Sections

Drawing S-109: Recycling Drop-off Layout

Drawing C-121: WTS Drainage Layout

Drawing C-122: Green Waste Drainage Layout

APPENDIX D
Site Management Plans

Stormwater and Leachate Management Plan

APPENDIX E
Community Engagement

Community Engagement Council Report

Assets | **Engineering** | **Environment** | **Noise** | **Spatial** | **Waste**

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