Environmental Commissioning Plan

Plastics Recycling Facility

Chairay Sustainable Plastics Co

21 March 2025

→ **The Power of Commitment**

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1. Introduction

Chairay Sustainable Plastic Co. (Chairay) is the recipient of a grant from the Recycling Modernisation Fund (RMF), to support the development of new recyclable plastics reprocessing infrastructure to recycle polyolefin and polyester plastics (such as PET, HDPE and polypropylene) in the Perth metropolitan region.

Chairay are proposing to establish a mixed plastics reprocessing facility, for the purpose of processing Polyethylene Terephthalate (PET), High-Density Polyethylene (HDPE), Polypropylene (PP) and mixed plastics (MP) that are not of a single resin or polymer type. The facility will comprise of mechanical plastic sorting machinery and plastic flaking, washing and pelletising lines.

The new facility will have capacity to reprocess up to 15,000 tonnes per annum (tpa) of recycled Polyethylene Terephthalate (PET), High-Density Polyethylene (HDPE), Polypropylene (PP) and mixed plastics (MP) that are not of a single resin or polymer type.

The Project Comprises of the following infrastructure and equipment:

- Installation of waste water management system
- Installation of drive-over bunds to prevent water runoff leaving the facility
- Installation of mobile equipment charging stations
- Plastics sorting and flaking infrastructure including;
    - Automatic sorting machine
    - Plastic recycling machine (pelletiser)
    - PET recycling machine (pelletiser)
    - HDPE recycling machine (pelletiser)
    - Automatic baling machine
    - Plastic washing system
- Auxiliary infrastructure and equipment:
    - Wastewater treatment plant
    - Electric forklifts
    - Firefighting water supply tanks (existing)
    - Office and staff facilities

The layout of the facility is presented in Figure 1.

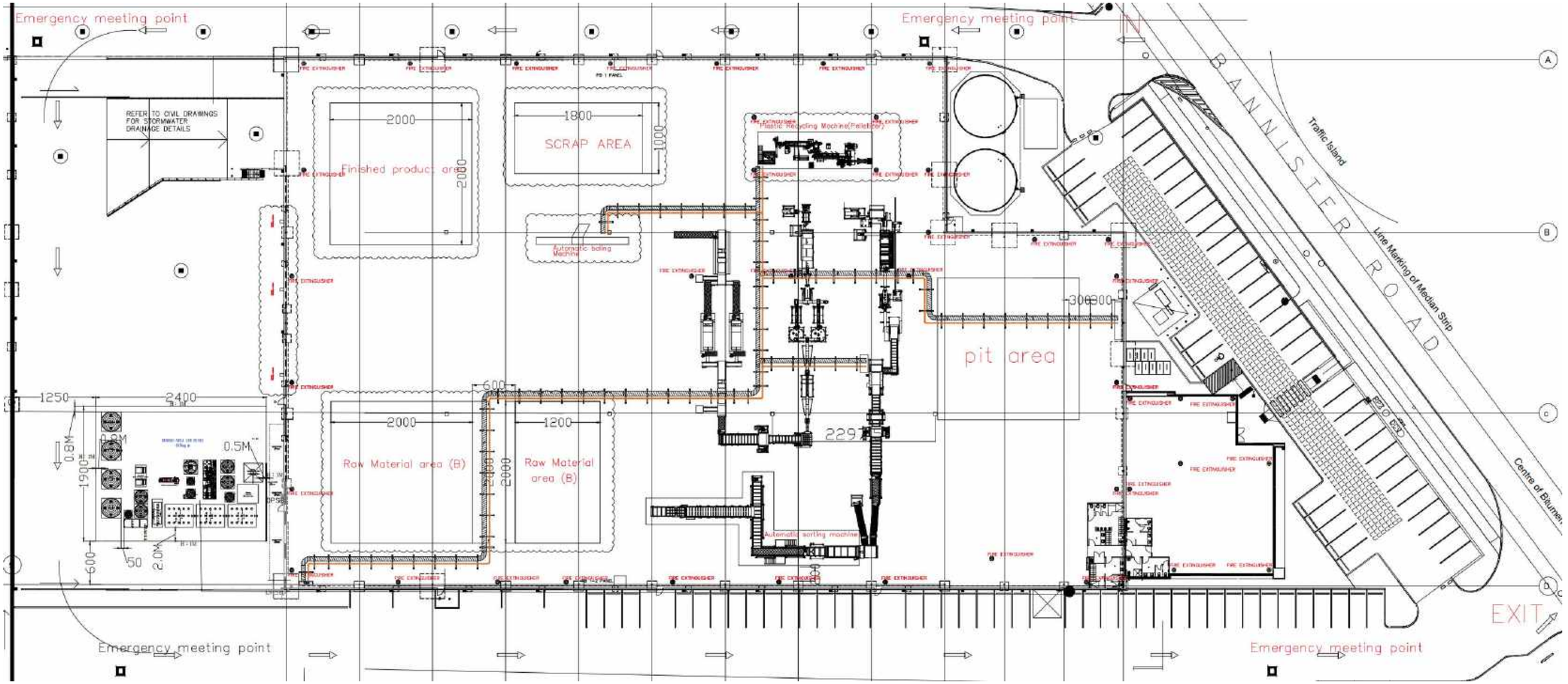

Figure 1 ***Facility layout***

This Environmental Commissioning Plan supports a Works Approval application (the Works Approval) for the Project, submitted by Chairay Sustainable Plastics Co (Chairay, the Proponent). This Commissioning Plan has been prepared to manage emissions and discharges during the commissioning of the Project infrastructure.

The Plan has been prepared to address DWER's minimum requirements for environmental commissioning plans in Table 1.

Table 1 Environmental commissioning plan compliance with DWER guidance

Requirement	Where addressed
The sequence of commissioning activities to be undertaken, including details on whether they will be done in stages	Section 2
A summary of the timeframe associated with the identified commissioning activities	
The inputs and outputs that will be used in the commissioning process	Section 3
The emissions and/or discharges expected to occur during commissioning	Section 4
The emissions and/or discharges that will be monitored and/or confirmed to establish or test a steady-state operation (e.g. identifying emissions surrogates, etc), including a detailed emissions monitoring program for the measurement of those emissions and/or discharges	Section 4
The controls (including management actions) that will be put in place to address the expected emissions and/or discharges	
Any contingency plans for if emissions exceedances or unplanned emission and/or discharges occur, and	Section 6.1
How any of the above would differ from standard operations once commissioning is complete.	Section 6.2

2. Schedule

Subject to the receipt of appropriate approvals, the following schedule in Table 2 has been developed for the Project:

Table 2 Projected project development dates

Phase	Expected date
Construction/installation	Q2 2025
Commissioning & commencement of Time-limited Operations (6-months)	Q2 2025
Environmental Compliance Report & Licence application	Q3 2025

Chairay will commence commissioning and time-limited operations as soon as the plant infrastructure has been constructed/installed.

3. Key inputs and outputs

The key inputs and outputs for environmental commissioning for the Project are summarised in Table 3.

Table 3 Key inputs and outputs

Inputs	Outputs
– Electrical power consumption – Water consumption – Plastic feedstock	– Plastic product – Residue plastic waste – Treated wastewater and WTP sludge

4. Expected emissions, discharges, and waste

From the Works Approval, key emissions, discharges, and waste and assessed risk during the environmental commissioning phase are as follows:

- Point-source air emissions from delivery vehicles and from plastic processing operations
- Fugitive odour air emissions from plastic processing operation, and the wastewater treatment plant
- Fugitive dust air emissions
- Light emissions
- Noise from plant operations
- Treated wastewater discharge to trade waste sewer
- Stormwater discharge to ground
- Waste (residual plastic) from operations to landfill

Table 4 presents a risk assessment (DWER, 2017) of emissions, discharges, and waste expected to be generated during the commissioning phase of the facility.

Table 4 ***Risk assessment of expected emissions, discharges and waste generated during environmental commissioning of the facility (adapted from the Works Approval application)***

Risk Events					Proposed Controls	Likelihood Rating	Consequence Rating	Residual Risk Rating	Reasoning
Emission/Discharge/Waste	Development Phase	Potential Pathway	Potential Receptors	Potential Adverse Impacts					
Point-source air emissions (VOCs) (including odour)	Installation/commissioning Operations	Air and wind dispersion	Workers inside of the facility building	Public health and amenity impacts	– Air quality monitoring will be undertaken during commissioning and time limited operations to determine baseline emissions of VOCs from the pelletising plant, and indoor air quality for VOCs within the facility processing building	Almost certain	Slight	Medium	Mitigation and monitoring measures proposed will likely reduce long-term exposure risk to workers inside the facility
			Industrial/residential receptors			Almost certain	Slight	Medium	Site operations will likely generate some fugitive VOC/odour emissions, but modelling indicates these will disperse quickly and are unlikely to impact nearby industrial/residential receptors
Fugitive dust emissions	Installation/commissioning Operations				None proposed	Unlikely	Slight	Low	Operations will occur indoors, and outside areas are hardstand (minimal dust generation)
Light emissions	Installation/commissioning Operations				None proposed	Rare	Slight	Low	Night operations will not occur at the facility and apart from minimal site security lighting, there will be no significant light emissions from the facility at night
Noise emissions	Installation/commissioning Operations		Industrial/residential receptors Nearby environmental (flora & fauna)		– Ensure the performance of the specified installed soundproofing for shaft shredder, crusher, horizontal dehydrator and stripping machine is as per currently expected performance – Keep all roller doors closed as much as possible during operation of fixed machinery/equipment and mobile plant inside the warehouse – Avoid noise-generating fixed plant and mobile equipment operating simultaneously as much as practicable – Observe and consider the need for additional lining of the internal walls and ceiling of the warehouse with	Almost certain	Slight	Medium	Mitigation and monitoring measures proposed will likely reduce noise levels to within acceptable limits at adjacent residential receptors

Risk Events					Proposed Controls	Likelihood Rating	Consequence Rating	Residual Risk Rating	Reasoning
Emission/Discharge/Waste	Development Phase	Potential Pathway	Potential Receptors	Potential Adverse Impacts					
					acoustic absorptive materials to reduce internal reverberation and increase acoustic absorption – Undertake commissioning testing of individual noise-generating equipment to ensure their noise emissions are not excessive when compared with the noise modelling assumptions – Undertake compliance monitoring at nearby sensitive receptors once the facility is fully operating, to ensure overall operational noise compliance, and through implementation of relevant improvement measures, if required				
Wastewater discharge	Installation/commissioning Operations	No pathway	-	No impact – treated wastewater will be discharged to trade waste sewer servicing the site					
Stormwater discharge	Installation/commissioning Operations	Infiltration into soil and groundwater	Soil and groundwater	Soil, groundwater and surface water contamination	None proposed	Possible	Slight	Low	Entrained contaminants in stormwater runoff will likely be filtered out by soil before encountering groundwater. Site is also not located within a recognised Environmentally Sensitive Area or Public Drinking Water Source Area
Waste	Installation/commissioning Operations	No pathway	-	No impact – Solid waste will be removed off-site and disposed of to a landfill facility					
Unplanned events									
Firewater runoff	Installation/commissioning Operations	Firewater enters site stormwater system, infiltration into soil and groundwater	Soil and groundwater	Soil, groundwater and surface water contamination	Installation of a fire water containment system that will prevent any firewater discharge to ground	Possible	Slight	Low	Fire water will be contained on the site and isolated from normal site stormwater runoff discharging to sumps and ground. Contained firewater will be removed off-site for disposal at an appropriately licensed treatment facility
Spills, ruptures, and loss of containment	Installation/commissioning Operations	Discharge enters site stormwater system, infiltration into soil and groundwater	Soil and groundwater	Localised contamination of soil and groundwater	All storage tanks on the site will be located within a bunded area	Possible	Slight	Low	Any potential unplanned spill, rupture and/or loss of containment of containment of storage tanks at the WWTP will be contained by bunding that will be installed to prevent any runoff into stormwater sumps and ground

5. Emissions/discharges monitoring

5.1 Wastewater treatment plant monitoring

Chairay will be installing an activated sludge WWTP on the site that will treat process wastewater that will be generated. Once the WWTP has reached steady state conditions and to ensure operational performance the following monitoring will be undertaken (Table 5).

Table 5 Proposed monitoring measures for WWTP

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1	Monitoring devices will be installed at the discharge point to include monitoring of flow rate, SS (suspended solids), COD (chemical oxygen demand), and continuous recording of these parameters (with data stored on a computer). Additionally, an abnormality notification system will be established to alert in case of any irregularities.
2	Installation of water quality testing instruments to conduct functional tests on other wastewater treatment units.

5.2 VOC/odour monitoring

Weekly air quality monitoring will be undertaken by a suitably qualified professional during the commissioning phase to determine baseline emissions of VOCs/ from the pelletising plant, and indoor air quality for VOCs within the facility building. Fugitive odour emissions outside the facility building will also be monitored during the commissioning phase to determine emission baselines.

6. Risk management

6.1 Unplanned or excessive emissions/discharges

There are no excessive emissions and discharges expected during the environmental commissioning stage. Emissions are also expected to be low during the operational stage. The most likely incident that would cause an increase in emissions would be upset conditions in the WWTP resulting in reduced operational treatment efficiency, increased odour emissions, in reduced wastewater quality discharged.

Unplanned emissions/discharges or where emission/discharge exceedances occur (if applicable) will be managed by using the proposed monitoring and management actions outlined in 5.1.

Any unplanned emissions/discharges of waste (i.e., spills, loss of containment) likely to cause pollution or environmental harm (other than those within any limits authorised under the Works Approval) will be reported as soon as practicable to the Department of Water and Environmental Regulation.

Details of any environmental incident that takes place during environmental commissioning will be reported in the Environmental Commissioning Report that will be submitted to DWER within 60 days of completion.

6.2 Variance of environmental commissioning to standard operations

There are no expected changes in emissions and discharges between environmental commissioning and standard operations.

7. Reporting

Chairay proposes to report to DWER around the commissioning phase of the Project by:

– Reporting environmental incidents during commissioning to DWER in accordance with Works Approval conditions.
– Reporting any significant environmental incidents to DWER regardless of works approval conditions.

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