



Waste Management Plan

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1. Introduction

1.1 The Waste Management Plan

This Waste Management Plan (WMP) has been prepared for the approved Integrated Oilseed Processing Plant (IOPP), located on Lot 12 DP 1130519 at 177 Trahairs Road, Wagga Wagga in New South Wales (NSW). The approved IOPP is referred to throughout this WMP as “the project”. The project proponent is Riverina Oils and BioEnergy Pty Ltd (ROBE).

This WMP is a component of the project Environmental Management Strategy (EMS) and should be used in conjunction with the EMS document. The EMS provides the overarching environmental management framework for the project and incorporates a range of issue specific environmental management sub-plans, including this WMP (refer to Figure 1-1).

This WMP is a requirement of Condition 56 of the Minister for Planning's Conditions of Approval for the project issued under Section 75J of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This plan applies to all activities carried out for the construction and operation of the approved IOPP.

1.2 Background

In 2008, the then Minister for Planning granted project approval (MP 07_0146) to ROBE for the construction and operation of an integrated Oilseed Processing plant to process vegetable oil and biodiesel plant.

In 2009 a decision was made by ROBE not to establish the biofuel component of the project. A modification was approved 2011 to remove the biodiesel component, alter the site layout and increase the facility output from an approved 30,000 tonnes per annum of refined vegetable oil to 66,000 tonnes per annum and reduce the output of vegetable protein meal to 90,000 tonnes per annum.

In 2015 another modification was approved that ROBE could process 200,000 tonnes per annum of oilseed and produce not more than 116,000 tonnes per annum of vegetable protein meal and 82,500 tonnes per annum of refined vegetable oil.

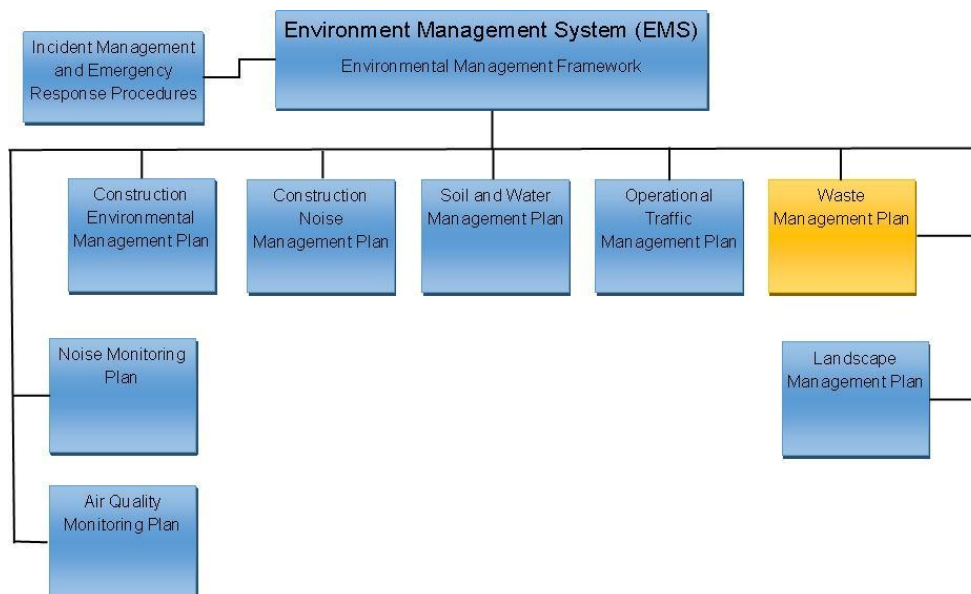


Figure 1-1 Relationship of this WMP to the project EMS

1.3 Objectives for waste management

The objectives and desired performance outcomes for Waste Management are identified in Table 1-1.

Table 1-1: Objectives and performance outcomes for waste management

Objectives	Key actions to achieve objectives
<ul style="list-style-type: none"> Comply with all statutory requirements Prevent pollution and contamination of the environment Minimise use of resources and need for waste disposal 	<ul style="list-style-type: none"> Avoid and minimise waste generation through use of source reduction measures Maximise re-use and recycling opportunities Identify, classify and quantify all wastes generated during construction and operation Establish methodologies and benchmarks for waste reduction Monitor waste generation and disposal and compare results against benchmarks for waste reduction Document waste management performance in the Annual Environmental Monitoring Report

1.4 Waste classification

Waste streams for both construction and operational phases of the project have been classified according to *Waste Classification Guidelines Part 1: Classifying Waste (NSW EPA 2014)*. The guidelines classify wastes into the following groups:

- Special waste;
- Liquid waste;
- Hazardous waste;
- Restricted solid waste;
- General solid waste (putrescible); and
- General solid waste (non-putrescible).

2. Statutory requirements

The statutory requirements for waste management during construction and operation of the project are defined by:

- the Minister for Planning's Conditions of Approval for the project issued under the EP&A Act; and
- other environmental legislation, in particular the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) and *Protection of the Environment Operations Act 1997* (POEO Act), which establish additional general requirements and considerations for waste generation, transport and disposal.

2.1 The Minister's Conditions of Approval

The Minister's Conditions of Approval (MCoA) for the project comprise the Project Approval issued on 4 November 2008 for Project Application 07_0146 and the Notice of Modification issued on 28 April 2011 for Modification Application 07_0146 MOD 1. The Notice of Modification amends the Project Approval and also incorporates the amended Statement of Commitments (SoC).

Condition 56 of the MCoA specifies the requirements for preparation and implementation of a Waste Management Plan. The requirements of Condition 56, as modified by the Notice of Modification, are as follows:

The Proponent shall prepare, and implement a Waste Management Plan in consultation with the OEH and Council. The plan shall be submitted and approved by the Director-General prior to the commencement of construction and must:

- identify the types and quantities of waste that would be generated during construction and operation, and the standards and performance measures for dealing with this waste;*
- detail procedures to monitor the amount of waste generated by the project;*
- outline measures to minimise the production and impact of all wastes generated by the project, including details of how this waste would be reused, recycled, and if necessary, appropriately treated and disposed of in accordance with the OEH's guidelines on the Assessment, Classification & Management of Liquid and Non- Liquid Waste¹;*
- describe how the effectiveness of these actions and measures would be monitored over time;*
- describe what procedures would be followed to ensure compliance if any non-compliance is detected; and*
- detail the contingency measures that would be implemented should the production of vegetable protein meal exceed offsite demand.*

¹ Note that new waste classification guidelines have been issued since Project Approval, namely DECCW (2009). *Waste Classification Guidelines. Part 1: Classifying Waste*. Department of Environment, Climate Change and Water (now the Office of Environment and Heritage): Sydney. These new guidelines, which supersede the previous guidelines, have been and will continue to be applied to the IOPP.

This document comprises the WMP for the project and has been prepared in consultation with the OEH and Wagga Wagga City Council. It specifically addresses the requirements of Condition 56 of the MCoA as identified in Table 2-1.

Table 2-1: MCoA requirements for the WMP

MCoA Condition 56 requirement	Where addressed
a) identify the types and quantities of waste that would be generated during construction and operation, and the standards and performance measures for dealing with this waste	Section 4 and 5
b) detail procedures to monitor the amount of waste generated by the project	Section 4 and 5
c) outline measures to minimise the production and impact of all wastes generated by the project, including details of how this waste would be reused, recycled, and if necessary, appropriately treated and disposed of in accordance with the OEH's guidelines on Assessment, Classification & Management of Liquid and Non-Liquid Waste	Section 3 and Appendix A
d) describe how the effectiveness of these actions and measures would be monitored over time	Section 4 and 5
e) describe what procedures would be followed to ensure compliance if any non-compliance is detected	Section 4 and 5
f) detail the contingency measures that would be implemented should the production of vegetable protein meal exceed offsite demand.	Section 5.5

In addition to establishing the requirement for preparation of a CEMP, the MCoA include specific requirements for waste management. These requirements, and where they are addressed in this WMP, are summarised in Table 2-2.

Table 2-2: Additional MCoA obligations for waste management

Obligation	MCoA reference	Where addressed
The Proponent shall ensure that all solid waste storage areas that have impermeable pads and are located in controlled drainage areas on the site.	Project Approval Condition 16a (as amended by the Notice of Modification)	Refer to Soil and Water Management Plan
The Proponent shall ensure that all waste generated on the site during construction and operation of the project	Project Approval Condition 54 (as amended by the Notice of Modification)	Section 4 and 5

is classified in accordance with the OEH's <i>Waste Classification Guidelines Part 1: Classifying Waste</i> , and disposed of to a facility that may lawfully accept the waste.		
Except as expressly permitted by an EPL, the Proponent shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal, or any waste generated at the site to be disposed of at the site.	Project Approval Condition 55 (as amended by the Notice of Modification)	Section 5 and Appendix A
The proponent shall implement all practicable measures to minimise the generation of waste from the proposed IOPP	Amended SoC (refer to Notice of Modification)	Section Error! Reference source not found. and Appendix A
Wastes requiring removal from the site shall be collected and disposed of by an appropriately licensed waste contractor.	Amended SoC (refer to Notice of Modification)	Section 4 and 5 and Appendix A

2.2 Waste Avoidance and Resource Recovery Act 2001

The WARR Act is administered by the OEH and establishes obligations for avoiding waste generation and disposal. The primary objective of the Act is to encourage the most efficient use of resources and reduce environmental harm in accordance with the principles of ecologically sustainable development.

The WARR Act is applicable to all phases of the project and requires that resource or waste management options are considered against a hierarchy of the following order:

1. avoidance of unnecessary resource consumption;
2. resource recovery (including reuse, reprocessing, recycling and energy recovery); and
3. disposal.

Based on this waste management hierarchy, the waste management obligations for the project are as follows:

- preference must be given to avoiding waste generation in the first instance; and
- where waste generation cannot be avoided, waste recovery options (including re-use, reprocessing and recycling) should be adopted where practicable in preference to waste disposal.

Measures to address the requirements of the WARR Act are provided in the Waste Management Control Plans in Appendix A.

2.3 Protection of the Environment Operations Act 1997

The POEO Act, administered by the OEH, contains provisions relating to pollution and waste disposal, which are applicable to waste management during construction and operation of the project. In particular, the following actions constitute breaches of the Act:

- off-site discharges of wastewater that are not in accordance with an EPL (breach of Section 120 of the Act);
- wilful or negligent disposal of waste in a manner that harms or is likely to harm the environment (breach of Section 115 of the Act);
- transport of waste to a place that cannot lawfully be used as a waste facility for that waste, or causing or permitting waste to be so transported (breach of Section 143 of the Act);
- use of any land, by the owner or occupier of that land, as a waste disposal facility without lawful authority, or causing or permitting the land to be used as such (breach of Section 144 of the Act); and
- supplying information that is false or misleading in a material respect about waste to another person in the course of dealing with the waste, or causing or permitting information to be supplied as such (breach of Section 144AA of the Act).

The requirements of the POEO Act with respect to waste are addressed in the Waste Management Control Plans in Appendix A

3. Waste Minimisation

ROBE will apply the following approach to waste management during construction and operation:

- avoiding - avoiding creation of waste in the first instance through measures such as source reduction e.g. by reducing excess packaging;
- recycling/re-use - diverting resources from the waste stream for other uses, either directly or as an input for further processing (e.g. recycling paper to cardboard, scrap steel to steel, and plastics to PET);
- treatment - processing of waste prior to disposal to minimise environmental impacts (e.g. wastewater treatment, composting); and
- disposal - the least favoured option, to be used when it is not feasible to use any of the above options due to economic, market or technological constraints.

The waste management controls and safeguards to be implemented as part of this WMP are presented in the Waste Management Control Plans (WMCPs) in Appendix A. This WMP contains two WMCPs:

- WMCP1 – Covers general administrative requirements relating to documentation, approvals and staff training; and
- WMCP2 – Covers waste management controls and safeguards for construction and operation.

4. Construction Waste

4.1 Types and quantities of waste

The majority of waste material generated during construction will fall into the category of non-liquid inert and solid waste. Specifically, the main wastes that will be generated during construction are:

- packaging wastes (including plastic, polyethylene and wooden packaging);
- metal scrap and off cuts;
- building waste;
- general domestic waste;
- sewage waste; and
- waste oils, paint and chemicals.

No earthen spoil is planned to be removed from site. Cut and fill operations will be balanced and all topsoil that is removed to facilitate construction will be used for site landscaping.

No hazardous or other liquid wastes are anticipated to be discharged during construction. Oils and Paints will be stored in accordance with codes of practice and Australian Standards. All mobile equipment operators will have access to spill containment kits.

It is estimated that around 345 cubic metres of waste will be generated during the construction process. The construction waste types and amounts are summarised in Table 4-1.

Table 4-1: Summary of construction waste types and quantities

Waste type	Classification	Disposal/ treatment method	Quantity
Plastic and polythene packaging	General solid waste (non-putrescible)	Maximise separation of recyclable content and transport to appropriate recycling facility. Non-recyclable content to be disposed of at appropriate facility.	42 m ³
Wooden packaging (pallets)	General solid waste (non-putrescible)	Maximise separation of recyclable content and transport to appropriate recycling facility. Non-recyclable content to be disposed of at appropriate facility.	80 m ³
Metal	General solid waste (non-putrescible)	To be taken to appropriate recycling facility	20 m ³
Building and general waste	General solid waste (non-putrescible)	Maximise separation of recyclable content and transport to appropriate recycling facility. Non-recyclable content to be disposed of at appropriate facility.	42 m ³
Sewage (temporary facility)	Liquid	To be collected in portable loos and removed by licensed contractor	160 m ³
Waste paint	Liquid	To be disposed of at appropriate facility	0.25 m ³
Waste mineral oil	Liquid	To be disposed of at appropriate facility	1 m ³
Waste vegetable oil	Liquid	To be disposed of at appropriate facility	20 m ³

4.2 Waste management procedure

On-site waste collection and sorting during construction will be managed using a series of skip bins and liquid waste receptacles in a designated waste management area. The skip bins and receptacles will allow recyclable materials to be separated from other waste streams in a manner that optimises recycling opportunities. Separate bins will be provided for:

- metals;
- wood;
- cardboard and paper;
- plastics;
- general / building waste;
- oil contaminated earth; and
- waste oils.

All waste and recyclable material will be removed from site by a licensed contractor. The licensed contractor will be consulted to identify different waste and recycling streams to ensure the most suitable end location. The types of skip bins and receptacles provided for waste collection and sorting will be determined in consultation with the licensed contractor engaged for waste removal. Any liquid waste will be appropriately classified according to the EPA guidelines.

During construction, portable amenities will be established on site with all sewage waste being collected as need be by a licensed contractor.

Waste management goals and requirements will be a part of the environmental site induction provided to all construction site staff and contractors.

4.3 Waste monitoring

During construction, the volume of waste generated will be monitored by the types and number of skip bins removed from site. Bin types, volumes, and numbers will be recorded in a Waste Tracking Register (excel sheet maintained by Environment Officer along with dockets) and summarised in the Annual Environmental Monitoring Report (AEMR).

Any additional waste removed from site (i.e. waste for which skip bins are not provided) will be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste (NSW EPA 2014)* and disposed of appropriately. Weighbridge and landfill certificates will be recorded for additional wastes.

1.1.1 Weekly inspections

Weekly site inspections of waste management areas, including the skip bins and receptacles provided for waste collection and sorting, will be carried out during the construction period. These inspections will involve checks of environmental controls and performance using either an *Environmental Site Inspection Checklist* that covers waste management issues or a specific *Construction Waste Management Checklist*. This checklist will be consistent with the example *Environmental Site Inspection Checklist* provided in the Construction Environmental Management Plan (see **Figure 1-1**). The purpose of the checklist is to:

- provide a surveillance tool to ensure that the required waste management measures are being implemented and are effective;
- identify where problems might be occurring; and
- facilitate the identification and early resolution of problems, including (but not limited to) the failure of existing controls, the occurrence of avoidable environmental impacts,

the need for maintenance or improvement of existing controls, the need for additional controls, the need to improve construction methodologies, or the need for further toolbox training.

4.4 Compliance

4.4.1 Review of WMP

The approach to waste management, and the waste management measures employed, will be continually reviewed, and where appropriate improved, as per ROBE's EMS. During construction, the WMP will be reviewed every three months.

4.4.2 Staff training

All construction staff working will undergo appropriate environmental training before commencing work on the IOPP site. This training will cover waste management issues and requirements. Details of training requirements are provided in the EMS.

4.4.3 Auditing

Compliance with this WMP will be monitored through the auditing program documented in the EMS. A summary of requirements for construction is provided in the following sections. The outcomes of each audit will be documented in an Environmental Audit Report.

During the construction period, internal audits on this WMP will be conducted every three months by the Environmental Representative/ Construction Environmental Manager (or suitable delegate). Elements of the WMP that may be audited include:

- compliance with specified waste management measures;
- compliance with the conditions of project approval;
- complaint response;
- response to non-compliances and non-conformances; and
- system documentation, including training records.

4.4.4 Responsibility of personnel

The Construction Project Manager will engage a suitably qualified person to implement this WMP and oversee its continual review and improvement. All construction staff and contractors will be trained in general waste management, together with general environmental awareness and reporting procedures. The Construction Project Manager is ultimately responsible for implementation of and compliance with this WMP.

4.4.5 Assessment of Waste Minimisation Performance

Prior to commissioning and operation, methodologies and benchmarks for waste reduction will be established. The results of waste generation and disposal monitoring will then be compared against the established benchmarks for waste reduction, with actions to improve performance implemented where required. Waste management performance will be documented in the Annual Environmental Monitoring Report.

5. Operational Waste

5.1 Types and quantities of waste

Operation of the IOPP will produce both solid and liquid wastes as described below.

5.1.1 Operational wastes - liquid

Liquid wastes generated during operation of the IOPP will comprise:

- liquid waste from processing plants and WWTP;
- laboratory waste;
- wastewater from equipment cleaning and floor wash down;
- wastewater generated during boiler blow down and cooling tower blow down;
- reject water from the Waste Water Treatment Plant (WWTP) and Reverse Osmosis (RO) Plant;
- treated effluent waste.

The above-listed wastes will be treated on-site. The treated black water will be disposed of via irrigation within an application rate of 2.5kl/ day over an active area of 1000 m² of land.

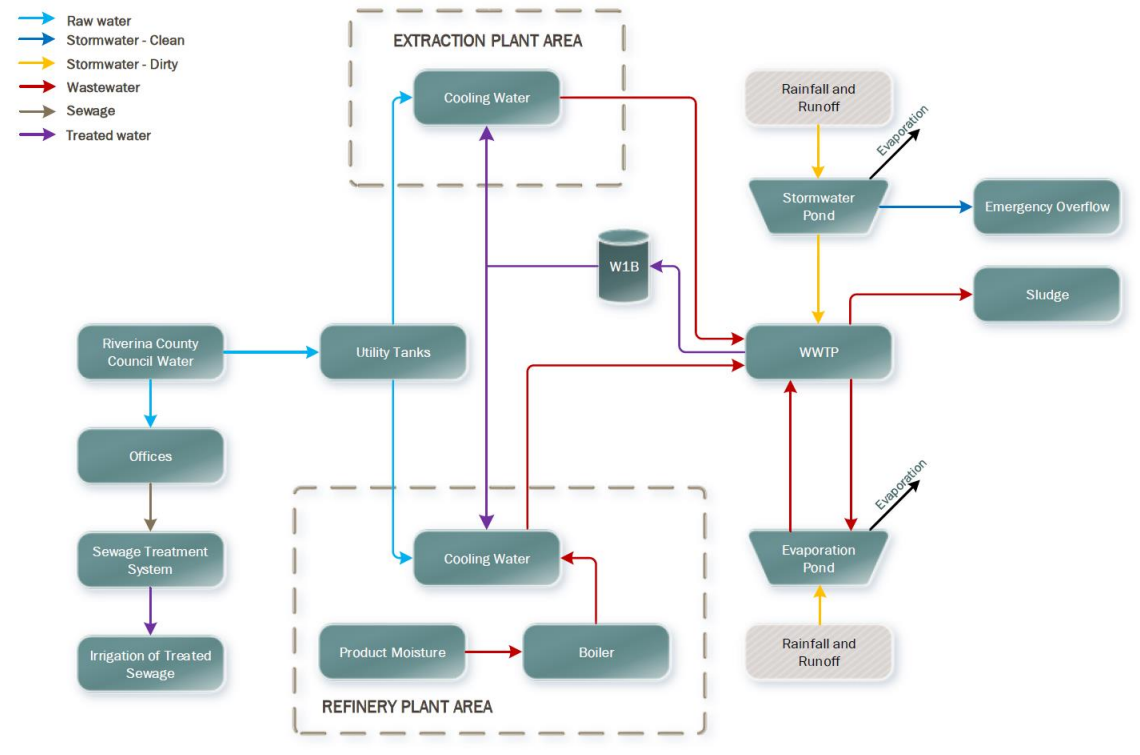
A summary of the liquid waste types and quantities to be generated during operation of the IOPP is provided in Table 5-1. A process flow diagram illustrating the operational waste streams, the on-site treatment of process water and sewage wastes, and the off-site transport of operational waste is presented in Figure 5-1. The amount of wastewater to be treated at the WWTP is approximately 350m³ per day.

Table 5-1: Summary of operational waste types and quantities – liquid wastes

Waste type	Classification	Disposal/ treatment method	Quantity
Liquid waste from processing plants	Liquid	To be directed to on-site WWTP and recycle back to cooling tower after treatment	350 m ³ / day
Process Waste	Liquid Waste	Reused in process. If Excess waste based on oil content in seed will disposed off to approved site with licenced contractor.	7 tons/ day
Laboratory waste	Liquid	To be directed to WWTP	1 m ³ / day
Wastewater from equipment cleaning and floor wash down	Liquid	To be directed to on-site WWTP	45 m ³ / day
Wastewater generated during boiler blow down and cooling tower blow down	Liquid	To be directed to on-site WWTP	50 m ³ / day
Raw sewage waste	Liquid	To be directed to on-site Design Packaged Black Water Treatment System	2.5 m ³ / day
Treated sewage waste	Liquid	To be disposed of via irrigation on site at an application rate of 2.5kl/ day over 1000 m ² of land	2.5 m ³ / day

Reject Water from RO Plant	Liquid	To be directed to evaporation ponds	49 m ³ / day
WWTP Waste	Liquid (Semi solid)	To be transported by licensed contractor to approved facility	50 m ³ / month
Mineral Oil	Liquid	Dispose off to Southern Oil for reprocessing	100 lt/month
Lube Oil	Liquid	Dispose off to Southern oil for reprocessing	50 lt/month
Waste canola oil	Liquid	Recycling	3-5 KL/year
Waste Oil from WWTP FOG Separator	Liquid	Dust suppression / disposal to authorised site	2-6 KL/Year

Figure 5-1 Process waste water flow diagram



Summary of wastewater treatment onsite

Riverina water is received from offsite and processed through the RO Plant or softener plant and used for processing Oil in the plant. All process wash water goes to WWTP. AT WWTP from RO permeate water goes to utility tank (W1B), whereas the reject water is directed back to the Evaporation pond.

Stormwater is sent to the WWTP and then used in the cooling towers or boilers. Once this water is processed in the WWTP is to stored in the W1B tank and then directed to the cooling towers as needed.

A process flow diagram illustrating the operational waste streams, the on-site treatment of process water and sewage wastes, and the off-site transport of operational waste is presented in Figure 5-1. The amount of wastewater to be treated at the WWTP is approximately 350m³ per day.

The evaporation pond is approximately 85 m x 206 m x 2.5 m and has the capacity to store 40 ML.

5.1.2 Operational wastes – solid

Solid wastes generated during operation of the IOPP will comprise:

- solid waste from the Design Packaged Black Water Treatment System;
- general waste; and
- recycled waste.

The quantities of solid wastes that will be produced during operation of the IOPP are summarised in Table 5-2. The off-site transport of solid wastes is shown on Figure 5-1

Table 5-2: Summary of operational waste types and quantities – Solid wastes

Waste type	Classification	Disposal/ treatment method	Quantity
Metal Scrap	General waste	Scrap metal recycler vendor	Only happen if changing parts in Main shut
Solid Waste from Design Packaged Black Water Treatment System	General Solid Waste (putrescible)	To be transported by licensed contractor to approved facility	28 L / day
General waste	General Solid Waste (putrescible and non-putrescible)	To be transported by licensed contractor to approved facility	0.5 m ³ / day
Recycled waste	General Solid Waste (non- putrescible)	To be transported by licensed contractor to approved facility	0.5 m ³ / day
Waste IBCs	General Waste	Good condition will be back to supplier, deteriorated for general waste disposal	10 Nos/Year
Waste 200 Lts drums	General Waste	Send back to supplier for recycling / reuse	25 Nos./Year
Packing material , carets	General Waste	To tip	4 MT/month
Meal and seed waste	General Waste	To tip	1 Mt/month
Sludge from Evaporation Pond	Hazardous	To be transported by licensed contractor to approved facility	0.3 m ³ /day

5.2 Waste management and procedures

5.2.1 Solid wastes

Solid wastes generated by operation of the IOPP will be collected and managed onsite then disposed of offsite by a licensed waste contractor. Solid wastes removed from site are illustrated at Figure 5-1.

Sludge removed from process water at the WWTP shall be passed thru a centrifuge and placed to a covered bunded and impermeable pad prior to disposal.

Approximately 0.300m³ of salts shall accumulate to the Evaporative Storage Pond. Assuming the salts have a relative density of approximately 0.8, and the nearing empty

pond has a surface area of 20,000m², and that a depth of salt of 100mm is acceptable prior to the pond requiring maintenance, then the IOPP can operate for approximately 15 years prior to the pond requiring maintenance.

During a time of maintenance the recovery of 1/4 x 2000 x 0.1 m³ of salt shall be possible – 50m³. Harvested salts may have commercial value in these quantities and shall be investigated prior to disposal.

5.2.2 Liquid Wastes

Liquid process waste generated on site will be diverted from respective areas to the WWTP. Wastes generated at the laboratory shall also be diverted to the WWTP. Bunded areas of the site, floor wash down water, and first flush discharge from the Storm Water System shall be directed to the WWTP. The volume of wastewater to be treated at the WWTP is approximately 350m³ per day. The WWTP shall be a non-attended installation that shall require minimal operator intervention and shall provide continuous performance data to the central control room.

Operational alarms shall be generated at fault of any equipment, or of WWTP outflow quality or volumes not meeting with set parameters.

The WWTP and Recovery section is fitted with flow meters indicating volume of effluents entering the WWTP, volume of reject from the RO Plant entering the Evaporative Pond, and the volume of Water returning for re-use to the blending tank.

Water at the recovery section shall be monitored weekly for the following criteria in Table 5-3.

Table 5-3: Weekly recovery water monitoring criteria

Sr.	Parameter	Unit	Feed	Permeate	Reject
01	Daily Flow	m ³ /d	350	335	35
02	Peak Flow	m ³ /h	15	13.5	1.5
03	pH	-	7.0 – 8.0	6.5 – 7.5	7 – 8.5
04	TDS @ 25°C	mg/L	1500	< 200	< 15000
05	COD	mg/L	< 90	< 10	< 1000
06	BOD	mg/L	< 30	ND	< 300
07	TSS	mg/L	< 50	ND	ND
08	O & G / FM	mg/L	< 10	ND	ND
09	Total Hardness*	mg/L CaCO ₃	50	< 5	< 1500
10	Chlorides*	mg/L	500	100	5000
11	Sulphate*	mg/L	300	25	3000
12	Silica	mg/L	< 10	< 0.5	< 100

The volume of water contained within the Evaporative pond shall be estimated monthly by checking levels in each drying compartment of the evaporative pond and compared to the level anticipated of the water balance of an average wet year in order to predict any future operational issues regarding storage pond capacities.

Black water treatment

General sewage waste will be treated on-site using a Design Packaged Black Water Treatment System. This will generate solid waste and treated wastewater. The solid waste from the Black Water Treatment System will be removed from site by a licensed contractor and disposed of at an appropriate waste disposal facility. The treated wastewater from the Black Water Treatment System will be disposed of via a small scale pressure drip irrigation system involving application of 2.5 kl/day over 1000 m² of land.

Provision for any other liquid waste (e.g. waste oils and chemicals) will be made on site in consultation with the licensed waste collection contractor. The liquid waste will be appropriately classified according to the *Waste Classification Guidelines Part 1: Classifying Waste (DECCW 2009)* and disposed of accordingly.

5.3 Waste monitoring

During operation the volume of waste generated will be monitored by the types and number of skip bins, trucks and/or weight removed from site. Bin types, volumes and numbers will be recorded in a Waste Tracking Register / Data and a summary provided in the AEMR.

Any additional waste removed from site (i.e. waste for which skip bins are not provided) will be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste (NSW EPA 2014)* and disposed of appropriately. Weighbridge and landfill certificates will be recorded for additional wastes.

5.4 Compliance

5.4.1 Review of WMP

The approach to waste management, and the waste management measures employed, will be continually reviewed, and where appropriate improved, as per ROBE's EMS. During operation, the WMP will be reviewed annually.

5.4.2 Staff training

All operational staff working will undergo appropriate environmental training before commencing work on the IOPP site. This training will cover waste management issues and requirements. Details of training requirements are provided in the EMS.

5.4.3 Auditing

Project Approval Condition 64 requires an independent external audit of the operation within 12 months of the commencement of operations and every three years thereafter, as detailed in the EMS. This auditing program will include auditing of the WMP.

Non-compliance and corrective actions

Any non-compliances or non-conformances identified during monitoring, site inspections or audits will be managed as follows:

- non-conformances and non-compliances will be identified and recorded in the Environmental Action Register, together with a) corrective actions and b) preventative actions to prevent repeat occurrences;
- the identified corrective and preventative actions will be implemented;
- the register will be updated to close-out the issue; and
- the register will be periodically reviewed to ensure non-conformances and non-compliances are being addressed and that corrective and preventative actions are completed on time.

5.4.4 Responsibility of personnel

The Environment Officer is responsible for the implementation, continual review and improvement of this WMP. All operational staff and contractors will be trained in general waste management, together with general environmental awareness and reporting procedures. The Environment Officer is ultimately responsible for implementation of and compliance with this WMP.

5.5 Contingency for over production of vegetable protein meal

Approximately 109,550 tonnes of meal is to be produced annually. ROBE is permitted to store up to 3,000 tonnes of meal on site as outlined in the project approval. The meal is to be stored in the designated meal storage shed. ROBE are in negotiation with several wholesalers and suitable flat storage facilities to secure additional capacity should onsite storage become filled to design capacity.

Appendix A – Waste Management Control Plans

Waste Control Plan (WCP) 1: Administrative Requirements

Objectives	Comply with all statutory requirements. Prevent pollution and contamination of the environment. Minimise use of resources and need for waste disposal.
Targets	No identified non-compliances with the Minister's Conditions of Approval (MCoA) for the project. No breach of environmental legislative or regulatory requirements.
Approvals, licences & permits	MCoA for the project granted under the <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act).
Additional legislation	<i>Waste Avoidance and Resource Recovery Act 2001</i> (WARR Act) and <i>Protection of the Environment Operations Act 1997</i> (POEO Act).
Inspection and monitoring	Weekly checks of waste management measures during construction using a suitable site inspection checklist. Monitoring of waste generation and disposal using the Waste Tracking Register. Internal audits every three months during the construction period in accordance with the audit program specified in the EMS. Independent external audits in accordance with MCoA 64, as documented in the EMS.

Reference No.	Environmental control measures and safeguards	Timing	Responsibility ¹	Source/ Reference
WMP AR-01	Ensure that a waste management plan is prepared in consultation with the OEH and Wagga Wagga City Council and approved by the Director-General of the DP&I.	Before start of construction	SS/ SF	MCoA
WMP AR-02	Ensure that all registers and checklists identified in this WMP have been established.	Before start of construction	SS/ SF	WMP Chapters 3–5 and Appendices A-B
WMP AR-03	Ensure that waste management issues and requirements are covered in the environmental training provided to construction and operational staff.	Prior to starting work on site (construction and operation)	SS/ SF Plant Manager	WMP EMS and CEMP
WMP AR-04	Carry out site inspections during the construction period using an appropriate Environmental Site Inspection Checklist that covers waste management issues or a Waste Management Site Inspection Checklist.	Weekly during the construction period	SS/ SF ER/ CEM	WMP Chapter 5 and Appendix B
WMP AR-05	Ensure that monitoring of wastes is undertaken in accordance with this WMP and that the results of monitoring are recorded in the Waste Tracking Register, the Annual Environmental Monitoring Report, and the Annual Environmental Monitoring Report.	As required based on frequency of disposal	SS/ SF/ ER/ CEM	WMP Chapter 5 and Waste Data
WMP AR-06	Ensure that internal audits of compliance with this WMP are undertaken at the required frequency during the construction period.	Every 3 months during construction	SS/ SF ER/ CEM	WMP Chapter 5
WMP AR-07	Ensure that any non-compliances with this WMP are addressed in a timely manner in accordance with the required corrective action procedures, and are recorded in the Annual Environmental Monitoring Report.	As required	SS/ SF ER/ CEM	WMP Chapter 5

Reference No.	Environmental control measures and safeguards	Timing	Responsibility ¹	Source/ Reference
WMP AR-08	Ensure that this WMP is reviewed and revised on a regular basis.	Every 3 months during construction. Annually during operation.	SS/ SF ER/ CEM Plant Manager	WMP Chapter 3-5

1. Ultimate responsibility lies with the Construction Project Manager (during construction) and the Plant Manager (during operation). SS = Site Supervisor. SF= Site Foreman. ER = Environmental Representative. CEM = Construction Environmental Manager.

Waste Control Plan (WCP) 2: Waste Management Controls

Objectives	Comply with all statutory requirements. Prevent pollution and contamination of the environment. Minimise use of resources and need for waste disposal.
Targets	Avoid and minimise waste generation through use of source reduction measures. Maximise re-use and recycling opportunities. Identify, classify and quantify all wastes generated during construction and operation. Establish methodologies and benchmarks for waste reduction. Monitor waste generation and disposal and compare results against benchmarks for waste reduction. Document waste management performance in the Annual Environmental Monitoring Report.
Approvals, licences & permits	MCoA for the project granted under the <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act).
Additional legislation	<i>Waste Avoidance and Resource Recovery Act 2001</i> (WARR Act) and <i>Protection of the Environment Operations Act 1997</i> (POEO Act).
Inspection and monitoring	Weekly checks of waste management measures during construction using an <i>Environmental Site Inspection Checklist</i> that covers waste management issues or a specific <i>Construction Waste Management Checklist</i> . Internal audits at least once every three month during the construction period in accordance with the audit program specified in the EMS. Independent external audits in accordance with MCoA 64, as documented in the EMS.

Reference No.	Environmental control measures and safeguards	Timing	Responsibility ¹	Source/ Reference
WMP W-01	Waste management issues and requirements will form part of the environmental training program for construction and operational staff.	Before starting work on site (construction and operation)	SS/ SF ER/ CEM Plant Manager	Best practice EMS and CEMP

Reference No.	Environmental control measures and safeguards	Timing	Responsibility ¹	Source/ Reference
WMP W-02	In the purchase of materials for construction and on-going operation of the IOPP, consideration will be given to the recycled content of the materials and the amount and type of packaging they are contained in. Where the subject materials are suitable for purpose, preference will be given to materials with a high recycled content and a low volume of excess packaging requiring disposal to landfill.	Before start of construction and operation	SS/ SF ER/ CEM Plant Manager	MCoA WARR Act
WMP W-03	Waste materials will be re-used where possible, either on-site or off-site. Wagga Wagga City Council will be consulted regarding appropriate off-site re-use options.	Construction and operation	SS/ SF ER/ CEM	MCoA WARR Act
WMP W-04	Stripped weed free topsoil will be stockpiled for later reuse in landscaping activities. Topsoil from areas known to be weed infested will be stockpiled separately and removed off site for disposal at an appropriate licenced facility.	Construction	SS/ SF ER/ CEM	Best practice WARR Act
WMP W-06	All waste and recyclable material will be removed from site by a licensed contractor. The licensed contractor will be consulted to identify different waste and recycling streams to ensure the most suitable end location. No wastes or rubbish will be disposed of on site.	Construction and operation	SS/ SF/ ER/ CEM Plant Manager All staff	MCoA POEO Act
WMP W-07	A series of skip bins and other suitable waste receptacles or containers will be provided on site for collecting and sorting waste materials	Construction and operation	SS/ SF ER/ CEM Plant Manager	MCoA Best practice WARR Act
WMP W-08	The types of skip bins and receptacles provided will be determined in consultation with a licensed waste contractor and will optimise the separation of re-usable and recyclable materials from other waste types. At a minimum, separate bins will be provided for metals, wood, cardboard and paper, plastics, green waste, general building waste, oil contaminated earth, waste oils and general garbage such as food scraps. All waste collection bins and receptacles will have clear signage and instructions to avoid cross-contamination.	Construction and operation	SS/ SF ER/ CEM Plant Manager	MCoA Best practice WARR Act
WMP W-09	All waste will be collected and sorted in the appropriate bins provided	Construction and operation	All staff	MCoA Best practice
WMP W-10	The skip bins and receptacles provided for waste collection and sorting will be located in a designated waste management area that is marked with appropriate signage.	Construction and operation	SS/ SF/ ER/ CEM Plant Manager	MCoA Best practice
WMP W-11	All solid waste storage areas will have impermeable pads and be located in controlled drainage areas on the site.	Construction and operation	SS/ SF/ ER/ CEM Plant Manager	MCoA

Reference No.	Environmental control measures and safeguards	Timing	Responsibility ¹	Source/ Reference
WMP W-12	On-site waste receptacles will be emptied when 80% full.	Construction and operation	SS/ SF/ ER/ CEM Plant Manager	MCoA Best practice
WMP W-13	All waste being transported off site must be covered.	Construction and operation	SS/ SF/ ER/ CEM Plant Manager	Best practice POEO Act
WMP W-14	Liquid process waste generated during operation of the plant will be collected from respective areas and delivered to the WWTP or for ultimate disposal	Operation	Plant Manager	MCoA POEO Act
WMP W-15	During construction portable amenities will be established on site with all sewage waste being collected as need be by a licensed contractor.	Construction	SS/ SF/ ER/ CEM	MCoA POEO Act
WMP W-16	During operation, sewage waste will be treated and disposed of by irrigation. Solids accumulated shall be collected by a license contractor.	Operation	SS/ SF/ ER/ CEM	MCoA POEO Act
WMP W-17	The IOPP site will be kept free of litter at all times.	Construction and operation	All staff	Best practice POEO Act
WMP W-18	Cigarette butts will be disposed of in appropriate receptacles.	Construction and operation	All staff	Best practice POEO Act
WMP W-19	The site facilities will be furnished with energy efficient devices such as energy efficient	Construction and operation	SS/ SF/ ER/ CEM	Best practice WARR Act
WMP W-20	On site storage of vegetable protein meal will not exceed 3,000 tonnes. Contingency for storage of excess vegetable protein meal in the event of overproduction will be confirmed and secured prior to commissioning of the IOPP.	Prior to operation	Plant Manager	MCoA
WMP W-21	Waste disposal documentation and receipts will be retained for auditing purposes and a Waste Register Tracking is to be kept. The Waste Tracking Register will identify the waste types generated and the means by which each waste type is re-used, recycled or disposed of. Waste disposal locations will also be recorded.	Construction and operation	SS/ SF/ ER/ CEM Plant Manager	MCoA WARR Act Appendix C

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Appendix B – Example construction waste management checklist

Example construction waste management checklist

Note: This checklist is an example only. A project-specific checklist is to be developed by the proponent. The project-specific checklist must serve to assess the waste management performance of the construction phase of the project.

Areas inspected:			
Date:		Time:	
Person undertaking inspection:			
Description of on-site activities:			

N/A	Items	Satisfactory		Action Priority			Brief description of required action	Initial and date for close-out
		Yes	No	1 < 24 hr	2 < 3 days	3 < 7 days		
Waste storage								
	All waste contained within appropriate receptacles, with recyclable and non-recyclable wastes appropriately separated							
	Waste receptacles no more than 80% full							
Unlawful on site waste disposal and littering								
	Site grounds free of litter and cigarette butts							
	No wastes disposed of on site							
Waste management documentation								
	Waste disposal documentation and receipts retained on site for auditing purposes							
	Records of waste disposed of kept in Waste Tracking Register							