OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

BOURKE SMALL STOCK ABBATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 9.0

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

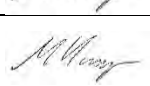
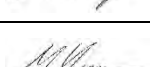
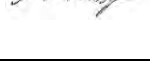
BOURKE SMALL STOCK ABATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 9.0

Revision History

Version	Revision Date	Details	Authorised	
			Name/Position	Signature
1.0	31/08/17	Initial draft for client review	Martin Haege Geolyse Pty Ltd	
2.0	23/11/17	Working draft for client review	Martin Haege Geolyse Pty Ltd	
2.1	15/12/17	Working draft for client review	Martin Haege Geolyse Pty Ltd	
3.0	29/03/18	Re-issue following initial client review	Martin Haege Geolyse Pty Ltd	
4.0	06/04/18	Add section 5.19 and minor typographical edits	Martin Haege Geolyse Pty Ltd	
5.0	12/04/18	Sent to client for review	Martin Haege Geolyse Pty Ltd	
6.0	30/05/18	Final draft issued for agency consultation	Martin Haege Geolyse Pty Ltd	
7.0	25/07/18	Updates following agency consultation. Final draft for DP&E approval.	Martin Haege Geolyse Pty Ltd	
8.0	14/09/18	Final updates following agency consultation. Prepared for DRGE. Final version for DP&E approval.	Martin Haege Geolyse Pty Ltd	
9.0	22/02/23	Updates following approval of MOD 2. Prepared for TFI. Final version for DP&E approval.	Martin Haege Premise Pty Ltd	

Current Sub Plan	Author	Version and Date
Emergency Disposal and Biosecurity Protocol	Premise	Version 4.0, 22/02/2023
Waste Management Plan	Premise	Version 5.0, 22/02/2023
Wastewater Management Plan	Premise	Version 4.0, 22/02/2023
Irrigation Management Plan	Premise	Version 5.0, 22/02/2023
Water Management Plan	Premise	Version 5.0, 22/02/2023
Effluent System Commissioning Plan	Premise	Version 3.0, 22/02/2023
Aboriginal Cultural Heritage Management Plan	EMM	V04, 22/11/2016

TABLE OF CONTENTS

APPENDICES

TABLES

FIGURES

ABBREVIATIONS

ACHMP	Aboriginal Cultural Heritage Management Plan
BOD	Biochemical Oxygen Demand
BSSA	Bourke Small Stock Abattoir
COD	Chemical Oxygen Demand
CoA	Condition of Approval
cfu	Colony Forming Units
dm	Dry matter
DRGE	Darling River Goat Exports Pty Ltd
DP&E	Department of Planning and Environment
EADSAP	Emergency Animal Disease Site Action Plan
EC	Electrical conductivity
EDBP	Emergency Disposal and Biosecurity Protocol
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ha	Hectare
IMP	Irrigation Management Plan
kL	Kilolitres (1,000 litres)
L	Litre
mg/L	Milligrams per litre
mL	Millilitre
ML	Megalitre (1,000,000 litres)
mm	Millimetre
OEMP	Operational Environmental Management Plan
t	Tonnes
TFI	Thomas Foods International
TKN	Total Kjeldahl Nitrogen
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solids
WatMP	Water Management Plan
WMP	Waste Management Plan
WWMP	Wastewater Management Plan

CONDITIONS COMPLIANCE TABLE

Development Consent SSD 7268 Condition	Where Addressed in the OEMP
B10: Evidence of Consultation	Appendix K
C6: Emergency Disposal and Bio-security Protocol	Appendix D; OEMP Section 5.8
C6(a)	Appendix K
C6(b)	Appendix D Section 1.4.2
C6(c)	Appendix D Section 2.2.1
C6(d)	Appendix D Section 2.2
C6(e)	Appendix D Section 2.2.3
C6(f)	Appendix D Section 2.2.4 and drawings
C6(g)	Appendix D Section 2.2.5
C6(h)	Appendix D Section 2.2.6
C6(i)	Appendix D Section 2.2
C20: Waste Management Plan	Appendix E; OEMP Section 5.3
C20(a)	Appendix K
C20(b)	Appendix E Section 2.1
C20(c)	Appendix E Sections 2.4 and 2.5
C20(d)	Appendix E Section 2.5
C20(e)	Appendix E Sections 2.1, 2.2, 2.3, 2.4 and 2.5
C35: Wastewater Management Plan	Appendix F; OEMP Sections 5.2, 5.6 and 5.10
C35(a)	Appendix K
C35(b)	Appendix F Section 2.1.4
C35(c)	Appendix F Section 2.2
C35(d)	Appendix F Section 2.3.2
C35(e)	Appendix F Sections 2.3.1 and 2.3.3
C35(f)	Appendix F Section 2.4.4
C35(g)	OEMP Sections 5.2 and 5.10 and OEMP Appendix I
C35(h)	Appendix F Section 2.6.1
C38: Irrigation Management Plan	Appendix G; OEMP Section 5.4
C38(a)	Appendix G Section 2.4
C38(b)	Appendix G Section 3.5.4
C38(c)	Appendix G Section 3.4
C38(d)	Appendix G Section 3.6
C39: Water Management Plan	Appendix H
C39(a)	Appendix K
C39(b)	Appendix H Section 2.2 and OEMP Appendix G
C39(c)	Appendix H Section 4.3
C39(d)	Appendix H Sections 2.3 and 2.4
C39(e)	Appendix H Section 3

Development Consent SSD 7268 Condition	Where Addressed in the OEMP
C39(f)	Appendix H Section 4
C45: Aboriginal Cultural Heritage Management Plan	Appendix J
C45(a)	Appendix J Section 2
C45(b)	Appendix J Section 5.3
C45(c)	Appendix J Section 5.3
C45(d)	Appendix J Section 5 and Section 6.2.2
C45(e)	Appendix J Sections 6.2.3 and 7.3
C45(f)	Appendix J Section 5.1.2
C46: Gurri Tree Removal and Compensatory Planting	Appendix J
C46(a)	Appendix J Sections 5.1.2 and 5.2.3
C46(b)	Appendix J Sections 5.1.2 and 5.2.3
D3: Operational Environmental Management Plan	This document
D3(b)	OEMP Section 1.4.4
D3(c)	OEMP Section 1.6
D3(d)	OEMP Section 2
D3(e)	OEMP Sections 1.4.1, 1.4.2 and 1.4.3
D3(f)	OEMP Section 2.3
D3(g)(i)	OEMP Section 5.18
D3(g)(ii)	OEMP Section 5.14
D3(g)(iii)	OEMP Section 5.20
D3(g)(iv)	OEMP Section 7.2.3
D3(g)(v)	OEMP Section 5.15
D3(h)(i)	Appendix D
D3(h)(ii)	Appendix E
D3(h)(iii)	Appendix F
D3(h)(iv)	Appendix G
D3(h)(v)	Appendix H
D3(h)(vi)	Appendix J
D6: Revision of Strategies, Plans and Programs	OEMP Section 7.4
D7: Annual Review	OEMP Section 7.2
D8: Incident Reporting	OEMP Section 5.5
D9: Regular Reporting	OEMP Section 5.18
D10: Access to Information	OEMP Section 5.18
D11: Independent Environmental Audit	OEMP Section 7.3.3

Part 1

INTRODUCTION

Introduction

1.1 OEMP CONTEXT

The Bourke Small Stock Abattoir (BSSA) (SSD: 7268) was originally approved by the Department of Planning and Environment (DPE) under the delegation of the Minister for Planning on 14 September 2016.

The BSSA is a small stock processing facility located approximately 14 kilometres north of Bourke in rural New South Wales. The facility has the capacity to process up to 6,000 head of livestock per day comprising goats, sheep and lamb, and consists of the following components:

- Covered stock holding yards,
- Administration offices
- Truck parking and truck wash facilities;
- Car parking facilities,
- Processing building
- Other infrastructure associated with abattoir processes.

An initial modification to the project, 'MOD 1', was sought by the previous site owner and approved on the 23 February 2017 to correct inconsistencies in the plans for the abattoir's layout. Under MOD 1 corrected drawings were included in Appendix B of SSD 7268. Following their acquisition of the BSSA site in December 2021, TFI undertook a comprehensive review of all approval documentation for the project and determined that an additional modification, 'MOD 2', was required to enable commencement of operations. MOD 2 was approved on 10 October 2022 and included changes to:

- Remove the requirement and specifications for a mass carcass disposal pit to be constructed and ready for an event that may not occur. In the event of a mass mortality, consultation will be undertaken with relevant agencies and those agencies would dictate disposal requirements.
- Remove requirement for 900 mm compacted clay liner with permeability of less than $1x10^{-9}$ m/s in the stormwater dam.
- Remove requirement for rubber membrane liner for manure stockpile area and instead meet minimum design requirements for a leachate barrier system in Section 5.2 of the NSW Department of Environment and Conservation (DEC) (2004) *Environmental Guidelines: Composting and related organics processing facilities*.

This Operational Environmental Management Plan (OEMP) has been prepared to address relevant consent conditions and Environmental Protection Licence (EPL) requirements for the operation of BSSA by Thomas Foods International (TFI). This version of the OEMP has specifically been updated to reflect TFI's acquisition of the facility and recent changes to the abattoir's operation associated with the approval of MOD 2.

The location of BSSA and its regional setting is provided in **Figure 1.**

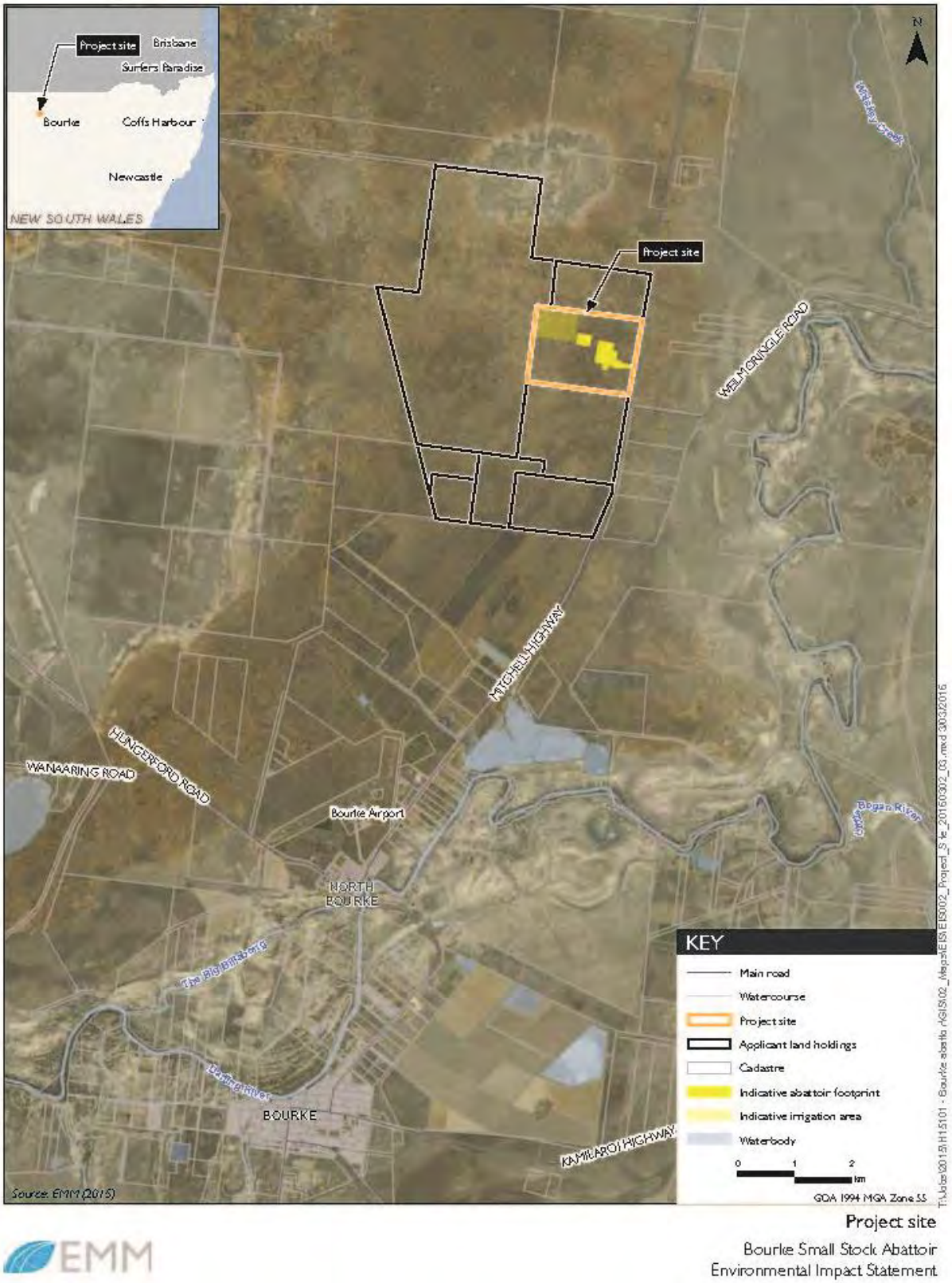


Figure 1: BSSA Site Context (Source: EMM, 2016a)

1.2 OEMP OBJECTIVES

This OEMP provides a framework for environmental management and detailed operating procedures that establish a commitment to environmental performance at the BSSA.

The objectives of this OEMP are to:

- comply with applicable environmental legislation and approvals;
- identify and manage environmental risks;
- ensure all operating procedures are implemented correctly; and
- undertake continuous monitoring, review and reporting on environmental performance under this OEMP.

1.3 SCOPE

The OEMP has been prepared with due consideration of the following documentation:

- Development Consent SSD 7268; including the instrument of Determination for MOD-2 approved on behalf of the Minister for Planning on the 5 October 2022.
- The management and mitigation measures included as Appendix A of SSD 7268- Mod 2.
- Documentation supporting the application of MOD 2 including the report titled: Thomas Foods International - Modification 2 Application - Bourke Small Stock Abattoir (Premise, September 2022)
- Environmental Impact Statement (EIS) titled *Bourke Small Stock Abattoir – SSD 7268* (EMM Consulting, March 2016);
- Response to Submissions (RTS) titled *Bourke Small Stock Abattoir (SSD 7268) Response to Submissions* (EMM, June 2016);
- RTS Addendum (EMM, July 2016);
- Development layout plans, management and mitigation measures described by the EIS and RTS including updated layout plans approved and included as Appendix B of SSD 7268 – MOD 1.

1.4 LICENSES AND APPROVALS

1.4.1 APPROVALS

The original development consent (SSD 7268) was approved on behalf of the Minister of Planning on the 14 November 2016.

Modification 1 (MOD 1) was approved on the 23 February 2017 and corrected inconsistencies in the plans for the abattoir's layout.

Modification 2 (MOD 2) was approved on the 10 October 2022 and included changes to requirements associated with mass carcass disposal, the lining of a stormwater dam and the design of a leachate barrier system for the manure stockpile area.

1.4.2 LICENCES

Licenses relevant to the operation of the BSSA are outlined in the following subsections.

1.4.2.1 EPA Licence

A licence issued by the New South Wales (NSW) Environment Protection Authority (EPA) is required for 'schedule activities' listed under Schedule 1 of the P*rotection of the Environment Operations Act 1997* (POEO Act).

The BSSA requires an Environment Protection Licence (EPL) for the following activities:

- Livestock processing activities

The BSSA is a licensed premise and regulated through EPL Licence No. 20918. The EPL outlines the EPA requirements for continued operation of the facility. A variation to the EPL was approved by the EPA on the 8 November 2022 to reflect changes associated with development modification SSD-7268-Mod 2 (**Appendix L**).

1.4.3 EXPORT CONTROL ACT, 1982

BSSA is registered by the Federal Department and Water Resources under the *Export Control Act, 1982* as an export establishment. Establishment number 2985 has been issued by the Department for BSSA.

The *Export Control Act, 1982* imposes statutory obligations upon the Commonwealth and BSSA in the form of minimum standards for sanitary construction and operation that comply with Australian Standards and additional requirements of importing country authorities.

BSSA is obligated under the *Export Control Act, 1982* to enter into an operation plan (an Approved Arrangement) with the Commonwealth that codifies all operations at the establishment relating to hygienic performance, animal care, and disease control.

The Approved Arrangement covers the following:

- Pre-operational Sanitation;
- Operational sanitation;
- Personal hygiene;
- Waste disposal;
- Water supply;
- Pest control;
- Control of hazardous substances;
- Sourcing of animals and risk management;
- Animal welfare;
- Temperature control; and
- Animal health and foreign disease control.

The Commonwealth exercises its authority by assessing compliance at BSSA through a government veterinary officer and ancillary inspection staff located full-time at the premises.

Operational standards at the BSSA are subject to continuous assessment by the Commonwealth as well as audit by importing country authorities in determining compliance with international certification requirements (including other international requirements and market standards such as FAO standards, Codex Alimetarius etc).

1.4.4 BEST PRACTICE GUIDELINES

The Approved Arrangement implemented under the *Export Control Act, 1982* will ensure all operations practices relating to hygienic performance, animal care, and disease control are consistent with relevant best practice guidelines including those listed in Conditions B6(d) and C5.

1.4.5 BIOSECURITY ACT 2015

The Commonwealth *Biosecurity Act 2015* provides statutory obligations for the management of diseases and pests that may cause harm to human, animal or plant health or the environment.

Biosecurity risks associated with the BSSA are address within the appended **Emergency Disposal and Biosecurity Protocol (EDBP)** (**Appendix D**).

1.4.6 OTHER STATUTORY OBLIGATIONS

There are various statutory instruments administered by Commonwealth, State and local government agencies that apply to TFI. These include, but are not limited to, legislative acts and their associated regulations, and planning instruments.

TFI has a responsibility to ensure that the operation of the complex meets the requirements of all applicable statutory obligations. Where necessary, TFI should consult with the relevant government agencies and/or seek professional advice/assistance from its environmental consultant(s).OEMP Structure.

1.5 OEMP STRUCTURE

The structure for this OEMP is detailed in in **Table 1.**

Table 1.1 – OEMP Structure

Section	Purpose
Section 1 – Introduction	Identifies the purpose of the OEMP and structure.
Section 2 – Environmental Management	Outlines the environmental policy, site environmental management and responsibilities.
Section 3 – Site and Operations	Provides an overview of the site and the operations.
Section 4 – Environmental Risks	Identifies the environmental risk that need to be managed.
Section 5 – Operating Procedures	States the environmental objectives and provides operational procedures to manage environmental risk.
Section 6 – Monitoring	Details the monitoring program for assessing environmental performance.
Section 7 – Reporting and Review	Provides reporting requirements and details of the OEMP review and auditing process.

Part 2

STRATEGIC FRAMEWORK FOR ENVIRONMENTAL MANAGEMENT

Strategic Framework for Environmental Management

2.1 OPERATIONS

The BSSA is operated by Thomas Foods International Pty Ltd (TFI)

2.2 ENVIRONMENTAL POLICY

The BSSA will be managed with the implementation of all reasonable and practicable measures, as set out in this OEMP, to minimise adverse environmental impacts.

The BSSA will be operated to achieve an appropriate level of environmental performance in accordance with this OEMP and TFI's Environmental Policy Statement (refer to **Appendix M**).

Environmental due diligence shall be demonstrated by integrating care for the environment into the responsibilities and work ethics of all Workers.

2.3 MANAGEMENT ROLES AND RESPONSIBILITIES

2.3.1 MANAGEMENT STRUCTURE

The environmental management structure for BSSA is provided as **Figure 2**.

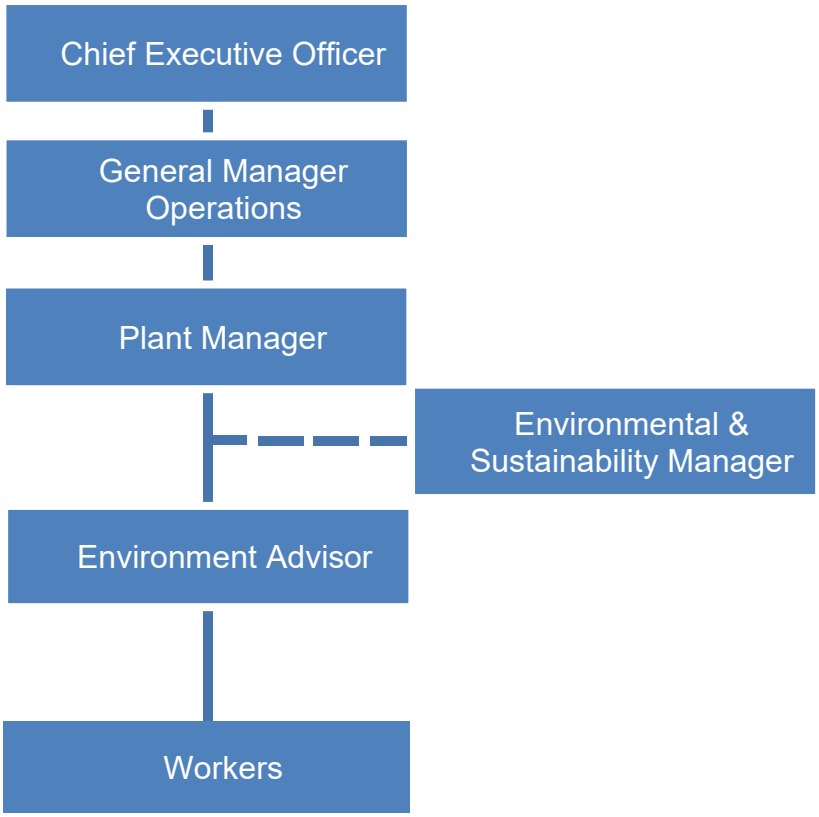


Figure 2: Environmental Management Structure

2.3.2 SITE MANAGEMENT

TFI BSSA site management contacts are provided in **Table 2.1**.

Table 2.1 – TFI BSSA Site Management

Key Contact	Company Position	Contact Details
Bill Adcock	Group Operations Transformation Manager	08 8165 5100.
Rhubin Reti	Plant Manager	
Andrew Manning	Group Environmental & Sustainability Manager	

2.3.3 RESPONSIBILITIES

An overview of responsibilities of BSSA site management are detailed in **Table 2.2.**

TFI BSSA site management consists of contacts identified in **Table 2.1**.

The Plant Manager (or other suitably qualified site management representatives as their replacement) with the authority to make immediate decisions, must be available during all hours of operation to ensure appropriate responses to environmental incidents and emergencies are implemented.

Table 2.2 – Roles and Responsibilities

Role	Responsibilities
TFI BSSA Site Management	• Overall responsibility for environmental management and compliance with the Development Consent and relevant legislation; • Coordinate routine environmental site inspections and maintenance; • Coordinate necessary environmental reporting and regulatory authority liaisons; • Record, notify, investigate and respond to any complaints and/or enquiries and, where necessary, develop and implement corrective actions; • Record, notify, investigate and respond to any environmental incidents and, where necessary, develop and implement corrective actions; • Oversee the implementation of this OEMP and provide adequate resources to enable implementation of this OEMP; and • Provide adequate environmental inductions/training to Workers regarding their requirements under this OEMP.
Workers (including all employees and contractors)	• Ensure familiarity, implementation and compliance with this OEMP and appended management plans; • Support TFI's commitment to environmental management and compliance; • Work in a manner that will not harm the environment or impact on surrounding receptors; • Report all environmental incidents and complaints to TFI BSSA Site Management without delay; and • Report any inappropriate operational and/or environmental management practices to TFI BSSA Site Management without delay.

A matrix of responsibilities for environmental management at BSSA is provided in **Table 2.3.**

Table 2.3 – Responsibility matrix

Responsibility	CEO	GMO	PM	EA	ESM	Workers
Corporate environmental management	✓					
OEMP implementation and effectiveness		✓	✓	✓	✓	✓
OEMP review				✓		
OEMP audit				✓		
Administrative support				✓		✓
Reporting/records		✓		✓		
Community liaison				✓		
Environmental awareness/training			✓	✓	✓	✓
Monitoring/checking		✓	✓	✓	✓	
External Communication			✓	✓	✓	✓
Operational control			✓			✓
Non-conformance/corrective actions		✓	✓	✓	✓	✓
Compliance with legal & other requirements		✓	✓	✓	✓	
Point of emergency contact		✓	✓			

2.4 AUTHORITIES AND STAKEHOLDERS

2.4.1 REGULATORY AUTHORITIES

Table 2.4 provides contact details for regulatory authorities relevant to the operation of the BSSA.

Table 2.4 – Regulatory Authorities and Contacts

Regulatory Authority	Key Contact	Contact Details
Emergency Services	NSW Police	Ph: 000
	Fire and Rescue NSW	
	NSW Ambulance	
Bourke Shire Council	General Enquires (Office hours: Monday to Friday, 8:30am-4:45pm)	Ph: 02 6830 8000 Email: bourkeshire@bourke.nsw.gov.au
	Emergency (Outside Office hours)	Ph: 0419 722 055
NSW Environmental Protection Authority (EPA)	General Enquiries (Office hours: Monday to Friday, 9:00am-5:00pm)	Ph: 131 555 Email: info@epa.nsw.gov.au
	Pollution and Environment Incident Reporting - Environment Line (24 hours)	Ph: 131 555
NSW Department of Primary Industries (DPI)	General Enquiries – Head Office (Office hours: Monday to Friday, 9:00am-5:00pm)	Ph: 02 6391 3100

Table 2.4 – Regulatory Authorities and Contacts

Regulatory Authority	Key Contact	Contact Details
	General Enquiries – Bourke District Office-Agriculture (Office hours: Monday to Friday, 9:00am-5:00pm)	Ph: 02 6830 0000
	Emergency Animal Disease Hotline (24 hours)	Ph: 1800 675 888
	Emergency Plant Pest Hotline (24 hours)	Ph:1800 084 881
NSW Health	NSW Ambulance Service General Inquiries Only (Office hours: Monday to Friday, 8:30am-5:00pm)	Ph: 02 9320 7777
	Western NSW Public Health Network Head Office and Enquiries	Ph: 1300 699 167 Email: admin@wnswphn.org.au
Safework NSW	Incident Notification serious injury or illness, a death or a dangerous incident (24 hours)	Ph:13 10 50
NSW Rural Fire Service	Bush Fire Information Line	Ph: 1800 679 737
	Bourke Local Government Area (Far West Office)	Ph: 02 6872 4023

2.5 INDUCTIONS AND TRAINING

TFI BSSA Site Management will ensure all Workers at the BSSA are appropriately inducted and trained.

Training in relation to environmental responsibilities and implementation of this OEMP will take place initially through the site induction and then on an on-going basis through “toolbox talks” (or similar).

TFI’s standard induction program addresses environmental management and ensures that everyone on-site is aware of their “general environmental duty” and the need to report all incidents and complaints to Site Management.

The topics to be covered during the induction and toolbox talks include (but are not limited to):

- General site maintenance and management expectations and requirements;
- Familiarisation with site environmental management and the mitigation measures in the site licence and this OEMP, with particular emphasis on:
  - Odour emissions;
  - On-site wastewater treatment system;
  - On-site stormwater water management system;
  - Minimising and managing solid waste; and
  - Appropriate chemical storage, handling and use.
- Appropriate response and management of environmental incidents in accordance with the protocol detailed in **Section 5.15 - Environmental Incident Management**; and
- Appropriate response and management of complaints received from the public, government agencies or other stakeholders in accordance with the protocol detailed in **Section 5.18 - Stakeholder Engagement**

Site Management will ensure all inductions and training activities are undertaken in accordance with **Section 5.16 - Staff Training**. All induction and training activities will be recorded, and records maintained for a minimum period of four (4) years.

Part 3

SITE AND OPERATIONS

Site and Operations

3.1 SITE

The Bourke Small Stock Abattoir (BSSA) is a rural small stock abattoir located approximately 14 kilometres north of Bourke in north-western New South Wales.

The site is identified as Lot 17 DP753546 and is approximately 240 ha in size. The overall footprint of the abattoir facility (inclusive of irrigation area) is 51 ha.

Access to the site is from the Mitchell Highway.

3.2 SITE LAYOUT

Layout of the facility is shown in **Figure 3** and includes:

- An administration and amenities building,
- A fenced staff car parking area and separate executive car parking area,
- Roadways for access to site,
- Gate house at entrance to site,
- Truck manoeuvring areas comprising hardstand,
- Truck wash-down area,
- A roofed holding yard building with receival and unloading facilities, holding yards and observation platform,
- Upstairs holding pens for holding prior to kill,
- Outside short term overflow holding yards,
- A process building comprising administration area, kill floor, evisceration area, boning room, refrigeration area, dispatch area, carton storage area and plant room,
- Skin shed,
- Hay shed,
- Secure compound for maintenance equipment and stores,
- A stormwater retention pond,
- Manure stockpile area,
- A wastewater treatment facility comprising a primary wastewater treatment facility and four wastewater evaporation ponds to capture and treat wastewater for reuse and irrigation,
- A minimum 38 ha irrigation area and associated irrigation infrastructure,
- Landscaped areas; and
- Business identification signage.

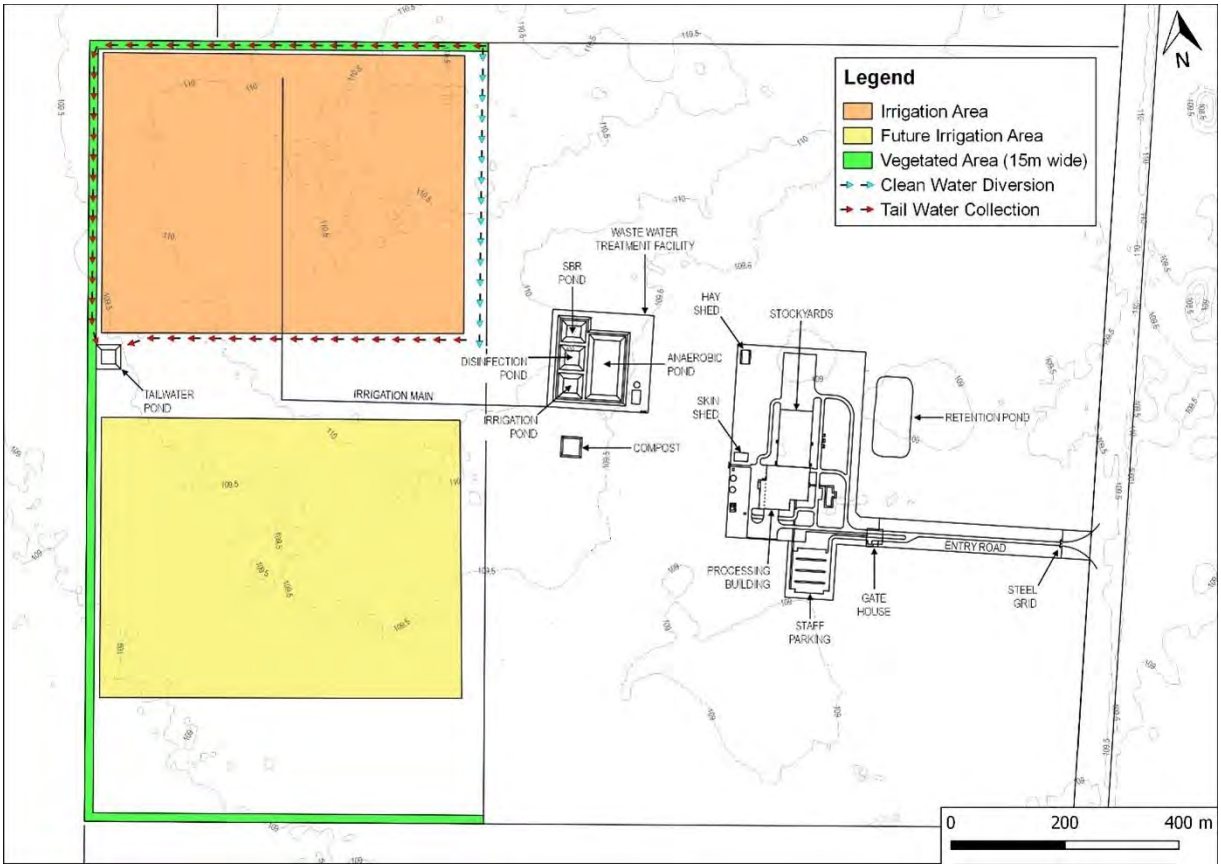


Figure 3: BSSA site layout

3.3 OPERATIONS

3.3.1 OPERATING HOURS

The facility operates 24/7 to facilitate stock receival and delivery requirements. Processing of stock for slaughter occurs between the hours of 6:00 am and 10:00 pm Monday to Friday. All other tasks including cleaning, maintenance and stock receival occur outside of these hours and on weekends. The facility does not operate on public holidays.

3.3.2 THROUGHPUT

At full operational capacity the abattoir has a maximum allowable daily throughput of 6,000 head comprising goats, sheep and lambs. The annual throughput is expected to exceed 2 million head.

The facility can hold a maximum population of 11,000 livestock at any one time.

3.4 MAJOR PLANT AND EQUIPMENT

The operation of the facility requires the use of specialised plant and machinery typical of abattoir facilities and stock processing and other general equipment not specific to the abattoir facility.

Plant and equipment includes:

- Transport, access and maintenance machinery including trucks, all-terrain vehicles, tractors and forklifts,
- Gas fired boilers to generate steam for sterilisation and cleaning,
- Ramps for loading/unloading of stock;
- Yards and fences;
- Specialised equipment for the stunning, bleeding, skinning, evisceration and other processing of stock,
- A stormwater retention pond and associated pumps for harvesting of water from building roofs and trafficable areas,
- Ponds for the treatment and management of liquid wastes with associated mechanical aeration and pumps;
- Water pumps to transfer irrigation water around the site;
- Plant and equipment associated with the administrative building; and
- General maintenance equipment.

3.5 ENERGY CONSUMPTION

Energy is consumed by a range of sources within the abattoir, including for:

- Lighting
- Refrigeration
- Hot water
- Cleaning and sterilisation
- Heating/cooling
- Process equipment

The main source of energy consumption on the site is expected to be processing chain operation, refrigeration and cold storage of processed meat prior to dispatch, as the refrigeration system is in use 24 hours per day. Energy efficient refrigeration systems have been incorporated into the refrigeration system design where possible to reduce energy consumption.

3.6 PROCESSES

The operation of the site generally involves the receival, holding, slaughter, packing and dispatch of small livestock. The associated processes are typical for an abattoir facility.

A summary of site processes and their environmental interaction is provided in **Table 3.1**.

Table 3.1 – Processes and environmental interactions

Process	Description	Environmental Interaction
Livestock delivery	Receival of livestock, livestock penning.	• Noise • Air (odour) • Air (dust) • Surface water • Traffic
Temporary livestock holding	Temporary holding of livestock prior to slaughter	• Air (dust) • Air (odour) • Surface water
Slaughter and processing of livestock	Livestock taken to kill floor for slaughter and proceed through processing areas	• Noise • Air (odour)
Product dispatch	Dispatch of packaged, chilled carcasses and off-cuts for sale	• Traffic • Noise
Truck wash-down area	Wash-down of trucks and other stock transport vehicles prior to departure from site	• Air (dust) • Surface water
Solid waste management	Collection of solid waste (manure) from holding yards	• Air (odour) • Air (dust) • Surface water
Effluent treatment	Primary treatment system followed by a biological pond system for effluent treatment.	• Noise • Air (odour) • Surface water • Groundwater
Cropping	Establishment of crops/pasture in the effluent irrigation area with associated maintenance and harvesting.	• Noise • Air (odour) • Air (dust) • Surface water
Water harvesting	Capture of roof runoff and surface water runoff for reuse by irrigation of gardens and lawns	• Surface water

3.7 WATER CYCLE MANAGEMENT

3.7.1 WATER DEMAND AND SUPPLY

Water for the facility is provided through a combination of roof water harvesting, recycling of treated effluent and connection to reticulated water supply. Water demand and supply are summarised in **Table 3.2.**

Table 3.2 – Water demand and Supply

Demand	Main Supply	Primary Top-up Supply
Stock water	Reticulated raw	Reticulated potable
Domestic – potable	Reticulated potable	NA
Yard wash down	Reticulated raw	Reticulated potable
Water trough cleaning	Reticulated potable	NA
Irrigation - paddocks	Treated effluent	NA
Irrigation – lawns and gardens	Recycled stormwater	Reticulated raw
Fire services	Reticulated raw	Reticulated potable

The total average annual water demand is approximately 250 to 365 ML/year depending on the number of days worked.

3.7.2 LIQUID WASTE MANAGEMENT

All liquid wastes excluding stormwater runoff are managed on site using an effluent treatment system with treated effluent being reused for irrigation. Liquid wastes are generated from wash-down of processing areas, leachate from manure stockpile and domestic effluent created by the amenities and office buildings.

Stormwater run-off is stored in a stormwater retention pond east of the main processing building and reused for irrigation of lawns and gardens surrounding the facility.

Table 3.3 – Treatment pond system

Pond	Volume ML	Surface area at NWL m^2	Average Hydraulic Residence Time	Function
1. Anaerobic	17.5	6,090	35-50	BOD and suspended solids reduction.
2. Sequencing Batch Reactor (SBR)	3.4	1,330	7-10	BOD and nitrogen reduction. Sludge recycled to Pond 1.
3. Polishing	1.6 + 2.7 ML wet weather storage	1,520	3-5	Disinfection and wet weather storage
4. Irrigation Pond	4.5	1,520	na	Balancing irrigation demand and providing wet weather storage

3.7.2.1 Effluent Quality

The effluent treatment system provides a water source for reuse over irrigation areas. The expected treated effluent quality is detailed in **Table 3.4 – Effluent Quality.**

Table 3.4 – Effluent Quality

Parameter	Treated Effluent Quality
Biochemical oxygen demand (BOD)	<100 mg/L
Nitrogen (total)	<60 mg/L
Ammonia	<5 mg/L
Oil and grease	<100 mg/L
Total phosphorous (TP)	<20 mg/L
Total suspended solids (TSS)	<50 mg/L
Total dissolved solids (TDS)	<2,000 mg/L
pH	6.5 to 9

3.7.2.2 Irrigation Loads

Hydraulic Load

The water cycle model shows an average of 113 ML/year (effluent and tailwater) is irrigated over 31 ha. This is an average application rate of 3.63 ML/ha/year; which is low for the Bourke climate. The hydraulic loading on the effluent irrigation area is low given the need to balance nutrient loadings.

Nutrient Loads

The principle objective of the effluent irrigation scheme is to use or immobilise the added nutrients quickly to prevent potential contamination of surface water and/or groundwater. To achieve this, the amount of each nutrient applied in the treated effluent must be less than or similar to the amount removed from the site as well as the fixing of phosphorus by the soil. The nutrients of greatest environmental concern are nitrogen and phosphorus.

The effluent availability dictates the annual application rate, not the crop water demand. That is, there is not sufficient treated effluent volume to meet the crop water demands. This would be reflected in reduced crop yields, which is factored into the nutrient balances

Nutrient balances for the irrigation reuse scheme are summarised in **Table 3.5**. The nutrient balance shows a nitrogen deficit across the irrigation area and a slight phosphorus excess. The phosphorus excess can be assimilated by the soil profile with an expected capacity exceeding 40 years.

Table 3.5 – Nutrient balance – Millet/Oats

Parameter	Units	Nitrogen	Phosphorus
Effluent applied	ML/ha/year	3.51	3.51
Nutrient content	mg/L	60	20
Nutrient load	kg/ha/year	189	70
Crop uptake	kg/ha/year	255	43
Excess/(deficit)	kg/ha/year	-66	27
Phosphorus holding capacity	Years	-	42

Organic Load

The biochemical oxygen demand of the treated effluent is expected to be < 100 mg/L. Based on the average application of 3.51 ML/ha/year, the organic loading will be 29 kg/ha/year which is well below guideline values.

Salt Loading and Management

The final irrigation water is expected to have an EC of 3.1 dS/m (TDS 2,000 mg/L). A small quantity of salt will be removed in the crops during harvesting; however the main salt management strategy will be to apply a leaching fraction on three or four occasions during the year, depending on rainfall.

The required leaching fraction can be calculated using the following equation (DEC, 2004):

Leaching required = $100 \times EC_{iw}/EC_{dw}$

Where EC_{iw} = electrical conductivity of the irrigation water = 3.1 dS/m
EC_{dw} = electrical conductivity of the drainage water at which the relative crop yield is 50% = 11 dS/m (Table 4.4 DEC 2004)

Therefore the leaching fraction required is 28%, or 99 mm.

It is recommended that leaching irrigation event occurs on three or four occasion each year, particularly if conditions have been dry. If there have been periods of heavy rainfall, a leaching irrigation event may not be required.

3.7.2.3 Wet Weather Storage

Water balance results are shown in **Figure 4** and demonstrate that the combined wet weather storage of 5.7 ML is adequate to prevent effluent discharge in 90 percent of years in accordance with the design guidelines for high strength effluent described by the *Environmental Guidelines – Use of Effluent by Irrigation* (DEC, 2004).

It is noted that Pond 3 and Pond 4 have an additional 1.6 ML of freeboard storage which can be used to balance irrigation if required.

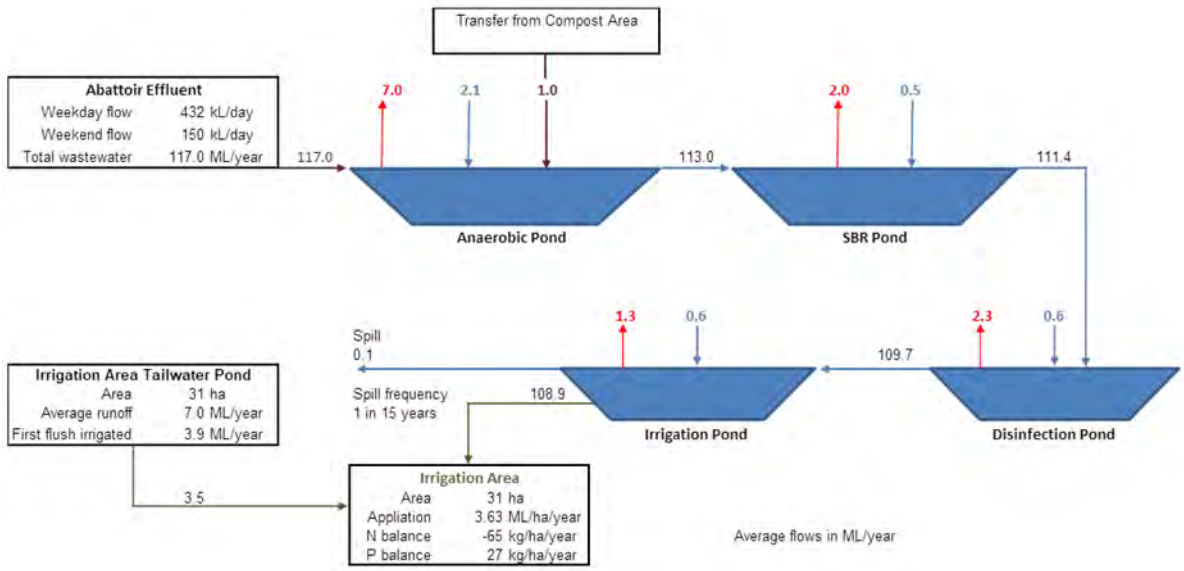


Figure 4: Water balance results

3.7.3 SURFACE WATER MANAGEMENT

Runoff from roofs and a portion of the trafficable areas is directed toward the stormwater retention basin using drainage and pump system. This system has a capacity of 1,220 m^3 and is designed to capture runoff from a 1 in 10 year storm event across the catchment area. Captured water is pumped to the stormwater retention pond for reuse by irrigation of lawns and gardens.

The effluent treatment ponds and manure stockpile area are separated from general surface water runoff using bunds and collection drains. Surface water captured in these controlled drainage areas is managed in the wastewater treatment system.

The irrigation area is separated from surrounding surface water runoff with an upslope clean water diversion bund and downslope collection drains that direct runoff from the irrigation area to a sediment basin. The tailwater pond is a first flush system and once full excess water bypasses. Water collected in the tailwater pond is pumped to the irrigation system and irrigated.

3.8 WASTE MANAGEMENT

The types and volumes of waste generated by site operations is provided in **Table 3.6**.

Table 3.6 – Operational waste types and volumes

Waste Type	Source	Quantity	Management
Liquid waste	Wash-down of processing areas Domestic effluent from site amenities	Average = 700 kL per day or 175 ML per year	Treatment in on-site wastewater treatment system comprising primary treatment and four treatment ponds. Reused through: • Irrigation across 31 ha (113 ML/year);
Liquid waste	Stormwater run-off	Dependent on rainfall	Stormwater run-off will be held on-site in a stormwater retention basin and reused through irrigation of lawns, gardens and vegetation across the facility.
Liquid waste	Blood from kill floor	Average = 4.5 ML per year	Blood from the kill floor will be transported off-site for processing at a licensed facility.
Solids waste	Slaughter and processing areas including non-edible wastes, hair, skins	Average = >4500 tonnes per year	Solid waste from the slaughter and processing of stock will be disposed of off-site at licensed premises. Skins will be transported off-site to a licensed processing facility.
Solid waste	Manure	Average = 75 tonnes per year of manure	Manure collected from holding yards will be collected and stored onsite in a bunded manure stockpile area. Manure will be stored in the stockpile area prior to reuse onsite within irrigation paddocks. Manure will be stockpiled on-site in a bunded manure stockpile area prior to re-use onsite. The location of the manure stockpile area is provided in **Appendix N** and includes a leachate barrier system in accordance with Section 5.2 of the DEC (2004) *Environmental Guidelines: Composting and related organics processing facilities.*
Solid waste	Sludge from wastewater treatment process	Average = 750 tonnes per year	Sludge from the wastewater treatment process will be removed and disposed of off-site by licensed contractor as required.
General refuse	Employees Site workers and contractors	Variable	Appropriate receptacles and space will be provided for the temporary storage of garbage and recyclables to ensure separation of waste products.
Stock mortalities	Stock	Average = 150 tonnes per year	Placed in refrigeration and removed from site (along with non-edible waste products) to a licenced facility within 24 hours. In the unlikely event of a mass stock mortality event, TFI shall consult with relevant agencies to confirm disposal requirements., If mass carcass disposal is required it shall be undertaken under the direction of relevant agencies (refer to **Emergency Disposal and Biosecurity Management Plan**).

Part 4

RISK ASSESSMENT

Risk Assessment

4.1 INTRODUCTION

This section of the OEMP identifies potential environmental impacts associated with operating the BSSA. Potential impacts have been identified through consideration of the activities to be undertaken, as well as issues identified in the environmental impact assessment, as well as matters raised by stakeholders during the approvals process.

These potential impacts are treated as risks that need to be managed through environmental management activities, controls and monitoring designed to prevent or minimise these risks being realised.

4.2 RISK ASSESSMENT

The environmental risk rating of an identified impact is measured in terms of consequence (severity) and likelihood (probability) of the event happening. The risk assessment matrix and rating is provided below.

		CONSEQUENCE				
		1 Insignificant	**2 Minor**	**3 Moderate**	**4 Major**	**5 Catastrophic**
LIKELIHOOD	A. Rare	Low	Low	Low	High	High
	B. Unlikely	Low	Low	Moderate	High	Very High
	C. Possible	Low	Moderate	High	Very High	Very High
	D. Likely	Low	Moderate	High	Very High	Very High
	E. Almost certain	Low	Moderate	High	Very High	Very High

Figure 5: Risk assessment matrix

The qualitative measures of likelihood and consequence are shown in **Tables 4.1** and **4.2**.

Table 4.1 – Qualitative measures of likelihood

Level	Descriptor	Example description
A	Rare	Uncommon, unusual: not likely to occur within a 10 year period
B	Unlikely	Not expected to happen: may occur once every 5 to 10 years
C	Possible	Could happen: will probably occur between 1 to 5 years
D	Likely	Expected to happen: expected to occur at least once in a 6 to 12 month period
E	Almost certain	Will happen: imminent or will occur in 1 to 6 months

Table 4.2 – Qualitative measures of consequence or impact

Level	Descriptor	Example description
1	Insignificant	Negligible impact, little disruption to normal operation, low increase in normal operation costs
2	Minor	Minor impact for small population, some manageable operation disruption, some increase in operating costs
3	Moderate	Minor impact for large population, significant modification to normal operation but manageable, operation costs increased, increased monitoring
4	Major	Major impact for small population, systems significantly compromised and abnormal operation if at all, high level of monitoring required s
5	Catastrophic	Severe impact for large population, complete failure of systems

4.3 RISK ASSESSMENT SUMMARY

Appendix A: Risk Management contains a list of potential environmental risks associated with the operation of the BSSA and how they will be managed.

Section 5 outlines the operating procedures and control measures that will be used to prevent or minimise environmental risks and impacts.

Part 5

OPERATING PROCEDURES

Operating Procedures

5.1 FORTNIGHTLY ENVIRONMENTAL CHECKLIST

5.1.1 OBJECTIVE

To provide a checklist of fortnightly management and inspection activities relating to environmental management.

5.1.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W).	
Where:	Entire site	
When:	Every second Thursday	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake inspections and complete **Form 1 – Environmental Checklist** every second Thursday.	PM
2.	The Plant Manager shall undertake and/or coordinate remedial action if required as a result of completing **Form 1 – Environmental Checklist**.	PM
3.	The Plant Manager shall record on **Form 1 – Environmental Checklist** if a non-compliance has triggered the need for an Incident Report. If required, an Incident Report shall be prepared in accordance with **Section 5.15**.	PM
4.	The Workers will be responsible for undertaking any remedial action as directed by the Plant Manager.	W
5.	The Plant Manager shall inspect and sign-off on **Form 1 – Environmental Checklist** when remedial action work has been adequately completed.	PM
6.	The QA/Safety Manager shall ensure that the **Form 1 – Environmental Checklist** is appropriately filed (hard copy or electronic copy) and that records are kept on site for a minimum of four (4) years, and are available to the EPA on request.	QSM
Records:	Form 1 – Environmental Checklist	
References:	nil	

5.2 EFFLUENT SYSTEM MANAGEMENT

5.2.1 OBJECTIVE

The effluent treatment system shall be managed to minimise odour generation and achieve applicable targets for reuse through irrigation. Relevant targets are;

- pH 6.5 to 9
- BOD <100 mg/L
- Nitrogen (total) <60 mg/L
- Total Phosphorus <20 mg/L
- Total suspended solids <50 mg/L
- Total dissolved solids <2000 mg/L
- Ammonia <5 mg/L
- Oil and Grease <100 mg/L

The above targets are median values derived over 12 months.

5.2.2 MANAGEMENT

Effluent is generated from:

- Wash down of stock processing areas within processing building,
- Wash down and run-off from stock holding yards,
- Truck wash-down area,
- Domestic effluent from the administration building and amenities; and
- Leachate from the manure stockpile area.

The effluent management system is totally isolated from the stormwater/surface water runoff system. The effluent system is separated from the surface water system through paving, kerb and gutter, and drains.

Effluent treatment and management will include:

- Primary treatment and solids removal,
- Secondary and tertiary treatment in anaerobic, aerobic and maturation ponds,
- Storage in a holding pond to balance irrigation demand; and
- Reuse of treated effluent for irrigation of cropping paddocks.

5.2.3 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM)
Where:	Effluent treatment system
When:	Fortnightly

Actions:		**Responsible Person(s)**
1.	The effluent management system shall be managed in accordance with the Effluent System Commissioning Plan outlined in **Appendix I** for the first 18 months of operations. Once fully commissioned the effluent treatment system shall be managed in accordance with the following procedures. The Effluent System Commissioning Plan shall then be removed from this OEMP.	PM
2.	The Plant Manager shall undertake fortnightly inspections of the effluent treatment system which includes: – Surface water management systems to ensure separation of clean and dirty catchments – The primary solids removal system(s) – Anaerobic, SBR, holding and irrigation ponds – Crust formation on anaerobic pond – Pumps – Irrigation system Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
3.	The Plant Manager shall record the daily irrigation volume on **Form 1 – Environmental Checklist**.	PM
4.	Observations to be made at each pond are: – Pond colour or changes from previous inspections – Pond odour rated as low, moderate or strong – Any solids build-up or floating scum layers – Any damage to EDPM liners (if present) – Inspection of aerator cables and anchor points Any observations shall be recorded on Form 1 – Environmental Checklist.	PM
5.	Pond sludge levels shall be measured every year in January and recorded on the relevant **Form 1 – Environmental Checklist**. Pond sludge measurements shall be undertaken using a sludge judge, solids interface meter or other suitable method. The PM shall arrange sludge removal once the pond volume has been reduced by 25%	PM
6.	The Plant Manager shall immediately report any fault or alarm to the equipment supplier.	PM
7.	The QA/Safety Manager shall ensure monthly monitoring of the effluent treatment system is undertaken in accordance with **Section 6.3**.	QSM

Who:	Plant Manager (PM), QA/Safety Manager (QSM)	
Where:	Effluent treatment system	
When:	Fortnightly	
Actions:		**Responsible Person(s)**
8.	If the effluent management system is not meeting required levels, the Plant Manager shall commission appropriate investigations and shall employ the following management actions: – Notify the system supplier to commence investigation; – Irrigating only under suitable wind conditions; – Adopting deficit irrigation scheduling to ensure the irrigation area does not become saturated due to irrigation.	PM
9.	If effluent is unsuitable for irrigation and/or reuse the Plant Manager shall adopt one or all the following contingency measures: – Removing part or all of the effluent load from the site by tanker; and/or – Reducing effluent generation.	PM
10.	Effluent monitoring data shall be reported in the Annual Review in accordance with **Section 7.2**.	QSM
Records:	Form 1 – Environmental Checklist Annual Review	
References:	**Wastewater Management Plan** (**Appendix F**)	

5.3 SOLID WASTE MANAGEMENT

5.3.1 OBJECTIVE

To ensure solid wastes are managed to:

- prevent surface water pollution;
- minimise odour generation;
- minimise the quantity held on site; and
- record quantities and end use.

5.3.2 MANAGEMENT

Solid wastes are generated from:

- Manure from holding yards,
- Slaughter and processing areas including non-edible wastes, plastic and cardboard for packing, and skins,
- The effluent treatment system; and
- General refuse from administration and amenities buildings

Majority of solids will be disposed of off-site at appropriately licensed facilities. Manure will be stockpiled on-site in a bunded manure stockpile area prior to re-use onsite.

The location of the manure stockpile area is provided in **Appendix N** and includes a leachate barrier system in accordance with Section 5.2 of the DEC (2004) *Environmental Guidelines: Composting and related organics processing facilities.*

5.3.3 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Holding yards, manure stockpile area, stock slaughter/processing areas, effluent treatment system	
When:	Weekly or as specified	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the holding yard floors to ensure a build-up of manure has not occurred. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
2.	The Plant Manager shall schedule fortnightly (or as required) collection of manure from the holding yards at a time that does not interfere with livestock receival and processing. Material removed from the holding yards will be placed in the manure stockpile area.	PM, W
3.	The Plant Manager shall inspect the holding yards following dry cleaning and determine if a wash down is required.	PM
4.	If the holding yards are washed down, the Workers shall inspect the surface water solids trap and removed solids as required after they have sufficiently drained. Solids shall be placed in the manure stockpile area.	W

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)
Where:	Holding yards, manure stockpile area, stock slaughter/processing areas, effluent treatment system
When:	Weekly or as specified

Actions:		**Responsible Person(s)**
5.	The Plant Manager shall undertake fortnightly inspections of the manure stockpile area to observe that the manure is stockpiled in the appropriate area. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
6.	The Plant Manager shall arrange removal within 48 hours of any solid wastes that are generating a strong odour that is noticeable at the site boundary in a downwind direction.	PM
7.	The quantity of solids stockpiled on site shall be recorded on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
8.	Any solids removed from the wastewater treatment process including from screens or treatment ponds shall be stored in designated screening bins and collected as required by a licensed contractor.	PM
9.	The Plant Manager shall ensure that if the solid waste cannot be managed to prevent environmental harm (odour generation) that BSSA will implement increased frequency of waste removal.	PM
10.	The Plant Manager shall ensure that dedicated receptacles for non-edible wastes (e.g. trotters and other processing wastes) are collected daily for disposal off-site at an appropriately licensed facility.	PM
11.	The Plant Manager shall ensure all waste removed from the site is only to be directed to a waste management facility licensed to accept the waste.	PM
12.	The Plant Manager shall require that any vehicles removing solid waste: – Are appropriately sealed/waterproof to avoid any potential leakage; and – Are covered to prevent dust.	PM
13.	In the event of dead stock, immediate action will be taken to remove the dead stock to the chillers. The Plant Manager shall arrange the following: – Temporary storage of deceased stock onsite in a contained and designated area prior to collection. – Collection by licensed contractor for disposal at an off-site appropriately licensed facility. – Dead stock shall generally be removed within 12 hours of notification. Dead stock will not be held on site for more than 24 hours.	PM
14.	The Plant Manager shall ensure that the appropriate staff member records the location, description, tail tag number, owner and number of dead stock on the **Form 2 – Dead Stock Register**.	PM, W
15.	The Plant Manager shall ensure that no dead stock are buried on site unless directed by relevant agencies in the event of of a mass stock death.	PM
16.	In the event of mass stock death or notifiable disease, the Plant Manager shall refer to the Emergency Disposal and Biosecurity Protocol (**Appendix D**) to determine the appropriate management strategy.	PM

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Holding yards, manure stockpile area, stock slaughter/processing areas, effluent treatment system	
When:	Weekly or as specified	
Actions:		**Responsible Person(s)**
17.	The Plant Manager shall ensure that receptacles are provided for general refuse and the separation of recyclables.	PM
18.	General refuse will be placed in bins located around the complex by all staff members and visitors. All staff are responsible for ensuring general refuse is placed in bins.	W
19.	Workers shall empty waste receptacles as required to a central skip bin for collection.	W
20.	The QA/Safety Manager shall ensure that records of all solid waste removed from the site are kept on **Form 3 – Solid Waste Removal Record**.	QSM
21.	The quantity of solid waste removed from the site shall be reported in the Annual Review in accordance with **Section 7.1**.	QSM
Records:	Form 2 – Dead Stock Register Form 3 – Solid Waste Removal Record Annual Review	
References:	Emergency Disposal and Biosecurity Protocol (**Appendix D**)	

5.4 IRRIGATION MANAGEMENT

5.4.1 OBJECTIVE

To ensure that irrigation is undertaken in a manner that:

- does not result in runoff during irrigation;
- matches the soil's capacity to assimilate the hydraulic and nutrient load;
- does not cause unacceptable odour beyond the site boundary;
- does not cause spray drift across the site boundary.

5.4.2 IMPORTANT OPERATIONAL CONSIDERATIONS

As effluent irrigation schemes are designed to accommodate wetter years, the stored effluent will run out in average and dry years in around mid-summer leaving only the daily flow of effluent. This means that in some years, full irrigation of the entire 31 ha area will not be possible. It is important however that the irrigation areas are rotated to ensure nutrients are distributed across the entire area.

TFI will irrigate year round as soil moisture conditions allow for optimum utilisation of recycled water. TFI will aim to eliminate the discharge of treated effluent by:

1. managing the wet weather storage to prevent, as far as is practicable, any discharge of treated effluent. This may include using the pond freeboard in very wet years; and
2. achieving optimum draw down of the wet weather storage (whilst maintaining the maturation pond volume) by the end of the irrigation season to provide the maximum capacity for the non-irrigation season.

5.4.3 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Effluent irrigation area	
When:	Weekly and during irrigation	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall ensure that prominent warning signs in compliance with AS 1319 - Safety Signs for the Occupational Environment and the EPL are displayed around the perimeter of the effluent irrigation area and location of each Monitoring and Discharge Point. All fencing, gates and signage shall be inspected in accordance with **Section 5.1** and maintained to ensure public and livestock access control.	PM

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)
Where:	Effluent irrigation area
When:	Weekly and during irrigation

Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the effluent irrigation system which includes the pumps, pipes, distribution mains and irrigator(s). Observations will include: – Any signs of leaks, spills or runoff – Any failure of irrigation system including overshooting of irrigators (failure of auto-stop device) – Any unauthorised access by livestock and humans (workers, public, etc.) – Any signs of land degradation such as extended waterlogging or ponding, salinity, soil compaction (structure problems due to sodicity), plant/crop damage (e.g. stunting) – Any damaged fences and gates, missing warning signs, possible vandalism Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
2.	A weather station shall be installed on the site to record rain and wind (speed and direction). Weather data shall be logged and stored electronically so that data can be examined in the event of an Incident Report (refer to **Section 5.15**).	PM
3.	Irrigation areas shall be sown with suitable crops that can be harvested for nutrient removal. The **Irrigation Management Plan** includes suitable crops.	PM
4.	The Plant Manager shall ensure that Workers undertake inspections of the irrigation equipment and irrigation area prior to and after each irrigation event to ensure soil conditions are suitable to commence irrigation and also to observe soil and plant conditions after completion of irrigation to check for runoff.	PM, W
5.	The Workers shall inspect the irrigation area during irrigation to ensure excessive ponding and/or runoff are not occurring.	W
6.	The workers will inspect the vegetative buffer zone during irrigation to ensure excessive run off is not occurring.	W
7.	The Plant Manager shall ensure the irrigation scheme is managed on a moisture deficit irrigation approach to help prevent effluent runoff from the irrigation area. Soil moisture observations and irrigator experience will be used to check how much water can be applied on a day-to-day basis.	PM
8.	The Plant Manager shall ensure that the extent of the wetted area from irrigation is more than 15 m from the recommended perimeter and this 15 m buffer remains well vegetated with trees, grasses and shrubs.	PM
9.	The Plant Manager shall ensure that no irrigation takes place if greater than 10 mm of rainfall is forecast in the next 48 hours.	PM
10.	The Plant Manager shall ensure that all irrigation ceases in the event of unexpected rainfall commencing during irrigation.	PM

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Effluent irrigation area	
When:	Weekly and during irrigation	
Actions:		**Responsible Person(s)**
11.	The Plant Manager shall ensure that all irrigation ceases in the event of strong winds (> 26 knots or approximately 50 km/hour).	PM
12.	Irrigation area runoff collected in the tailwater pond shall be irrigated as soon as conditions allow following the runoff event.	PM
13.	The volume irrigated should be limited to less than 20 mm in any one day This is to match the infiltration capacity of the soil profile.	PM
14.	Irrigation records shall be maintained on **Form 4 – Irrigation Record** and shall include: – The date – The time irrigation started and stopped – The volume irrigated (either through meter read or pump run time calculation) – The section of the irrigation area irrigated (Area ID) – Wind direction and speed – Details of any incidents	PM
15.	The Plant Manager shall ensure monitoring of the effluent treatment system is undertaken in accordance with **Section 6.3**. This will provide a record of irrigation water quality.	PM
16.	The Plant Manager must ensure that the 15 metre wide vegetative buffer zone immediately downslope of the irrigation area is maintained.	PM
17.	The QA/Safety Manager shall ensure that crop monitoring is undertaken in accordance with **Section 6.10.**	QSM
18.	Effluent irrigation data shall including all relevant effluent, soil and crop monitoring data be reported in the Annual Review in accordance with **Section 7.2**.	QSM
Records:	Form 1 – Environmental Checklist Form 4 – Irrigation Record Annual Review	
References:	Irrigation Management Plan (**Appendix G**)	

5.5 SOIL MANAGEMENT

5.5.1 OBJECTIVE

To effectively manage the soil resource on the site to:

- Minimise soil loss through erosion;
- Prevent soil structural decline;
- Control soil salinity levels; and
- Prevent the build-up of nutrients through the soil profile.

5.5.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	General site and irrigation area	
When:	Weekly	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the general site and irrigation area. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
2.	The Plant Manager shall identify any areas of exposed soil that may be prone to erosion and include remedial action on **Form 1 – Environmental Checklist**.	PM
3.	Site Workers shall advise the Plant Manager if they observe any areas where grass cover is poor or active erosion is present.	W
4.	The Plant Manager shall ensure that all directional and advisory signage is in place during the fortnightly inspection. All traffic movement and parking shall be restricted to paved or gravelled areas. No public vehicle movement across grassed areas shall be permitted.	PM
5.	The Plant Manager shall ensure that effluent irrigation is undertaken in accordance with **Section 5.4**. This shall include making sure that the entire irrigation area is used in rotation ensure the nutrient load is fully distributed.	PM
6.	The soil monitoring program outlined in **Section 6.5** shall be the main management tool to manage soil structural decline, manage soil salinity and prevent the build-up of nutrients from irrigation. The Plant Manager shall coordinate this monitoring and ensure it is undertaken in accordance with the schedule outlined.	PM

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	General site and irrigation area	
When:	Weekly	
Actions:		**Responsible Person(s)**
7.	The soil monitoring undertaken in accordance with **Section 6.5** shall be used to identify any adverse soil structural changes that may trigger the need for remedial actions which may include: – Undertaking an irrigation leaching event to improve the soil salinity – Adding soil ameliorants such as gypsum – Cropping rotation – Cultivation; or – Resting a particular paddock. The need for any of the above actions would be identified in the Annual Review prepared in accordance with **Section 7.1**. The Plant Manager shall be responsible for undertaking these actions if they are required.	PM
8.	The site assessment indicates that the land is suitable for managed effluent irrigation and there is adequate land to ensure hydraulic and nutrient loads can be managed on site. In the very unlikely event that issues arise, the following contingency measures could be undertaken: – Using non-irrigated paddocks on the site for temporary effluent irrigation; – Removing part or all of the effluent load from the site by road tanker; or – Limiting truck wash-down operation. The need for any of the above actions would be identified in the Annual Review prepared in accordance with **Section 7.2**. The Plant Manager shall be responsible for undertaking these actions if they are required.	PM
9.	The QA/Safety Manager shall ensure soil monitoring undertaken in accordance with **Section 6.5**.	QSM
10.	Soil monitoring data shall be reported in the Annual Review in accordance with **Section 7.2**.	QSM
Records:	Form 1 – Environmental Checklist Annual Review	
References:		

5.6 SURFACE WATER MANAGEMENT

5.6.1 OBJECTIVE

To provide an integrated surface water management system that:

- Prevents the potential for surface water pollution.

5.6.2 MANAGEMENT

Stormwater runoff from sealed trafficable areas and roofs is stored in the stormwater retention pond for reuse onsite. Water from the stormwater pond is used for irrigation of gardens and landscaped areas, and dust suppression.

5.6.3 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)
Where:	General site, stormwater retention pond
When:	Fortnightly and as required

Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the surface water management system including drains, surface water solids traps, transfer pumps and stormwater retention basin. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
2.	The Plant Manager shall ensure that all fuel, oils and chemicals used on site are stored in the approved and bunded lockable chemical shed.	PM
3.	In the event of a fuel or chemical spill, all efforts will be made by all Workers to contain and clean up the spill, but ONLY where safe to do so.	PM, W
4.	A fuel or chemical spill or other chemical handling incident will be reported as an incident by the Worker(s) involved and the Plant Manager shall complete the Environmental Incident Report in accordance with **Section 5.15**.	PM, W
5.	The stormwater retention pond shall be used as a point of supply for non-potable water use at the facility to irrigate gardens and lawns. The stormwater retention pond shall be operated to maintain an air space of 1,220 m^3. This air space capacity is available at a level of RL106.55 which is 1.0 m below the invert level of the inflow pipe (RL107.55). Surface water captured in the stormwater pond shall be used for landscape irrigation and dust suppression. Where practicable, the design air space shall be restored within 5 days of runoff occurring.	PM
6.	The Workers shall ensure that all solid wastes are stored in their designated area to prevent run-off of wastes. Inspection of the manure stockpile area shall be undertaken fortnightly in accordance with **Section 5.1**.	W, PM
7.	The Plant Manager shall ensure that effluent irrigation is undertaken in accordance with **Section 5.4**. This shall include regular inspection to avoid surface runoff during irrigation.	PM

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	General site, stormwater retention pond	
When:	Fortnightly and as required	
Actions:		**Responsible Person(s)**
8.	The QA/Safety Manager shall ensure surface water monitoring is undertaken in accordance with **Section 6.6**.	QSM
9.	Surface water monitoring data shall be reported in the Annual Review in accordance with **Section 7.2**.	QSM
10.	Surface water shall be managed in accordance with the procedures and requirements of the **Water Management Plan (Appendix H**)	PM
Records:	Form 1 – Environmental Checklist Annual Review	
References:	**Water Management Plan (Appendix H**)	

5.7 GROUNDWATER MANAGEMENT

5.7.1 OBJECTIVE

To manage the site to prevent measurable changes to groundwater conditions from up gradient to down gradient of the facility.

5.7.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Effluent ponds, irrigation area, manure stockpile area	
When:	Annually or when groundwater detected in monitoring wells	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the effluent treatment ponds to identify any damage to the liner, blockages or overflow of wastewater. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
2.	The Plant Manager shall ensure that effluent irrigation is undertaken in accordance with **Section 5.4**. This shall include regular inspection to avoid surface runoff and ponding during irrigation.	PM
3.	The Plant Manager shall ensure that all fuel, oils and chemicals used on site are stored in the approved and bunded lockable chemical shed.	PM, W
4.	In the event of a fuel or chemical spill, all efforts will be made by all Workers to contain and clean up the spill, but ONLY where safe to do so.	PM, W
5.	A fuel or chemical spill or other chemical handling incident will be reported as an incident by the Worker(s) involved and the Plant Manager shall complete the Environmental Incident Report in accordance with **Section 5.15**.	PM, W
6.	The Workers shall ensure that all solid wastes are stored in their designated areas. Manure should be stockpiled in the bunded manure stockpile area. Inspection of the manure stockpile area shall be undertaken fortnightly in accordance with **Section 5.1**.	W, PM
7.	In the unlikely event of a mass stock mortality event, the Plant Manager shall consult with relevant agencies to confirm disposal requirements., If mass carcass disposal is required it shall be undertaken under the direction of relevant agencies (refer to **Emergency Disposal and Biosecurity Management Plan**).	PM
8.	The QA/Safety Manager shall ensure groundwater monitoring is undertaken in accordance with **Section 6.7**.	QSM
9.	Groundwater monitoring data shall be reported in the Annual Review in accordance with **Section 7.2**.	QSM
10.	Groundwater shall be managed in accordance with the procedures and requirements of the **Water Management Plan (Appendix H**)	PM
Records:	Form 1 – Environmental Checklist Annual Review	
References:	**Emergency Disposal and Biosecurity Management Plan** (**Appendix D**)	

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Effluent ponds, irrigation area, manure stockpile area	
When:	Annually or when groundwater detected in monitoring wells	
Actions:		**Responsible Person(s)**
	Water Management Plan (Appendix H)	

5.8 STOCK HOLDING MANAGEMENT

5.8.1 OBJECTIVE

To manage the stock holding yards in a manner that promotes stock health and wellbeing, minimises the potential for dust generation and contamination of surface water run-off.

5.8.2 PROCEDURES

Who:	Plant Manager (PM), Workers (W)	
Where:	Stock holding yards	
When:	Daily and as required	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the holding yards. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
2.	The Plant Manager shall ensure the holding yards are free from manure build up.	PM
3.	The Plant Manager shall ensure the stocking capacity of each holding yard is not exceeded and stock are held in accordance with the relevant AUSVETPLAN manuals.	PM, W
4.	The Plant Manager and Workers shall ensure that adequate potable water supply is available for stock consumption.	PM
5.	The Plant Manager shall ensure all holding yards are free from protrusions or other objects that may cause injury.	PM
6.	The Plant Manager and Workers shall undertake routine inspection of stock for signs of sickness or lameness. Sick or injured stock shall be placed in a designated sick pen until a veterinary officer/inspector, or Plant Manager approves the stock for processing or recommends euthanasia.	PM, W
7.	If deceased stock are encountered in the holding yards they must be managed in accordance with **Section 5.3.**	PM
8.	In the event of mass stock death or notifiable disease, the Plant Manager shall refer to the **Emergency Disposal and Biosecurity Protocol** (**Appendix D**) to determine the appropriate management strategy.	PM
Records:	Form 1 – Environmental Checklist Annual Review	

Who:	Plant Manager (PM), Workers (W)	
Where:	Stock holding yards	
When:	Daily and as required	
Actions:		**Responsible Person(s)**
References:	**Emergency Disposal and Biosecurity Protocol** (**Appendix D**)	

5.9 DUST MANAGEMENT

5.9.1 OBJECTIVE

To ensure that operations are undertaken in a manner that minimises the potential for dust generation and impacts on local air quality.

5.9.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)
Where:	Trafficable areas, irrigation areas, stock holding yards
When:	Fortnightly and as required

Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the site to identify if there are any areas of potential dust generation. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
2.	The Plant Manager and Workers are responsible for monitoring dust generation and employing dust control measures as required. Appropriate dust control measures shall include: – Strategic watering using water sourced from the stormwater pond or, in the event that no water is available in the pond, from the raw water supply system – Sweeping and/or cleaning of hard surfaces – Controlling stock movements – Not undertaking potential dust generating activities in unfavourable conditions (e.g. in strong winds, or when winds are in the direction of off-site receivers).	PM, W
3.	Landscaping shall be watered and maintained until well established to provide barriers to wind and dust movement.	PM, W
4.	The Plant Manager shall ensure that: – All drivers adhere to posted speed limits – All trucks carrying any material shall have their loads covered whilst entering and leaving the premises – All trucks leaving the site are cleaned of dirt and other material prior to existing the site	PM
5.	General traffic movement will be restricted to sealed and/or gravelled areas.	PM
6.	Any unsealed roads with the premises shall be inspected by the Plant Manager to ensure they are adequately maintained as to minimise wheel dust generation. If damage to roads is identified the Plant Manager shall ensure corrective action is undertaken.	PM
8.	Dust shall be monitored by recording any complaints received on the Complaints Register in accordance with **Section 5.14 – Complaints Management**. A summary of any dust complaints, causes and corrective actions shall be provided in the Annual Review in accordance with **Section 7.2**.	QSM

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Trafficable areas, irrigation areas, stock holding yards	
When:	Fortnightly and as required	
Actions:		**Responsible Person(s)**
Records:	Form 1 – Environmental Checklist Form 7 – Complaints Register Annual Review	
References:	Nil	

5.10 ODOUR MANAGEMENT

5.10.1 OBJECTIVE

To ensure that operations are undertaken in a manner that does not cause or permit the emission of potentially offensive odour beyond the boundary of the premises

5.10.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Truck wash-down, stock holding yards, effluent treatment system and irrigation area	
When:	Fortnightly and as required	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the site to identify if there are any areas of potential odour generation. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
3.	The Plant Manager shall ensure that solid wastes are managed in accordance with **Section 5.3** to minimise the amount of solid waste stored on-site.	PM
4.	The Plant Manager shall ensure that all wastes to be transported off-site shall be transported in enclosed systems to ensure negligible odour generation occurs.	PM
5.	The Plant Manager shall arrange removal within 48 hours of any solid wastes that are generating a strong odour that is noticeable at the site boundary in a downwind direction.	PM
6.	Workers shall ensure that any leakage/spill of odour generating substances shall be immediately cleaned up.	W
7.	The effluent treatment system shall be managed in accordance with **Section 5.2** to ensure aerators are working and dissolved oxygen levels are adequate.	PM
8.	Effluent irrigation shall be managed in accordance with **Section 5.4**.	PM
9.	Odour shall be monitored by recording any complaints received on the Complaints Register in accordance with **Section 5.14 – Complaints Management**. A summary of any odour complaints, causes and corrective actions shall be provided in the Annual Review in accordance with **Section 7.2**.	QSM
Records:	Form 1 – Environmental Checklist Form 7 – Complaints Register Annual Review	
References:		

5.11 NOISE MANAGEMENT

5.11.1 OBJECTIVE

To ensure that operations are undertaken in a manner that minimises the potential for noise generating activities to impact on the local amenity.

5.11.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Site	
When:	As required	
Actions:		**Responsible Person(s)**
1.	Potential noise generating activities are going to be undertaken 24/7 excluding public holidays. Processing of stock for slaughter will occur between the hours of 6:00 am and 10:00 pm Monday to Friday. All other tasks including cleaning, maintenance and stock receival will occur outside of these hours and on weekends.	PM
3.	The BSSA induction for transport operators shall include awareness of the sensitive surrounding uses and potential noise impacts during the later evening/night periods (e.g. after 6 pm). This shall include: – Providing control over impact generating activities (dropping decks, gate operations etc.) in both the livestock areas and the truck wash-down areas – Minimising the use of engine brakes and horns	PM
4.	The site staff training shall include awareness of the sensitive surrounding uses and potential noise impacts during the later evening/night periods	PM
5.	Workers shall ensure no undue stress is placed on livestock resulting in excessive bleating/crying.	W
6.	Site signage shall be used to reinforce the need to minimise noise during the evening and night periods.	PM
7.	Noise shall be monitored by recording any complaints received on the Complaints Register in accordance with **Section 5.14 – Complaints Management**. A summary of any noise complaints, causes and corrective actions shall be provided in the Annual Review in accordance with **Section 7.2**.	QSM
Records:	Form 1 – Environmental Checklist Form 7 – Complaints Register Annual Review	
References:		

5.12 TRAFFIC MANAGEMENT

5.12.1 OBJECTIVE

To manage traffic movement on site to:

- Reduce heavy vehicle/light vehicle conflict points;
- Reduce vehicle/pedestrian interaction; and
- To minimise the potential for dust generation.

5.12.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W), Contractors (C)
Where:	Site
When:	As required

Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the site to identify if there are any traffic movement or parking issues. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	PM
2.	The Plant Manager shall ensure that general traffic movement is restricted to defined sealed and/or gravelled areas.	PM
3.	The BSSA induction for transport operators shall include details of internal speed limits and traffic movement areas.	PM
4.	The Plant Manager shall ensure that the following are visibly sign posted: • Speed limits • Parking areas • Unloading/loading	PM
5.	The Plant Manager shall ensure all vehicles onsite adhere to posted speed limits.	PM
7.	The Plant Manager, Workers and Contractors shall ensure that loading and unloading of stock and materials will only be in defined areas that are sealed and/or gravelled.	PM, W, C
8.	The Plant Manager, Workers and Contractors shall ensure all vehicles must be wholly contained within the site before being required to stop and do not queue or park on the Mitchell Highway or other public roads and footpaths within the vicinity.	PM, W, C
9.	The Plant Manager shall ensure truck wash-down shall only be undertaken in the designated area.	PM
10.	The Plant Manager and Workers shall ensure the carpark is kept free of obstacles, and no vehicle is parked outside of designated spaces.	PM, W
11.	The Plant Manager and Workers shall ensure that all general pedestrian movement occurs only along defined paths and walkways.	PM, W
12.	The Plant Manager shall ensure that bins associated with the development are not placed on public roads or footpaths in the vicinity of the development, as to not impact on local traffic conditions.	PM
13.	Traffic impacts shall be monitored by recording any complaints received on the Complaints Register in accordance with **Section 5.14 – Complaints Management**. A summary of any traffic complaints, causes and corrective actions shall be provided in the Annual Review in accordance with **Section 7.2**.	QSM

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W), Contractors (C)	
Where:	Site	
When:	As required	
Actions:		**Responsible Person(s)**
Records:	Form 1 – Environmental Checklist Form 7 – Complaints Register Annual Review	
References:	Nil	

5.13 DANGEROUS GOODS STORAGE

5.13.1 OBJECTIVE

To ensure the safe handling and storage of dangerous goods and chemicals.

5.13.2 PROCEDURES

Who:	QA/Safety Manager (QSM), Workers (W)	
Where:	Site	
When:	As required	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall undertake fortnightly inspections of the dangerous goods and chemicals store to ensure all goods are stored correctly. Record of the inspection shall be maintained on **Form 1 – Environmental Checklist** in accordance with **Section 5.1**.	QSM
2.	The QA/Safety Manager shall ensure material safety data sheets (MSDS) are up to date for each chemical or dangerous good.	QSM
3.	The QA/Safety Manager shall ensure all MSDS are easily accessible to employees, contractors and sub-contractors.	QSM
4.	The QA/Safety Manager shall ensure Workers requiring access to chemicals or dangerous goods are inducted and trained in their proper use.	QSM
5.	Spill Kits including absorbing materials will be provided nearby to handling and storage areas.	QSM
Records:	Form 1 – Environmental Checklist Form 7 – Complaints Register Annual Review	
References: Nil		

5.14 COMPLAINTS MANAGEMENT

5.14.1 OBJECTIVE

To ensure any complaint received is recorded and kept correctly, investigated, and options for avoiding recurrence are considered.

5.14.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Site	
When:	As required	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall ensure that the public is aware of the site's telephone number for complaints (02 6368 9400), and that it is operational during operating hours.	PM
2.	Any complaint received by any staff member at the facility shall be reported immediately to the Plant Manager.	PM, W
3.	All details of any complaint and subsequent investigation will be recorded on **Form 5 – Complaint Form** by the Plant Manager.	PM
4.	The QA/Safety Manager will ensure that the record of a complaint will be kept for at least four (4) years after the complaint was made, and that the records are available to any authorised officer of the EPA who asks to see them.	QSM
5.	The Plant Manager shall be responsible for follow-up investigation for all complaints received, and assessing options for avoiding recurrence.	PM
6.	Where required, the Plant Manager shall provide acknowledgement and feedback to community members following closure of a compliant raised by a community member.	PM

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Site	
When:	As required	
Actions:		**Responsible Person(s)**
7.	In the event that there is an occurrence of 3 or more consecutive complaints (related to the same issue) within a period of 6 months that are subsequently not resolved to the satisfaction of a third party by internal company processes, including the implementation of measures for avoiding a recurrence, and a dispute does arise, TFI shall: • Advise DP&E, EPA and Bourke Shire Council that there is a dispute. • Provide DPE, EPA and BSC with copies of the relevant complaint history, including relevant documentation in the form of Complaints Record(s). • Engage a specialist with expertise relevant to the issue at hand to investigate the dispute and provide recommendations for resolution. • Advise the third party in dispute, DPE, EPA and BSC, in writing, as to when the dispute investigation will be completed. • Provide the third party, DPE, EPA and BSC a copy of the dispute investigation report, inclusive of TFI's intentions with regards to the implementation of the recommendations for resolution.	PM
8.	A summary of complaints, causes and corrective actions shall be provided in the Annual Review in accordance with **Section 7.2**.	QSM
9.	The Plant Manager shall ensure a copy of the Annual Review is made available to community members and relevant authorities on request.	PM
Records:	Form 5 – Complaints Form Form 6 – Complaints Register Annual Review	
References:	Nil	

5.15 ENVIRONMENTAL INCIDENT MANAGEMENT

5.15.1 OBJECTIVE

To ensure that all incidents with the potential to impact adversely on the environment are investigated and documented, and that options for avoiding recurrence are implemented.

5.15.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Site	
When:	As required	
Actions:		**Responsible Person(s)**
1.	All incidents that may result in an adverse impact on the environment must be reported by Workers immediately (once safe and practicable to do so) to the Plant Manager. **Plant Manager:** 02 6368 9400	PM, W
2.	The Plant Manager is responsible for notifying TFI senior management of any environmental incident.	PM
3.	In the event of an environmental incident resulting in an emergency situation, immediate action should be taken and the Plant Manager shall contact the appropriate immediately to arrange assistance (i.e. NSW Ambulance, NSW Rural Fire Service, and NSW Police – Bourke).	PM
4.	The Plant Manager will notify all relevant authorities of incidents of pollution, environmental hazard or other activities potentially harmful to the environment within 24 hours of the occurrence of the incident.	PM
5.	Notification of environmental incidents of pollution, environmental hazard or other activities potentially harmful to the environment will be made by telephoning the NSW EPA Environment Line– 131 555	PM
6.	In the event of an environmental incident involving workplace, health and safety, and dangerous goods, the Plant Manager must notify SafeWork NSW immediately by calling 13 10 50	PM
7.	All environmental incidents shall be recorded on **Form 7 – Environment Incident Report**.	QSM
8.	The Plant Manager shall provide written notification of the incident to the NSW EPA within 7 days of the date on which the incident occurred.	PM
9.	All incidents with the potential to impact adversely on the environment shall be investigated by the Plant Manager, and options for avoiding recurrence are implemented. Corrective actions shall be noted on **Form 7 – Environmental Incident Report**.	PM
10.	Periodic testing of this operating procedure shall be coordinated by the QA/Safety Manager (e.g. mock environmental incidents).	QSM
11.	A summary of environmental incidents, causes and corrective actions shall be provided in the Annual Review in accordance with **Section 7.2**.	QSM
Records:	Form 7 – Environmental Incident Report Annual Review	

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Site	
When:	As required	
Actions:		**Responsible Person(s)**
References:	Nil	

5.16 STAFF TRAINING

5.16.1 OBJECTIVE

To ensure all employees, contractors and sub-contractors are trained in the appropriate OEMP procedures, are aware of and comply with the requirements of the OEMP, and are aware of their responsibilities with respect to environmental management.

5.16.2 PROCEDURES

Who:	Plant Manager (PM), QA/Safety Manager (QSM), Workers (W)	
Where:	Site	
When:	As required	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall ensure all employees, contractors and sub-contractors undergo induction training to ensure they are aware of their responsibilities with respect to environmental management.	PM
2..	The QA/Safety Manager shall ensure that all site staff have received the appropriate operator training at commencement of their employment.	QSM
3.	The QA/Safety Manager shall ensure that all staff receive refresher operator training after a nominated time period to ensure staff are up to date with current best practice procedures relevant to their respective activities.	QSM
4.	The QA/Safety Manager shall ensure that all site staff have received training in the following: • Role and use of the OEMP and associated sub-plans • Role and use of the OEMP Operating Procedures	QSM, W
5.	The QA/Safety Manager shall keep staff informed of any updates to the OEMP	QSM
6.	All staff who complete training shall sign off on the **Form 8 – Staff Training Register**.	QSM, W
7.	Records of training shall be maintained by the QA/Safety Manager.	QSM
Records:	Form 8 – Staff Training Register	
References:	Nil	

5.17 SITE CONTROLS

5.17.1 OBJECTIVE

To ensure the safety of personnel (including employees, contractors and site visitors) entering the site.

5.17.2 PROCEDURES

Who:	QA/Safety Manager (QSM), Workers (W), Security Personnel (SP)
Where:	Site
When:	As required

Actions:		**Responsible Person(s)**
1.	The QA/Safety Manager shall ensure all site fencing is maintained to prevent trespassing by unauthorised individuals or wildlife.	QSM
2.	Relevant Workers or Security Personnel shall ensure unauthorised individuals presenting to the gatehouse are not admitted to the site without approval of the QA/Safety Manager.	QSM, W, SP
3.	The QA/Safety Manager shall ensure site visitors complete a biosecurity risk assessment (**Form 9**) and these records shall be kept for at least four (4) years.	QSM
4.	If a visitor has answered "Yes" on Form 9, they must be referred to the Plant Manager. The Plant Manager shall: • Review and discuss the answers provided by the visitor • Make a determination as to the possible biosecurity risk • If the visitor present a high biosecurity risk: o Their access shall be restricted to clean areas only (i.e. office area, workshop areas) and they must have no access with livestock or the abattoir processing area o Movement around the site must be in a TFI vehicle o They must be accompanied at all times by TFI staff • If the visitor's vehicle, equipment or personal items has been in contact with livestock: o It must be decontaminated before being used on site, or TFI vehicles and equipment must be used o Protective cover all clothing must be worn including over shoes	PM
5.	The QA/Safety Manager shall ensure site visitors sign in and out of the facility at the commencement and completion of their visit using **Form 10** (or similar method).	QSM
6.	The QA/Safety Manager shall ensure all site visitors including contractors and sub-contractors receive appropriate induction training including the obligation to avoid harm to Aboriginal heritage (refer to Section 4.2 of Appendix J).	QSM
7.	The QA/Safety Manager shall ensure all site visitors are accompanied by trained personnel at all times.	QSM

Who:	QA/Safety Manager (QSM), Workers (W), Security Personnel (SP)	
Where:	Site	
When:	As required	
Actions:		**Responsible Person(s)**
8.	The QA/Safety Manager shall ensure all visitors are provided with the appropriate personal protective equipment (PPE).	QSM
9.	The QA/Safety Manager shall ensure all contractors and sub-contractors have the appropriate PPE prior to commencing works.	QSM
10.	The QA/Safety Manager shall ensure all signage located around the facility is maintained.	QSM
Records:	Form 9 – Biosecurity Risk Assessment for Site Visitors Form 10 – Visitor Register	
References:	Appendix J - ACHMP	

5.18 STAKEHOLDER ENGAGEMENT

5.18.1 OBJECTIVE

To ensure effective stakeholder engagement and access to information regarding the operation of the BSSA.

5.18.2 STAKEHOLDERS

Relevant stakeholders for the development are:

- The community, suppliers and customers
- Bourke Shire Council (BSC)
- Department of Planning and Environment (DP&E)
- Environment Protection Authority (EPA)
- Department of Industry – Natural Resource Access Regulator (NRAR)
- DPI Biosecurity Division

5.18.3 PROCEDURES

Who:	Plant Manager (PM)	
Where:	Site	
When:	Annually and as required	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall be responsible for follow-up of any inquiries from the community or Government agencies.	PM
2.	Where required, the Plant Manager shall provide acknowledgement and feedback to stakeholders following closure of an issue.	PM
3.	The Plant Manager shall ensure: • relevant Government agencies are informed of an environmental incident in accordance with **OEMP Section 5.15** • relevant agencies are informed if the biosecurity protocol is actioned in accordance with the **Emergency Disposal and Biosecurity Protocol** (**Appendix D**) • Bourke Shire Council is consulted in accordance with the requirements of the **Water Management Plan** (**Appendix H**) • the EPA and DPI Water are notified if groundwater trigger levels are exceeded in accordance with **Water Management Plan** (**Appendix H**) • the DP&E is provided with OEMP updates are required by **Section 7.4.2**	PM

Who:	Plant Manager (PM)	
Where:	Site	
When:	Annually and as required	
Actions:		**Responsible Person(s)**
4.	The Plant Manager shall ensure the website is maintained to ensure effective access to information regarding the operations at BSSA. In accordance with CoA D10, the website shall include: • The EIS • Current statutory approvals for the Development • Approved strategies, programs and plans (this OEMP) • A complaints register, updated on an annual basis • Any other matter required by the Secretary	PM
5.	The Plant Manager shall ensure that the Annual Review prepared in accordance with **Section 7.2** is made available for review on the BSSA website within two (2) weeks of its completion.	PM
Records:	Annual Review	
References:	Nil	

5.19 ABORIGINAL HERITAGE

5.19.1 OBJECTIVE

To ensure Aboriginal heritage items are managed in accordance with the Aboriginal Cultural Heritage Management Plan

5.19.2 PROCEDURE

Who:	Plant Manager (PM)	
Where:	Site	
When:	Annually and as required	
Actions:		**Responsible Person(s)**
1.	The Plant Manager shall ensure all employees, contractors and subcontractors are aware of their responsibilities in respect to the protection of Aboriginal heritage items within the BSSA grounds (refer – **Section 5.16 Staff Training**).	PM
2.	The Plant Manager shall routinely inspect the fence and associated signage surrounding the Gurri tree to ensure it remains in good condition.	PM
3.	Workers shall inform the Plant Manager if any new Aboriginal sites are discovered within the BSSA grounds. The discovery of previously undocumented sites will be managed in accordance with Section 7 of the ACHMP.	PM
4.	The Plant Manager shall ensure artefacts collected on site remain securely stored within the established long term keeping place and no unauthorised individuals gain access to this. The Plant Manager shall also ensure all associated reports and records remain stored in the same location, in bound hard copy and digital form.	PM
5	The Plant Manager shall arrange for a review of the ACHMP if any new sites are identified during abattoir operations. Changes to the ACHMP will be reported in the Annual Review in accordance with **Section 7.2**.	PM
Records:	Annual Review	
References:	ACHMP (Appendix J)	

Part 6

MONITORING

Monitoring

6.1 ENVIRONMENTAL MONITORING SCHEDULE

An annual environmental management calendar is provided in **Appendix B** and environmental monitoring summarised in **Table 6.1**.

Table 6.1 – Environment Monitoring Summary

Component	Frequency	Short Description and Reference Section	Responsibility
Water cycle	Fortnightly	Recording flow meters **Section 6.2**	PM
Effluent quantity	Daily during irrigation	Record effluent volumes during irrigation **Section 6.3**	PM
Effluent Quality(1)	Quarterly	Effluent quality sampling **Section 6.3**	PM(2) (3)
Solids waste	As required	**Section 5.3** **Section 6.4**	PM
Soil	Annually (September)	Topsoil and subsoil sampling in irrigation area and background control site **Section 6.5**	PM(2) (3)
Surface Water	Daily during discharge	Surface water quality sampling **Section 6.6**	PM(2) (3)
Groundwater	Annually	Groundwater level and quality monitoring at two sites **Section 6.7**	PM(2) (3)
Climate	Continuous	Rainfall and wind data **Section 6.8**	PM
Noise	As required	Noise monitoring at nearest receptors **Section 6.9**	PM(2)
Crop	Annually during harvest	Representative crops sampled analysed for nutrient content **Section 6.10**	PM(2) (3)

(1) To commence following the effluent system commissioning period

(2) Plant Manager may arrange contractor to collect samples.

(3) Analysis to be undertaken by NATA laboratory

For *effluent monitoring* this schedule will apply after the completion of the commissioning period outlined in the effluent commissioning plan (**Appendix I**). All other monitoring will commence when the BSSA commences operations.

The monitoring program will be reviewed after two (2) years of operation.

All monitoring data will be presented in the Annual Review (refer to **Section 7.2**) and EPL Annual Return as required.

6.2 WATER CYCLE

Water movement will be monitored by recording the following flow meters fortnightly (refer to **Section 5.1**):

- Meter No. 1: Potable water meter
- Meter No. 2: Raw water meter
- Meter No. 3: Raw effluent flow meter downstream of primary solids removal
- Meter No. 4: Irrigation pump meter
- Meter No. 5: Tailwater pump meter
- Meter No. 6: stormwater retention pond pump meter

Data will be recorded on **Form 1 – Environmental Checklist**.

6.3 EFFLUENT QUALITY MONITORING

The following effluent quality monitoring program will commence after the effluent treatment system commissioning period.

6.3.1 DAILY MONITORING

The daily volume of irrigated wastewater will be obtained in accordance with **Section 5.4**.

6.3.2 MONTHLY SAMPLING

***Where*:** Effluent monitoring locations and include:

E1 Holding pond outlet prior to irrigation

When: Effluent quality from the irrigation pond will be sampled every three months for the first year of operation after commissioning and then reduced to biannually (or as required commencing at the end of the system commissioning phase).

What for: Samples will be analysed for the following parameters:

- pH;
- Electrical conductivity;
- Kjeldahl nitrogen;
- Ammonia;
- Nitrite/Nitrate;
- Total nitrogen;
- Orthophosphate;
- Total phosphorus;
- Potassium, sodium, calcium and magnesium;
- SAR;
- Total suspended solids; and
- Biochemical oxygen demand.

6.4 SOLID WASTE MONITORING

The quantity of solid waste leaving the facility will be recorded in accordance with **Section 5.3**.

6.5 SOIL MONITORING

Where Soil monitoring will be undertaken across the main irrigation main area at the following soil reference points (refer to the borehole locations in the **IMP**):

- Boreholes 1, 2 and 3
- Boreholes 11, 12 and 13

Background soil monitoring of soils not used for irrigation shall be undertaken at the following soil reference points (refer to the borehole locations in the **IMP**):

- Boreholes 6, 7 and 8

When: Soil sampling would be undertaken in September – at the end of the winter period and prior to active crop growth in the spring/summer period

What for: Samples will be analysed for the following parameters.

Topsoil samples shall be analysed for:

- pH;
- Salinity;
- Exchangeable Cations;
- ESP;
- Nitrate;
- TKN;
- Available Phosphorus;
- Total Phosphorus; and
- Organic carbon.

Subsoil samples in the effluent irrigation areas will be collected every three years and analysed for the same parameters as the surface soils with the addition of phosphorus sorption capacity.

The soil sampling program will be based on establishing representative soil reference points for topsoil and subsoil analysis consistent with the location of the boreholes listed above.

6.6 SURFACE WATER MONITORING

The following surface water quality monitoring program will begin after commencement of onsite operations

***Where*:** Surface water monitoring will be undertaken at EPL Point 3 located at the stormwater retention pond.

When: Samples will be collected daily, subject to discharge occurring.

What for: Samples will be analysed for the following parameters:

- Total suspended solids, mg/L

6.7 GROUNDWATER MONITORING

***Where*:** Groundwater monitoring locations are shown on

Figure 6 and include:

MW1 Up hydraulic gradient, western site boundary within irrigation area,

MW2 Down hydraulic gradient, eastern site boundary

When: Monitoring will be undertaken annually when groundwater is detected in the monitoring wells

What for: Groundwater will be monitored for the following:

MW1, MW2

- Standing water level, mbgl
- Temperature, °C (field)
- Electrical conductivity , dS/m (field)
- Nitrate
- Phosphorus (total)
- Phosphate

- Total dissolved solids (TDS)
- pH

If this monitoring indicated some change in groundwater quality, a more comprehensive suite will be undertaken. This will add cations and a full nitrogen suite.

Implement quarterly groundwater level monitoring in accordance with Section 4.4.1 of the **Water Management Plan (Appendix H**) if groundwater levels are less than 10 m below the surface.

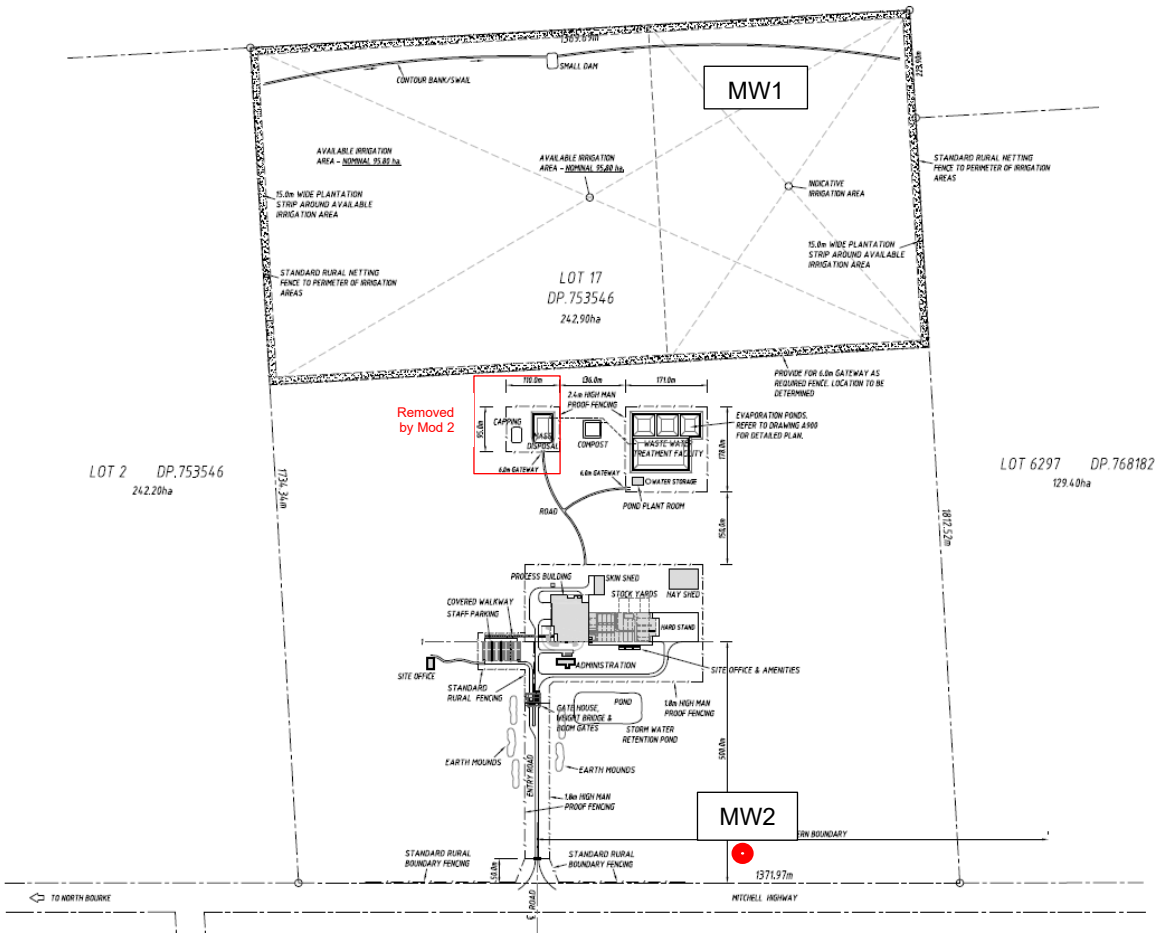


Figure 6: Groundwater monitoring points

6.8 CLIMATE MONITORING

***Where*:** A weather station will be installed within the facility in proximity to the gatehouse

When: The weather monitoring station will monitor continuously

What for: The weather station will monitor for the following:

- Rainfall (mm)
- Wind direction (°)
- Wind speed (m/s)

6.9 NOISE MONITORING

Where: Noise monitoring locations are identified in **Figure 7** and comprise two dwellings located 5.5 km and 5.8 km south of the facility.

When: Noise monitoring will only be undertaken in response to the receipt of a noise complaint.

What for: Noise monitoring will be assessed against the following limits (**Table 6.2**).

Table 6.2 – Noise Measurement Parameters

Time Period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	Day-LAeq (15 minute)	-	35
Evening	Evening-LAeq (15 minute)	-	35
Night	Night-LAeq (15 minute)	-	35
Night	LAmax	-	45

(4) Source: NSW EPA Environment Protection Licence 20918

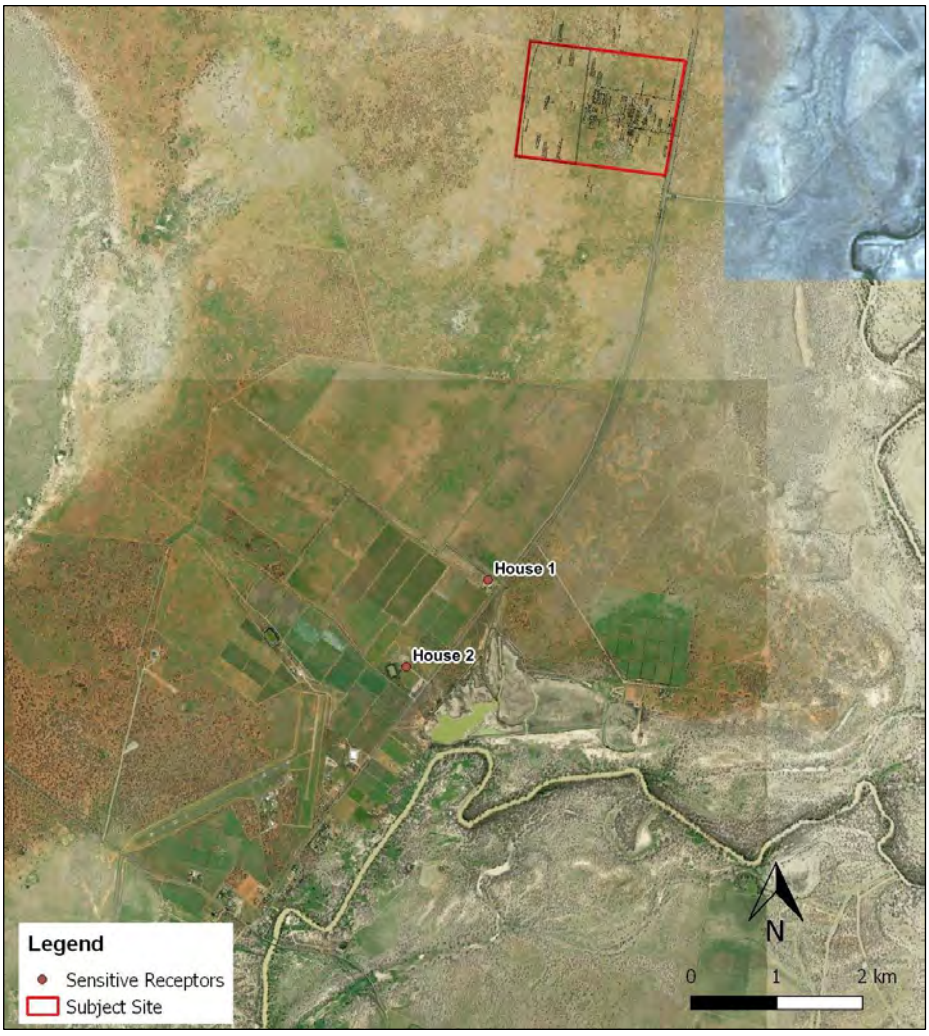


Figure 7: Nearby Receptors

6.10 CROP MONITORING

Where: Visual assessment of crops growing within the effluent irrigation area will be undertaken.

When: Monitoring will be undertaken annually.

What for: Crops will be monitored for signs of soil toxicity or degradation.

Crop yield will be estimated based on the number and average weight of bales removed.

One representative crop sample will be analysed for moisture content, nitrogen and phosphorous

Part 7

REPORTING AND REVIEW

Reporting and Review

7.1 ANNUAL RETURN

An Annual Return shall be prepared and submitted to the EPA in accordance with Condition R1 of the EPL prior to 60 days after 1 May each year. Submission of the Annual Return will be required by 30 June each year.

7.2 ANNUAL REVIEW

7.2.1 REPORTING PERIOD

The reporting period will be 1 May to 31 April.

7.2.2 SCOPE AND PURPOSE

The Annual Review (AR) will be a summary of the environmental performance of the Bourke Small Stock Abattoir for the reporting period. The AR will:

a) Describe the activities that were carried out in the previous reporting period, and the activities that are proposed to be carried out over the next reporting period,

b) Include a summary of the monitoring results and complaints records including a comparison of these results against the:

   i. conditions, approvals/licenses, limits and performance objectives;

   ii. requirements of this OEMP;

   iii. monitoring results of previous years; and

   iv. relevant predictions made in assessment documentation.

c) Identify any non-compliance over the previous reporting period and describe what actions were (or are being) taken to ensure compliance;

d) Identify any trends in the monitoring data from the commencement of this OEMP;

e) Identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies;

f) Identify measures that could be implemented to improve the environmental performance of the BSSA if required; and

g) Identify changes to the OEMP.

7.2.3 NON-COMPLIANCE

A failure to comply with a Condition of Approval (CoA), Statement of Commitment (SoC) or statutory approval will constitute a non-compliance.

In the event of a non-compliance TFI will undertake the steps outlined in **Table 7.1,** consistent with the guidance advice for *ISO 14001 – Environmental management systems*.

Table 7.1 – Non-compliance response

Step	Action
React	TFI will react to the non-compliance and, as applicable: 1. Take action to control and correct it. 2. Deal with the consequences, including mitigating adverse environmental impacts.
Evaluate	TFI will evaluate the need for action to eliminate the cause of the non-compliance in order that it does not recur or occur elsewhere by: 1. Reviewing the non-compliances. 2. Determining the cause of the non-compliances. 3. Determining if similar non-compliances exist, or could potentially occur.
Act	TFI will implement any action required.
Review	TFI will review the effectiveness of any corrective action taken.
Change	TFI will make changes to the environmental management plans, if necessary.

Any non-compliance will trigger a Corrective Action appropriate to the significance of the effect of the non-compliance.

TFI will retain documented information as evidence of:

- The nature of the non-compliance and any subsequent actions taken.
- The results of the Corrective Action.

7.2.4 TIMING

The Annual Review will be submitted by 30 June (or nearest working day) each year and shall report on the previous reporting period.

7.2.5 ANNUAL REVIEW DISSEMINATION

The AR will be disseminated to the following agencies:

a) Environment Protection authority; and

b) Bourke Shire Council

A copy of the AR will be made publicly available on the company website.

7.3 ENVIRONMENTAL AUDITING AND COMPLIANCE

7.3.1 FUNCTION

Auditing of the OEMP will be undertaken to ensure its implementation and effectiveness. Compliance audits will determine whether or not the OEMP is being properly implemented and maintained.

7.3.2 INTERNAL AUDIT

In the first twelve (12) months of operation, one (1) internal compliance audit will be completed. This audit will be undertaken by the Plant Manager.

The audit will be documented and a record maintained.

The frequency of internal audits will remain at one per year, or as revised following three (3) years of operations commencing.

7.3.3 EXTERNAL AUDIT

Within two (2) years of the date of the consent (14 November 2016) and every three (3) years thereafter, TFI shall commission an external audit of the operations against the requirements of the OEMP and any approvals.

This audit shall:

a) Be conducted by a suitably qualified external auditor;

b) Include consultation with relevant agencies;

c) Assess the environmental performance of the facility to assess whether it is complying with the requirements of any approvals and the OEMP;

d) Review the adequacy of any approved strategy, plan or program against monitoring results and predicted impacts; and

e) Recommend measures or actions to improve the environmental performance of the facility and/or changes to the OEMP.

A copy of the external audit report will be provided to the Department of Planning and Environment within three months of commissioning of the audit.

7.4 OEMP REVISION

7.4.1 REVISIONS TO OPERATING PROCEDURES

TFI shall review and if necessary revise the OEMP within three (3) months of:

a) The Annual Review (**Section 7.2 – Annual Review**);

b) Any incident report (**Section 5.15 – Environmental Incident Management**);

c) An audit report (**Section 7.3 – Environmental Auditing and Compliance**); or

d) Any modifications to conditions of approval.

This is to ensure that the OEMP is updated on a regular basis, and incorporates any recommended measures to improve environmental performance.

7.4.2 DOCUMENT CONTROL

The following will be classed as 'major' revisions:

- Changes to processes;
- Additional procedures or improvement actions;
- Changes made in response to an incident; and
- Changes requested by the DP&E or changes to the EPL.

Major revisions shall be identified by the whole number in the version number (i.e. 1.0, 2.0, 3.0….) and shall be approved by the DP&E before re-issue.

The following will be classed as 'minor' revisions:

- Minor typing and grammar corrections;
- Changes to position titles;
- Updates to recording forms to suit operations; and
- Changes/additions to Appendices/Attachments.

Minor revisions shall be identified by the decimal point in the version number (i.e. 1.1, 2.2, 3.3….) and will not require DP&E approval prior to re-issue.

References

EMM (2016) *Bourke Small Stock Abattoir, Environmental Impact Statement, Volume 1, March 2016.* Newcastle NSW

NSW EPA (2017) *Environment Protection Licence, Licence 20918.* NSW Environment Protection Authority, Dubbo NSW

NSW DP&E (2016) *Development Consent SSD 7268*. NSW Department of Planning and Environment, Sydney NSW

Envirowest Consulting Pty Ltd (2017). *Draft Environmental Management Study, Small Stock Abattoir, Lot 17 DP753546 Mitchell Highway, Bourke NSW.* Report L6612e2.

Appendix A

RISK MANAGEMENT

BOURKE SMALL STOCK ABATTOIR ENVIRONMENTAL RISK REGISTER

Verison 3.0: 30 May 2018

Number	Risk Management Area	Cause	Impact	Controls	Current Risk Rating						Responsible Person
					Consequence		Likelihood		Rating		
1	Air Quality (dust)	Lack of dust suppression watering, inadequate groundcover, undertaking dust generating activities in unsuitable conditions	Off-site dust impacts on sensitive receptors	Section 5.5 - Soil Management Section 5.8 - Stock Holding Management Section 5.9 - Dust Management Section 5.1 - Fortnightly Environmental Checklist	2	Minor	U	Unlikely	2U	Low	Site Manager
2	Air Quality (odour)	Excess solid wastes stored on-site, inadequate aeration on treatment ponds	Off-site odour impacts on sensitve receptors	Section 5.10 - Odour Management Section 5.3 - Solid Waste Management Section 5.2 - Effluent System Management Section 5.4 - Irrigation Management Section 5.1 - Fortnightly Environmental Checklist	2	Minor	U	Unlikely	2U	Low	Site Manager
3	Noise	Excessive vehicle movements, reversing alarms, truck wash activities, farming practices in irrigation paddocks, animal calls	Exceed predicted noise levels at off-site receptors	Section 5.11 - Noise Management	2	Minor	U	Unlikely	2U	Low	Site Manager
4	Surface water	Runoff during irrigation, discharge from the effluent treatment system, spills, inappropriate storage of chemicals, inadequate controls, increase in site peak discharge, lack of monitoring	Impact on existing surface water systems	Section 5.6 - Surface Water Management Section 5.4 - Irrigation Management Section 5.8 - Stock Holding Management Section 5.1 - Fortnightly Environmental Checklist	2	Minor	R	Rare	2R	Low	Site Manager
5	Groundwater	Leak from effluent ponds, leak from manure composting area, excessive irrigation, inadequate nutrient management in the irrigation area, inappropriate storage of chemicals, lack of monitoring	Impact on groundwater resources	Section 5.7 - Groundwater Management Section 5.4 - Irrigation Management	2	Minor	R	Rare	2R	Low	Site Manager
6	Soils	Inadequate grass cover, soil disturbance through site works, inadequate irrigation management, chemcial spills, lack of monitoring	Erosion, soil structural decline, salinisation, contamination	Section 5.5 - Soil Management Section 5.4 - Irrigation Management Section 5.8 - Stock Holding Management Section 5.1 - Fortnightly Environmental Checklist	2	Minor	R	Rare	2R	Low	Site Manager
7	Traffic	Excess traffic, not following designated movement pathways, not adhereing to speed limits, inappropriate parking	Road network impacts, impact on grass cover, soil impacts, pedestrian safety	Section 5.12 - Traffic Management Section 5.1 - Fortnightly Environmental Checklist	2	Minor	U	Unlikely	2U	Low	Site Manager
8	Solid waste management	Excess solid waste on-site, not storing solids in appropriate areas	Potential odour impacts, surface water and groundwater impacts	Section 5.3 - Solid Waste Management Section 5.1 - Fortnightly Environmental Checklist	1	Insignificant	R	Rare	1R	Low	Site Manager
9	Complaints handling	Not following complaint management procedure, no follow-up and/or complaint closure	External stakeholder dissatisfaction, no continuous improvement, disgruntled community	Section 5.14 - Complaints Management	1	Insignificant	U	Unlikely	1U	Low	Site Manager
10	Enivronmental Incident Management	Not following incident management procedure, no follow-up and/or corrective action	Potential for breach of approval condition, no continuous improvement	Section 5.15 - Environmental Incident Management	2	Minor	U	Unlikely	2U	Low	Site Manager
11	Compliance with OEMP	Lack of personnel training and supervision, no review/auditing of OEMP or workplace procedures	Non compliance with OEMP and possible environmental impact and/or breach of approval condition	Section 5.16 - Training Section 7 - Review and Reporting	2	Minor	U	Unlikely	2U	Low	Site Manager
12	Community Engagement	Ineffective communication with stakeholders	Misinformation in the community. Disgruntled community members.	Section 5.18 - Community Engagement Section 7 - Review and Reporting	2	Minor	U	Unlikely	2U	Low	Site Manager

Appendix B

ENVIRONMENTAL MONITORING CALENDAR

BSSA OEMP: Annual Management Calendar

ACTION	YEAR: J	A	S	O	N	D	J	F	M	A	M	J	NOTES/OEMP REFERENCE	Responsibiity
OPERATIONS														
Fortnightly environmental checklist every second Thursday													OEMP Section 5.1	PM
MONITORING														
Water cycle														
Flow meters recorded in accordance with Section 5.1													OEMP Section 5.1	PM
Effluent Quality														
Fortnightly pH and DO in accordance with Section 5.1													OEMP Section 5.1; OEMP Section 6.3	PM
Quarterly sampling													OEMP Section 6.3	PM
Soil														
Topsoil													OEMP Section 6.5	PM
Subsoil (*in Year 1 and then every three (3) years*)													OEMP Section 6.5	PM
Surface Water														
Sampled daily when discharge occurs													OEMP Section 6.6	PM
Groundwater														
Groundwater level monitoring													OEMP Section 6.7	PM
Groundwater quality													OEMP Section 6.7	PM
Noise														
Following receipt of noise complaint	*to be undertaken following receipt of noise complaint*												OEMP Section 5.11; OEMP Section 6.9	PM
Crops														
Representative crop samples (*minimum two (2) samples*) during harvest													OEMP Section 6.10	PM
REPORTING														
Annul Return - submitted by 30 June each year													**OEMP Section 7.2.1**	PM
Annual Review - c*omplete by 30 June each year*													OEMP Section 7.1	PM
Publish AEMR on website													OEMP Section 5.16	PM
Independent Environmental Audit *(first one commisioned by 14 November 2018)*													OEMP Section 7.3.2	PM

PM = Plant Manager

Appendix C

FORMS

Form 1: Environmental Checklist

DATE:_____

The Environmental Checklist is to be completed by the Plant Manager every second Thursday.

		YES	NO
1	All CCTV operational?		
2	All gates and fences are secure?		
3	All directional and advisory signage in place?		
4	Weather station operating and recording?		
5	All drains generally free of solids and operating efficiently?		
6	Do first flush sediment traps have adequate capacity?		
7	First flush transfer pump working correctly?		
8	External holding yards (receival/delivery) clear of solids?		
9	Truck wash area free of solids?		
10	Meter 3 (raw effluent meter) working?		
11	Stormwater retention pond has adequate capacity?		
12	Stormwater retention pond pump working correctly?		
13	All solids stored within designated areas?		
14	Anaerobic pond crust adequate?		
15	SBR pond aerators working?		
16	Standing pond aerators working?		
17	Irrigation pond aerators working?		
18	Aerobic pond DO readings >0.5 mg/L? (record below)		
19	All effluent pond transfer pipes operating/not blocked?		
20	Irrigation area OK? (e.g. grass cover, no pooled water)		
21	Irrigator operational (e.g. no leaks, free from obstacles)		

Flow Meter Readings

No. 1 (kL): (main potable meter)	No. 2 (kL): (main raw water meter)
No. 3 (kL): (raw effluent flow meter)	No. 4 (kL): (irrigation meter)
No. 5 (kL) (irrigation tailwater pump)	No. 6 (kL) (stormwater retention pond pump)

Surface Water Pond Readings

Surface Water Retention Pond (kL):

Form 1: Environmental Checklist (page 2)

Solids/manure stockpile

Manure collected (m^3):

Effluent Pond Data

Parameter	Anaerobic Pond	SBR Pond	Standing Pond	Irrigation Pond
Dissolved Oxygen (mg/L)				
pH				
Odour (low, moderate, strong)				

Comments: _____

_____

Reasons for Non-Compliance with Checklist:

Item No. *Comment*

_____ _____

_____ _____

_____ _____

Incident Report Prepared (circle): Yes / No **If answered "No", state why below**

_____

_____

_____

Action(s) to be taken for Non-Compliance to be rectified:

Item No. *Action*

_____ _____

_____ _____

_____ _____

Follow-up actions complete?

Item No. *Date Complete* *Signed*

_____ _____ _____

_____ _____ _____

_____ _____ _____

Certified Correct

_____ Date: _____

BSSA Plant Manager

Form 2: Dead Stock Register

Date	No. Head	Location	Tail Tag	Owner/Agent	Staff Member

Copy form as required

Form 3: Solid Waste Removal Record

Date	Type (tick)			Estimated Quantity m^3	Where to?
	Non-edible wastes (Specify type)	Effluent system	Domestic waste		

Copy form as required

Form 4: Irrigation Record

Date	Irrigation		Volume Irrigated kL	Area ID	Weather (wind speed, direction) and comments
	Start time	Stop time			

Copy form as required

Form 5: Complaint Form

DATE: _____ **COMPLAINT NO:** _____

TIME: _____

COMPLAINANT DETAILS (IF PROVIDED):

Name: _____

Phone number: _____

Email address: _____

HOW COMPLAINT WAS LODGED (phone, email etc)

_____

_____

NATURE AND DETAILS OF COMPLAINT:

_____

_____

_____

_____

CAUSE:

_____

_____

_____

_____

CORRECTIVE ACTION (IF NONE, STATE WHY):

_____

_____

_____

_____

FOLLOW-UP CONTACT REQUIRED?

_____

_____

WEATHER CONDITIONS:

Wind Speed (circle): light medium strong

Wind Direction: N NE E SE S SW W NW

Rainfall (mm): _____

SIGNATURE: _____ **NAME:** _____

Copy form as required

Form 6: Complaints Register

Number	Complaint Type Summary (tick)								Date
	Dust	Odour	Noise	Traffic	Waste	Irrigation	Water	Other	

Copy form as required

Form 7: Environmental Incident Report

INCIDENT LOCATION: _____

DATE/TIME/DURATION OF INCIDENT: _____

NATURE OF INCIDENT:

- **Excessive Noise/Vibration** ☐
- **Spill** ☐
- **Dust/Odour** ☐
- **Leak** ☐
- **Accumulation of Waste** ☐
- **Other** ☐
- **Fire/Flood/Natural Disaster** ☐

CONDITIONS PRESENT
(at the time of the incident):

- **Temperature:** _____
- **Wind Speed:** _____
- **Wind Direction:** _____
- **Rainfall:** _____

DESCRIPTION OF INCIDENT:

_____

_____

_____

RESULTING IMPACT (what was harmful to the environment?)

_____

_____

_____

EXTENT OF IMPACT (area affected):

_____

_____

_____

PROBABLE CAUSE (what caused the incident?):

_____

_____

_____

CORRECTIVE ACTION TAKEN (immediate actions, date/time etc):

_____

_____

_____

PREVENTATIVE ACTION TO BE TAKEN (to prevent occurrence/eliminate cause):

_____

_____

_____

IS THE INCIDENT A BREACH OF AN EPA APPROVAL CONDITION?

YES ☐ (if YES, provide details) **NO** ☐

_____

_____

_____

HAS THE INCIDENT BEEN REPORTED TO NSW EPA?

YES ☐ **(DD/MM/YYYY)** **NO** ☐

WERE ANY OF THE FOLLOWING NOTIFIED ABOUT THE INCIDENT?

	YES	NO	If YES, provide date notified
SafeWork NSW			Phone call: DD/MM/YYYY Written: DD/MM/YYYY
NSW Police			Phone call: DD/MM/YYYY Written: DD/MM/YYYY
NSW Ambulance			Phone call: DD/MM/YYYY Written: DD/MM/YYYY
NSW Rural Fire Service			Phone call: DD/MM/YYYY Written: DD/MM/YYYY
Neighbours			Phone call: DD/MM/YYYY Written: DD/MM/YYYY
Other (specify):			Phone call: DD/MM/YYYY Written: DD/MM/YYYY
Other (specify):			Phone call: DD/MM/YYYY Written: DD/MM/YYYY

OTHER COMMENTS/ATTACHMENTS:

_____

_____

_____

REPORT COMPLETED BY: _____ **SIGNED:** _____ **DATE:** _____

INCIDENT REPORT NUMBER: _____

Copy form as required

Form 8: Staff Training Register

Completion and signing of the **Training Form** confirms that:

- The trainees have received the appropriate training and have a full understanding of this OEMP.
- The trainees will commit to incorporating all of these procedures into daily work practices.
- The trainer has fully trained the trainees in this OEMP (or appropriate sections of the OEMP), and is confident that suitable competency has been demonstrated by the trainees.

Date of Training	Trainee Name	Trainer Name	Entire OEMP or List Sections	Trainee Signature	Trainer Signature

Copy form as required

Form 9: BSSA Biosecurity Risk Assessment for Visitors

DATE:_____

This form is to be completed by all visitors entering the BSSA Facility

		YES	NO	N/A
1	Have you travelled outside of Australia in the past 30 days? If yes, what country/s did you travel to? _____			
2	Or, are you visiting from another country? If so, what country are you travelling from? _____			
3	If Yes to Q1, did you visit any livestock premises during your travels? (including farms, abattoirs or other premises)			
4	Have you visited any farms, abattoirs or livestock premises in Australia in the past 7 days?			
5	If Yes to Q4, did you have any contact with livestock during your visit?			
6	Has your vehicle, equipment or personal items been in contact with livestock, manure or other livestock fluids in the past 7 days?			

Name: _____

Company: _____

Contact Number: _____

Signature: _____

Date: _____

Reason for Visiting: _____

Time in: _____

Time out: _____

Administration
Please refer any visitors to Plant Manager if they have answered **YES** to any of the above question.
Refer to OEMP Section 5.17 for relevant action

Form 10: Visitor Register

All visitors are required to fill in this visitor on presentation to the Administration Building

Date	Visitor Name	Company	Signature	Contact number	Risk Assessment	Time in	Time out

Copy form as required

Appendix D

EMERGENCY DISPOSAL AND BIOSECURITY PROTOCOL

EMERGENCY DISPOSAL AND BIOSECURITY PROTOCOL

BOURKE SMALL STOCK ABBATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 4.0

EMERGENCY DISPOSAL AND BIOSECURITY PROTOCOL

BOURKE SMALL STOCK ABATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2022

VERSION 4.0

Revision History

Version	Revision Date	Details	Authorised	
			Name/Position	Signature
3.0	14/09/18	Final updates following agency consultation. Prepared for DRGE. Final version for DP&E approval.	Martin Haege Geolyse Pty Ltd	
4.0	22/02/23	Updates following approval of MOD 2. Prepared for TFI Final version for DP&E approval.	Martin Haege Premise Pty Ltd	

TABLE OF CONTENTS

FIGURES

APPENDICES

CONDITIONS COMPLIANCE TABLE

Development Consent SSD 7268 Condition	Comment and/or Where Addressed in the Management Plan
D5: Management Plan Requirements	
D5(a) baseline data	Not relevant for this sub plan
D5(b)(i) relevant statutory requirements	Relevant statutory requirements listed in Section 1.5
D5(b)(ii) any relevant limits	None applicable
D5(b)(iii) specific performance indicators	None applicable
D5(c) measures to comply with relevant statutory requirements	Section 2 and Section 3
D5(d)(i) monitoring environmental performance	None applicable
D5(d)(ii) monitoring effectiveness	OEMP Section 7.2.3
D5(e) contingency plan	Section 3.3 and 3.4
D5(f) continual improvement	OEMP Section 7.2.3
D5(g)(i) incident management	OEMP Section 5.15
D5(g)(ii) complaints management	OEMP Section 5.14
D5(g)(iii) non-compliance with statutory requirements	OEMP Section 7.2.3
D5(g)(iv) exceedance of performance criteria	None applicable
D5(h) periodic review	Section 4

INTRODUCTION

1.1 BACKGROUND

The Bourke Small Stock Abattoir (BSSA) is a rural small stock abattoir located approximately 14 kilometres north of Bourke in north-western New South Wales. At full operational capacity the facility has the capacity to process 6,000 head per day comprising goats, sheep and lambs.

The facility provides:

- Covered stock holding yards,
- Administration offices
- Truck parking and truck wash facilities;
- Car parking facilities,
- Processing building
- Other infrastructure associated with abattoir processes.

The site layout is shown in **Figure 1**.

The BSSA is operated by Thomas Foods International Pty Ltd (TFI).

1.2 OBJECTIVE

The development of an ***Emergency Disposal and Biosecurity Protocol*** (EDBP) for BSSA represents a commitment that all reasonable and practical efforts will be made to implement systems to minimise the risk or infectious diseases being introduced into the facility and the subsequent spread of any such disease.

1.3 EDBP CONTEXT

This EDBP has been prepared to meet Condition C6 of the Development Consent.

> C6. Prior to the commencement of operations, the Applicant shall prepare an **Emergency Disposal and Biosecurity Protocol**, detailing the procedures for a biosecurity emergency including a mass mortality event, to the satisfaction of the Secretary. The protocol shall form part of the OEMP in Condition D3 and be prepared in accordance with Condition D5. The protocol shall:
>
> a) be prepared in consultation with Council, EPA, DPI and other relevant public authorities;
>
> b) be consistent with the relevant AUSTVETPLAN manuals and supporting documents;
>
> c) describe the notification procedures;
>
> d) detail all transport routes to be used in a mass mortality event;
>
> e) detail any requirements to stage the mass disposal of dead livestock;
>
> f) detail the burial location(s) for the disposal of dead livestock, including plans and drawings;
>
> g) detail the measures to maintain quarantine control;
>
> h) detail measures to prevent ground water contamination; and

i) detail the mass mortality disposal procedures and options, consistent with section 2.5.9 of the RTS.

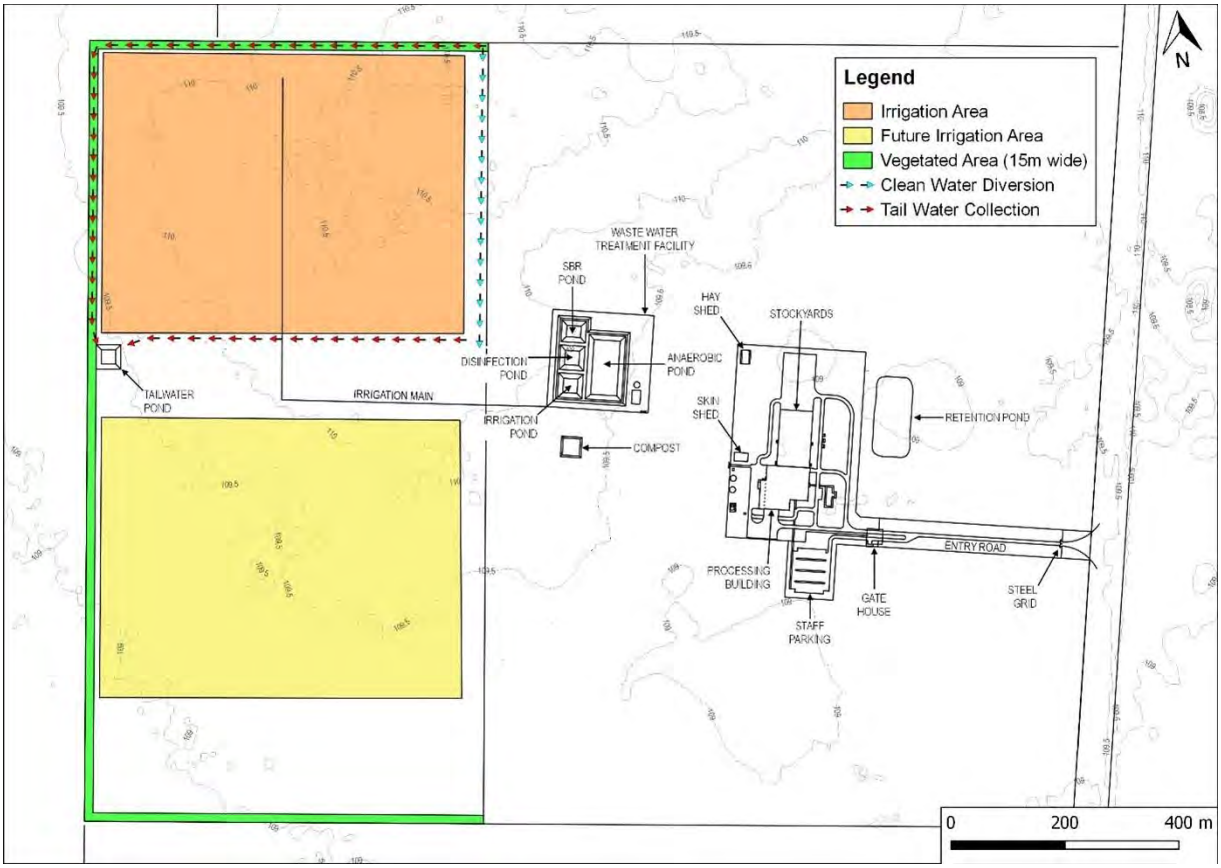


Figure 1: BSSA site layout

1.4 LEGISLATIVE GUIDELINES AND GUIDING DOCUMENTS

1.4.1 LEGISLATION

BSSA will be managed and operated in accordance with all legislative obligations applicable to the operation of facility including:

- *NSW Biosecurity Act 2015*
- *Biosecurity Regulation 2017*
- *Biosecurity (National Livestock Identification System) Regulation 2017*

1.4.2 AUSVETPLAN

AUSVETPLAN is the national contingency planning framework for the management of animal disease emergencies in Australia and the control and eradication of exotic diseases and certain emerging or endemic animal diseases. Detailed guidelines for the control and eradication of emergency diseases are contained in the AUSVETPLAN Disease Strategies, Operational Procedures Manuals, Management Manuals and Enterprise Manuals. Authority for the development and maintenance of AUSVETPLAN rests with Animal Health Australia.

The purpose of AUSVETPLAN is to:

- provide policy and guidelines for the consistent management of an animal disease emergency by appropriately trained personnel in combat States/Territories;
- provide coherence of emergency disease plans; provide compatibility of operation and procedures between Commonwealth/State animal health authorities and emergency management organizations;
- improve the technical validity of the underlying assumptions in the development of strategies to combat disease emergencies;
- identify deficiencies in technical knowledge required to combat a disease emergency and establish research priorities;
- provide a focus for the training of people in appropriate operational responses and procedures; and
- provide guidelines for the development of standard operating procedures for response personnel in combat agencies.

This EDBP incorporates relevant AUSVETPLAN strategies to create a document consistent with the guidelines of AUSVETPLAN within the legislative framework of NSW.

1.4.3 EXPORT CONTROL ACT, 1982

BSSA is registered by the Federal Department and Water Resources under the *Export Control Act, 1982* as an export establishment. Establishment number 2985 has been issued by the Department for BSSA.

The *Export Control Act, 1982* imposes statutory obligations upon the Commonwealth and BSSA in the form of minimum standards for sanitary construction and operation that comply with Australian Standards and additional requirements of importing country authorities.

BSSA is obligated under the *Export Control Act* to enter into an operation plan (an Approved Arrangement) with the Commonwealth that codifies all operations at the establishment relating to hygienic performance, animal care, and disease control.

The Approved Arrangement covers the following:

- Pre-operational Sanitation;
- Operational sanitation;
- Personal hygiene;
- Waste disposal;
- Water supply;
- Pest control;
- Control of hazardous substances;
- Sourcing of animals and risk management;

- Animal welfare;
- Temperature control; and
- Animal health and foreign disease control.

The Commonwealth exercises its authority by assessing compliance at BSSA through a government veterinary officer and ancillary inspection staff located full-time at the premises.

Operational standards at the BSSA are subject to continuous assessment by the Commonwealth as well as audit by importing country authorities in determining compliance with international certification requirements (including other international requirements and market standards such as FAO standards, Codex Alimetarius etc).

1.5 EDBP STRUCTURE

This EDBP has three sections:

- **Section 1** provides background context of the EDBP; and
- **Section 2** provides details relating to emergency disposal; and
- **Section 3** addresses biosecurity.

Relevant management actions derived from this EDBP are included in the Operational Environmental Management Plan.

EMERGENCY DISPOSAL

2.1 DEAD STOCK

Dead stock encountered in day-to-day operations shall be managed in accordance with **OEMP Section 5.3** which includes the following:

- Deceased stock carcases will be temporarily stored onsite in a contained and designated area prior to collection and transport to an appropriately licenced facility.
- Deceased animals are typically collected within 24 hours of notification.

2.2 MASS STOCK MORTALITY

2.2.1 NOTIFICATION

In the unlikely occurrence of a major disease outbreak or mass stock mortality event the Plant Manager of BSSA will be responsible for contacting the relevant authority. A major disease outbreak must be immediately reported to an authorised officer. This can be done by phoning:

- The Animal Biosecurity Emergency Hotline: 1800 675 888 (24 hour hotline), or
- Bourke Local Land Services: (02) 6870 8600 or 1300 795 299 (during working hours), or
- NSW Department of Primary Industries (Bourke): 02 6830 0000

Local Land Services (LLS) provide operational government animal health services in NSW. LLS will assess and arrange investigation of an event, where required, by mobilising veterinarians and biosecurity officers to investigate the disease outbreak and begin implementing safeguards to contain the outbreak.

The NSW DPI is the appointed combat agent for biosecurity measures within NSW and biosecurity procedures will be implemented under their guidance. However, this may be shared responsibility (e.g. with the EPA), and who has the lead may vary depending on the context. In any mortality event, the lead combat agency (in consultation with other agencies) will guide decisions that need to be made for disposal of animal carcasses and waste.

2.2.2 STOCK TRANSPORT

In the event of a mass mortality, consultation will be undertaken with relevant agencies to determine the appropriate response and disposal requirements.

Off-site dead stock movement shall be undertaken under the direction and requirements of relevant government agencies.

2.2.3 STAGING

Staging of mass stock disposal shall be determined in consultation with relevant agencies.

2.2.4 ON-SITE DISPOSAL

In the event of a mass mortality, consultation will be undertaken with relevant agencies to determine the appropriate response and disposal requirements. This shall include a consideration of whether onsite disposal is required. TFI shall undertake mass carcass disposal under the direction of relevant agencies.

2.2.5 QUARANTINE CONTROL

In the event of a mass mortality, consultation will be undertaken with relevant agencies to confirm appropriate quarantine control measures.

The AUSVETPLAN *Operational Procedures Manual: Disposal* outlines measures for quarantine control and should be referenced during consultation with relevant agencies.

2.2.6 ENVIRONMENTAL MANAGEMENT

In the event of a mass mortality, consultation will be undertaken with relevant agencies to confirm appropriate environmental management measures. This may include the implementation of additional environmental monitoring activities.

BIOSECURITY PROTOCOL

3.1 MANAGEMENT OF PEOPLE AND VEHICLES

3.1.1 SITE VISITORS/HUMAN MOVEMENTS

OEMP Section 5.17 outlines procedures to monitor and control the admission of site visitors and their movements over the site. Site visitors shall not be allowed to enter the BSSA site without the approval of the site manager. A register of all visitors to the BSSA will be kept.

3.1.2 SANITATION

Implementation of sanitation procedures is an important factor of preventing the spread of disease and maintaining quarantine control. All employees, contractors and sub-contractors will receive training in infection control, environmental disinfection, correct use of PPE and safe methods of waste handling and disposal.

3.1.3 EMPLOYEE TRAINING

All employees, contractors and sub-contractors will be trained in and have a working knowledge of the relevant biosecurity policies and procedures. Staff should have the ability to identify symptoms of disease and to implement the appropriate actions.

3.1.4 VEHICLE MOVEMENTS

Management of vehicular movement will be undertaken in accordance with **OEMP Section 5.12** (Traffic Management) and **Section 5.9** (Dust Management), specifically:

- All vehicles must be wholly contained within the site before being required to stop and do not queue or park on the Mitchell Highway or other public roads and footpaths within the vicinity,
- Loading and unloading of stock and materials will only be in defined areas that are sealed and/or gravelled,
- Truck wash-down shall only be undertaken in the designated area.
- All trucks carrying any material shall have their loads covered whilst entering and leaving the premises; and
- All trucks leaving the site are cleaned of dirt and other material prior to existing the site.

3.2 BSSA PRODUCTION PRACTICES

3.2.1 MANURE AND EFFLUENT MANAGEMENT

The routine management of manure will be undertaken in accordance with **OEMP Section 5.3** (Solid Waste Management) which includes the following:

- Daily collection of manure from the holding yards will be scheduled at a time that does not interfere with livestock receival and processing,
- Material removed from the holding yards will be placed in the manure stockpile area.

- When the holding yards are washed down, the surface water solids traps will be inspected solids removed as required after they have sufficiently drained. Solids shall be placed in the manure stockpile area.
- Weekly inspections of the manure stockpile area shall be undertaken to observe that the manure is stockpiled appropriately.

The effluent management system is totally isolated from the stormwater/surface water runoff system and separated from the surface water system through paving, kerb and gutter, and drains.

Effluent and effluent irrigation will be managed in accordance with **OEMP Section 5.2** (Effluent System Management) and **5.4** (Irrigation Management) and incorporates procedures to minimise the potential for contamination of surface and groundwater.

3.2.2 OTHER WASTE MANAGEMENT

The management of other non-edible wastes from the facility will be managed in accordance with OEMP **Section 5.3** and the *Waste Management Plan* (WMP).

The implementation of stringent waste management protocols for non-edible wastes will minimise the potential for disease transmission.

3.3 EMERGENCY ANIMAL DISEASE SITE ACTION PLAN (EADSAP)

BSSA has adopted an Emergency Animal Disease Site Action Plan (EADSAP) consistent with the AUSVETPLAN. This provides guidance to all people associated with the operation of the abattoir and transport and will be enforced when an emergency disease is detected in an animal within the saleyard or a national livestock standstill occurs. It may also be activated for other emergency animal diseases where approved by the Chief Veterinary Officer

The Emergency Animal Disease Site Action Plan is attached as **Appendix D1**.

3.4 LIVESTOCK STANDSTILL ACTION PLAN

A livestock standstill may be declared by the State Chief Veterinary Officer in the event of a suspected or confirmed emergency animal disease. The declaration will specify the affected species and the timeframe for the standstill (initially 72 hours, however may be increased). Livestock are not able to be moved in, out or within the declared area without permission.

BSSA will implement a livestock standstill action plan in the event of a national or state Livestock Standstill. This plan forms part of the Emergency Animal Disease Response Plan. The plan outlines procedures for the implementation of a declared livestock standstill event. BSSA will ensure key personnel (staff, agents and transport companies) are trained in its implementation. The plan will support national objectives of reducing the spread of disease.

REPORTING AND REVIEW

4.1 REPORTING

Any implementation of the EDBP shall be reported in the Annual Review (Refer to **OEMP Section 7.2**).

4.2 EDBP REVIEW

TFI shall review and if necessary revise the EDBP within three (3) months of:

a) The Annual Review;

b) Any incident report relating to the implementation of the EDBP;

c) Any changes to statutory requirements;

d) An audit report; or

e) Any modifications to conditions of approval.

This is to ensure that the EDBP incorporates any recommended measures to improve environmental performance.

Appendix D1

EADSAP

EMERGENCY ANIMAL DESEASE SITE ACTION PLAN

BOURKE SMALL STOCK ABBATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 4.0

EMERGENCY ANIMAL DISEASE SITE ACTION PLAN

BOURKE SMALL STOCK ABATTOIR

PREPARED FOR:

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 4.0

Revision History

Version	Revision Date	Details	Authorised	
			Name/Position	Signature
3.0	14/09/18	Final updates following agency consultation. Prepared for DRGE. Final version for DP&E approval.	Martin Haege Geolyse Pty Ltd	
4.0	22/02/23	Updates following approval of MOD 2. Prepared for TFI. Final version for DP&E approval.	Martin Haege Premise Pty Ltd	

TABLE OF CONTENTS

EAD Response Plan

1.1 INTRODUCTION

This Emergency Animal Disease Site Action Plan (EADSAP) outlines the procedures that will be followed in the event of the identification of an emergency animal disease within the Bourke Small Stock Abattoir (BSSA). This document provides guidance to all people associated with the operation of the BSSA and transport and will be enforced when an emergency disease is detected in an animal within the facility or a national livestock standstill occurs. It may also be activated for other emergency animal diseases where approved by the Chief Veterinary Officer.

1.2 PROCEDURE

Who:	Plant Manager (PM), Workers (W)	
Where:	Site	
When:	During an EAD breakout	
Actions:		**Responsible Person(s)**
1.	Contain and **isolate** suspect livestock in a secure location on the premises away from unaffected livestock.	PM
2.	Contact the EAD Watch Hotline on **1800 675 888**. You will be transferred to the relevant authority.	PM
3.	Follow all instructions as directed by the relevant authority.	PM
4.	Ensure no staff, visitors, vehicles or equipment leave the facility until approved to do so by the relevant authority.	PM, W
5.	Prevent unnecessary movement of all staff, visitors, vehicles and equipment around the facility.	PM, W
6.	Secure the site perimeter by limiting access to the facility to only authorised personnel.	PM
7.	Stop all livestock movements to and from the site until authorised to do so by the relevant authority. Movements are allowed for stock in transit to complete their journey. No new movements without permission will be allowed.	PM
8.	Cancel all non-essential deliveries	PM
9.	Notify affected customers of the situation, providing updates as the situation changes. What message and to who at this early time prior to investigation needs to be considered. It may cause harm, unnecessary alarm, to notify broadly (or possibly at all pending the context and detail).	PM
10.	Ensure the facilities livestock movement records are compiled and readily available to provide to the relevant authority if required.	PM
11.	Prepare an Incident Report in accordance with **OEMP Section 5.15**.	PM
Records:	Form 7 – Environmental Incident Report	
References:	AUSVETPLAN documents, BSSA EDBP	

Livestock Standstill Action Plan

2.1 INTRODUCTION

The Minister for Agriculture will make the Livestock Standstill Order under the *Biosecurity Act 2015.* A livestock standstill may be declared in the event of a suspected or confirmed emergency animal disease (i.e. Foot-and-mouth Disease). The declaration will specify the affected species and the timeframe for the standstill (initially 72 hours). Livestock in transit at the time of the standstill order will continue to BSSA. Livestock are not able to be moved in, out or within the declared area without permission.

BSSA will implement this livestock standstill action plan in the event of a national or state Livestock Standstill. The plan outlines procedures for the implementation of a declared livestock standstill event. BSSA will ensure key saleyard personnel (staff, agents and transport companies) are trained in its implementation.

2.2 PROCEDURE

2.2.1 ORDER

The Order will be widely publicised on electronic and print media. All parties involved with the BSSA operations must be promptly notified and informed of the provisions of the Order. The Plant Manager will be responsible for informing transport agents.

Prompt notification is necessary to prevent stock leaving their properties of origin and potentially being exposed to, or spreading, disease.

2.2.2 PROCEDURE

Who:	Plant Manager (PM), Workers (W)	
Where:	Site	
When:	During a Livestock Standstill Event	
Actions:		**Responsible Person(s)**
1.	Announce Order as outlined above.	PM
2.	Secure the site perimeter to prevent unauthorised movement of stock into or out of the saleyard: • Close and lock gates • Block roads with barriers (vehicles, boomgates etc.)	PM, W
3.	Assist DPI/authorising body: • Compile livestock details (i.e. ownership, origin, name of transporter)	PM, W
4.	Advise all personnel present (site visitors, workers etc.) to implement biosecurity precautions to prevent potential dissemination of disease: • Wash soles of shoes, remove and bag soiled clothing cleaning/disposal	PM, W

Who:	Plant Manager (PM), Workers (W)	
Where:	Site	
When:	During a Livestock Standstill Event	
Actions:		**Responsible Person(s)**
5.	Ensure livestock area is secure: • Loaded transports still at saleyards must be unloaded and stock confined, • Ensure no unnecessary movements of livestock through the facility. • Livestock are to be held in yards for the minimum term specified in the Order. • Livestock must not be released until termination of the Order.	PM, W
6.	Assist stock agents in contacting livestock transporters of livestock trucked prior to the Order being implemented. • Record details of livestock movement (destination, route taken etc.) and forward on to relevant officials.	PM
7.	Provide feed and water to livestock held at the facility. • Potable water must be available to stock at all times, • Fodder (hay) will be brought in on second day of confinement.	PM, W
8.	Stock are to be released or processed only when approval is given.	PM
9.	Prepare an Incident Report in accordance with **OEMP Section 5.15**.	PM
Records:	Form 7 – Environmental Incident Report	
References:	AUSVETPLAN documents	

Appendix E

WASTE MANAGEMENT PLAN

WASTE MANAGEMENT PLAN

BOURKE SMALL STOCK ABBATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 5.0

WASTE MANAGEMENT PLAN

BOURKE SMALL STOCK ABATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 5.0

Revision History

Version	Revision Date	Details	Authorised	
			Name/Position	Signature
4.0	14/09/18	Final updates following agency consultation. Prepared for DRGE. Final version for DP&E approval.	Martin Haege Geolyse Pty Ltd	
5.0	22/02/23	Updates following approval of MOD 2. Prepared for TFI. Final version for DP&E approval.	Martin Haege Premise Pty Ltd	

TABLE OF CONTENTS

CONDITIONS COMPLIANCE TABLE

Development Consent SSD 7268 Condition	Comment and/or Where Addressed in the Management Plan
D5: Management Plan Requirements	
D5(a) baseline data	Relevant baseline waste quantity estimates are provided in Table 1 in Section 2.6
D5(b)(i) relevant statutory requirements	Waste Management Plan required by CoA C20 (refer to Section 1.2) Relevant statutory requirements listed in Section 1.3
D5(b)(ii) any relevant limits	None applicable
D5(b)(iii) specific performance indicators	None applicable
D5(c) measures to comply with relevant statutory requirements	Section 2
D5(d)(i) monitoring environmental performance	Section 2.7.1
D5(d)(ii) monitoring effectiveness	Section 2.7.1
D5(e) contingency plan	Section 2.6
D5(f) continual improvement	Section 2.7.1 and OEMP Section 7.2.3
D5(g)(i) incident management	OEMP Section 5.15
D5(g)(ii) complaints management	OEMP Section 5.14
D5(g)(iii) non-compliance with statutory requirements	OEMP Section 7.2.3
D5(g)(iv) exceedance of performance criteria	Section 2.7.1 and OEMP Section 7.2.3
D5(h) periodic review	Section 2.7.2

Introduction

1.1 BACKGROUND

The Bourke Small Stock Abattoir (BSSA) is a rural small stock abattoir located approximately 14 kilometres north of Bourke in north-western New South Wales. At full operational capacity the facility has the capacity to process 6,000 head per day comprising goats, sheep and lambs.

The facility provides:

- Covered stock holding yards,
- Administration offices
- Truck parking and truck wash facilities;
- Car parking facilities,
- Processing building
- Other infrastructure associated with abattoir processes.

The site layout is shown in **Figure 1**.

The BSSA is operated by Thomas Foods International (TFI).

1.2 WMP CONTEXT

This Waste Management Plan (WMP) has been prepared to meet Condition C20 of the Development Consent.

> C20. Prior to the commencement of operation, the Applicant shall prepare a **Waste Management Plan** (WMP) to the satisfaction of the Secretary. The WMP shall form part of the OEMP in Condition D3 and be prepared in accordance with Condition D5. The WMP shall:
> a) be prepared in consultation with the EPA;
> b) detail the type and quantity of waste to be generated during the construction and operation of the development;
> c) describe the handling, storage and disposal of all waste streams generated on site in accordance with the POEO Act, *Protection of the Environment Operations (Waste) Regulations 2014*, and the EPA's *Waste Classification Guideline*;
> d) detail the materials to reused or recycled, either on or off site; and
> e) include the Management and Mitigation measures included in Appendix A.

This WMP only covers operational waste management. A separate management plan was prepared and implemented for the construction phase.

This WMP does not deal with wastewater management as this is addressed in the Wastewater Management Plan (WWMP).

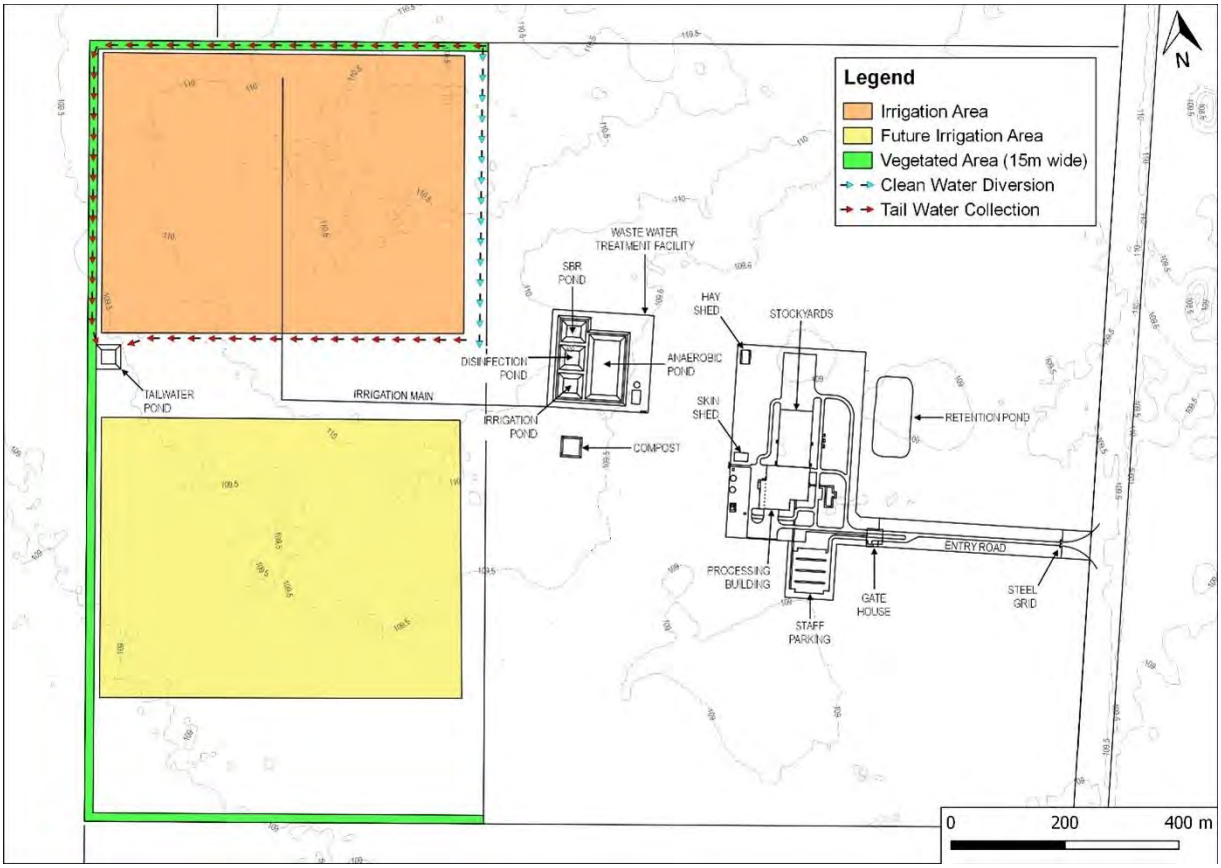


Figure 1: BSSA site layout

1.3 RELEVANT STATUTORY REQUIREMENTS

- *Protection of the Environment Operations Act 1997*;
- *Protection of the Environment Operations (Waste) Regulations 2014*; and
- the EPA's *NSW Waste Avoidance and Resource Recovery Strategy* 2014 and *Waste Classification Guideline*.
- EPL 20918
    - L3.1 Waste
    - O1 Activities must be carried out in a competent manner
    - O5 Waste Management

1.4 WMP STRUCTURE

This WMP has two sections:

- **Section 1** provides background context of the WMP; and
- **Section 2** provides details of the operational waste management.

Relevant management actions derived from this WMP are included in the Operational Environmental Management Plan.

Operational Waste Management

2.1 WASTE GENERATION AND MANAGEMENT

The BSSA generates a range of wastes as part of normal operations. The solid waste streams generated by the facility include:

- Solids removed from the wastewater treatment system (manure and organic matter from the solids separation system);
- Non-edible wastes from stock processing;
- Blood;
- Skins;
- Hair;
- General waste and refuse;
- Empty chemical containers;
- Stock mortalities, including dead on arrival and mass mortality; and
- Manure from the holding yards and truck wash.

Waste generated onsite is classified in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste*, (EPA, 2014) in **Table 1**.

The management of liquid waste streams is detailed in the Wastewater Management Plan (**OEMP Appendix F**).

2.1.1 SOLIDS FROM WASTEWATER TREATMENT PROCESS

Wastewater from the abattoir is directed through coarse screens to remove solids (manure, hair and floating solids) prior to treatment. Approximately 750 tonnes of wastewater solids is collected annually. The solids captured is dewatered and stored in designated screenings bins for removal and offsite disposal at a licensed facility. The screen is periodically washed via an automated high pressure pump.

Solids may need to be removed occasionally from the anaerobic and aerobic wastewater treatment ponds. In the event this is required, the solids would be removed using a vacuum truck (or similar method). It would be an intense (3 days) but infrequent (>3 years) activity. Only limited sludge accumulation is expected in the aerobic treatment pond due to its design and operation resulting in sludge re-circulation to the anaerobic pond.

Sludge build-up is not expected to occur in the standing and irrigation ponds as primary and secondary treatment of the effluent has already occurred

2.1.2 NON EDIBLE WASTES

An estimated 3,300 tonnes of non-edible wastes (e.g. trotters, offal and other process wastes) is produced annually at the facility. Dedicated bins for non-edible wastes are located in required areas within the processing building. The bins are emptied daily into a dedicated receptacle to be removed offsite by a licensed contractor daily for disposal at a licensed facility.

2.1.3 BLOOD

Approximately 4.5 ML of blood is produced as waste per annum. The blood is temporarily stored onsite prior to being tanked offsite to a licensed facility. Blood is suitable for reuse as fertiliser.

2.1.4 SKINS

Approximately 25% of stock are sold with skin off. Skins are stored onsite in a designated skin shed prior to transport to an offsite skin processor in Blayney NSW. Approximately 375,000 skins are transported offsite for processing annually.

2.1.5 HAIR

Approximately 75% of stock are sold as ‘skin on’. Dehairing of carcasses for ‘skin on’ sale results in the daily production of approximately 2 tonnes of hair for disposal, and 500 tonnes annually. The hair is disposed of at a licensed offsite processing facility.

2.1.6 GENERAL WASTE AND REFUSE

Bins are provided for the disposal of general refuse and the separation of recyclables. The bins are emptied daily into a central skip bin which is removed offsite by a licensed contractor on a regular basis for recycling or disposal at landfill.

2.1.7 OFFICE WASTE

General office waste will be generated at the main administration building and gatehouse. Bins are provided for the disposal of general office waste and the separation of recyclables. The bins are emptied daily into a central skip bin which is removed offsite by a licensed contractor on a regular basis for recycling or disposal at landfill.

2.1.8 EMPTY CHEMICAL CONTAINERS

The main chemical supply company provides a chemical supply and pickup service directly to the BSSA. Empty chemical containers are collected by the company during delivery of new chemical supplies. The company will then reuse, recycle or dispose of the containers.

Chemicals expected to be used onsite include:

- Domestic cleaning products (bathrooms, kitchen etc),
- Industrial cleaning products (processing areas)
- Food grade dyes for meat stamping/marking; and
- Antibacterial cleansers/sanitisers for human use.

Chemicals are stored within a secure chemical storage room.

2.1.9 STOCK MORTALITIES

2.1.9.1 Dead on Arrival or Deceased Prior to Slaughter

A 0.5% dead on arrive loss rate is assumed for stock mortalities. In the event of a mass stock mortality event TFI shall consult with relevant agencies to determine appropriate actions (refer **Section 2.1.9.2**).

In the event of dead stock, immediate action is be taken to remove the dead stock to the chillers. The deceased stock will then be collected by a licensed contractor (along with other non-edible wastes) for disposal off-site at an appropriately licensed facility.

Dead stock will generally be removed within 12 hours of notification. Dead stock will not be held on site for more than 24 hours.

2.1.9.2 Mass Stock Mortality Event

In the unlikely event of a mass stock mortality event, the Plant Manager shall consult with relevant agencies to confirm disposal requirements. If mass carcass disposal is required, it shall be undertaken under the direction of relevant agencies.

In the event of mass stock death or notifiable disease, the Plant Manager shall refer to the **Emergency Disposal and Biosecurity Management Plan** to determine the appropriate management strategy.

2.1.10 MANURE

Approximately 75 tonnes of manure (goat, sheep and lamb) is collected annually, equating to approximately 0.05 kilograms per head. Manure is collected from the stock holding yards and truck wash area. The stock holding yards are dry cleaned weekly with collected solids stockpiled in the manure stockpile area prior to spreading over areas adjacent to the irrigation area or surrounding CAPRA Developments Pty Ltd allotments.

Truck wash solids comprise manure and as such, solids from the truck wash are collected and stockpiled in the manure stockpile area.

Excess manure may be removed off site to appropriately licensed facilities.

2.1.10.1 Manure Stockpile

Manure will be stockpiled on-site in a bunded manure stockpile area prior to re-use onsite. The design of the manure stockpile area is provided in **Appendix N** of the **OEMP** and includes a leachate barrier system in accordance with Section 5.2 of the DEC (2004) *Environmental Guidelines: Composting and related organics processing facilities.*

Runoff generated from direct rainfall onto the manure stockpile area is collected in a sump and pumped to the anaerobic pond. This inflow is included in the water balance model.

2.2 GENERAL

- Waste generated outside of the BSSA site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site.
- All waste to be removed from the site shall be transported in enclosed containers by approved contractors.
- All waste removed off site for disposal shall only be disposed of at facilities appropriately licensed or approved to receive such waste.
- Waste shall not be disposed of at the Bourke Shire Council landfill unless an appropriate upgrade of the facility occurs.

2.3 ODOUR CONTROL MEASURES

The following measures will be implemented to reduce the emission of undesirable odours:

- Sealed storage containers,
- Refrigeration of deceased stock prior to removal offsite,
- Stockpiling of manure adjacent the effluent treatment facility,
- The routine removal of all wastes to meet demand,
- Prompt spill management for odour generating material,
- The upkeep of an odour complaints logbook
- Maintenance of the effluent treatment facility to ensure build-up of odour producing wastes does not occur.

2.4 WASTE MINIMISATION STRATEGIES

Design features and strategies have been incorporated into the facility to facilitate recycling and reuse of resources. Waste management will be underpinned by the waste hierarchy of avoid and reduce, reuse, recycle, recover energy, treat and dispose of waste. Waste will be managed in accordance with the *POEO (Waste) Regulation 2014*, the EPA's *NSW Waste Avoidance and Resource Recovery Strategy* 2014 and *Waste Classification Guidelines.*

Waste minimisation strategies include:

1. Avoid and Reduce Waste
   - Recovery of majority of animal for sale as product.
   - Reuse of non-edible by-products where available.
2. Reuse and Recycle Waste
   - Availability of recycling bins.
   - Return of used chemical containers to the supplier or recycling.
   - Reuse of by-products e.g. processing of skins, stockpiling of manure, recycling of wastewater and stormwater from irrigation.
3. Treat Waste
   - Treatment of effluent for irrigation onsite
4. Disposal of Waste
   - All waste that cannot be re-use will be disposed of offsite at appropriately licensed facilities.

2.5 WASTE DISPOSAL SUMMARY

The identified waste streams, their waste classification, on site generation and management and their disposal destinations are outlined in **Table 1.**

Figure 2 depicts where each waste type is generated and stored on site before off site removal.

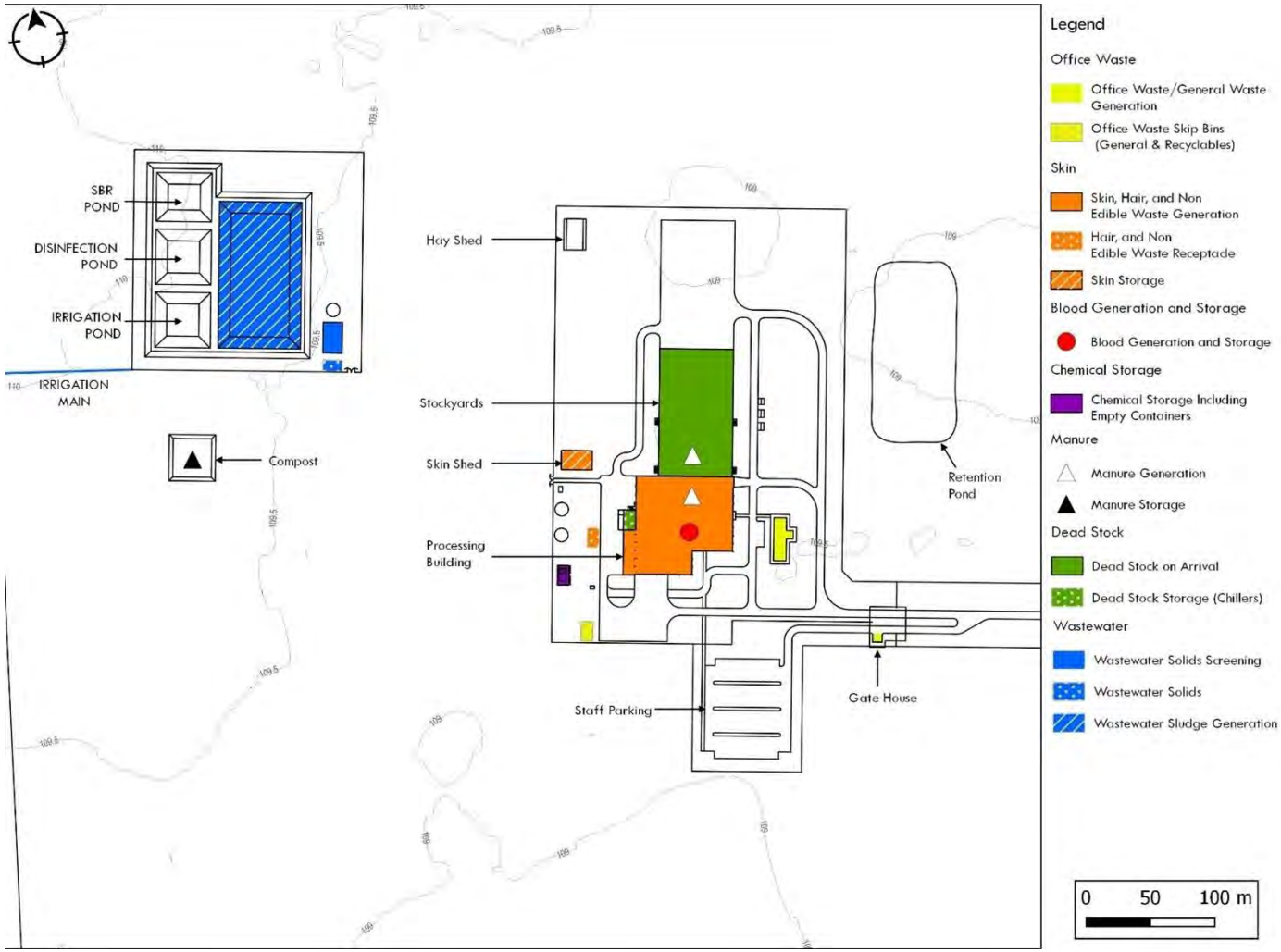


Figure 2: Waste generation and storage

Table 1 – Waste streams and disposal locations

Waste Stream	Annual Quantity	Waste Classification	Where Generated	Where Stored Onsite prior to removal offsite	Disposal Destination	Comments
Wastewater solids – screenings	750 t	General solid waste (putrescible)	Primary solids separation screen	Dedicated skip bin near primary screen	Licensed facility offsite	Sludge removed by truck
Wastewater solids – pond sludge	Varies	Liquid waste	Anaerobic pond	Removed direct offsite	Licensed facility offsite	Rare occurrence. Removed by tanker
Non-edible wastes	3,300 t	General solid waste (putrescible)	Abattoir	Dedicated skip bin	Licensed facility offsite	Offal, trotters, fat etc.
Blood	4.5 ML	Liquid waste	Abattoir	Blood tank	Licensed facility offsite	Removed by tanker
Skins	375,000 skins	General solid waste (putrescible)	Abattoir	Skin shed	Licensed facility offsite	25% of animals sold with skin off
Hair	500 t	General solid waste (putrescible)	Abattoir	Dedicated skip bin	Licensed facility offsite	Approximately 2 tonnes produced per day
General waste and refuse	Variable	General solid waste (putrescible)	Workshop, amenities, canteen	Dedicated skip bins for general waste and recyclables	Licensed facility offsite	To landfill
Office waste	Variable	General solid waste (putrescible)	Office and gate house	Dedicated skip bins for general waste and recyclables	Licensed facility offsite	To landfill
Empty chemical containers	Variable	General solid waste (non-putrescible)	Chemical shed	Chemical shed	Licensed facility offsite	Chemical supply company to remove or BSSA to recycle
Dead on arrival stock	150 t	General solid waste (putrescible)	Stock yards	Chillers	Licensed facility offsite	Assume 0.5% loss rate
Mass stock mortality	Max. 11,000 head	General solid waste (putrescible)	Stock yards	To be determined in consultation with relevant agencies at time of occurrence.	To be determined in consultation with relevant agencies at time of occurrence.	Unlikely occurrence

Table 1 – Waste streams and disposal locations

Waste Stream	Annual Quantity	Waste Classification	Where Generated	Where Stored Onsite prior to removal offsite	Disposal Destination	Comments
Manure	75 t manure	General solid waste (putrescible)	Stock yards Abattoir	Manure Stockpile Area	Stockpiled onsite prior to spreading. Excess removed off site to approved facility.	0.05 kg per head manure

2.6 CONTINGENCY PLAN

In the event that a waste type not listed in **Table 1** is generated at the facility, TFI shall:

1. Classify the waste in accordance with the EPA's *Waste Classification Guidelines*.
2. Identify a suitably approved facility for receipt of the waste.
3. Arrange for removal of the waste from the site.
4. If necessary, advise the EPA and the new waste stream and how it will be managed.
5. Update this WMP, if required.

If waste quantities are significantly larger than the base line estimated provided in **Table 1**, TFI shall:

1. Report this in the Annual Review.
2. Review the effectives of waste management measures and recommend improvements if required.
3. Ensure the current waste disposal facilities are capable of receiving the waste quantities.
4. Update this WMP, if required.

2.7 REPORTING AND REVIEW

2.7.1 WASTE REPORTING

Records of all waste leaving the site shall be maintained in accordance with **OEMP Section 5.3**.

The Annual Review prepared in accordance with **OEMP Section 7.2** shall include a section on waste management and shall:

- Detail the quantities of wastes generated by and removed from the facility and compare this with the baseline estimates listed in **Table 1**; and
- Review the effectives of waste management measures and recommend improvements if required.

2.7.2 WMP REVISION

TFI shall review and if necessary revise the WMP within three (3) months of:

a) The Annual Review;

b) Any incident report pertaining to waste management;

c) Changes to offsite waste disposal facilities or waste management options;

d) An audit report; or

e) Any modifications to conditions of approval.

This is to ensure that the WMP is updated on a regular basis, and incorporates any recommended measures to improve environmental performance.

Appendix F

WASTEWATER MANAGEMENT PLAN

WASTEWATER MANAGEMENT PLAN

BOURKE SMALL STOCK ABBATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 4.0

WASTEWATER MANAGEMENT PLAN

BOURKE SMALL STOCK ABATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 4.0

Revision History

Version	Revision Date	Details	Authorised	
			Name/Position	Signature
3.0	14/09/18	Final updates following agency consultation. Prepared for DRGE. Final version for DP&E approval.	Martin Haege Geolyse Pty Ltd	
4.0	22/02/23	Updates following approval of MOD 2. Prepared for TFI. Final version for DP&E approval.	Martin Haege Premise Pty Ltd	

TABLE OF CONTENTS

TABLES

FIGURES

CONDITIONS COMPLIANCE TABLE

Development Consent SSD 7268 Condition	Comment and/or Where Addressed in the Management Plan
D5: Management Plan Requirements	
D5(a) baseline data	Relevant baseline wastewater volume estimates are provided in Section 2.4.1
D5(b)(i) relevant statutory requirements	Wastewater Management Plan required by CoA C35 (refer to Section 1.2) Relevant statutory requirements listed in Section 1.3
D5(b)(ii) any relevant limits	None applicable
D5(b)(iii) specific performance indicators	None applicable
D5(c) measures to comply with relevant statutory requirements	Section 2
D5(d)(i) monitoring environmental performance	Section 2.8.1
D5(d)(ii) monitoring effectiveness	Section 2.8.1
D5(e) contingency plan	Section 2.7
D5(f) continual improvement	Section 2.8.1 and OEMP Section 7.2.3
D5(g)(i) incident management	OEMP Section 5.15
D5(g)(ii) complaints management	OEMP Section 5.14
D5(g)(iii) non-compliance with statutory requirements	OEMP Section 7.2.3
D5(g)(iv) exceedance of performance criteria	Section 2.8.1 and OEMP Section 7.2.3
D5(h) periodic review	Section 2.7.2

Introduction

1.1 BACKGROUND

The Bourke Small Stock Abattoir (BSSA) is a rural small stock abattoir located approximately 14 kilometres north of Bourke in north-western New South Wales. At full operational capacity the facility has the capacity to process 6,000 head per day comprising goats, sheep and lambs.

The facility provides:

- Covered stock holding yards,
- Administration offices
- Truck parking and truck wash facilities;
- Car parking facilities,
- Processing building
- Other infrastructure associated with abattoir processes.

The site layout is shown in **Figure 1**.

The BSSA is operated by Thomas Foods International (TFI).

The facility is expected to produce approximately 120 ML of wastewater per year from the processing of stock and ancillary operations. Wastewater will be treated onsite and reused through irrigation.

The effluent management system includes physical processes for primary solids removal followed by a biological process incorporating anaerobic and aerobic treatment.

The treated wastewater will be reused onsite over a 31 ha irrigation area. The irrigation area will be used to grow crops for harvesting and removal off-site.

1.2 WWMP CONTEXT

This Wastewater Management Plan (WWMP) has been prepared to meet Condition C35 of the Development Consent.

> C35. Prior to the commencement of operation, the Applicant shall prepare and implement a **Wastewater Management Plan** (WWMP) for the Development to the satisfaction of the Secretary. The WWMP shall:
> a) be developed in consultation with the EPA;
> b) include a summary of the management of wastewater streams on-site, as detailed in the EIS and RTS;
> c) detail the controls to minimise manure being flushed from the stockyards to effluent treatment systems;
> d) include final details on ponds specifications such as liners and leak detection systems;
> e) detail the retention periods for each pond and measure to prevent sludge build up;
> f) provide evidence that wet weather storage capacity is adequate to prevent effluent discharge in 90 percent of years based on water balance modelling, for high strength effluent, as detailed in the *Environmental Guidelines – Use of Effluent by Irrigation* (EPA, 2004);
> g) ensure the wastewater treatment system is maintained to avoid odour generation including ensuring a crust formation on the anaerobic ponds and control irrigation droplet size; and
> h) include details on bunding around ponds and the fate of first flush stormwater collected inside the bund area and in sediment basins after a rainfall event.

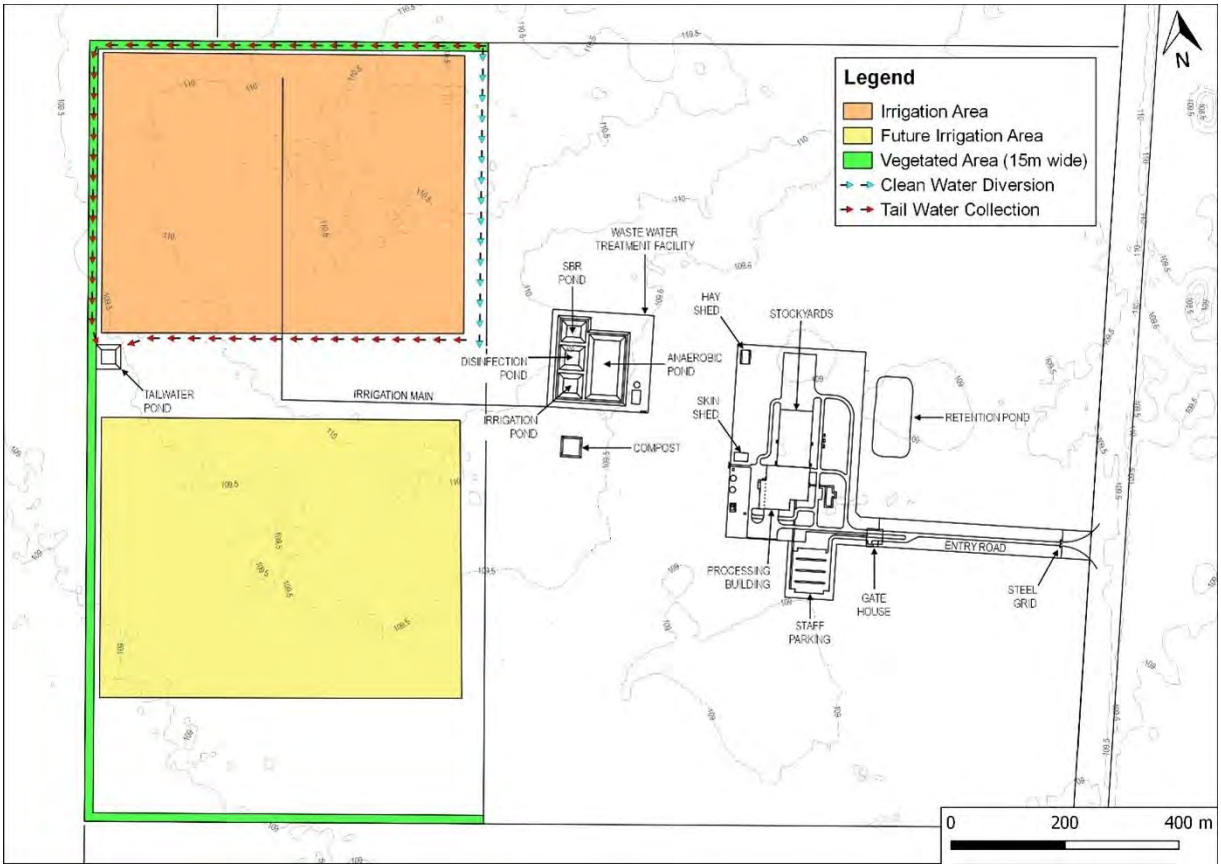


Figure 1: BSSA site layout

1.3 RELEVANT STATUTORY OR GUIDELINE REQUIREMENTS

- *Environmental Guidelines – Use of Effluent by Irrigation* (DEC, 2004)
- EPL 20918
  - L3.1 Waste
  - O1 Activities must be carried out in a competent manner
  - O2 Maintenance of plant and equipment

1.4 WWMP STRUCTURE

This WWMP has two sections:

- **Section 1** provides background context of the WWMP; and
- **Section 2** addresses the specific requirements of the WWMP consent conditions.

Relevant management actions derived from this WWMP are included in the Operational Environmental Management Plan.

Wastewater Management Plan

2.1 WASTEWATER STREAMS

2.1.1 PROCESS WASTEWATER

Wastewater streams generated by the abattoir processing, associated activities and amenities are summarised in **Table 2.1** along with the estimated volumes for a 6,000 head production day.

Wash down and cleaning will also be undertaken on weekends during periods of no production. This is expected to generate 150 kL/day of wastewater.

Management actions to monitor wastewater generation are described in **OEMP Section 6.3**.

Table 2.1 – Abattoir wastewater generation (6,000 head per day production)

Area	Wastewater Generated kL/day
Stockyards	17.28
Stockyards wash down	43.2
Slaughter and evisceration	155.52
Cleaning	82.1
Cutting	21.6
Offal processing	25.92
Chillers	12.96
Boiler	38.88
Amenities	34.56
Total	432.0

2.1.2 CONTROLLED DRAINAGE AREA RUNOFF

Surface water runoff collected in the following bunded areas is transferred as wastewater to the effluent treatment system:

- Compost area (1,600 m^2)

Surface water collected in these bunded areas is pumped to the wastewater treatment system. This is estimated to add an average of 2.7 kL/day. Management actions are described in **OEMP Section 5.4**.

Direct rainfall on the treatment ponds also adds to the wastewater stream and this volume is accounted for in the site water balance model.

2.1.3 IRRIGATION TAILWATER

Runoff from the irrigation area is collected in a tailwater pond and re-irrigated. A pump at the tailwater pond returns captured runoff to the irrigation rising main. Management actions are described in **OEMP Section 5.4**.

Modelling indicates an average of 3.9 ML/year is captured and re-irrigated. The tailwater volume does not add to the volume being treated in the effluent treatment ponds as it is managed separately.

2.1.4 SUMMARY

A summary of the on-site management of each wastewater stream is provided in **Table 2.2**. Estimated monthly wastewater volumes managed by the effluent treatment system are shown in **Figure 2**.

Table 2.2 – Wastewater management

Wastewater Stream	Generated From	Management	End Use
Abattoir	Processing, cleaning, wash down and amenities	Treated in the on-site effluent treatment system (anaerobic and aerobic ponds) and reused across the irrigation area	On-site irrigation of crops
Controlled drainage areas	Rainfall collected in the bunded compost area	Pumped to the anaerobic pond and adds to the combined wastewater stream being tarted and irrigated	On-site irrigation of crops
Irrigation tailwater	Surface runoff from the irrigation area	Collected in drainage swales and directed to a sediment basin. Directly reused across the irrigation area. Does not add to the effluent volume being treated	On-site irrigation of crops

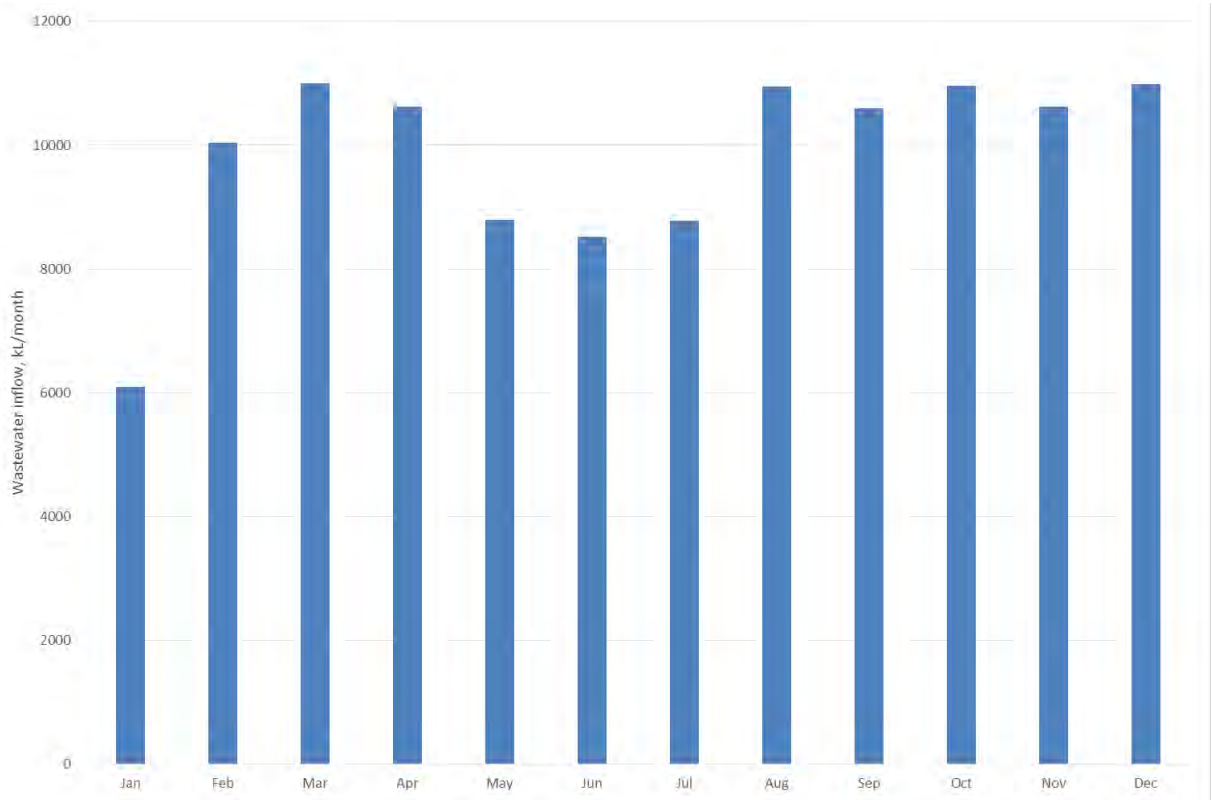


Figure 2: Average monthly wastewater generation (inflow to treatment system)

2.2 STOCKYARD WASTE MANAGEMENT

Controls that minimise manure being flushed from the covered stockyards to the effluent system are:

- The stockyards are covered which prevents rainfall runoff;
- Drainage points that collect wash down water from the covered stockyards are covered when no wash down is occurring; and
- The undercover stock yards are dry cleaned every two (2) weeks when no stock are present. The solids are removed from the yards and transferred to the manure stockpile area.

The following actions are undertaken during wash down of the covered stockyards (refer to **OEMP Section 5.8**):

1. The yards are inspected and excess solids removed by dry cleaning. Solids are transferred to the manure stockpile area.
2. Drainage covers are removed.
3. Yards are cleaned using raw water.
4. Drainage covers are replaced.

2.3 TREATMENT PONDS

2.3.1 TREATMENT POND SYSTEM

A summary of the treatment pond system is provided in **Table 2.3**.

Table 2.3 – Treatment pond system

Pond	Volume ML	Surface area at NWL m^2	Average Hydraulic Residence Time (days)	Function
1. Anaerobic	17.5	6,090	35-50	BOD and suspended solids reduction.
2. Sequencing Batch Reactor (SBR)	3.4	1,330	7-10	BOD and nitrogen reduction. Sludge recycled to Pond 1.
3. Polishing	1.6 + 2.7 ML wet weather storage	1,520	3-5	Disinfection and wet weather storage
4. Irrigation Pond	4.5	1,520	na	Balancing irrigation demand and providing wet weather storage

A layout of the treatment pond system is shown in **Figure 3**.

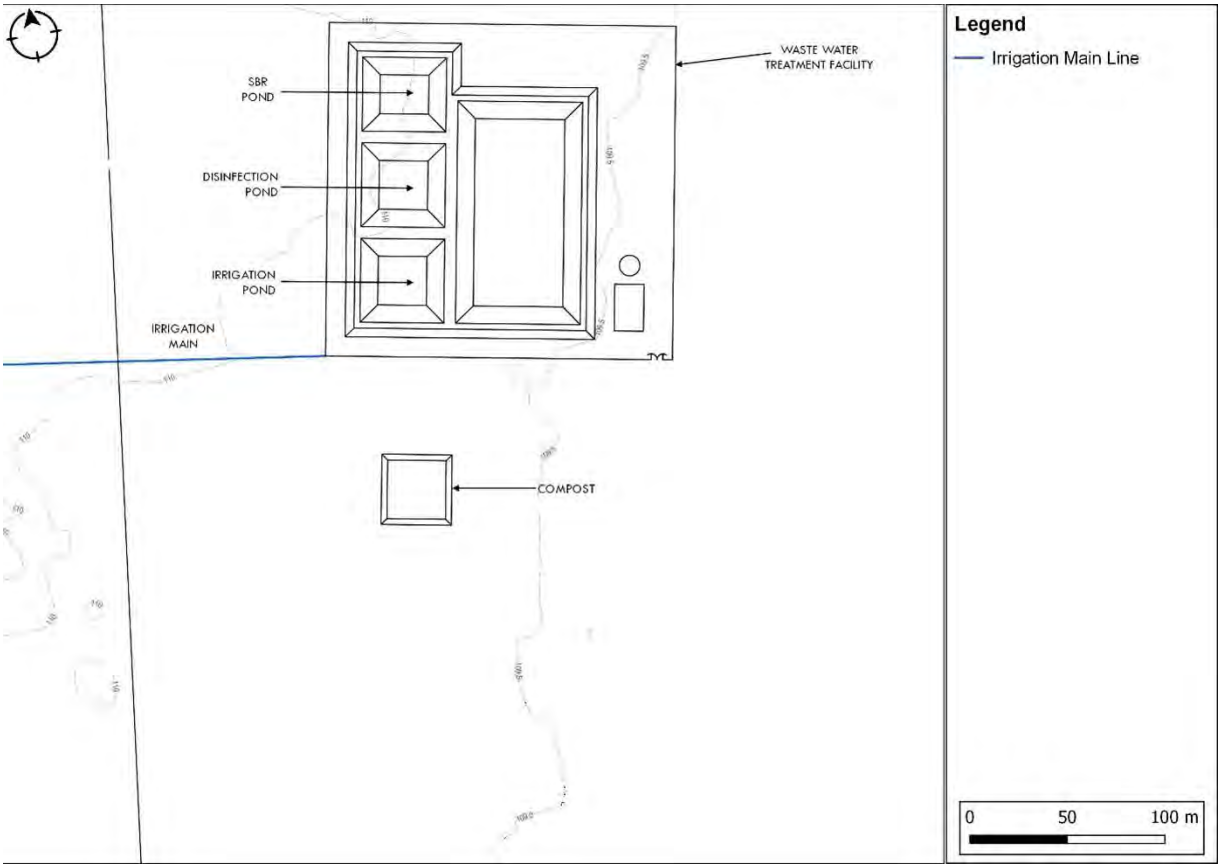


Figure 3: BSSA treatment ponds

2.3.2 POND SPECIFICATIONS

Ponds embankments are constructed from onsite materials. The ponds have a common design top water level (TWL) of 110.10 mAHD and embankment crest level of 110.6 mAHD.

The ponds embankment crest is a minimum of 1.6 m above the surrounding natural ground level which prevents entry of surface runoff.

All ponds are lined with an EPDM synthetic rubber liner with a permeability of 2.233 x 10^{-11} m/s which completely covers the lagoon floor and sloping sidewalls. The liner is underlain with a geotextile drainage fabric. The liner system is anchored in the pond embankment and all penetrations are sealed.

An inspection regime for the pond liner system is included in **OEMP Section 5.2**.

The groundwater monitoring program shall be used to monitor pond integrity (refer to **OEMP Section 5.7**).

2.3.3 SLUDGE MANAGEMENT

Sludge build up will be managed by:

1. Effective primary treatment;
2. Recirculation of sludge from the outlet of the anaerobic pond to its inlet to allow further digestion;
3. Pumping excess biomass from the SBR to the inlet of the anaerobic pond to allow further digestion;

4. Monitoring sludge depth in the anaerobic pond and SBR pond in accordance with OEMP Section 5.2; and
5. Removing excess sludge as required.

Management actions are described in **OEMP Section 5.2**.

2.4 WATER BALANCE

A daily water balance model using 128 years of daily climate (rainfall and evaporation) data for Bourke provides a design model for the effluent management system and irrigation reuse scheme. The model is used to:

- estimate the daily wastewater generation;
- model wastewater movement through the treatment pond system; and
- model irrigation reuse and wet weather storage.

The model uses 128 years of daily SILO rainfall and evaporation data for the site (1 January 1889 to 31 December 2016 – see comment below). The SILO data interpolates rainfall and evaporation values from surrounding climate stations to provide a long term data set for the specific location.

2.4.1 WASTEWATER INFLOW

The monthly abattoir wastewater generation including process wastewater, wash down water and runoff from the controlled drainage areas is shown in **Figure 2**. This is based on:

- 5 days per week production at 6,000 head generating 432 kL/day during production days;
- 150 kL/day used on Saturday and Sunday (each day) for wash down;
- 80% production in May, June and July (4800 head per day) generating 346 kL/day during production days;
- a 14 day shut down at the start of January; and
- runoff from the manure stockpile area.

This generates an average annual inflow to the treatment system of 120 ML/year.

2.4.2 PONDS

The water balance model includes the main system ponds.

Storage Inflows

- Treatment ponds – receives wastewater generated from the abattoir operations;
- Irrigation tailwater pond – receives runoff from the irrigation area; and
- All open ponds receive direct rainfall input based on their area at top of bank.

Storage Outflows

- Evaporation from the treatment ponds and tailwater pond;
- Irrigation from the irrigation pond (Pond 4) and the tailwater pond; and
- Discharge to surface waters when the combined wet weather capacity of the irrigation pond (Pond 4) and disinfection pond (Pond 3) is exceeded.

Pond Evaporation Losses

Pond evaporation losses are calculated from the:

- pond water surface area on the day of the model; and
- daily evaporation multiplied by a pan to open water coefficient of 0.75.

Pond Rainfall Additions

Pond rainfall additions are calculated from the:

- pond water surface area on the day of the model; and
- daily rainfall using a volumetric coefficient of 1.0 for the water surface.

2.4.3 IRRIGATION MODULE

The water balance model includes an irrigation reuse component that is based on a soil moisture balance to calculate irrigation demand. The soil moisture calculations are based on the following equation:

Change in Soil Storage = Precipitation + Irrigation - Evapotranspiration - Runoff - Drainage

The above equation is used to track soil moisture using a daily time step as described by the following equation:

$$\theta_d = \theta_{d-1} + P_d + I_d - ET_d - R_o - D_d$$

Where θ_d = soil moisture at the end of the current day

θ_{d-1} = soil moisture at the end of the previous day

P_d = rainfall for the current day

I_d = irrigation for the current day

ET_d = crop evapotranspiration for the current day

R_o = runoff

D_d = drainage below the root zone for the current day

The model adopts the following soil properties:

- Soil depth 0.4 m (effective crop rooting depth)
- Soil texture Sandy/clayey silt (adopted properties for clay loam)
- Maximum water holding capacity 440 mm/m (θ_{max})
- Field capacity 365 mm/m (θ_{FC})
- Available water holding capacity 150 mm/m
- Crop stress 290 mm/m (θ_{stress})
- Wilting point 215 mm/m (θ_{WP})
- Maximum drainage 20 mm/day (k_{drain})

The following calculations are made based on soil moisture (θ):

- Runoff, $R_o = r_c \times P$

  Where P = rainfall

r_c = runoff coefficient: $r_c = 0$ when $\theta \leq \theta_{FC}$

$r_c = (\theta - \theta_{FC})/(\theta_{max} - \theta_{FC})$ when $\theta > \theta_{FC}$

- Actual evapotranspiration, AET: $AET = PET$ when $\theta > \theta_{stress}$

  $AET = (\theta - \theta_{WP})/(\theta_{stress} - \theta_{WP}) \times PET$ when $\theta_{WP} < \theta \leq \theta_{stress}$

  $AET = 0$ when $\leq \theta_{WP}$

  Where PET = potential evapotranspiration (pan evaporation x crop factor)

- Deep drainage, D: $D = (\theta - \theta_{FC})/(\theta_{max} - \theta_{FC}) \times k_{drain}$ when $\theta > \theta_{FC}$

  $D = 0$ when $\theta \leq \theta_{FC}$

Irrigation is applied based on a deficit irrigation regime i.e. applying 5 mm when the soil moisture is 15 mm below field capacity. This provides a 15 mm soil moisture buffer to accommodate some rainfall if it was to occur immediately following irrigation. It also ensures the soil profile does not become saturated through irrigation.

No irrigation is applied if rainfall exceeds 5 mm, even if the soil moisture deficit is low enough to accept irrigation.

Crop factors used in the water balance model are for winter cereal and summer grass crops.

2.4.4 WATER BALANCE RESULTS

Water balance results are shown in **Figure 4** and demonstrate that the combined wet weather storage of 5.7 ML is adequate to prevent effluent discharge in 90 percent of years in accordance with the design guidelines for high strength effluent described by the *Environmental Guidelines – Use of Effluent by Irrigation* (DEC, 2004).

It is noted that Pond 3 and Pond 4 have an additional 1.6 ML of freeboard storage which can be used to balance irrigation if required.

Further details of the irrigation management are provided in the **Irrigation Management Plan (IMP)**.

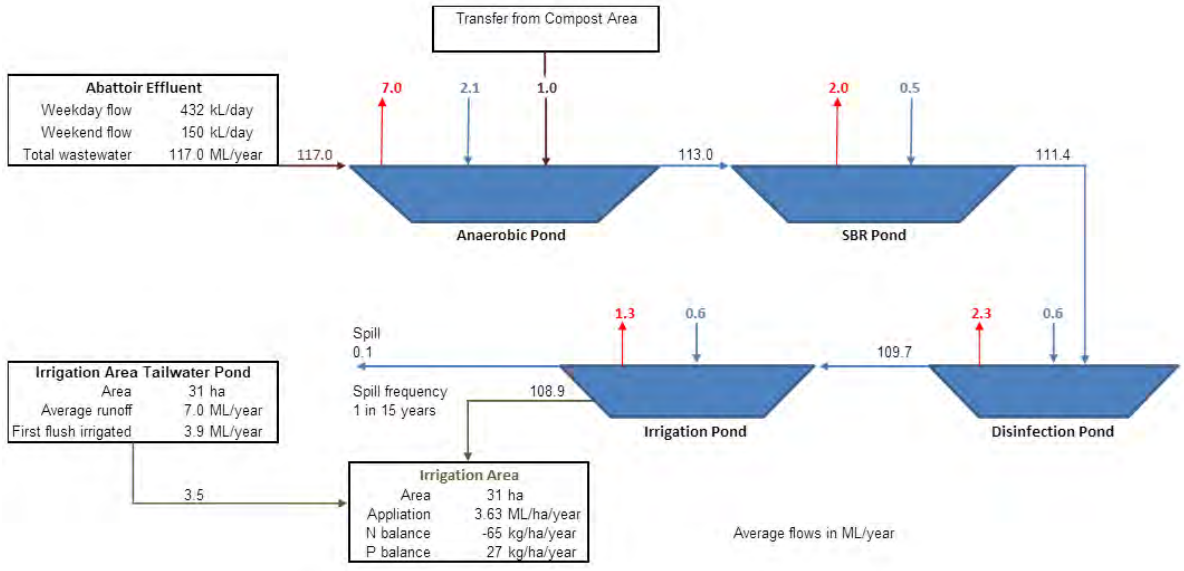


Figure 4: Water balance results

2.5 ODOUR MANAGEMENT

The following measures are incorporated in the wastewater system design to manage odour:

1. Crust formation and sludge recirculation in the anaerobic pond;
2. Dissolved oxygen probes controlling aerators in the SBR;
3. Low pressure travelling irrigator; and
4. 15 m buffers to irrigation areas.

Management actions to manage odour generation from the wastewater system are described in **OEMP Section 5.10**.

2.6 CONTROLLED DRAINAGE AREA SURFACE WATER MANAGEMENT

2.6.1 BUNDED AREAS

Bunded areas that form controlled drainage areas include:

1. The treatment ponds;
2. The manure stockpile area;
3. The irrigation area.

Treatment Ponds

The treatment ponds are fully isolated from surface runoff by embankments that are a minimum of 1.6 m above surrounding ground levels.

The ponds will receive direct rainfall. This inflow is included in the water balance model.

Manure Stockpile Area

Manure will be stockpiled on-site in a bunded manure stockpile area prior to re-use onsite. The design of the manure stockpile area is provided in Appendix N of the OEMP and includes a leachate barrier system in accordance with Section 5.2 of the DEC (2004) *Environmental Guidelines: Composting and related organics processing facilities.*

Runoff generated from direct rainfall onto the manure stockpile area is collected in a sump and pumped to the anaerobic pond. This inflow is included in the water balance model.

Irrigation Area

The irrigation are is separated from surrounding surface water runoff with an upslope clean water diversion bund and downslope collection drains that direct runoff from the irrigation area to a sediment basin.

The irrigation tailwater pond (sediment basin) is design in accordance with *Managing Urban Stormwater, Soils and Construction, Volume 1* (Landcom, 2004) as follows.

Pond volume (V) = settling zone + sediment storage zone

Settling zone (Sz) = $10 \times C_v \times A \times R$ (y%ile, 5 day)

R = 19 mm (80 %ile, 5 day for Bourke)

Sediment storage zone = 50% of capacity of settling zone

Therefore, V = 1.5 x Sz, *Equation (1)*

From Table F2 in Managing Urban Stormwater, Volume 1 – Soils and Construction for soil hydrologic group B and design rainfall of < 20 mm, C_v = 0.10

Therefore the volume required to manage 31 ha of irrigation area is:

Volume (V) = 1.5 x 10 x 0.10 x 31 x 19

= 884 m^3

Settling zone = 590 m^3

Sediment zone = 294 m^3

This volume provides capacity to capture runoff generated from about 24 mm of rainfall across the irrigation area.

The tailwater pond is a first flush system and once full excess water bypasses. Water collected in the tailwater pond is pumped to the irrigation system and irrigated. Modelling indicates it can take up to 3 days to empty the water collected in the settling zone (590 m^3) following rainfall. This is consistent with the design criteria of restoring the design capacity within 5 days of rainfall.

Further details of the irrigation management are provided in the **Irrigation Management Plan (IMP)**.

2.7 CONTINGENCY PLAN

In the event that the wastewater volume is +/- 25% of the design values listed in **Section 2.4.1**, TFI shall:

1. Obtain actual effluent production records.
2. Review water and nutrient balance calculations.
3. Resize irrigation area if required.
4. Updated IMP, WWMP and OEMP if required.

Contingency measures to be investigated if wastewater volumes are shown to be higher than design:

- Assessment, approval and establishment of additional irrigation land; and/or
- Removal of wastewater offsite to an appropriately licensed facility

2.8 REPORTING AND REVIEW

2.8.1 WASTEWATER REPORTING

Records of wastewater generation and irrigation shall be maintained in accordance with **OEMP Section 6.3**.

The Annual Review prepared in accordance with OEMP Section 7.2 shall include a section on wastewater management and shall:

- Detail the quantities of wastewater generated and irrigated at the facility and compare this with the baseline estimates listed in **Section 2.4.1**; and

- Review the effectives of wastewater management measures and recommend improvements if required.

2.8.2 WWMP REVIEW

TFI shall review and if necessary revise the WWMP within three (3) months of:

a) The Annual Review;

b) Any incident report relating to wastewater management;

c) Any changes to the wastewater management system;

d) An audit report; or

e) Any modifications to conditions of approval.

This is to ensure that the WWMP incorporates any recommended measures to improve environmental performance.

References

DEC (NSW) (2004) *Environmental guidelines: use of effluent by irrigation*. Department of Environment and Conservation (NSW).

Landcom (2004) *Managing Urban Stormwater, Soils and Construction, Volume 1*

Appendix G

IRRIGATION MANAGEMENT PLAN

IRRIGATION MANAGEMENT PLAN

BOURKE SMALL STOCK ABBATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 5.0

IRRIGATION MANAGEMENT PLAN

BOURKE SMALL STOCK ABATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 5.0

Revision History

Version	Revision Date	Details	Authorised	
			Name/Position	Signature
4.0	14/09/18	Final updates following agency consultation. Prepared for DRGE. Final version for DP&E approval.	Martin Haege Geolyse Pty Ltd	
5.0	22/02/23	Updates following approval of MOD 2. Prepared for TFI. Final version for DP&E approval.	Martin Haege Premise Pty Ltd	

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

CONDITIONS COMPLIANCE TABLE

Development Consent SSD 7268 Condition	Comment and/or Where Addressed in the Management Plan
D5: Management Plan Requirements	
D5(a) baseline data	Relevant baseline wastewater volume estimates are provided in Section 2.3.1 Baseline soil data is discussed in Section 2.4 and provided in Appendix G1
D5(b)(i) relevant statutory requirements	Wastewater Management Plan required by CoA C38 (refer to Section 1.2) Relevant statutory requirements listed in Section 1.3
D5(b)(ii) any relevant limits	Section 2.13 and Section 3.6
D5(b)(iii) specific performance indicators	Section 2.13 and Section 3.6
D5(c) measures to comply with relevant statutory requirements	Section 3
D5(d)(i) monitoring environmental performance	Section 3.5
D5(d)(ii) monitoring effectiveness	Section 3.7.1
D5(e) contingency plan	Section 3.6
D5(f) continual improvement	Section 3.7.1 and OEMP Section 7.2.3
D5(g)(i) incident management	OEMP Section 5.15
D5(g)(ii) complaints management	OEMP Section 5.14
D5(g)(iii) non-compliance with statutory requirements	OEMP Section 7.2.3
D5(g)(iv) exceedance of performance criteria	Section 3.7.1 and OEMP Section 7.2.3
D5(h) periodic review	Section 3.7.2

Introduction

1.1 BACKGROUND

The Bourke Small Stock Abattoir (BSSA) is a rural small stock abattoir located approximately 14 kilometres north of Bourke in north-western New South Wales. At full operational capacity the facility has the capacity to process 6,000 head per day comprising goats, sheep and lambs.

The facility provides:

- Covered stock holding yards,
- Administration offices
- Truck parking and truck wash facilities;
- Car parking facilities,
- Processing building
- Other infrastructure associated with abattoir processes.

The site layout is shown in Figure 1.

The BSSA is operated by Thomas Foods International (TFI).

The facility is expected to produce approximately 120 ML of wastewater per year from the processing of stock and ancillary operations. Wastewater will be treated onsite and reused through irrigation.

The effluent management system includes physical processes for primary solids removal followed by a biological process incorporating anaerobic and aerobic treatment.

The treated wastewater will be reused onsite over a 31 ha irrigation area. The irrigation area will be used to grow crops for harvesting and removal off-site.

1.2 IMP CONTEXT

This Irrigation Management Plan (IMP) has been prepared to meet Condition C38 of the Development Consent.

> C38. Prior to the commencement of operation, the Applicant shall update the **Irrigation Management Plan** (IMP) (referred to Appendix K of the EIS) to the satisfaction of the Secretary. The IMP shall form part of the OEMP in Condition D3 and be prepared in accordance with Condition D5. The IMP shall be prepared in consultation with the EPA and shall include:
> a) a detailed soil report prepared by a suitably qualified expert for the range of site limitations including salinity, sodicity, low permeability and low phosphorus sorption capacity;
> b) identification of baseline soil monitoring sites to allow comparison between impacted and non-impacted sites;
> c) management and mitigation measures available for any potential site limitations for irrigation; and
> d) clearly defined management actions that are to be implemented when approaching or exceeding agreed sustainability triggers.

.

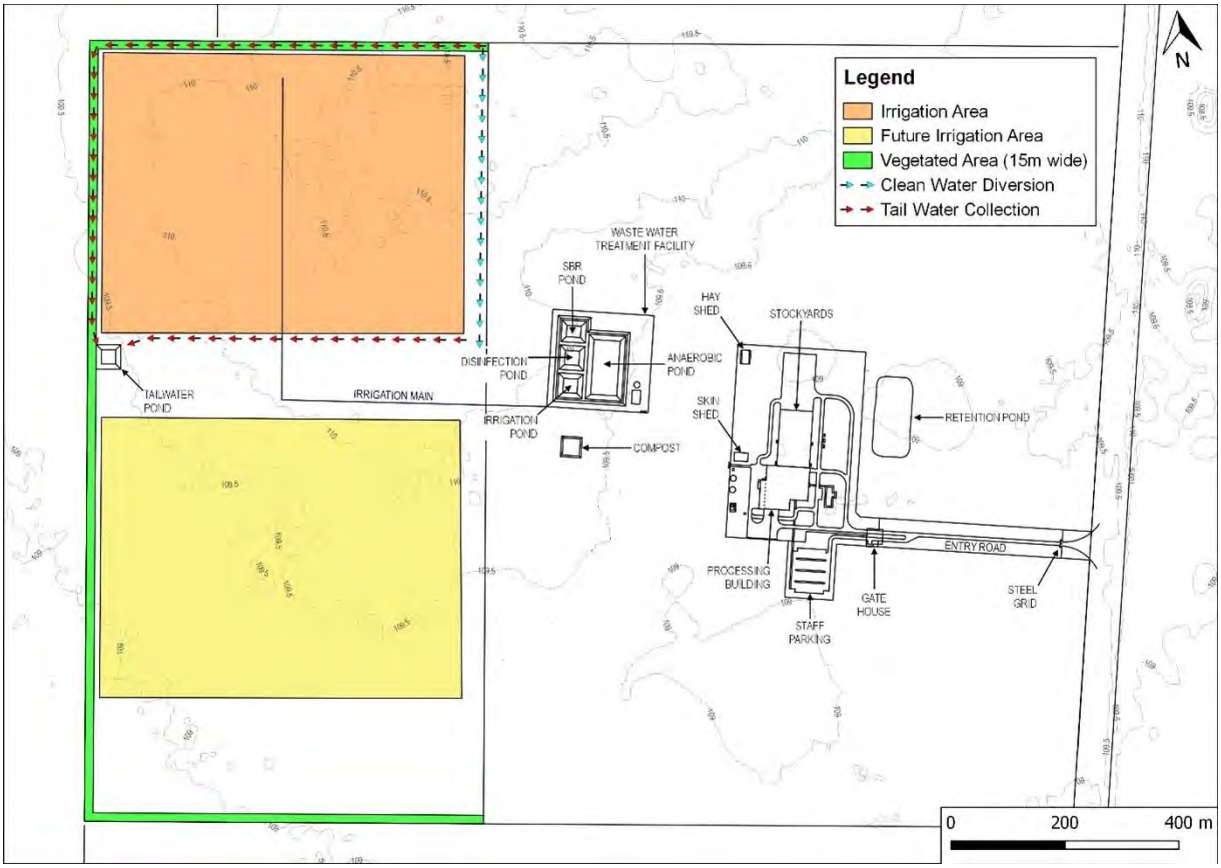


Figure 1: BSSA site layout

1.3 RELEVANT STATUTORY OR GUIDELINE REQUIREMENTS

- *Environmental Guidelines – Use of Effluent by Irrigation* (DEC, 2004)
- EPL 20918
  - O1 Activities must be carried out in a competent manner
  - O2 Maintenance of plant and equipment

1.4 IMP STRUCTURE

This IMP has three sections:

- **Section 1** provides background context of the IMP; and
- **Section 2** provides details of the site setting and relevant background data; and
- **Section 3** addresses the specific requirements of the IMP consent conditions and outlines the IMP.

Relevant management actions derived from this IMP are included in the Operational Environmental Management Plan.

The IMP supporting information is presented in Appendices.

Background Data

2.1 WASTEWATER MANAGEMENT

2.1.1 WASTEWATER GENERATION

A summary of the on-site management of each wastewater stream is provided in Table 2.1. Further details are provided in the **Wastewater Management Plan**. Estimated monthly wastewater volumes managed by the effluent treatment system are shown in Figure 2. The abattoir generates approximately 120 ML/year of wastewater which is treated through a pond system prior to irrigation.

An average of approximately 109 ML/year is irrigated after accounting for nett evaporation losses from the pond system.

Table 2.1 – Wastewater management

Wastewater Stream	Generated From	Management	End Use
Abattoir	Processing, cleaning, wash down and amenities	Treated in the on-site effluent treatment system (anaerobic and aerobic ponds) and reused across the irrigation area	On-site irrigation of crops
Controlled drainage areas	Rainfall collected in the bunded manure stockpile area.	Pumped to the anaerobic pond and adds to the combined wastewater stream being tarted and irrigated	On-site irrigation of crops
Irrigation tailwater	Surface runoff from the irrigation area	Collected in drainage swales and directed to a sediment basin. Directly reused across the irrigation area. Does not add to the effluent volume being treated	On-site irrigation of crops

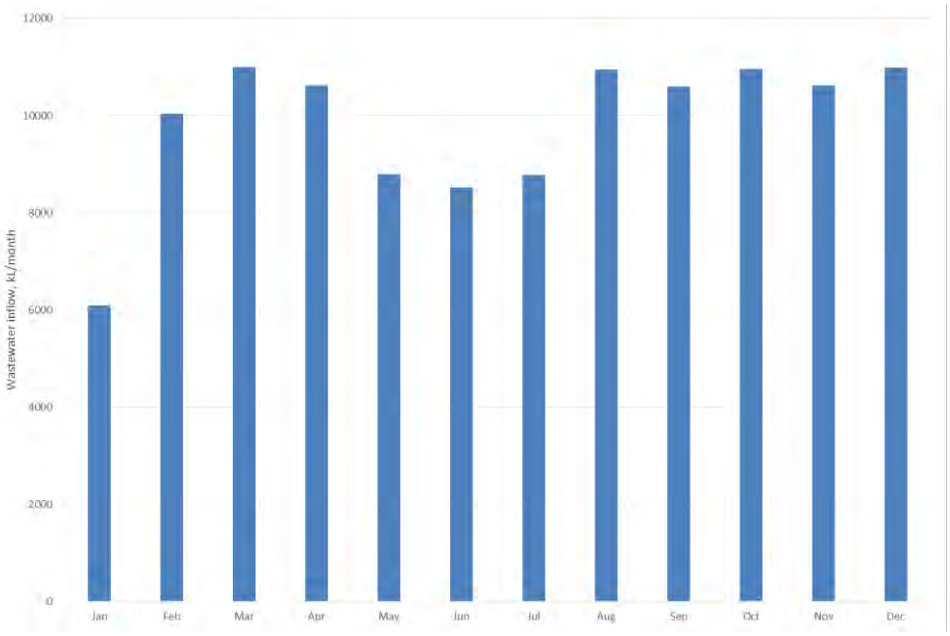


Figure 2: Average monthly wastewater generation (inflow to treatment system)

2.1.2 TREATMENT POND SYSTEM

A summary of the treatment pond system is provided in Table 2.2.

Table 2.2 – Treatment pond system

Pond	Volume ML	Surface area at NWL m^2	Average Hydraulic Residence Time	Function
1. Anaerobic	17.5	6,090	35-50	BOD and suspended solids reduction.
2. Sequencing Batch Reactor (SBR)	3.4	1,330	7-10	BOD and nitrogen reduction. Sludge recycled to Pond 1.
3. Polishing	1.6 + 2.7 ML wet weather storage	1,520	3-5	Disinfection and wet weather storage
4. Irrigation Pond	4.5	1,520	na	Balancing irrigation demand and providing wet weather storage

2.1.3 TREATED EFFLUENT QUALITY

The expected final effluent quality prior to irrigation is defined in **Table 2.3**.

Table 2.3 – Final effluent quality following treatment

Parameter	Unit	Expected Concentration
Biochemical oxygen demand	mg/L	<100
Total suspended solids	mg/L	<50
Total dissolved solids	mg/L	<2000
Electrical conductivity	dS/m	<3.1
Total Kjeldhal nitrogen	mg/L	<60
Total phosphorus	mg/L	<20
pH	-	6.5-9.0

2.2 RELEVANT GUIDELINES AND DESIGN CRITERIA

Relevant guidelines that apply for land application systems are the *Environmental Guidelines: Use of effluent by irrigation* (DEC, 2004) (the Reuse Guidelines).

The treated effluent is classed as a high strength effluent due to the expected nutrient and salinity concentrations.

The spill frequency for a holding pond from which wastewater is routinely removed for land application, should not exceed an average of one spill in 10 years (i.e. notionally able to retain effluent in a 90th percentile wet year).

2.3 WATER BALANCE

A daily water balance model using 128 years of daily climate (rainfall and evaporation) data for Bourke provides a design model for the effluent management system and irrigation reuse scheme. The model is used to:

- estimate the daily wastewater generation;
- model wastewater movement through the treatment pond system; and
- model irrigation reuse and wet weather storage.

The model uses 128 years of daily SILO rainfall and evaporation data for the site (1 January 1889 to 31 December 2016 – see comment below). The SILO data interpolates rainfall and evaporation values from surrounding climate stations to provide a long term data set for the specific location.

2.3.1 WASTEWATER INFLOW

The monthly abattoir wastewater generation including process wastewater, wash down water and runoff from the controlled drainage areas is shown in **Figure 2**. This is based on:

- 5 days per week production at 6,000 head generating 432 kL/day during production days;
- 150 kL/day used on Saturday and Sunday (each day) for wash down;
- 80% production in May, June and July (4800 head per day) generating 346 kL/day during production days;
- a 14 day shut down at the start of January; and
- runoff from the manure stockpile area.

This generates an average annual inflow to the treatment system of 120 ML/year.

2.3.2 PONDS

The water balance model includes the main system ponds.

Storage Inflows

- Treatment ponds – receives wastewater generated from the abattoir operations;
- Irrigation tailwater pond – receives runoff from the irrigation area; and
- All open ponds receive direct rainfall input based on their area at top of bank.

Storage Outflows

- Evaporation from the treatment ponds and tailwater pond;

- Irrigation from the irrigation pond (Pond 4) and the tailwater pond; and
- Discharge to surface waters when the combined wet weather capacity of the irrigation pond (Pond 4) and disinfection pond (Pond 3) is exceeded.

Pond Evaporation Losses

Pond evaporation losses are calculated from the:

- pond water surface area on the day of the model; and
- daily evaporation multiplied by a pan to open water coefficient of 0.75.

Pond Rainfall Additions

Pond rainfall additions are calculated from the:

- pond water surface area on the day of the model; and
- daily rainfall using a volumetric coefficient of 1.0 for the water surface.

2.3.3 IRRIGATION MODULE

The water balance model includes an irrigation reuse component that is based on a soil moisture balance to calculate irrigation demand. The soil moisture calculations are based on the following equation:

Change in Soil Storage = Precipitation + Irrigation - Evapotranspiration - Runoff - Drainage

The above equation is used to track soil moisture using a daily time step as described by the following equation:

$$\theta_d = \theta_{d-1} + P_d + I_d - ET_d - R_o - D_d$$

Where θ_d = soil moisture at the end of the current day

θ_{d-1} = soil moisture at the end of the previous day

P_d = rainfall for the current day

I_d = irrigation for the current day

ET_d = crop evapotranspiration for the current day

R_o = runoff

D_d = drainage below the root zone for the current day

The model adopts the following soil properties:

- Soil depth 0.4 m (effective crop rooting depth)
- Soil texture Sandy/clayey silt (adopted properties for clay loam)
- Maximum water holding capacity 440 mm/m (θ_{max})
- Field capacity 365 mm/m (θ_{FC})
- Available water holding capacity 150 mm/m
- Crop stress 290 mm/m (θ_{stress})
- Wilting point 215 mm/m (θ_{WP})
- Maximum drainage 20 mm/day (k_{drain})

The following calculations are made based on soil moisture (θ):

- Runoff, $R_o = r_c \times P$

  Where P = rainfall

  r_c = runoff coefficient: $r_c = 0$ when $\theta \leq \theta_{FC}$

  $r_c = (\theta - \theta_{FC})/(\theta_{max} - \theta_{FC})$ when $\theta > \theta_{FC}$

- Actual evapotranspiration, AET: AET = PET when $\theta > \theta_{stress}$

  $AET = (\theta - \theta_{WP})/(\theta_{stress} - \theta_{WP}) \times PET$ when $\theta_{WP} < \theta \leq \theta_{stress}$

  AET = 0 when $\leq \theta_{WP}$

  Where PET = potential evapotranspiration (pan evaporation x crop factor)

- Deep drainage, D: $D = (\theta - \theta_{FC})/(\theta_{max} - \theta_{FC}) \times k_{drain}$ when $\theta > \theta_{FC}$

  D = 0 when $\theta \leq \theta_{FC}$

Irrigation is applied based on a deficit irrigation regime i.e. applying 5 mm when the soil moisture is 15 mm below field capacity. This provides a 15 mm soil moisture buffer to accommodate some rainfall if it was to occur immediately following irrigation. It also ensures the soil profile does not become saturated through irrigation.

No irrigation is applied if rainfall exceeds 5 mm, even if the soil moisture deficit is low enough to accept irrigation.

Crop factors used in the water balance model are for winter cereal and summer grass crops.

2.4 SOILS

A detailed soil assessment was undertaken over the proposed irrigation area in December 2015 (Envirowest Consulting Pty Ltd, 2015) through the construction and sampling of fourteen boreholes. The location of the boreholes and summary of the soil physical and chemical characteristics is included in **Appendix G1** of this IMP. The soil data:

- Provides site specific data that allows assessment of the suitability for effluent irrigation in accordance with the Reuse Guidelines;
- Identifies soil characteristics which require specific management actions; and
- Defines background soil characteristics against which future soil monitoring can be benchmarked.

The site is located within the Cartlands Land System and comprises plains with brown cracking and non-cracking clays, grey cracking clays and texture-contrast soils. The site was characterised by red-brown, yellow-brown and grey-brown sandy to silty clays and clayey sands. Shallow crabhole gilgais were identified over the site.

The soils have a neutral to moderately alkaline pH, non-saline to moderately saline topsoil and moderately to extremely saline subsoils (although this is influenced by the calcium salts).

Soil characteristics which require specific management actions are:

- Soil sodicity;
- Soil salinity (mainly sub soil);
- Moderate soil hydraulic conductivity; and
- Moderate phosphorus sorption capacity.

Management actions are outlined in **Section 3.4** of this IMP.

2.5 RISK ASSESSMENT

2.5.1 GROUNDWATER

The local groundwater table is at a depth of around 15 m below the surface level and there are several aquitard layers present through the profile. The wastewater will be applied in controlled applications based on daily soil moisture budgeting. All wastewater treatment ponds at the BSSA are lined with a synthetic rubber liner with a permeability of 2.233 x 10^{-11} m/s to prevent leakage.

Given all of these factors to risk of groundwater contamination is considered to be extremely low.

Despite the low risk, a groundwater monitoring program will be implemented (refer to **Section 3.5.5**).

2.5.2 SURFACE WATER

The BSSA site comprises of level to very gently inclined land with no major defined surface water courses. The sandy soil profile has high infiltration which reduces runoff potential. Wastewater will be applied at application rates that match the infiltration soil capacity to avoid waterlogging, ponding or runoff.

The site is not affected by flooding.

The effluent treatment ponds are constructed as turkey nest dams and do not capture any surface water runoff apart from direct rainfall. Water balance modelling demonstrates that there is adequate wet weather storage in the system to avoid discharge from the ponds.

Given all of these factors to risk of surface water contamination is considered to be extremely low.

2.5.3 SITE SUITABILITY

Site features relating to landform, soil, groundwater and surface water were considered against criteria presented in the Reuse Guidelines. This is summarised in **Table 2.4**.

From this analysis, it can be concluded that the site is suitable for effluent irrigation with only a couple of site features presenting moderate or high limitations. The areas where careful management will be required are:

- Soil sodicity;
- Soil salinity (mainly sub soil);
- Moderate soil hydraulic conductivity; and
- Moderate phosphorus sorption capacity.

Table 2.4 – Site limitations and suitability

Feature	Limitation[1]			Site Value	Rating	Comment
	Nil or Slight	Moderate	Severe			
Slope Sprinkler irrigation	<6%	6-12%	>12%	1%	Nil	The irrigation area is relatively flat and application rates will be low to prevent ponding and runoff.
Flooding	Non-rare	Occasional	Frequent	None	Nil	The site does not contain any major identifiable drainage lines. It is not subject to local or regional flooding.
Distances to watercourses	> 200 m	100-200 m	50-100 m	> 200 m	Nil	There are no major drainage lines within 200 m of the irrigation areas. Upslope diversion bunds used. Tailwater collected and re-irrigated.
Landform	Hill crests, convex slopes and plains	Concave slopes, foot slopes	Drainage plains and incised channels	Plains	Nil	Risks relate to erosion and seasonal water logging. The irrigation areas are flat and application rates will be low to prevent ponding and runoff; this will minimise the potential for erosion. Waterlogging will be controlled through management of application rates. None of the irrigation areas are located in areas prone to water logging.
Surface rock	Nil	0-5%	> 5%	Nil	Nil	No surface rocks or rocky outcrops were identified over the irrigation area.
Exchangeable sodium percentage (0-40 cm)	0—5	5-10	>10	1.6-14	Moderate to severe	Potential for soil structural decline and surface crusting. Will require monitoring. Management regime may include the use of gypsum however this will not be used until soil monitoring data is collected and indicates some form of intervention is required.
Exchangeable sodium percentage (40-100 cm)	<10	>10	-	>10	Severe	Potential for soil structural decline. Will require monitoring. Management regime may include the use of gypsum however this will not be used until soil monitoring data is collected and indicates some form of intervention is required.
Salinity measured as electrical conductivity (ECe) (ds/m at 0-70 cm)	<2	2-4	>4	1-4	Slight to moderate	Crop selection needs to be cognisant of soil salinity. Crop yield may be reduced.

Table 2.4 – Site limitations and suitability

Feature	Limitation[1]			Site Value	Rating	Comment
	Nil or Slight	Moderate	Severe			
Salinity measured as electrical conductivity (ECe) (ds/m at 70-100 cm)	<4	4-8	>8	3-25	Severe	Crop selection needs to be cognisant of soil salinity. Crop yield may be reduced. Note: the soils contain a high proportion of calcium salts which do not necessarily present a severe limitation
Depth to watertable (m)	> 3	0.5-3	< 0.5	~15	Nil	The Upper Darling Alluvial Groundwater Source is unconfined within the water table at depths greater than 15 m below ground level. The risk to groundwater is very minimal.
Depth to bedrock	> 1	0.5-1	< 0.5	> 1	NIl	The depth to bedrock is in excess of 8 m.
Hydraulic conductivity (mm/hr, 0-100 cm)	20-80	5-20 or > 80	< 5	5 – 20	Moderate	Irrigation application rates will need to match soil hydraulic conductivity to avoid ponding and runoff during irrigation.
Available water holding capacity (mm/m)	> 100	< 100	-	120 – 220	Nil	The soil water holding capacity dictates the soils ability to hold water between irrigation events. Irrigation is based on regular light applications based on daily soil moisture budgeting.
pH (in $CaCl_2$)	> 6-7.5	3.5-6 and > 7.5	< 3	Topsoil ~6.9-7.9 Subsoil ~4.2-8.1	Slight/Moderate Moderate	High pH in subsoil may impact on growth of deep rooted crops (particularly lucerne). Subsoil pH may change over time in response to application of near neutral wastewater. Will require monitoring. Management regime may include the use of gypsum however this will not be used until soil monitoring data is collected and indicates some form of intervention is required.
CEC (cmol(+)/kg) (average 0-40cm)	> 15	3-15	< 3	>24	Nil	The soil has good ability to hold nutrients. This presents no limitation and will improve further over time through the addition of organic matter in the effluent.
Emerson aggregate test	4,5,6,7,8	2,3	1	2,3,4	Slight/moderate	Some risk of structural degradation. See ESP.
P sorption capacity (kg/ha) (0-100cm)	High	Moderate	Low	3,440	Slight	Nutrient application monitored through mass balance and soil monitoring.

Source: (1) DEC, 2004

2.6 CROPPING PROGRAM

2.6.1 SUITABLE CROPS

The wastewater to be irrigated is expected to have an EC of 3 to 3.5 dS/m (TDS 1,600 to 2,000 mg/L). Suitable crops need to be able to cope with the relatively high salinity wastewater.

Table 4.4 of the Reuse Guidelines lists the relative salt tolerance of cops and the following are proposed for the irrigation reuse area:

- Barley (high salt tolerance)
- Ryegrass (high salt tolerance);
- Wheat (moderate salt tolerance);
- Sorghum (moderate salt tolerance);
- Lucerne (moderate salt tolerance);
- Millet; and
- Oats.

These crops are also useful in that they have good nutrient uptake properties. They can be used on double crop rotation (winter grain/summer grass) or as perennial crops (e.g. lucerne).

Crops will be harvested and baled for fodder and sold or utilised off-site.

2.6.2 INITIAL CROPPING PROGRAM

The initial cropping program will be:

- Summer – millet
- Winter – oats

2.6.3 LONG TERM CROPPING PROGRAM

The long term cropping program will be based around a rotation of double cropping (winter/summer crops) and lucerne. A typical 6 year rotation could be:

- Years 1-3 millet/oats
- Years 4-6 lucerne

It should be noted that this is an indicative plan only. In reality, farming plans cannot be rigid and need to be flexible. There are, and likely to be, many reasons why things may not eventuate in line with the plan; however the principles of maximising nutrient utilisation should be maintained.

2.7 HYDRAULIC BALANCE

2.7.1 WET WEATHER STORAGE

Water balance results are shown in Figure 3 and demonstrate that the combined wet weather storage of 5.7 ML is adequate to prevent effluent discharge in 90 percent of years in accordance with the design guidelines for high strength effluent described by the *Environmental Guidelines – Use of Effluent by Irrigation* (DEC, 2004).

It is noted that Pond 3 and Pond 4 have an additional 1.6 ML of freeboard storage which can be used to balance irrigation if required.

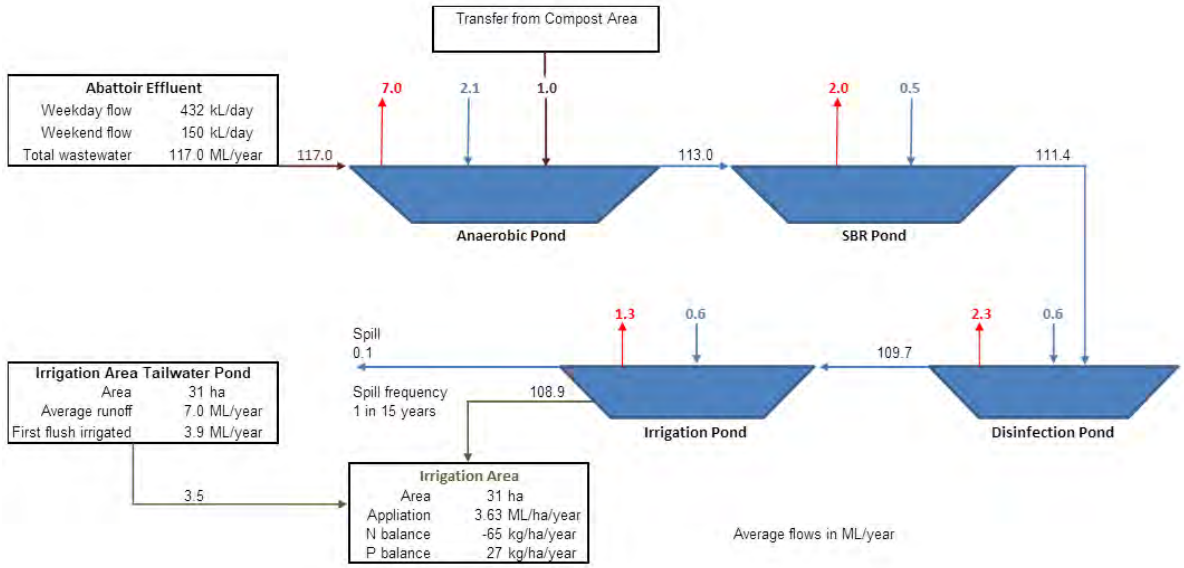


Figure 3: Water balance results

2.7.2 TAILWATER MANAGEMENT

The irrigation area includes upslope clean water diversion bunds and tailwater collection drains.

Runoff from the irrigation area is collected in a 900 m^3 tailwater pond and re-irrigated. A pump at the tailwater pond returns captured runoff to the irrigation rising main. Management actions are described in **OEMP Section 5.4**.

Modelling indicates an average of 3.9 ML/year is captured and re-irrigated. The tailwater volume does not add to the volume being treated in the effluent treatment ponds as it is managed separately.

The tailwater pond provides capacity to capture runoff generated from about 24 mm of rainfall across the irrigation area.

The tailwater pond is a first flush system and once full excess water bypasses. Water collected in the tailwater pond is pumped to the irrigation system and irrigated. Modelling indicates it can take up to 3 days to empty the water collected in the settling zone (590 m^3) following rainfall. This is consistent with the design criteria of restoring the design capacity within 5 days of rainfall.

2.7.3 AVERAGE IRRIGATION APPLICATION

The water cycle model shows an average of 113 ML/year (effluent and tailwater) is irrigated over 31 ha. This is an average application rate of 3.63 ML/ha/year; which is low for the Bourke climate.

2.8 NUTRIENT BALANCES

Nutrient balances for the initial cropping program of millet/oats is provided in **Table 2.5**.

A nutrient balance for lucerne is provided in **Table 2.6**.

Key assumptions in these nutrient balances are as follows:

- A 31 ha irrigation area.
- Typical crop yields and crop uptake as reported in the Reuse Guidelines. Crop yield has been reduced by 15% to account for possible yield reductions due to the salt concentration in the effluent.
- Total nitrogen concentration in the treated effluent is 60 mg/L.
- Total phosphorus concentration in the treated effluent is 20 mg/L.
- 10% nitrogen volatilisation during irrigation (note that the Reuse Guidelines state that up to 25% nitrogen volatilisation may occur in warm climates).
- A soil phosphorus sorption capacity of 3,440 kg/ha and the potential for some phosphorus movement could start at 30% of this total capacity.
- An average effluent irrigation application of 3.51 ML/ha/year. An additional 1.3 ML/ha/year is added through irrigation of the tailwater. However this does not add additional nutrients to the long term nutrient balance.

The nutrient balance indicate a nitrogen deficit and period of at least 39 years before some phosphorus movement may start to occur.

Table 2.5 – Nutrient balance – Millet/Oats

Parameter	Units	Nitrogen	Phosphorus
Effluent applied	ML/ha/year	3.51	3.51
Nutrient content	mg/L	60	20
Nutrient load	kg/ha/year	189	70
Crop uptake	kg/ha/year	255	43
Excess/(deficit)	kg/ha/year	-66	27
Phosphorus holding capacity	Years	-	42

Table 2.6 – Nutrient balance – Lucerne

Parameter	Units	Nitrogen	Phosphorus
Effluent applied	ML/ha/year	3.51	3.51
Nutrient content	mg/L	60	20
Nutrient load	kg/ha/year	189	70
Crop uptake	kg/ha/year	357	41
Excess/(deficit)	kg/ha/year	-168	29
Phosphorus holding capacity	Years	-	39

2.9 ORGANIC LOAD

The Reuse Guidelines (DEC, 2004) recommend that an average loading rate of 1,500 kg/ha/month can be taken as the maximum organic loading for most soils.

The biochemical oxygen demand of the treated effluent is expected to be < 100 mg/L. Based on the average application of 3.51 ML/ha/year, the organic loading will be 29 kg/ha/year which is well below the guideline value.

These calculations indicate the BOD loading is not critical the wastewater irrigation scheme.

2.10 SALINITY AND SODICITY

Salinity

The final irrigation water is expected to have an EC of 3.1 dS/m (TDS 2,000 mg/L). A small quantity of salt will be removed in the crops during harvesting; however the main salt management strategy will be to apply a leaching fraction on three or four occasions during the year, depending on rainfall.

The required leaching fraction can be calculated using the following equation (DEC, 2004):

Leaching required = $100 \times EC_{iw}/EC_{dw}$

Where EC_{iw} = electrical conductivity of the irrigation water = 3.1 dS/m
EC_{dw} = electrical conductivity of the drainage water at which the relative crop yield is 50% = 11 dS/m (Table 4.4 DEC 2004)

Therefore the leaching fraction required is 28%, or 99 mm.

It is recommended that leaching irrigation event occurs on three or four occasion each year, particularly if conditions have been dry. If there have been periods of heavy rainfall, a leaching irrigation event may not be required.

A normal irrigation application is around 5 mm; a leaching event would be in the order of 20 to 25 mm. The increased application moves water and salts downwards through the soil profile. The application of a leaching fraction should not pose any threat to the groundwater system due to the depth to the groundwater table and the intervening geological profile.

The need for more or less leaching will also be verified through the soil monitoring program.

It is consider that the salt loading can be successfully managed using a leaching fraction.

Sodicity

Consideration of the irrigation water Sodium Absorption Ratio (SAR) and Electrical Conductivity (EC) can indicate if infiltration issues are likely to arise.

Figure 3.1 in the Reuse Guidelines (DEC, 2004) indicates that the effluent composition would fall to the right of the equilibrium line due to the high EC. This indicates minimal risk of soil structural decline and soil permeability loss.

2.11 SUSPENDED SOLIDS

Data in **Table 2.3** indicates that the suspended solids of the final effluent for irrigation once the effluent treatment system is fully operational will be < 50 mg/L. This will not pose any operational threat to the irrigation system.

2.12 IRRIGATION SYSTEM

2.12.1 SYSTEM

The irrigation system includes:

- A main pump station located at the irrigation pond;
- A pump station located at the tailwater pond;
- An irrigation main with hydrants; and
- Two (2) low pressure travelling irrigators set up for 300 m runs either side of the central irrigation main. The travelling irrigator is a low pressure, large droplet sprinkler which minimises aerosols and spray drift.

2.12.2 IRRIGATION SCHEDULING

Effluent will only be irrigated when there is a soil moisture deficit. Modelling was based on applying irrigation when the soil was at least 15 mm below field capacity. Review of the model data indicates that the soil moisture is typically well below field capacity throughout the year due to the dry Bourke climate. The average monthly soil moisture ranges from 90 mm in January to 120 mm in July which is 26 mm to 56 mm below field capacity. Therefore it is possible to have continual light applications throughout the year. This method of operation also balances the wet weather storage and limits potential effluent discharge to the required frequency of less than an average of one in every 10 years. The proposed irrigation system has been sized to reflect this operating regime.

It is not practicable to irrigate the entire 31 ha irrigation area in one day. Therefore irrigation will be undertaken a smaller sections on a day to day basis as soil conditions permit. The management aim will be to spread the annual effluent volume across the irrigation area to spread the nutrient load.

The key to making the wet weather storage system work is frequent irrigation. The average daily irrigation is 300 kL/day with a maximum of 1,550 kL/day. There is an average of 306 irrigation days each year (note the model does not allow irrigation if there is more than 5 mm of rainfall on any day, plus the soil moisture has to be low enough to accept irrigation).

The available irrigation area provides 300 m irrigation runs each way from a central main. The design irrigation wetted width is 45 m. Two irrigators therefore cover 2.7 ha.

The design flow rate is 18 L/s which can apply up to 1.55 ML/day over 12 hours (noting the max is 1.55 ML/day). The speed of the irrigator will be controlled to apply less.

The average daily irrigation volume (300 kL/day) can be applied using one irrigator over 6 hours. The design irrigation rate is approximately 5 mm/hr. This is well within the hydraulic conductivity of the soil.

The irrigator would need to be moved/connected to a different hydrant most days. There will be 11 hydrants which shall be used on rotation. This means one irrigation strip will receive at least a 10 day resting period between irrigation applications.

In determining when to irrigate the operators will consider the prevailing and forecast weather conditions. Irrigation will not occur if > 5 mm of rain is forecast within the next 24 hours.

The irrigation area will be inspected during and after irrigation to ensure ponding and runoff are not occurring.

With the exception of storm water runoff due to heavy rainfall events there should be no recycled water run-off from the irrigation areas. Any runoff from the irrigation areas will be collected in the irrigation tailwater pond and re-irrigated.

2.13 CRITICAL SUSTAINABILITY FACTORS

The above background data demonstrates that the site is suitable for managed effluent irrigation and there is adequate land to ensure hydraulic and nutrient loads can be managed on site.

However, management of the effluent reuse scheme will need to be adaptive in response to monitoring data. While the assessment indicates the system is capable of handling the expected hydraulic and nutrient load, monitoring will be used to identify at an early stage any departure from the plan and will be used as the basis to adjust aspects of the waste management plan if required.

The key critical sustainability factors for the irrigation reuse scheme are:

1. The effluent volume;
2. The effluent nitrogen and phosphorus content;
3. Soil salinity; and
4. Soil sodicity.

Of these, the first two are the most critical as they are the key drivers for the irrigation reuse scheme design. Significant departure from the assumed design values will require re-calculation of the irrigation reuse system.

Irrigation Management Plan

3.1 OBJECTIVES

To ensure that irrigation is undertaken in a manner that:

- does not result in runoff during irrigation;
- matches the soil's capacity to assimilate the hydraulic and nutrient load;
- does not cause unacceptable odour beyond the site boundary; and
- does not cause spray drift across the site boundary.

3.2 IMPORTANT OPERATIONAL CONSIDERATIONS

Because effluent irrigation schemes are designed (i.e. the size of the effluent storage and irrigation area) to accommodate wetter years (and usually with maximum flow), then it is a fact of life that in dry years the stored effluent will run out around in early to mid-summer leaving only the daily flow of effluent, meaning that irrigation of the full area will not be possible. It is important however that the irrigation areas are rotated to ensure nutrients are distributed across the entire area.

Because this effluent irrigation scheme has been designed based on a daily step water balance model, irrigation must be conducted every time conditions suit (i.e. the operator must assume the next day may be the start of the wettest period on record).

The irrigation system is designed to allow comfortable utilisation of the daily flow and the stored effluent and not to meet peak irrigation demand Therefore, in prolonged hot periods, only part of the irrigated area can be watered productively with available effluent.

Effluent irrigation management is sometimes described as "farming backwards" as unlike normal irrigation farming, the aim is to maximise the effluent reuse and maximise the removal of nutrients.

Irrigation will occur year round as soil moisture conditions allow for optimum utilisation of treated wastewater. Irrigation will be more frequent from September/October through to March/April, depending on weather and soil conditions at the time. Operations will aim to eliminate the discharge of treated effluent by:

- managing the wet weather storage to prevent, as far as is practicable, any discharge of treated effluent. This may include using the pond freeboard in very wet years; and
- achieving optimum draw down of the wet weather storage by the end of the irrigation season to provide the maximum capacity for the non-irrigation season.

3.3 IRRIGATION PROCEDURES

Irrigation procedures are described in **OEMP Section 5.4**.

3.4 MANAGING IDENTIFIED SITE LIMITATIONS

A summary of how the identified site limitations for effluent irrigation will be managed is provided in **Table 3.1**.

Table 3.1 – Management of site limitations

Identified Limitation	Issue	How managed
Soil sodicity	Potential for soil structural decline and surface crusting.	• Monitoring of effluent EC and SAR • Soil ESP monitoring • Observation during irrigation • Remedial actions that may include: - Undertaking an irrigation leaching event to improve the soil salinity - Adding soil ameliorants such as gypsum - Cropping rotation - Cultivation/deep ripping - Resting an irrigation area
Soil salinity (mainly subsoil)	Impact on crop yield	• Monitoring of effluent EC and SAR • Soil salinity monitoring • Crop yield monitoring • Remedial actions that may include: - Undertaking an irrigation leaching event to improve the soil salinity - Cropping rotation - Resting an irrigation area
Moderate soil hydraulic conductivity	Limits irrigation application rate and may lead to runoff during irrigation	• Design irrigation rate of < 5 mm/hr to match the soil infiltration capacity • Monitoring soil sodicity as noted above
Moderate phosphorus sorption capacity	Phosphorus leaching	• Monitoring effluent phosphorus concentration • Monitoring annual phosphorus load and comparing these to design forecasts • Monitoring soil phosphorus capacity in the subsoil • Moving irrigation to the future irrigation area (refer to Figure 1) and resting the main irrigation with cropping to continue to remove stored phosphorus.

3.5 MONITORING

3.5.1 OBJECTIVES

The objectives of the monitoring are to:

- Obtain timely data to identify if the effluent management system reaching design targets;
- Provide data to allow a complete review of the system performance prior to annual review; and
- Monitor environmental interactions.

Monitoring will include:

- Daily weather observations and irrigation records;
- Effluent monitoring;
- Soils;
- Groundwater; and
- Crop monitoring.

3.5.2 WEATHER AND EFFLUENT QUANTITY

An onsite weather station shall records:

- Rainfall (mm)
- Wind direction (°)
- Wind speed (m/s)

Effluent quantity irrigated from the irrigation pond shall be recorded using a flow or pump meter on the main irrigation line. Readings will be recorded daily during irrigation.

Effluent quantity irrigated from the tailwater pond shall be recorded using a flow or pump meter on the main irrigation line. Readings will be recorded daily during irrigation.

3.5.3 EFFLUENT QUALITY

Effluent quality from the irrigation pond will be sampled every three months for the first year of operation after commissioning and then reduced to biannually. The following parameters will be analysed:

- pH;
- Electrical conductivity;
- Kjeldahl nitrogen;
- Ammonia;
- Nitrite/Nitrate;
- Total nitrogen;
- Orthophosphate;
- Total phosphorus;
- Potassium, sodium, calcium and magnesium;
- SAR;
- Total suspended solids; and
- Biochemical oxygen demand.

3.5.4 SOILS

Soil monitoring will be undertaken across the main irrigation main area at the following soil reference points (refer to the borehole locations in **Appendix G1**):

- Boreholes 1, 2 and 3
- Boreholes 11, 12 and 13

Background soil monitoring of soils not used for irrigation shall be undertaken at the following soil reference points (refer to the borehole locations in **Appendix G1**):

- Boreholes 6, 7 and 8

Soil sampling would be undertaken in September – at the end of the winter period and prior to active crop growth in the spring/summer period.

Topsoil samples shall be analysed for:

- pH;
- Salinity;
- Exchangeable Cations;
- ESP;
- Nitrate;
- TKN;
- Available Phosphorus;
- Total Phosphorus; and
- Organic carbon.

Subsoil samples in the effluent irrigation areas will be collected every three years and analysed for the same parameters as the surface soils with the addition of phosphorus sorption capacity.

The soil sampling program will be based on establishing representative soil reference points for topsoil and subsoil analysis consistent with the location of the boreholes listed above.

3.5.5 GROUNDWATER

Groundwater levels shall be monitored in the two monitoring bores (MW1 and MW2) annually when groundwater is detected. Samples shall be collected from each monitoring bore and analysed for:

- Standing water level, mbgl
- Temperature, °C (field)
- Electrical conductivity , dS/m (field)
- Nitrate
- Phosphorus (total)
- Phosphate
- Total dissolved solids (TDS)
- pH

If this monitoring indicated some change in groundwater quality, a more comprehensive suite will be undertaken. This will add cations and a full nitrogen suite.

Refer to the Water Management Plan for actions if the groundwater level is less than 10 m below surface level.

3.5.6 CROPS

Crop yield and dry matter shall be determined at least once per year from each different crop type.

An annual visual assessment of crops growing within the irrigation area will be undertaken for signs of toxicity or degradation.

Representative crop samples (minimum two (2) samples) will be analysed annually for moisture content, nitrogen, phosphorus and potassium.

3.5.7 LANDSCAPING

A 15 metre wide vegetative buffer zone consisting of grass shrubs and trees is to be maintained immediately downslope of the irrigation area to slow down and capture any runoff that occurs from the irrigation area.

3.6 SUSTAINABILITY TRIGGERS

The key critical sustainability factors for the irrigation reuse scheme are:

1. The effluent volume;
2. The effluent nitrogen and phosphorus content;
3. Soil salinity; and
4. Soil sodicity (this will also manage soil hydraulic conductivity).

Table 3.2 summarises the management actions that are to be implemented when approaching or exceeding critical sustainability triggers.

Monitoring results will be reviewed on an annual basis to identify trends and any departures from the design basis.

It should be noted that the design values indicate there is adequate capacity in the effluent irrigation scheme to buffer short term changes and changes in effluent reuses schemes occur over long periods. Therefore trigger values have been set cognisant of these factors. This will avoid excessive frequent reviews and will use actual monitoring data to provide informed management decisions.

Table 3.2 – Management actions for key sustainability triggers

Management area	Trigger	Actions
Effluent volume (initial review following commissioning)	+/- 25% of design	• Obtain actual effluent production records • Review water and nutrient balance calculations • Resize irrigation area if required • Updated IMP, WWMP and OEMP if required
Effluent volume	+/- 25% of design value for greater than one year	• Obtain actual effluent production records • Review water balance calculations • Resize irrigation area if required

Table 3.2 – Management actions for key sustainability triggers

Management area	Trigger	Actions
Effluent nutrient content	+20% of design value for greater than one year of operation, i.e.: • Total nitrogen > 75 mg/L • Total phosphorus > 50 mg/L	• Obtain actual effluent quality records • Review annual soil monitoring data to identify if there are any adverse trends • Review nutrient balances based on observed data • No specific action required if nutrient concentrations are lower than used in the design
Soil salinity	> 2.5 dS/m increase in topsoil salinity compared with background levels	• Review effluent salinity data and compare to design values • Review annual soil monitoring data to identify if there are any adverse trends • Undertake remedial action that may include: - Undertaking an irrigation leaching event to improve the soil salinity - Cropping rotation - Resting an irrigation area
Soil sodicity	> 150% increase in topsoil ESP compared with background levels	• Review effluent salinity and SAR data and compare to design values • Review annual soil monitoring data to identify if there are any adverse trends • Undertake remedial action that may include: - Undertaking an irrigation leaching event to improve the soil salinity - Adding soil ameliorants such as gypsum - Cropping rotation - Cultivation/deep ripping - Resting an irrigation area

3.7 REPORTING AND REVIEW

3.7.1 IRRIGATION REPORTING

Records of wastewater irrigation shall be maintained in accordance with **OEMP Section 6.3**.

The Annual Review prepared in accordance with **OEMP Section 7.2** shall include a section on irrigation and associated monitoring and shall:

- Detail the quantities of wastewater generated and irrigated at the facility and compare this with the baseline estimates listed in **Section 2.4.1**;
- Specifically review and comment on the sustainability triggers listed in **Section 3.6**; and
- Review the effectives of wastewater management measures and recommend improvements if required.

3.7.2 IMP REVIEW

TFI shall review and if necessary revise the IMP within three (3) months of:

a) The Annual Review;

b) Any incident report relating to irrigation;

c) An audit report; or

d) Any modifications to conditions of approval.

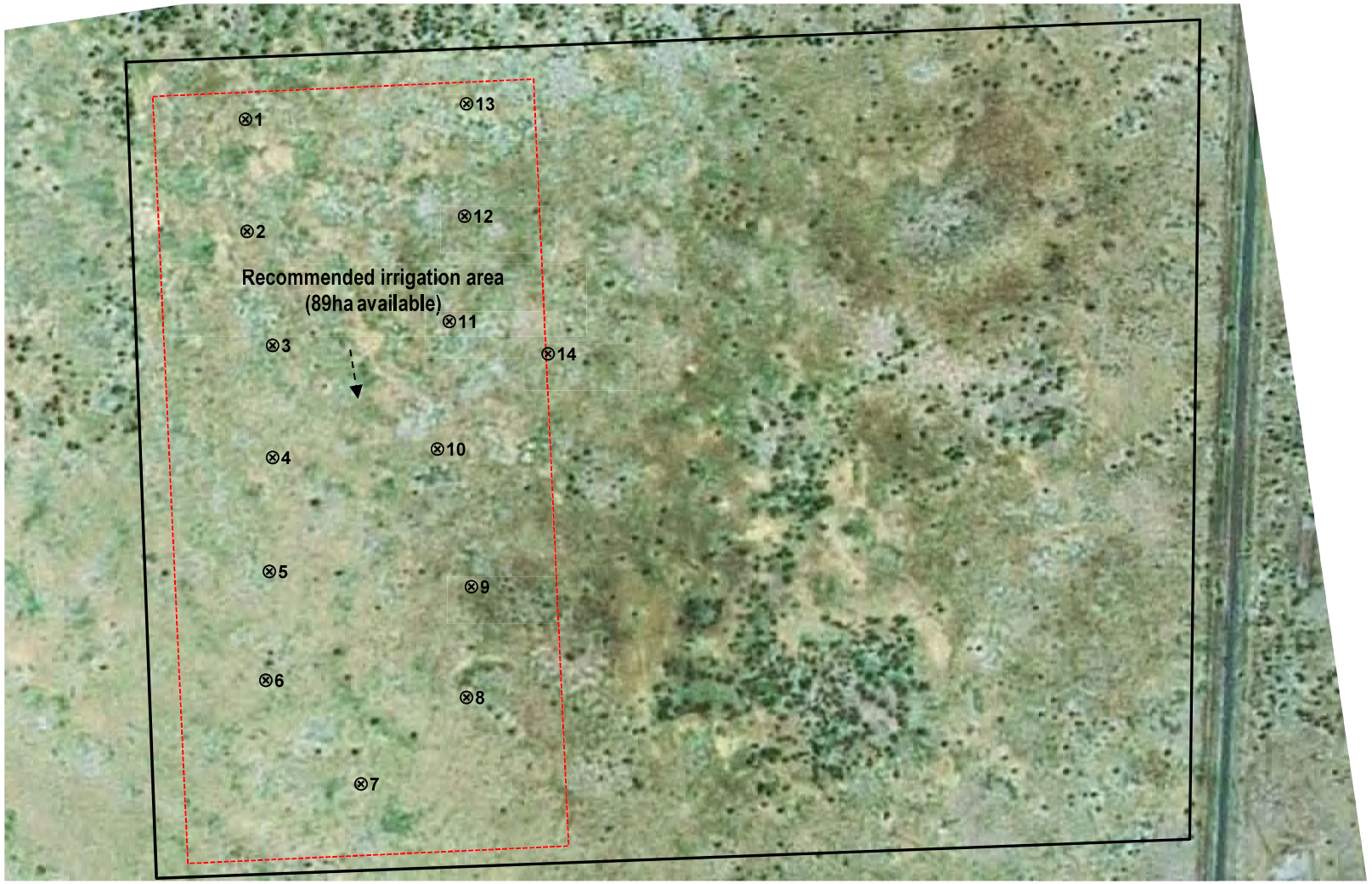
This is to ensure that the IMP incorporates any recommended measures to improve environmental performance.

References

DEC (NSW) (2004) *Environmental guidelines: use of effluent by irrigation*. Department of Environment and Conservation (NSW).

Appendix G1

SOIL DATA SUMMARY



Legend

Recommended irrigation area

⊗ Borehole

Slope

Approximate Scale 1: 10,000

0 100 200 400m

Figure 3. Site plan and borehole locations		
Lot 17 DP753546 Mitchell way, Bourke NSW		
	Envirowest Consulting Pty Ltd	
Job: R6612e2	Drawn by: LD	Date: 17/2/2016

Appendix 1. Bore logs

Depth (mm)	Description	Sampled (mm)	Texture group	Moisture
Borehole 1	55H 402141mE, 6684808mN			
0-300	Brown to reddish brown sandy clay	X (100)	SC	D
300-1000	Yellowish brown clayey sand with gravel	X (600)	CS	D
1000-1500	Purple yellow sandy clay with silica grains	X (1200)	SC	D
Borehole 2	55H 402130mE, 6684616mN			
0-300	Brown sandy clay	X (100)	SC	D
300-500	Reddish brown sandy clay	X (300)	SC	D
500-1200	Yellowish brown Sandy clay	X (900)	SC	D
1200-1500	Yellowish brown silty clay with calcite and grey mottles	-	ZC	D
Borehole 3	55H 402106mE, 6684418mN			
0-200	Brown clayey sand	-	CS	D
200-700	Pale brown clayey sand	X (300)	CS	D
700-1400	Yellowish brown sandy clay	X (1000)	SC	
1400-2400	Pale brown silty clay with calcite/grey mottles	X (2000)	ZC	D
2400-3000	Yellowish grey silty clay with grey mottles	X (3000)	ZC	D
Borehole 4	55H 402083mE, 6684251mN			
0-200	Brown clayey sand	X (100)	CS	D
200-800	Dull reddish brown sandy clay	X (600)	SC	D
800-900	Strong brown sandy clay	X (900)	SC	D
900-1500	Yellowish brown silty clay with calcite	X (1200)	ZC	D
Borehole 5	55H 402044mE, 6684051mN			
0-300	Reddish brown sandy clay	X (300)	SC	
300-800	Brown sandy clay	X (600)	SC	D
800-1500	Yellowish brown silty clay	X (900)	ZC	D
Borehole 6	55H 402008mE, 6683872mN			
0-400	Dark reddish brown sandy clay	-	SC	D
400-1200	Strong brown sandy clay	X (1000)	SC	D
1200-2200	Yellowish brown silty clay	X (2000)	ZC	D
2200-3000	Yellowish grey silty clay with quartz and grey mottles	X (3000)	ZC	D
Borehole 7	55H 402059mE, 6683651mN			
0-200	Reddish brown clayey sand	X (100)	CS	D
200-900	Reddish brown sandy clay	X (600)	SC	D
900-1500	Yellowish red sandy clay with calcite and quartz	X (1200)	SC	D
Borehole 8	55H 402351mE, 6683799mN			
0-200	Reddish brown clayey sand	X (100)	CS	D
200-900	Reddish brown sandy clay	X (600)	SC	D
900-1500	Yellowish red sandy clay with calcite/grey mottles	X(1000)	SC	D
Borehole 9	55H 402360mE, 6683999mN			
0-200	Reddish brown clayey sand	-	CS	D
200-1000	Reddish brown sandy clay	-	SC	D
1000-2200	Yellowish red silty clay with grey mottles/calcite	X (2000)	ZC	D
2200-3000	Yellowish brown sandy clay with calcite/grey mottles	X (3000)	SC	D
Borehole 10	55H 402383mE, 6684195mN			
0-200	Grey fine sandy clay	X (100)	SC	D
200-900	Greyish brown sandy clay	X (600)	SC	D
900-1300	Dark grey light clay	X (900)	LC	D
1300-1500	Grey sandy clay with calcite	X (1200)	SC	D
Borehole 11	55H 402412mE, 6684414mN			
0-200	Reddish brown clayey sand	-	CS	D
200-700	Reddish brown sandy clay	X (600)	SC	D
700-1500	Reddish yellow sandy clay	X (1000)	SC	D
Borehole 12	55H 402440mE, 6684589mN			
0-100	Reddish brown clayey sand	X (100)	CS	D
100-700	Reddish brown sandy clay	X (700)	SC	D
700-1100	Yellowish red sandy clay with grey mottles/calcite	X (800)	SC	D
1100-1500	Pale brown silty clay with grey mottles/calcite	X (1200)	ZC	D

Borehole 13	55H 402440mE, 6684589mN			
0-700	Reddish brown clayey sand	X (100)	CS	D
700-1500	Reddish brown sandy clay	X (1000)	SC	D
1500-3000	Yellowish red sandy clay with grey mottles and calcite	-	SC	D
Borehole 14	55H 402580mE, 6684336mN			
0-200	Grey brown clayey sand	-	CS	M
200-1400	Grey brown sandy clay	X (600)	SC	M
1400-1600	Reddish brown sandy clay	-	SC	M
1600-4500	Yellowish red sandy clay with grey mottles	-	SC	D
4500-5000	Pale red light clay with grey and red mottles	X (4500)	LC	M
5000-6000	Pale red sandy clay with grey mottles	-	SC	M
6000-8800	Pale yellow sandy clay with weathered sandstone gravel	-	SC	D

Table 6. Summary of laboratory results, Bourke Small Stock Abattoir

Analyte	E1 (100) (topsoil)	E1 (1000) (subsoil)	E3(300) (topsoil)	E3 (2000) (subsoil)	E5 (100) (topsoil)	E5 (900) (subsoil)	E6 (1000) (subsoil)	E6 (3000) (subsoil)	E7 (100) (topsoil)
Colour	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Texture	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay
pH (1:5) ($CaCl_2$)	7.8	8.1	7.9	7.9	7.9	7.9	7.9	7.4	7.5
pH (1:5 water)	8.4	8.3	8.6	8.0	8.8	8.1	8.0	7.5	8.0
Electrical conductivity (dS/m)	0.75	2.41	0.23	3.48	0.40	2.26	3.03	4.09	0.29
Elect conductivity, saturated extract (dS/m)	4.7	14.9	1.4	21.6	2.5	14.0	18.8	25.4	1.8
Emerson aggregate test	3	-	2	-	-	-	4	-	-
Organic carbon (%)	0.39	0.17	0.44	<0.15	0.35	0.26	0.22	<0.15	0.82
Nitrate (mg/kg)	21	4.7	29	4.3	2.3	1.5	1.4	1.8	34
Sulphate (mg/kg)	81	520	9.9	5300	43	1600	2400	3600	29
Phosphorus – Colwell (mg/kg)	<5.0	9.4	17	9.2	8.0	<5.0	<5.0	<5.0	17
Phosphorus buffer index	94	71	89	55	56	69	130	62	85
Exchangeable potassium (%)	2.7	1.4	3.1	1.0	2.6	1.7	1.7	1.2	6.7
Exchangeable calcium (%)	63.6	55	85.2	78.6	64.2	65.7	69.6	68.9	77.3
Exchangeable magnesium (%)	21.3	20.3	8.8	10.6	23	17.8	14.5	12.3	14.1
Exchangeable sodium (%)	12.4	23.3	2.8	9.7	10.1	14.8	14.3	17.6	1.8
Cation exchange capacity (meq/100g)	36.6	47.3	34.9	65.2	29.6	42.6	56.0	62.5	30.0
Calcium /Magnesium ratio	3.0	2.7	9.7	7.4	2.8	3.7	4.8	5.6	5.5
Chloride (mg/kg)	610	2900	26	990	160	890	1000	2000	35
Copper (mg/kg)	1.4	1.1	1.1	0.77	1.2	1.0	1.2	0.82	1.1
Zinc (mg/kg)	0.21	0.13	0.13	0.084	0.16	0.56	0.13	0.23	0.54
Manganese (mg/kg)	7.6	2.3	3.8	1.9	11	5.0	6.3	5.9	11
Iron (mg/kg)	11	7.3	9.9	9.1	11	9.4	11	15	11
Boron (mg/kg)	2.1	10	1.5	16	2.8	9.9	8.9	5.8	1.4
Arsenic (mg/kg)	<5	-	<5	-	<5	-	-	-	<5
Cadmium (mg/kg)	<1	-	<1	-	<1	-	-	-	<1
Chromium (mg/kg)	19	-	17	-	20	-	-	-	18
Copper (mg/kg)	12	-	12	-	12	-	-	-	13
Lead (mg/kg)	8	-	7	-	8	-	-	-	7
Nickel (mg/kg)	11	-	8	-	10	-	-	-	10
Zinc (mg/kg)	24	-	22	-	22	-	-	-	20
Available water holding capacity (AWHC) mm/m	120	-	220	-	-	-	170	-	-
Hydraulic conductivity (Saturated hydraulic conductivity (mm/hr)	39	-	<1	-	-	-	7	-	-
Bulk Density (t/m^3)	1.22	-	1.35	-	-	-	1.21	-	-

Table 6 cont'd

Analyte	**E7 (800) (subsoil)**	**E9 (2000) (subsoil)**	**E10 (100) (topsoil)**	**E10 (1200) (subsoil)**	**E12 (100) (topsoil)**	**E12 (300) (topsoil)**	**E14 (600) (subsoil)**	**E14 (4500) (subsoil)**
Colour	Brown	Brown	Grey	Grey	Brown	Brown	Grey	Brown
Texture	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay
pH (1:5) ($CaCl_2$)	8.0	7.9	6.9	7.9	7.6	8.1	7.8	4.2
pH (1:5 water)	8.1	8.0	7.6	8.4	8.3	9.0	8.6	4.3
Electrical conductivity (dS/m)	2.85	3.47	0.16	1.04	0.25	0.33	0.50	3.66
Elect conductivity, saturated extract (dS/m)	17.7	21.5	1.0	6.4	1.6	2.0	3.1	22.7
Emerson aggregate test	-	-	3	-	-	2	4	-
Organic carbon (%)	0.24	<0.15	0.77	0.30	0.54	0.33	0.40	<0.15
Nitrate (mg/kg)	16	5.9	17	3.3	5.4	7.8	4.2	<0.50
Sulphate (mg/kg)	2300	4100	14	260	15	7.8	32	2500
Phosphorus – Colwell (mg/kg)	<5.0	<5.0	25	6.6	9.0	<5.0	8.7	11
Phosphorus buffer index	120	140	85	88	76	120	72	94
Exchangeable potassium (%)	1.7	1.0	11.1	2.9	5.1	2.3	3.3	1.2
Exchangeable calcium (%)	68.0	81.5	66.0	61.6	72.0	72.1	62.5	65.9
Exchangeable magnesium (%)	16.2	8.6	20.2	16.4	19.2	18.6	17.8	13.6
Exchangeable sodium (%)	14.1	8.9	38.4	19.1	3.8	7.0	16.4	19.3
Cation exchange capacity (meq/100g)	52.9	66.8	24.2	34.0	29.0	42.8	30.7	53.1
Calcium /Magnesium ratio	4.2	9.5	3.3	3.8	3.8	3.9	3.5	4.9
Chloride (mg/kg)	1400	1400	19	680	41	120	370	1600
Copper (mg/kg)	1.0	0.81	1.2	1.1	1.2	1.2	1	0.35
Zinc (mg/kg)	0.27	0.13	0.40	0.20	0.26	0.15	0.27	0.12
Manganese (mg/kg)	3.6	2.4	22	6.8	8.7	4.2	7.2	2.1
Iron (mg/kg)	7.4	7.2	23	16	13	9.6	19	72
Boron (mg/kg)	13	9.6	1.4	4.5	1.1	4.2	3.1	2.0
Arsenic (mg/kg)	-	-	<5	-	<5	-	-	-
Cadmium (mg/kg)	-	-	<1	-	<1	-	-	-
Chromium (mg/kg)	-	-	16	-	17	-	-	-
Copper (mg/kg)	-	-	11	-	11	-	-	-
Lead (mg/kg)	-	-	8	-	7	-	-	-
Nickel (mg/kg)	-	-	10	-	9	-	-	-
Zinc (mg/kg)	-	-	23	-	18	-	-	-
Available water holding capacity (AWHC) %	-	-	170	-	-	200	150	-
Hydraulic conductivity (Saturated hydraulic conductivity (mm/hr)	-	-	1	-	-	<1	6	-
Bulk Density t/m³)	-	-	1.37	-	-	1.37	1.40	-

Appendix H

WATER MANAGEMENT PLAN

WATER MANAGEMENT PLAN

BOURKE SMALL STOCK ABBATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 5.0

WATER MANAGEMENT PLAN

BOURKE SMALL STOCK ABATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 5.0

Revision History

Version	Revision Date	Details	Authorised	
			Name/Position	Signature
4.0	14/09/18	Final updates following agency consultation. Prepared for DRGE. Final version for DP&E approval.	Martin Haege Geolyse Pty Ltd	
5.0	22/02/23	Updates following approval of MOD 2. Prepared for TFI. Final version for DP&E approval.	Martin Haege Premise Pty Ltd	

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

APPENDIX H1
Baseline Groundwater Monitoring Reports

CONDITIONS COMPLIANCE TABLE

Development Consent SSD 7268 Condition	Comment and/or Where Addressed in the Management Plan
D5: Management Plan Requirements	
D5(a) baseline data	Relevant baseline water demand estimates are provided in Section 2.1
D5(b)(i) relevant statutory requirements	Wastewater Management Plan required by CoA C39 (refer to Section 1.2) Relevant statutory requirements listed in Section 1.3
D5(b)(ii) any relevant limits	Section 3.3
D5(b)(iii) specific performance indicators	Section 3.3
D5(c) measures to comply with relevant statutory requirements	Section 3
D5(d)(i) monitoring environmental performance	Section 3.3, Section 4.3 and OEMP Section 6.2
D5(d)(ii) monitoring effectiveness	Section 5.1
D5(e) contingency plan	Section 2.4, Section 4.4
D5(f) continual improvement	Section 5.1 and OEMP Section 7.2.3
D5(g)(i) incident management	OEMP Section 5.15
D5(g)(ii) complaints management	OEMP Section 5.14
D5(g)(iii) non-compliance with statutory requirements	OEMP Section 7.2.3
D5(g)(iv) exceedance of performance criteria	Section 5.1 and OEMP Section 7.2.3
D5(h) periodic review	Section 5.2

Introduction

1.1 THE FACILITY

The Bourke Small Stock Abattoir (BSSA) is a rural small stock abattoir located approximately 14 kilometres north of Bourke in north-western New South Wales. At full operational capacity the facility has the capacity to process 6,000 head per day comprising goats, sheep and lambs.

The facility provides:

- Covered stock holding yards,
- Administration offices
- Truck parking and truck wash facilities;
- Car parking facilities,
- Processing building
- Other infrastructure associated with abattoir processes.

The site layout is shown in **Figure 1**.

The BSSA is operated by Thomas Foods International (TFI).

1.2 SCOPE AND OBJECTIVE

This Water Management Plan (WatMP) has been prepared to meet Condition C39 of the Development Consent.

> C39. Prior to the commencement of operation, the Applicant shall prepare a **Water Management Plan** (WMP) to the satisfaction of the Secretary. The WMP shall form part of the OEMP in Condition D3 and be prepared in accordance with Condition D5. The WMP shall:
> a) be prepared in consultation with DPI, Council and the EPA;
> b) detail water use, metering, disposal and management on-site;
> c) detail the number and location of piezometers on-site;
> d) include contingency measures in the event of inadequate water supply being available to meet all water demands;
> e) contain a **Surface Water Management Plan** including;
> i. a program to manage and monitor
> - surface water flows and quality
> - surface water storage and use; and
> - stormwater retention pond;
> ii. sediment and erosion control plans;
> f) contain a **Groundwater Management Plan** including;
> i. a minimum of nine months baseline data on groundwater levels and quality;
> ii. a program to monitor groundwater levels and quality including details on:
> - the number, design and location for the monitoring bores;
> - timelines for the establishment and sampling regime(s) for the monitoring bores;
> - monitoring frequency and suites of analytes to be monitored;
> - reporting requirements for the sampling results;
> iii. verify the Development meets the minimal impact considerations in the *NSW Aquifer Interference Policy*;
> iv. groundwater impact assessment criteria, including how trigger levels for investigating any potentially adverse groundwater impacts will be established; and

v. a protocol for the investigation and mitigation of identified exceedances of the groundwater impact assessment criteria.

1.3 RELEVANT STATUTORY OR GUIDELINE REQUIREMENTS

- EPL 20918
  - O1 Activities must be carried out in a competent manner
  - O2 Maintenance of plant and equipment
  - P1 Location of monitoring/discharge point (P1.2)
  - L2 Limit Conditions (L2.4)
  - M2 Requirement to monitor concentration of pollutants discharged
  - R1 Annual return documents
- Bourke Shire Council's Drought Management Plan
- *Managing Urban Stormwater – Soils and Construction Volume 1* (Landcom, 2004)

1.4 WATMP STRUCTURE

This WatMP has five sections:

- **Section 1** provides background context of the WatMP; and
- **Section 2** details the water demands and management;
- **Section 3** provides the **Surface Water Management Plan**;
- **Section 4** provides the **Groundwater Management Plan**; and
- **Section 5** summarise reporting and review of the WatMP.

Relevant management actions derived from this WatMP are included in the Operational Environmental Management Plan.

The IMP supporting information is presented in Appendices.

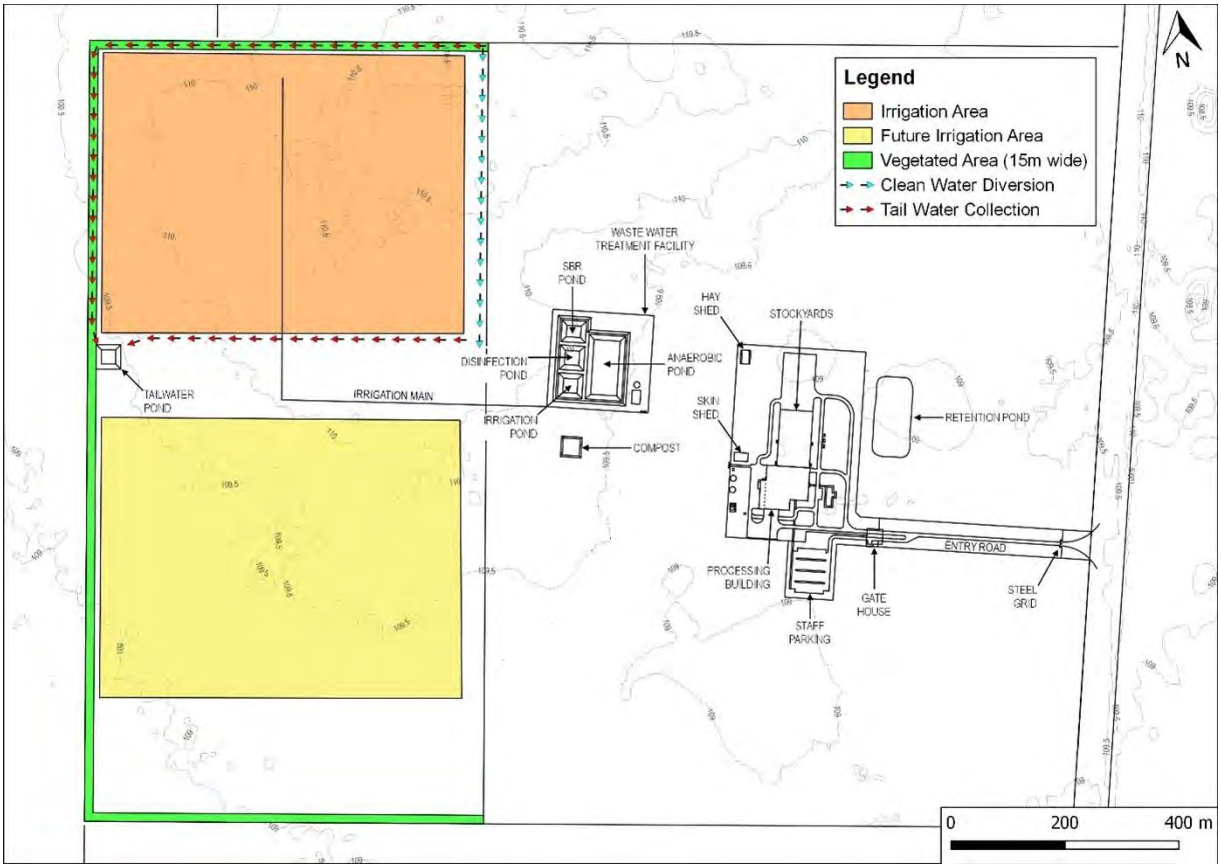


Figure 1: BSSA site layout

Water Management

2.1 WATER DEMAND

The facility has two water supplies provided by Bourke Shire Council: filtered (potable) and raw. Expected demands and sources are summarised in **Table 2.1**.

The total estimated demands are:

- Raw water = 76 kL/day
- Potable water = 464 kL/day
- Total = 540 kL/day

Table 2.1 – Water demand

Demand	Estimated Daily Volume (L/day) and Source	
	Raw Water	Potable Water
Stockyards (Animal consumption)	21,600	
Stockyards (Wash down water)	54,000	
Slaughter and evisceration		194,400
Cleaning		102,600
Cutting		27,000
Offal processing		32,400
Chillers (Condenser usage)		16,200
Steam boiler loses		48,600
Amenities		43,200
Total	75,600	464,400

2.2 WATER MANAGEMENT

Each water supply coming into the facility (raw and potable supply) is metered and records shall be maintained in accordance with **OEMP Section 5.1**.

Both reticulated potable and raw water supplied to the facility is temporarily stored in tanks onsite as follows:

- Reticulated potable water – 2 x 500 kL tanks
- Reticulated raw water – 2 x 144 kL tanks

2.3 SUPPLY CONTINGENCY

The water demands of the project are serviced by both a raw water connection via Bourke Shire Council's (BSC) water access licence from the Darling River, and through Council's filtered reticulated water supply system. BSC has confirmed they have adequate capacity to supply up to 1 ML/day (1,000 kL/day). This is sufficient to meet average water requirements as well as daily peak demands

and incorporates a contingency of greater than 450 kL/day. The onsite storage tanks provide a two day supply of water in the unlikely event of a temporary supply failure (e.g. pipe break, maintenance).

BSC (Peter Brown pers com 25/7/18) have confirmed that there are now two new bores that can add additional supplies to the system:

- Walkden's bore (1 ML/day)
- New bore (2 ML/day)

Inflow from Walkden's bore was used in BSC modelling that demonstrated the abattoir can be supplied up to 1 ML/day under Level 3 restrictions consistent with Council's Drought Management Plan. The new bore therefore provides additional contingency.

There is unlikely to be inadequate supply for the abattoir.

In the event that the water supply to the abattoir is interrupted for longer than two days, TFI would:

- Discuss supply arrangements with BSC;
- Consider using tankers to deliver water; and/or
- Implement demand reduction measures as outlined for the drought contingency (see below).

2.4 DROUGHT CONTINGENCY MEASURES

TFI acknowledge that town water supply takes priority over supplies to the abattoir and commit to:

- Working closely with BSC during periods of Level 2 and Level 3 (or greater) water restrictions; and
- Adherence to Council's Drought Management Plan.

At Level 2 water restrictions, TFI will:

1. Meet with BSC staff and discuss Council's supply forecasts to understand the likelihood of more severe water restrictions; and
2. Comply with BSC water restrictions as relevant for commercial premises.

At Level 3 (or greater), TFI will:

1. Review forward production forecasts to estimate likely water demands;
2. Meet with BSC staff and discuss water supply forecasts to understand implications of more severe water restrictions and the possible need for the abattoir to reduce water demand;
3. Comply with BSC water restrictions as relevant for commercial premises; and
4. If required, implement water demand reduction measures which could include reducing the daily processing output of the facility.

2.5 LIQUID WASTE MANAGEMENT

Liquid wastewater generated by the facility will be managed on site in accordance with the **Wastewater Management Plan** and **Irrigation Management Plan.**

Surface Water Management Plan

3.1 OBJECTIVE

The objective of the Surface Water Management Plan (SWMP) is to provide an integrated surface water management system that:

- Prevents the potential for surface water pollution; and
- Detects impacts on surface water quality

3.2 DESIGN

3.2.1 ABATTOIR SURFACE WATER MANAGEMENT

The stormwater management system includes:

- Diversion drains;
- Bunding to divert and direct surface runoff;
- A stormwater retention pond, and
- A pump for the onsite reuse of captured surface water.

Figure 2 shows the key components of the surface water management system. The site surface water is managed in two systems:

1. Dirty water – water and wash down generated from the stock yards and manure stockpile area which is managed in the effluent management system; and
2. General surface water – roof runoff, general site runoff from hardstand areas around the buildings and trafficable areas which is directed by surface drains to the stormwater retention pond.

Stormwater runoff from sealed trafficable areas and roofs is directed to the stormwater retention pond for reuse onsite. Water from the stormwater retention pond is used for irrigation of gardens and landscaped areas and dust suppression.

The stormwater retention pond is located east of the processing facility and provides a total storage capacity of 4,985 m^3.

The stormwater retention pond is operated to maintain an air space of 1,220 m^3 to capture runoff from a 1 in 10 year storm event. This air space capacity is available at a level of RL106.55 which is 1.0 m below the invert level of the inflow pipe (RL107.55).

Surface water captured in the stormwater pond shall be used for landscape irrigation and dust suppression. Where practicable, the design air space shall be restored within 5 days of runoff occurring.

A water balance was completed as part of MOD 2 to demonstrate that the existing stormwater pond provides an adequate water supply for landscaping water. In the event that severe drought conditions affect the quantity of water in the dam, TFI shall make arrangements to tanker water to the site to ensure landscaping requirements are met, as appropriate and in accordance with any restrictions advised by Bourke Shire Council (Refer to Drought Contingency Measures in **Section 1.6**).

The effluent treatment ponds have a common design top water level (TWL) of 110.10 mAHD and embankment crest level of 110.6 mAHD. The ponds embankment crest is a minimum of 1.6 m above

the surrounding natural ground level which prevents entry of surface runoff. The ponds will receive direct rainfall.

Manure will be stockpiled on-site in a bunded manure stockpile area prior to re-use onsite. The design of the manure stockpile area is provided in Error! Reference source not found. of the **OEMP** and includes a leachate barrier system in accordance with Section 5.2 of the DEC (2004) *Environmental Guidelines: Composting and related organics processing facilities.*

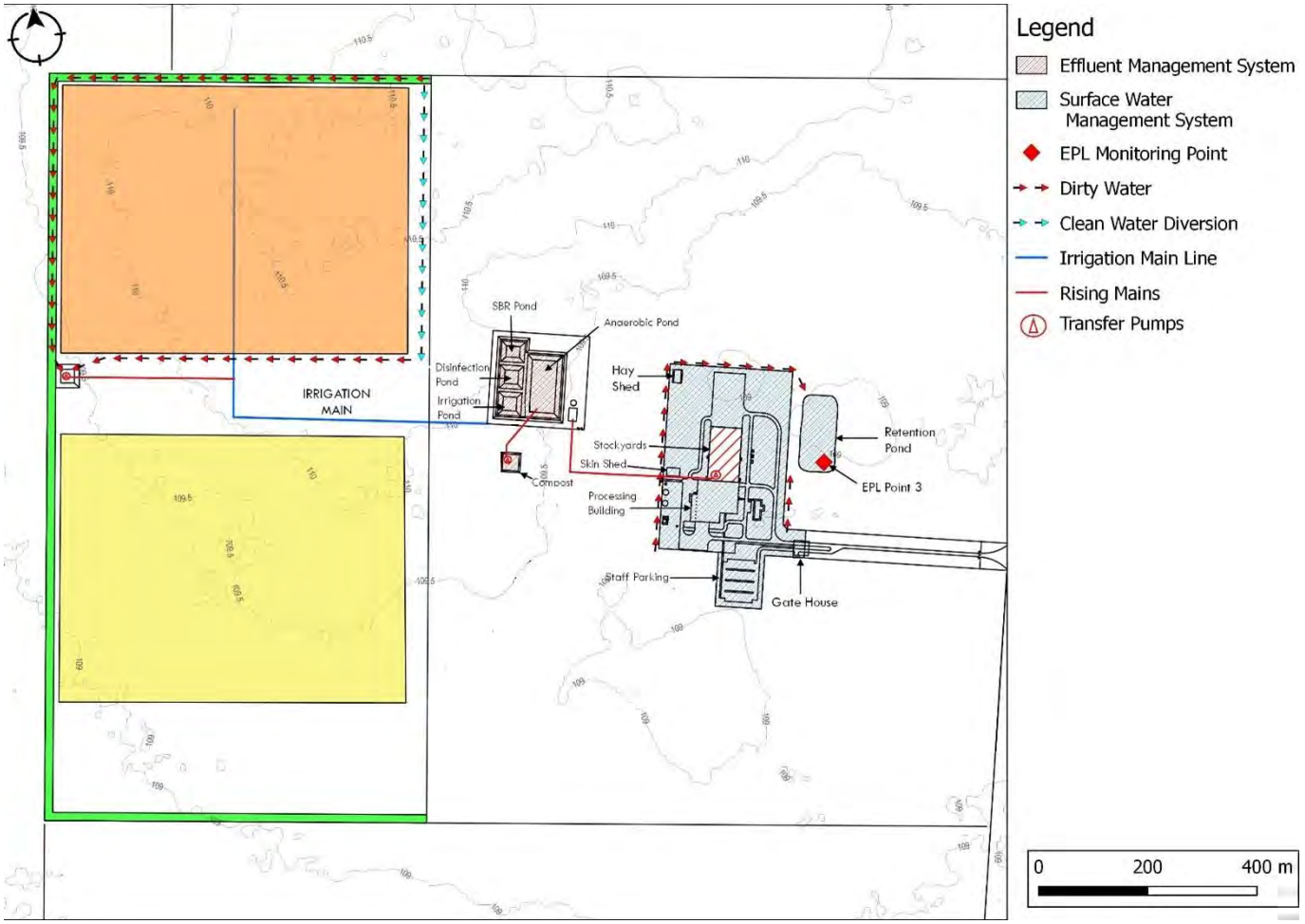


Figure 2: Key components of surface water management system

3.2.2 IRRIGATION AREA

The irrigation area is separated from surrounding surface water runoff with an upslope clean water diversion bund and downslope collection drains that direct runoff from the irrigation area to a sediment basin.

The irrigation tailwater pond (sediment basin) is design in accordance with *Managing Urban Stormwater, Soils and Construction, Volume 1* (Landcom, 2004) and provides capacity to capture runoff generated from about 24 mm of rainfall across the irrigation area.

The tailwater pond is a first flush system and once full excess water bypasses. Water collected in the tailwater pond is pumped to the irrigation system and irrigated. Modelling indicates it can take up to 3 days to empty the water collected in the settling zone (590 m^3) following rainfall. This is consistent with the design criteria of restoring the design capacity within 5 days of rainfall.

3.3 SURFACE WATER MONITORING PROGRAM

The aim of the surface water monitoring program is to monitor the effectiveness of abattoir surface water management system. Monitoring of the surface water discharging from the stormwater retention pond is required under the Environment Protection Licence (EPL 20918).

A rising stage sampler will be installed on the outlet of the stormwater retention pond that collects a sample of discharge from the basin in the event of overflow. This is EPL Point 3 as defined by Condition P1.2 of EPL 20918

The surface water collected in the rising stage sampler will be analysed for total suspended solids (mg/L) (refer to **OEMP Section 6.6**).

Samples will be collected daily during discharge (subject to runoff events occurring) in accordance with Condition M2.2 EPL 20918.

Condition L2.4 of EPL 20918 specifies a 100 percentile limit for Total Suspended Solids of 50 mg/L for EPL Point 3.

3.4 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls installed during construction shall be removed once the contributing catchment has been adequately rehabilitated and stabilised (in accordance with construction documents and specifications).

Erosion and sediment control plans shall be prepared for any new construction work undertaken at the facility that disturbs or exposes soil. These plans shall be prepared consistent with *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom, 2004).

Groundwater Management Plan

4.1 OBJECTIVE

The aim of the Groundwater Management Plan is to describe the management of groundwater at the BSSA.

4.2 EXISTING GROUNDWATER CONDITIONS

The BSSA is located with the area underlain by the Upper Darling Alluvial Groundwater Source.

A groundwater monitoring program was undertaken to characterise existing groundwater conditions and provide baseline data on specific parameters. A detailed description of the baseline groundwater conditions is provided in **Appendix H1** which is based on nine sample rounds. The groundwater is described as slightly cloudy with no odour. Field parameters identified the groundwater as having a near neutral pH and very high electrical conductivity. The analytical composition of the groundwater remained stable over the investigation period. Analytical results are summarised in **Tables 4.1**, **4.2** and **4.3**.

Groundwater vulnerability is considered very low due to the absence of shallow aquifers within the locality and the very high groundwater salinity.

Table 4.1 – Baseline Groundwater Data – Field Parameters

Parameters	MW1			MW2		
	Min	Max	Mean	Min	Max	Mean
SWL	13.60	16.85	15.76	12.42	15.04	13.32
Temp (°C)	23.00	24.40	23.77	22.70	24.50	23.60
pH	4.1	6.9	5.87	4.0	6.3	5.5
EC (mS/cm)	16.65	20.43	19.03	20.00	37.90	29.70
DO (ppm)	2.33	4.34	3.22	2.29	6.85	5.04
Redox (mV)	131.70	288.00	199.97	114.70	299.00	201.90
Comments	-	-	Slightly cloudy, no odour	-	-	Slightly cloudy, no odour

Table 4.2 – Baseline Groundwater Data – Heavy Metals (µg/L)

Parameters	MW1			MW2		
	Min	Max	Mean	Min	Max	Mean
As	1	3	2.00	ND	1	-
Cd	ND	0.9	-	ND	2	-
Cr	2	3	2.67	ND	2	-
Cu	9	25	14.33	2	11	5.00
Pb	ND	ND	ND	ND	ND	ND
Ni	2	4	2.67	3	5	3.67
Zn	29	86	52.33	13	53	29.00

Table 4.3 – Baseline Groundwater Data – Other Parameters (mg/L)

Parameters	MW1			MW2		
	Min	Max	Mean	Min	Max	Mean
Conductivity (EC) (mS/cm)	19	20	19.33	37	46	40.33
Chloride (Cl)	5900	6500	6133.33	13000	13000	13000
Sulfate (SO_4)	1500	1700	1600	2200	2300	2233.33
Major Cations						
Calcium	780	830	810	1400	1700	1566.67
Magnesium	330	350	340	640	760	716.67
Potassium	55	56	55.33	71	77	74.67
Sodium	2900	3100	3000	4900	5900	5466.67
Nutrients						
Total nitrogen	0.23	0.41	0.35	ND	0.85	-
Total phosphorus	ND	0.12	-	0.04	0.62	0.24
Nitrate	ND	0.39	-	ND	0.84	-
Nitrite	0.006	0.20	0.074	ND	0.009	-
Total Kjeldahl Nitrogen	0.30	0.59	0.40	0.25	0.47	0.35

4.3 GROUNDWATER MONITORING PROGRAM

4.3.1 MONITORING BORE DESIGN AND CONSTRUCTION

Two groundwater monitoring bores are located onsite to monitor the impacts of abattoir operations on local groundwater. One groundwater bore (MW1) is located within the irrigation area, up hydraulic gradient of the facility. This groundwater monitoring bore provides an indication of inflowing groundwater quality. The second groundwater bore (MW2) is located in the eastern section of the site adjacent the Mitchell Highway and is down hydraulic gradient of the facility.

The monitoring bores are constructed in accordance with the *Minimum Construction Requirements for Water Bores in Australia* (ARMCANZ 1997). The monitoring bores are constructed of 50 mm casing with a slotted section within the water bearing zone to permit groundwater inflow. The casing is surrounded by coarse graded sand and sealed with a bentonite slurry to prevent surface water ingress. The monitoring wells are constructed to 30 metres below ground level (mbgl) and intercept the water table of the Upper Darling Alluvial Groundwater Source.

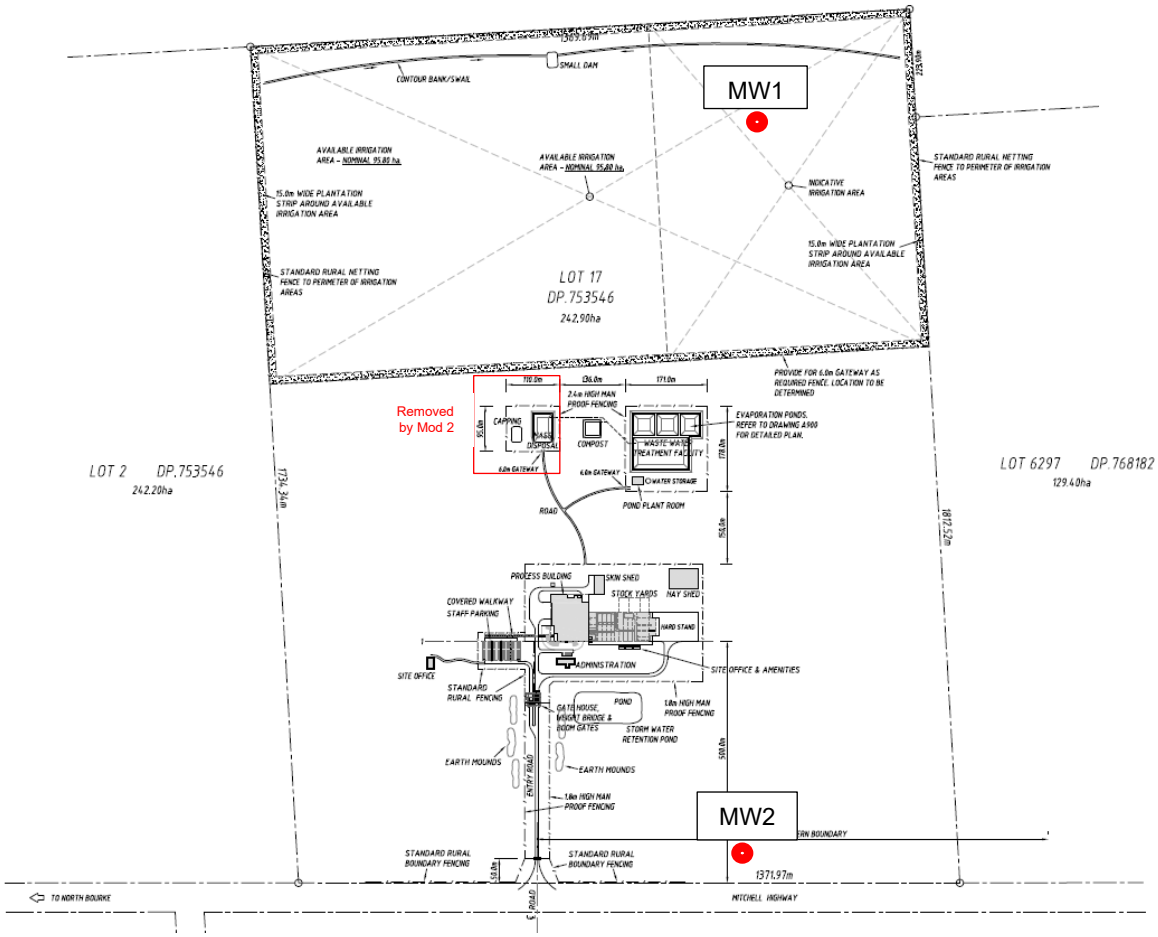


Figure 3: Groundwater Monitoring Bores

4.3.2 TIMELINE FOR ESTABLISHMENT AND SAMPLING REGIMES

The groundwater monitoring will begin after commencement of onsite operations.

4.3.3 MONITORING FREQUENCY

Groundwater monitoring shall be undertaken annually after completion of the commissioning phase when groundwater is detected in the monitoring wells.

4.3.4 ANALYSIS

Groundwater will be monitored for the following:

- Standing water level, mbgl
- Temperature, °C (field)
- Electrical conductivity , dS/m (field and laboratory)
- Nitrate
- Phosphorus (total)
- Phosphate
- Total dissolved solids (TDS)
- pH

If this monitoring indicates some change in groundwater quality, a more comprehensive suite will be undertaken. This will add cations and a full nitrogen suite.

4.4 GROUNDWATER IMPACT TRIGGERS AND INVESTIGATION PROTOCOLS

4.4.1 GROUNDWATER LEVELS

The following actions shall be undertaken if groundwater levels (at either monitoring point) rise to be less than 10 m below the surface:

1. Re-measure the groundwater level within two (2) weeks of the initial measurement.
2. If the re-measure confirms the original reading, commence quarterly groundwater level measurements at both monitoring points to identify trends.
3. Review weather and operational conditions to identify possible causes.
4. Prepare a brief report outlining the exceedance of a trigger level with supporting documentation and provide this report as an update to the EPA and the Natural Resources Access Regulator (NRAR).
5. Continue quarterly groundwater level measurements until the groundwater falls to be more than 10 m below the ground surface.

4.4.2 GROUNDWATER QUALITY TRIGGERS

Groundwater nitrate concentration shall be used as an indicator for possible groundwater contamination. Nitrogen in the nitrate form is extremely mobile and readily leached.

The trigger value for further investigation is 10 mg/L (nitrate as N).

4.4.3 GROUNDWATER INVESTIGATION PROCEDURE

A groundwater investigation will be initiated where routine groundwater monitoring identifies results outside the trigger level for nitrate. The investigation procedure will involve the following:

- Re-test the sample to determine if it was an anomalous result,
- If re-testing confirms the initial results the following steps will be undertaken:
  - Notification of the EPA and the Natural Resources Access Regulator (NRAR);
  - Preparation of a Groundwater Assessment Plan which would include details of a monitoring program and preparation of an assessment report which would recommend, or not, proceeding with the following actions;
  - If required, preparation of a Groundwater Remediation Plan; and
  - If required, implementation of the Groundwater Remediation Plan.

4.4.4 MITIGATION MEASURES

If mitigation of groundwater contamination is required, the mitigation measures specific to the identified contaminating activity will be discussed in the Groundwater Remediation Plan.

4.4.5 AQUIFER INTERFERENCE POLICY

Under Section 3.3 of the NSW Aquifer Interference Policy (AIP) (NSW DPI, 2012) activities undertaken onsite with the potential to impact on groundwater are considered to be '*defined minimal impact aquifer interference activities'.* As such, no further assessment against the AIP is required.

Applicable *defined minimal impact interference activities* include:

- Monitoring bores and wells that are:
  - Required by a development consent under Part 4 or an approval under Part 5.1 of the Environmental Planning and Assessment Act 1979, or required or undertaken as a result of an environmental assessment under Part 5 of that Act.
  - Required by a condition of an EPL under the POEO Act 1997; and
  - Constructed in accordance with standards equivalent to the Minimum Construction Requirements for Water Bores in Australia.
- Leachate ponds and sumps if constructed, operated and decommissioned in accordance with appropriate guidelines; and
- Sewage holding ponds if lined with an impervious layer and otherwise constructed, operated and decommissioned in accordance with the requirements of the NSW State Groundwater Quality Protection Policy.

Reporting and Review

5.1 REPORTING

Surface water samples collected from EPL Point 3 shall be reported in the Annual Return (refer to **OEMP Section 7.1**).

Water use, surface water and groundwater monitoring data shall be reported in the Annual Review (refer to **OEMP Section 7.2**).

Groundwater monitoring data shall be closely reviewed to determine if the groundwater level or quality trigger values need to be reviewed based on an expanded data set.

5.2 WATMP REVIEW

TFI shall review and if necessary revise the WatMP within three (3) months of:

a) The Annual Review;

b) Any incident report relating to water use, surface water management tor groundwater management including exceeding trigger values;

c) Any changes to the water management system;

d) An audit report; or

e) Any modifications to conditions of approval.

This is to ensure that the WatMP incorporates any recommended measures to improve environmental performance.

References

Landcom (2004) *Managing Urban Stormwater – Soils and Construction Volume 1*.

Appendix H1

BASELINE GROUNDWATER MONITORING REPORTS

Envirowest Consulting *Pty Ltd* ABN 18 103 955 246
• 9 Cameron Place, Orange NSW • Tel (02) 6361 4954 •
• 6/72 Corporation Place, Bathurst NSW • Tel (02) 6334 3312 •
• PO Box 8158, Orange NSW 2800 • Email admin@envirowest.net.au • Web www.envirowest.net.au •

Environmental
Geotechnical
Asbestos
Services

10 April 2018

JPAbusiness Pty Ltd
Suite 7/113, Byng Street
Orange NSW 2800

Attn: James Price

Our ref: L6612c10

Dear James,

Groundwater Monitoring - Proposed Small Stock Abattoir, North Bourke NSW

1. Introduction

A small stock abattoir is proposed for Lot 17 DP753546 Mitchell Highway, Bourke NSW. Conditions of consent include monthly monitoring of groundwater to obtain baseline data on groundwater levels and quality. The monitoring program was described in Envirowest Consulting Pty Ltd report L6612c1.1 and approved by DPI Water, EPA and Bourke Shire Council. Two groundwater monitoring wells were constructed on the site in May 2017 to enable groundwater monitoring (Envirowest Consulting Pty Ltd report L6612c1).

2. Scope

Provide a summary of the results of nine months of groundwater monitoring from two groundwater wells.

3. Monitoring bores

3.1 Sampling procedure

The following was undertaken at each sampling event:

- Measurement of standing water levels
- Purging of well followed by allowing to refill. Samples collected after the well had refilled.
- Groundwater samples collected by Envirowest personnel.
- The water samples drained into new bottles supplied by the laboratory and appropriate for the analytes.
- Samples stored under refrigeration and transported with ice in insulated containers. Appropriate storage duration observed. A chain of custody form tracked the samples to the laboratory.

3.2 Analytes

Groundwater samples were analysed on-site for pH, electrical conductivity, redox potential, dissolved oxygen and temperature. Groundwater samples were analysed in the NATA accredited laboratory of SGS. All samples were analysed for heavy metals (arsenic, cadmium, chromium, copper, lead, nickel and zinc), electrical conductivity, nitrogen, nitrite + nitrate, cations, anions and phosphorus.

4. Assessment criteria

Samples were collected by Envirowest to provide baseline data of groundwater located on the site.

5. Results

The statistical analysis of the results is provided in the following tables. The raw data is provided in Appendix 1.

Table 1. Groundwater SWL and field parameters

	SWL (m)	Temperature (°C)	pH	EC (mS/cm)	DO (ppm)	Redox (mV)
Min	12.421	22.7	4.0	16.7	2.29	54.10
Max	17.542	26.7	7.6	37.9	7.65	299.00
STD	1.655	1.0	0.9	7.6	1.64	76.49
Average	15.175	24.5	6.2	24.6	4.52	168.81
CI	7.01	11.31	2.88	12.91	2.09	77.98
95% CI	22.19	35.79	9.12	37.54	6.60	246.79

Table 2. Groundwater parameter results (mg/L)

	EC (mS/cm)	Chloride	Sulfate	Calcium	Magnesium	Potassium	Sodium
Min	18	5900	1500	720	330	55	2900
Max	49	15000	2600	1700	770	85	5900
STD	11	3546	351	401	190	11	1299
Average	30	9711	1989	1197	528	67	4261
CI	13.86	4486.22	918.80	552.82	244.07	31.13	1968.50
95% CI	43.86	14197.33	2907.69	1749.49	772.41	98.52	6229.61

Table 3. Groundwater nutrient results (mg/L)

	Total Nitrogen	Total Phosphorous	Nitrate as N	Nitrite as N	Total Kjeldahl Nitrogen
Min	0.23	0.03	0.23	0.01	0.05
Max	1.50	0.62	1.50	0.20	0.59
STD	0.31	0.19	0.30	0.08	0.15
Average	0.73	0.14	0.75	0.04	0.24
CI	0.35	0.07	0.38	0.03	0.12
95% CI	1.07	0.21	1.13	0.07	0.36

Table 4. Groundwater metal results (ug/L)

	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
Min	1	0	1	1	ND	1	6
Max	3	1	4	25	ND	6	86
STD	1	0	1	6	ND	1	19
Average	2	0	3	5	ND	3	26
CI	1.24	0.25	1.32	2.51	ND	1.34	12.09
95% CI	3.33	0.57	4.00	7.64	ND	4.17	38.25

6. Conclusion

The statistical analysis of the background monitoring of the groundwater on the small stock abattoir at Lot 17 DP753546 is suitable for use as a comparison to results obtained during groundwater monitoring during abattoir operation.

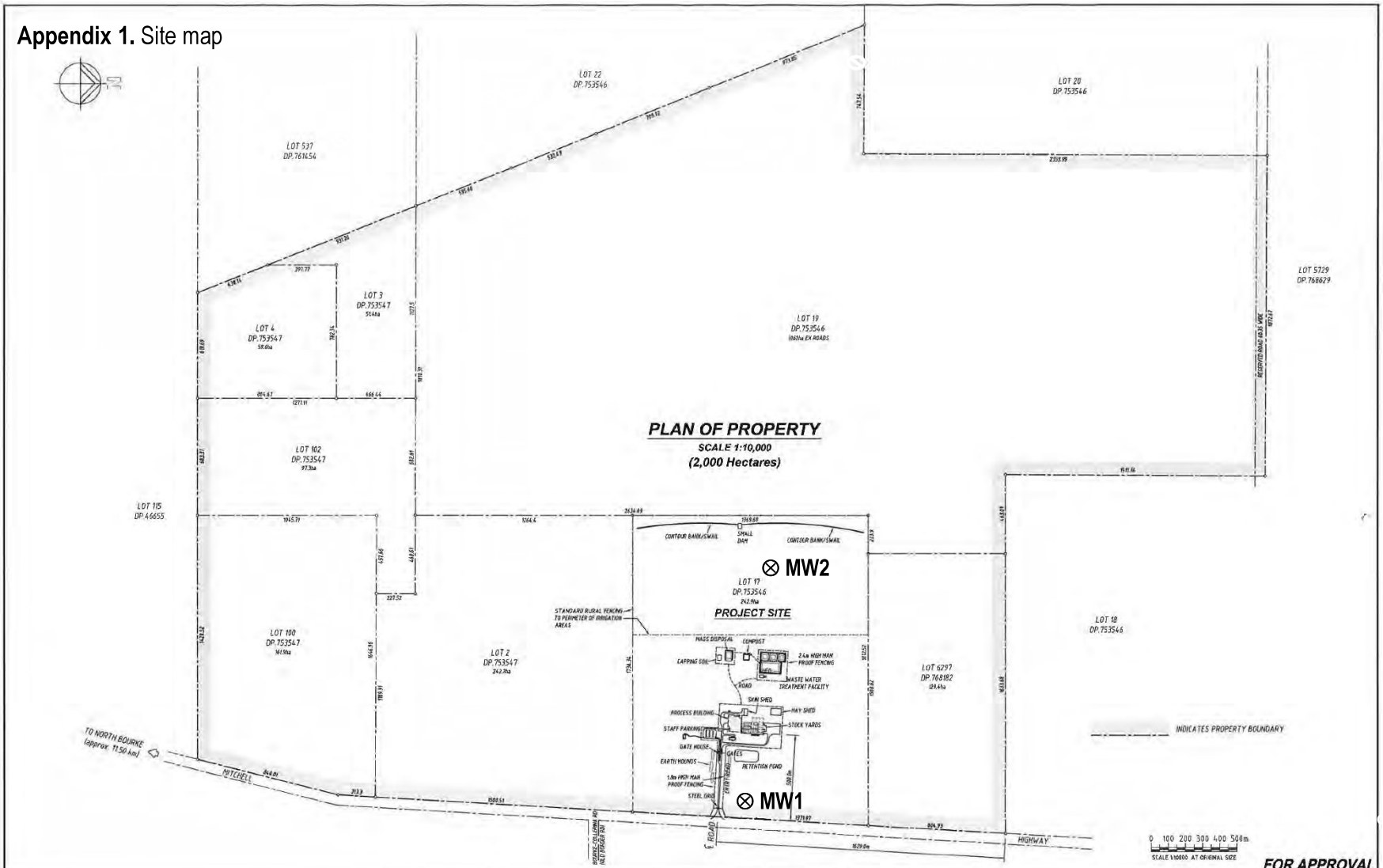
Please call if you require additional information.

Regards,

Leah Desborough
Senior Environmental Scientist

Attachments
Appendix 1. Site plan
Appendix 2. Raw data

Appendix 1. Site map



No	Revision Description	Drawn	Approved	Date
B	REVISED WITH RESPONSE TO SUBMISSIONS	LGH		23.01.17
A	ISSUED FOR APPROVAL	LGH	–	29.02.16

SARAN ENGINEERS & MANAGERS
Unit 3, 9 Gateway Crescent, Orange, NSW 2800
P.O. Box 8431, Orange, N.S.W 2800

DO NOT SCALE

COOK & ROE Copyright. This document may only be used by the clients of Cook & Roe (and any other person who Cook & Roe has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

COOK ROE STRUCTURAL ENGINEERS
P 02 6360 2361 F 02 6360 2927
E OFFICE@COOKANDROE.COM.AU
PO BOX 918, ORANGE NSW 2800
COOKANDROE.COM.AU

Project: PROPOSED SMALL STOCK ABATTOIR MITCHELL HIGHWAY. BOURKE N.S.W.

Title: PLAN OF PROPERTY

Client: CAPRA DEVELOPMENTS PTY LTD

Drawn	LGH	Designed		Approved	
Scale	AS SHOWN	Date	FEB, 2016		

Drawing No: 32061-DA.01 Rev: B Drawing Size: A1

Appendix 2. Raw data

			Field Parameters						Groundwater Parameters (mg/L)			Major cations (mg/L)				Nutrients (mg/L)					Metals (ug/L)						
Event	Date	Well_ID	SWL (m)	Temperature (°C)	pH	EC (mS/cm)	DO (ppm)	Redox (mV)	EC (mS/cm)	Chloride	Sulfate	Calcium	Magnesium	Potassium	Sodium	Total Nitrogen	Total Phosphorous	Nitrate as N	Nitrite as N	Total Kjeldahl Nitrogen	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
1	7/06/2017	MW1	16.825	23.9	6.6	16.7	2.33	180.20	19	6,000	1,500	780	330	55	2,900	0.23	ND	0.23	0.20	0.59	1	0.9	3	25	ND	4	86
1	7/06/2017	MW2	15.042	22.7	6.2	31.2	5.98	192.00	37	13,000	2,200	1,400	640	71	4,900	ND	0.07	ND	ND	0.47	ND	0.3	ND	11	ND	5	53
2	13/07/2017	MW1	16.845	24.4	6.9	20.4	2.98	131.70	20	5,900	1,600	830	350	56	3,000	0.41	0.12	0.39	0.02	0.30	3	0.2	3	9	ND	2	42
2	13/07/2017	MW2	12.421	23.6	6.3	37.9	6.85	114.70	38	13,000	2,200	1,700	760	76	5,600	0.85	0.62	0.84	0.01	0.33	1	ND	2	2	ND	3	21
3	19/09/2017	MW1	13.600	23.0	4.1	>20	4.34	288.00	19	6,500	1,700	820	340	55	3,100	0.41	ND	ND	0.01	0.32	2	ND	2	9	ND	2	29
3	19/09/2017	MW2	12.500	24.5	4.0	>20	2.29	299.00	46	13,000	2,300	1,600	750	77	5,900	0.85	0.04	ND	ND	0.25	ND	ND	1	2	ND	3	13
4	4/10/2017	MW1	13.600	24.7	6.6	21.6	2.36	179.90	20	6,300	1,700	880	370	61	3,200	0.67	0.03	0.66	0.01	0.28	3	0.2	4	1	ND	1	23
4	4/10/2017	MW2	15.000	24.6	6.2	>25	2.90	217.40	37	13,000	2,300	1,700	760	80	5,600	1.10	0.10	1.10	ND	0.11	ND	ND	2	ND	ND	3	6
5	27/10/2017	MW1	13.800	23.8	6.8	21.6	4.41	274.60	19	6,300	1,700	790	330	59	3,000	0.57	0.04	0.56	0.01	0.05	2	ND	4	3	ND	1	20
5	27/10/2017	MW2	15.000	23.8	6.7	>25	7.65	210.40	49	13,000	2,400	1,600	700	81	5,700	0.47	0.15	0.74	ND	ND	ND	ND	2	3	ND	4	13
6	22/11/2017	MW1	13.500	25.5	6.5	17.1	4.38	152.20	20	7,000	1,800	820	380	63	3,000	0.54	0.09	0.54	ND	0.13	2	ND	2	3	ND	1	23
6	22/11/2017	MW2	14.910	26.7	7.6	31.8	2.82	234.50	37	15,000	2,600	1,600	770	85	5,700	0.82	0.55	0.82	ND	0.13	ND	ND	ND	3	ND	3	25
7	18/01/2018	MW1	17.542	25.4	6.6	17.2	4.78	79.20	20	6,100	1,500	830	360	58	3,100	0.54	0.04	0.54	ND	ND	3	ND	4	4	ND	ND	27
7	18/01/2018	MW2	15.475	24.1	6.1	31.0	5.95	165.30	41	12,000	2,200	1,600	720	81	5,800	0.91	0.05	0.82	ND	0.09	ND	0.2	1	2	ND	3	25
8	19/02/2018	MW1	16.982	25.9	6.1	17.0	4.78	54.10	20	6,400	1,800	720	330	55	2,900	0.73	0.03	0.73	ND	0.18	2	ND	4	2	ND	6	20
8	19/02/2018	MW2	17.146	24.2	5.9	32.3	6.03	62.40	38	13,000	2,300	1,400	620	70	5,000	0.98	0.14	0.98	ND	0.30	1	0.1	3	2	ND	4	19
9	19/03/2018	MW1	16.141	25.4	6.7	17.1	4.73	72.00	18	6,300	1,700	870	340	55	3,000	0.79	ND	0.79	ND	0.06	3	ND	4	1	ND	1	14
9	19/03/2018	MW2	16.824	24.4	6.4	32.1	5.71	130.90	42	13,000	2,300	1,600	660	75	5,300	1.50	0.04	1.50	ND	0.26	ND	ND	2	ND	ND	2	12
		Min	12.421	22.7	4.0	16.7	2.29	54.10	18	5900	1500	720	330	55	2900	0.23	0.03	0.23	0.01	0.05	1	0	1	1	ND	1	6
		Max	17.542	26.7	7.6	37.9	7.65	299.00	49	15000	2600	1700	770	85	5900	1.50	0.62	1.50	0.20	0.59	3	1	4	25	ND	6	86
		STD	1.655	1.0	0.9	7.6	1.64	76.49	11	3546	351	401	190	11	1299	0.31	0.19	0.30	0.08	0.15	1	0	1	6	ND	1	19
		Average	15.175	24.5	6.2	24.6	4.52	168.81	30	9711	1989	1197	528	67	4261	0.73	0.14	0.75	0.04	0.24	2	0	3	5	ND	3	26
		CI	7.01	11.31	2.88	12.91	2.09	77.98	13.86	4486.22	918.80	552.82	244.07	31.13	1968.50	0.35	0.07	0.38	0.03	0.12	1.24	0.25	1.32	2.51	ND	1.34	12.09
		95% CI	22.19	35.79	9.12	37.54	6.60	246.79	43.86	14197.33	2907.69	1749.49	772.41	98.52	6229.61	1.07	0.21	1.13	0.07	0.36	3.33	0.57	4.00	7.64	ND	4.17	38.25

			Field Parameters						Groundwater Parameters (mg/L)			Major cations (mg/L)				Nutrients (mg/L)					Metals (ug/L)						
Event	Date	Well_ID	SWL (m)	Temperature (oC)	pH	EC (mS/cm)	DO (ppm)	Redox (mV)	EC (mS/cm)	Chloride	Sulfate	Calcium	Magnesium	Potassium	Sodium	Total Nitrogen	Total Phosphorous	Nitrate as N	Nitrite as N	Total Kjeldahl Nitrogen	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
1	7/06/2017	MW1	16.825	23.9	6.6	16.7	2.33	180.20	19	6,000	1,500	780	330	55	2,900	0.23	ND	0.23	0.20	0.59	1	0.9	3	25	ND	4	86
2	13/07/2017	MW1	16.845	24.4	6.9	20.4	2.98	131.70	20	5,900	1,600	830	350	56	3,000	0.41	0.12	0.39	0.02	0.30	3	0.2	3	9	ND	2	42
3	19/09/2017	MW1	13.600	23.0	4.1	>20	4.34	288.00	19	6,500	1,700	820	340	55	3,100	0.41	ND	ND	0.01	0.32	2	ND	2	9	ND	2	29
4	4/10/2017	MW1	13.600	24.7	6.6	21.6	2.36	179.90	20	6,300	1,700	880	370	61	3,200	0.67	0.03	0.66	0.01	0.28	3	0.2	4	1	ND	1	23
5	27/10/2017	MW1	13.800	23.8	6.8	21.6	4.41	274.60	19	6,300	1,700	790	330	59	3,000	0.57	0.04	0.56	0.01	0.05	2	ND	4	3	ND	1	20
6	22/11/2017	MW1	13.500	25.5	6.5	17.1	4.38	152.20	20	7,000	1,800	820	380	63	3,000	0.54	0.09	0.54	ND	0.13	2	ND	2	3	ND	1	23
7	18/01/2018	MW1	17.542	25.4	6.6	17.2	4.78	79.20	20	6,100	1,500	830	360	58	3,100	0.54	0.04	0.54	ND	ND	3	ND	4	4	ND	ND	27
8	19/02/2018	MW1	16.982	25.9	6.1	17.0	4.78	54.10	20	6,400	1,800	720	330	55	2,900	0.73	0.03	0.73	ND	0.18	2	ND	4	2	ND	6	20
9	19/03/2018	MW1	16.141	25.4	6.7	17.1	4.73	72.00	18	6,300	1,700	870	340	55	3,000	0.79	ND	0.79	ND	0.06	3	ND	4	1	ND	1	14
		Min	13.500	23.0	4.1	16.7	2.33	54.10	18	5900	1500	720	330	55	2900	0.23	0.03	0.23	0.01	0.05	1	0	2	1	ND	1	14
		Max	17.542	25.9	6.9	21.6	4.78	288.00	20	7000	1800	880	380	63	3200	0.79	0.12	0.79	0.20	0.59	3	1	4	25	ND	6	86
		STD	1.747	1.0	0.9	2.2	1.04	84.10	1	322	112	48	19	3	97	0.18	0.04	0.18	0.09	0.18	1	0	1	8	ND	2	22
		Average	15.426	24.7	6.3	18.6	3.90	156.88	19	6311	1667	816	348	57	3022	0.54	0.06	0.56	0.05	0.24	2	0	3	6	ND	2	32
		CI	10.08	16.12	4.13	12.88	2.55	102.49	12.70	4123.18	1088.87	532.82	227.21	37.53	1974.48	0.35	0.05	0.38	0.04	0.17	1.52	0.49	2.18	4.14	ND	1.56	20.62
		95% CI	25.50	40.78	10.45	31.46	6.45	259.37	32.15	10434.29	2755.54	1348.38	574.99	94.97	4996.70	0.90	0.11	0.94	0.09	0.40	3.86	0.92	5.51	10.47	ND	3.81	52.17

			Field Parameters						Groundwater Parameters (mg/L)			Major cations (mg/L)				Nutrients (mg/L)					Metals (ug/L)						
Event	Date	Well_ID	SWL (m)	Temperature (°C)	pH	EC (mS/cm)	DO (ppm)	Redox (mV)	EC (mS/cm)	Chloride	Sulfate	Calcium	Magnesium	Potassium	Sodium	Total Nitrogen	Total Phosphorous	Nitrate as N	Nitrite as N	Total Kjeldahl Nitrogen	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
1	7/06/2017	MW2	15.042	22.7	6.2	31.2	5.98	192.00	37	13,000	2,200	1,400	640	71	4,900	ND	0.07	ND	ND	0.47	ND	0.3	ND	11	ND	5	53
2	13/07/2017	MW2	12.421	23.6	6.3	37.9	6.85	114.70	38	13,000	2,200	1,700	760	76	5,600	0.85	0.62	0.84	0.01	0.33	1	ND	2	2	ND	3	21
3	19/09/2017	MW2	12.500	24.5	4.0	>20	2.29	299.00	46	13,000	2,300	1,600	750	77	5,900	0.85	0.04	ND	ND	0.25	ND	ND	1	2	ND	3	13
4	4/10/2017	MW2	15.000	24.6	6.2	>25	2.90	217.40	37	13,000	2,300	1,700	760	80	5,600	1.10	0.10	1.10	ND	0.11	ND	ND	2	ND	ND	3	6
5	27/10/2017	MW2	15.000	23.8	6.7	>25	7.65	210.40	49	13,000	2,400	1,600	700	81	5,700	0.47	0.15	0.74	ND	ND	ND	ND	2	3	ND	4	13
6	22/11/2017	MW2	14.910	26.7	7.6	31.8	2.82	234.50	37	15,000	2,600	1,600	770	85	5,700	0.82	0.55	0.82	ND	0.13	ND	ND	ND	3	ND	3	25
7	18/01/2018	MW2	15.475	24.1	6.1	31.0	5.95	165.30	41	12,000	2,200	1,600	720	81	5,800	0.91	0.05	0.82	ND	0.09	ND	0.2	1	2	ND	3	25
8	19/02/2018	MW2	17.146	24.2	5.9	32.3	6.03	62.40	38	13,000	2,300	1,400	620	70	5,000	0.98	0.14	0.98	ND	0.30	1	0.1	3	2	ND	4	19
9	19/03/2018	MW2	16.824	24.4	6.4	32.1	5.71	130.90	42	13,000	2,300	1,600	660	75	5,300	1.50	0.04	1.50	ND	0.26	ND	ND	2	ND	ND	2	12
		Min	12.421	22.7	4.0	31.0	2.29	62.40	37	12000	2200	1400	620	70	4900	0.47	0.04	0.74	0.01	0.09	1	0	1	2	ND	2	6
		Max	17.146	26.7	7.6	37.9	7.65	299.00	49	15000	2600	1700	770	85	5900	1.50	0.62	1.50	0.01	0.47	1	0	3	11	ND	5	53
		STD	1.621	1.1	0.9	2.6	1.94	70.99	4	782	127	109	57	5	354	0.29	0.23	0.26	-	0.13	0	0	1	3	ND	1	14
		Average	14.924	24.3	6.2	32.7	5.13	180.73	41	13111	2311	1578	709	77	5500	0.94	0.20	0.97	0.01	0.24	1	0	2	4	ND	3	21
		CI	9.75	15.87	4.02	26.18	3.35	118.08	26.50	8565.77	1509.90	1030.80	463.13	50.52	3593.27	0.65	0.13	0.72	0.02	0.17	1.39	0.23	1.38	2.65	ND	2.18	13.57
		95% CI	24.67	40.16	10.18	58.89	8.48	298.81	67.05	21676.88	3821.01	2608.57	1172.02	127.86	9093.27	1.58	0.32	1.69	0.03	0.41	2.39	0.43	3.23	6.22	ND	5.51	34.35

Appendix I

EFFLUENT SYSTEM COMMISSIONING PLAN

EFFLUENT SYSTEM COMMISSIONING PLAN

BOURKE SMALL STOCK ABBATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 3.0

EFFLUENT SYSTEM COMMISSIONING PLAN

BOURKE SMALL STOCK ABATTOIR

THOMAS FOODS INTERNATIONAL

FEBRUARY 2023

VERSION 3.0

Revision History

Version	Revision Date	Details	Authorised	
			Name/Position	Signature
2.0	14/09/18	Final updates following agency consultation. Prepared for DRGE. Final version for DP&E approval.	Martin Haege Geolyse Pty Ltd	
3.0	22/02/23	Updates following approval of MOD 2. Prepared for TFI. Final version for DP&E approval.	Martin Haege Premise Pty Ltd	

TABLE OF CONTENTS

TABLES

FIGURES

INTRODUCTION

The Bourke Small Stock Abattoir (BSSA) is a rural small stock abattoir located approximately 14 kilometres north of Bourke in north-western New South Wales. At full operational capacity the facility has the capacity to process 6,000 head per day comprising goats, sheep and lambs.

The facility provides:

- Covered stock holding yards,
- Administration offices
- Truck parking and truck wash facilities;
- Car parking facilities,
- Processing building
- Other infrastructure associated with abattoir processes.

The BSSA is operated by Thomas Foods International (TFI).

The facility is expected to produce approximately 120 ML of wastewater per year from the processing of stock and ancillary operations. Wastewater will be treated onsite and reused through irrigation.

The effluent management system includes physical processes for primary solids removal followed by a biological process incorporating anaerobic and aerobic treatment.

The treated wastewater will be reused onsite over a 31 ha irrigation area. The irrigation area will be used to grow crops for harvesting and removal off-site.

A commissioning period is required to effectively establish the ponds and treatment system. At a minimum this will include:

- A 8 to 12 week period to fill the ponds with effluent;
- An additional 12 to 16 week period for the ponds to establish the required microbiological populations to achieve the design pollutant removals; and
- A further 12 to 16 week period for the system to generate a stable biomass.

This indicates a minimum of 8 months for the treatment system to establish the required microbiological systems to function effectively. This process may be slowed through the winter period (cooler temperatures slowing microbiological action). As such it is prudent to allow some extra time to fully commission the system. This would be provided through the establishment period.

Therefore a commissioning period of 12 months is proposed from the commencement of operations to fully commission the effluent treatment system to ensure it can consistently deliver irrigation water which meets the design targets.

This document outlines the commissioning process, controls and monitoring requirements.

TREATMENT SYSTEM

2.1 TREATMENT POND SYSTEM

A summary of the treatment pond system is provided in **Table 2.1**.

Table 2.1 – Treatment pond system

Pond	Volume ML	Surface area at NWL m^2	Average Hydraulic Residence Time	Function
1. Anaerobic	17.5	6,090	35-50	BOD and suspended solids reduction.
2. Sequencing Batch Reactor (SBR)	3.4	1,330	7-10	BOD and nitrogen reduction. Sludge recycled to Pond 1.
3. Polishing	1.6 + 2.7 ML wet weather storage	1,520	3-5	Disinfection and wet weather storage
4. Irrigation Pond	4.5	1,520	na	Balancing irrigation demand and providing wet weather storage

The layout of the pond system is shown in **Figure 1** and **Figure 2**.

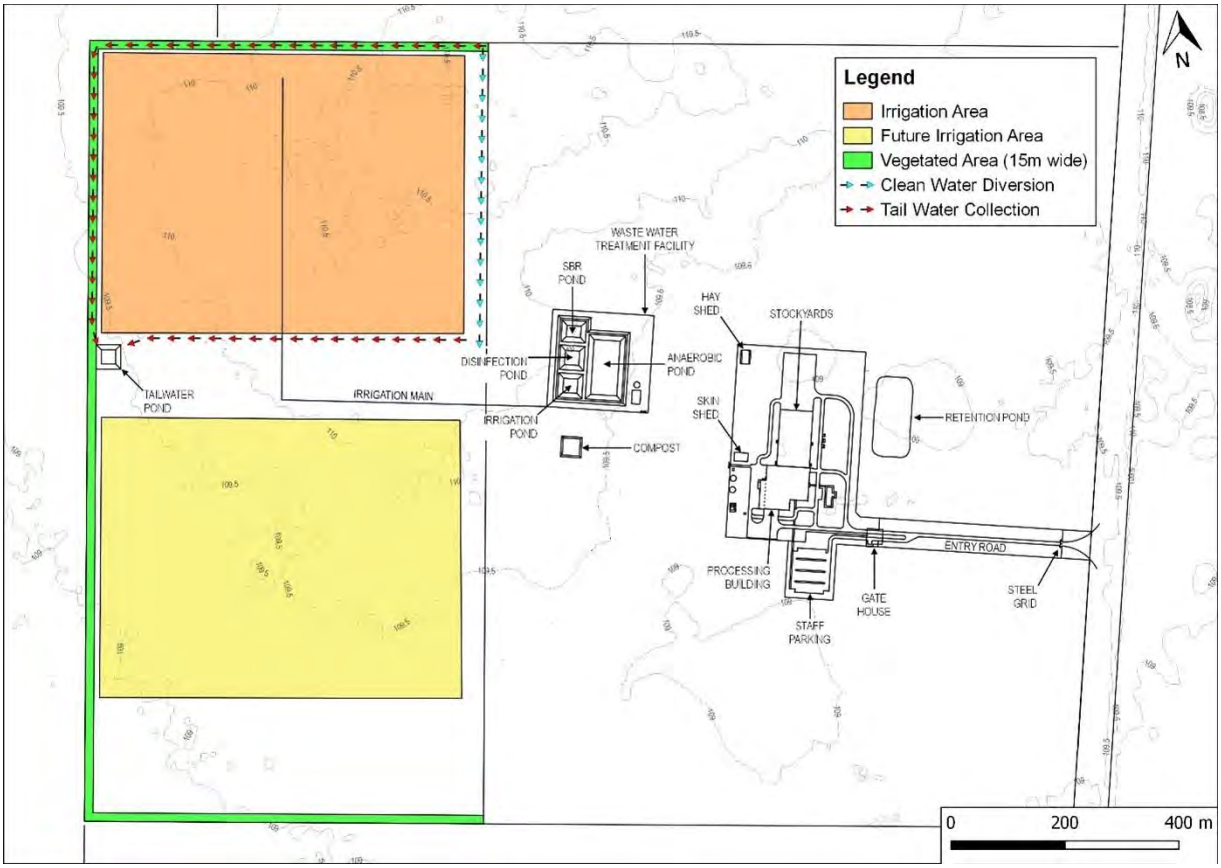


Figure 1: Abattoir site layout

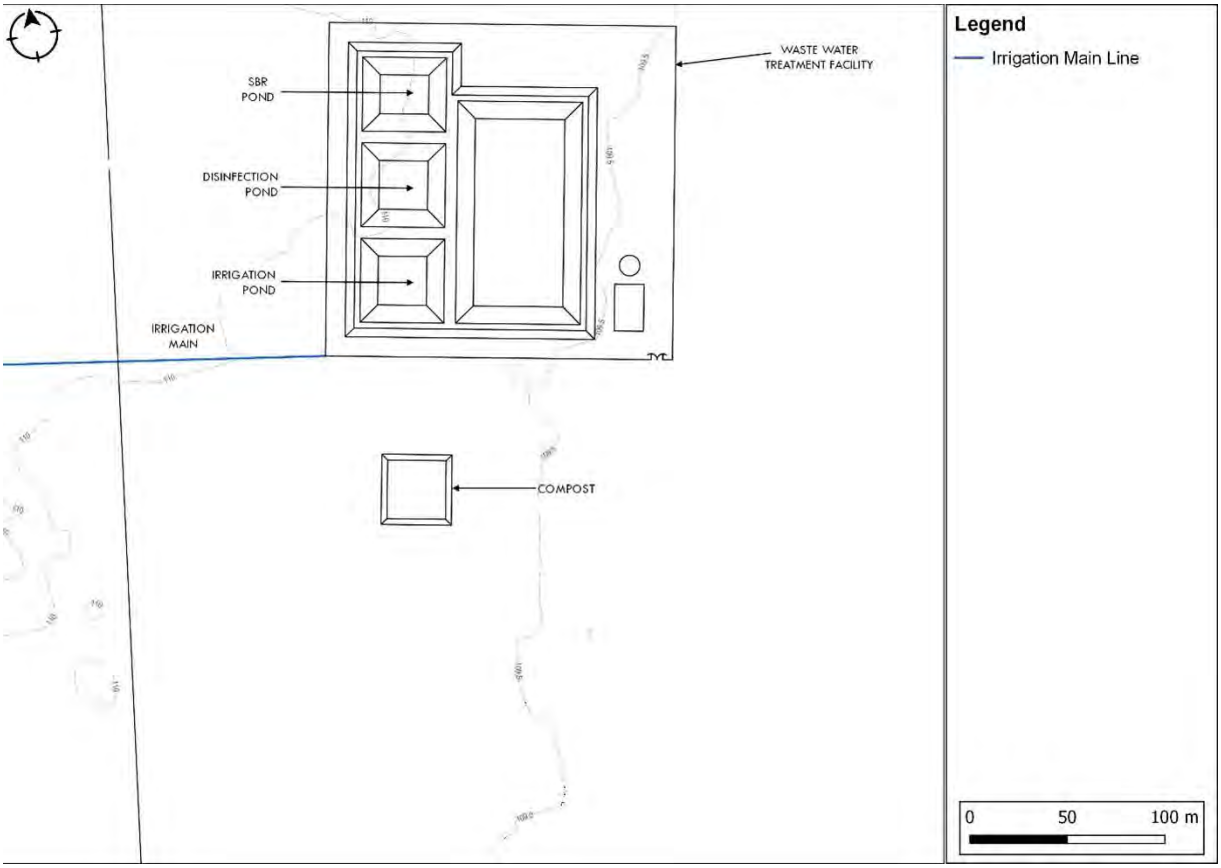


Figure 2: BSSA effluent management system

2.2 DESIGN FLOW

The monthly abattoir wastewater generation including process wastewater, wash down water and runoff from the controlled drainage areas is shown in **Figure 3**. This is based on:

- 5 days per week production at 6,000 head generating 432 kL/day during production days;
- 150 kL/day used on Saturday and Sunday (each day) for wash down;
- 80% production in May, June and July (4800 head per day) generating 346 kL/day during production days;
- a 14 day shut down at the start of January; and
- runoff from the manure stockpile area.

This generates an average annual inflow to the treatment system of 120 ML/year.

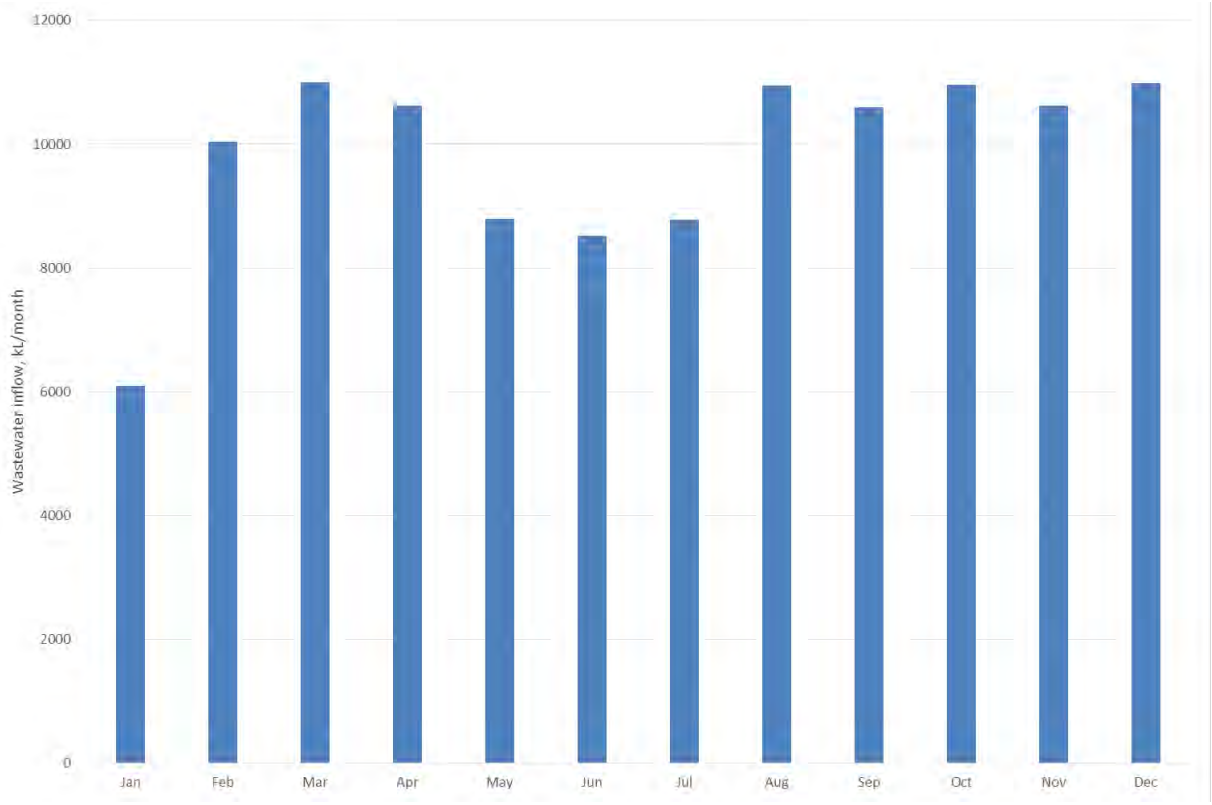


Figure 3: Average monthly wastewater generation (inflow to treatment system)

COMMISSIONING PLAN

The preliminary commissioning plan and actions are outlined in **Table 3.1**. Details are provided in the following sections. System designers would be involved throughout the commissioning period and would:

- Conduct training of site staff;
- Prepared commissioning and monitoring schedules;
- Review data and operational information;
- Respond to questions or operational issues;
- Oversee any changes to operational protocols; and
- Regularly inspect the system commissioning progress.

Operations during the commissioning period would be undertaken by appropriately trained on-site staff.

Table 3.1 – Summary of commissioning plan and actions

Component	Expected period	Actions
Pre-commencement of operations	1 week	• Half fill anaerobic pond with fresh water
System filling	8 to 12 weeks	• Fill ponds with effluent • Commissioning equipment/pumps/decant systems • Effluent quantity recording • Fortnightly system inspection
Construction of irrigation system	Within 3 months of commencement of operations	• Install irrigation pump, rising main and hydrants • Construct diversion bunds and tailwater collection system • Commissioning irrigation pump and irrigator
Establishment	12 to 16 weeks	• Effluent quantity recording • Effluent quality monitoring • Fortnightly system inspection • Irrigation (if required)
Stabilising	12 to 16 weeks	• Effluent quantity recording • Effluent quality monitoring • Fortnightly system inspection • Irrigation (if required)

3.1 SYSTEM FILLING

3.1.1 Initial Filling

Prior to commencement of operations, the anaerobic pond will be half filled with fresh water sourced from direct rainfall, onsite dams and/or the raw water supply. This will dilute the initial effluent load thereby allowing gradual build-up in effluent strength through the system. It is expected that this will take up to 1 week.

Commencement of operations will add effluent to the system. This will discharge to the anaerobic pond, mix with the fresh water and then transfer to the SBR. It is expected that replacement of the fresh water in the anaerobic pond and filling of the SBR and polishing pond will take 8 to 12 weeks.

All mechanical components will be commissioned and tested during this period.

3.1.2 Establishment/Stabilisation

Once full, the pond system will need to develop the required biomass to function effectively.

It is expected that this will take 24 to 32 weeks.

3.2 MONITORING

3.2.1 Timing

Monitoring of the system would start at the commencement of system filling. The following monitoring would be undertaken during the commissioning phases.

System filling:

1. Effluent quantity recording
2. Fortnightly system inspection

System establishment and stabilising:

1. Effluent quantity recording
2. Effluent quality monitoring
3. Fortnightly system inspection

3.2.2 Effluent Quantity Recording

Effluent quantity will be logged using a flow meter downstream of the primary solids removal system.

This data would be stored in digital records.

Daily rainfall records will be maintained.

3.2.3 Effluent Quality Monitoring

***Where*:** Effluent monitoring locations will include:

E1 raw effluent at inflow to anaerobic pond

E2 outflow of anaerobic pond

E3 outflow of SBR pond

E4 irrigation pond (pump intake point)

When: Samples will be collected once every two months commencing at the end of the system filling phase (if effluent is present).

What for: Samples will be analysed for the following parameters:

E1, E2, E3

- Dissolved oxygen and pH (field measurement)
- Biochemical oxygen demand (BOD), mg/L
- Chemical oxygen demand (COD), mg/L
- Total suspended solids (TSS), mg/L
- pH (field)

E4

- Biochemical oxygen demand (BOD) – filtered and total, mg/L
- Chemical oxygen demand (COD), mg/L
- Total suspended solids (TSS), mg/L
- pH
- *E. coli*, cfu/100mL

- *E. coli*, cfu/100mL
- Nitrogen suite (TN, TKN, NH_3, NOx)
- Electrical conductivity, µS/cm
- Total Kjeldahl nitrogen (TKN), mg/L
- Ammonia, mg/L
- Nitrite/Nitrate, mg/L
- Total nitrogen, mg/L
- Orthophosphate, mg/L
- Total phosphorus (TP), mg/L
- Potassium, mg/L
- Sodium, mg/L
- Calcium, mg/L
- Magnesium, mg/L
- Sodium adsorption ratio (SAR)

3.3 FORTNIGHTLY SYSTEM INSPECTION

The effluent treatment system will be inspected fortnightly during the commissioning period. The inspection would note and record the following for each pond:

1. Pond colour or change from previous inspections;
2. Pond odour rated as negligible, noticeable, moderate or strong;
3. Any solids build up or floating scum layers;
4. The state of exposed embankments; and
5. Any relevant operational comments – e.g. significant rain, higher than usual effluent generation.

3.4 IRRIGATION

3.4.1 Irrigation System

The irrigation system will not be required until there is treated effluent available.

It is estimated (based on the design flows) that the irrigation system will not be required until 3 months following the commencement of operations.

The following actions shall be undertaken:

- Daily flows shall be monitored at the commencement of operations in accordance with **Section 3.2.2** – this will be used to confirm the likely irrigation start date and available effluent volumes;
- Within 3 months of the commencement of operations (or as indicated by the flow records):
  - Install irrigation pump, rising main and hydrants
  - Construct diversion bunds and tailwater collection system
  - Prepare irrigation area and sow selected crop
  - Commissioning irrigation pump and irrigator

3.4.2 Irrigation Controls

Irrigation will commence once sufficient treated effluent is available. Irrigation operations will be in accordance with Section 5.4 of the OEMP.

Irrigation of effluent during the commissioning period will be managed on site by:

- Applying minimum buffer distances of 50 m to the irrigation area to minimise the possibility of spray drift into adjoining properties;
- Using a low pressure travelling irrigator to minimise spray drift;
- Irrigating under suitable wind conditions (i.e. away from nearest neighbours); and
- Adopting deficit irrigation scheduling to ensure the irrigation area does not become saturated due to irrigation.

Appendix J

ABORIGINAL CULTURAL HERITAGE MANAGEMENT PLAN

Bourke Small Stock Abattoir

Aboriginal cultural heritage management plan

Prepared for CAPRA Developments Pty Ltd | 22 November 2016

Ground Floor, Suite 01, 20 Chandos Street
St Leonards, NSW, 2065

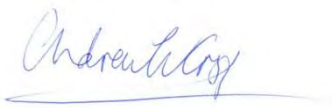
T +61 2 9493 9500
F +61 2 9493 9599
E info@emmconsulting.com.au

www.emmconsulting.com.au

Bourke Small Stock Abattoir

Final

Report J16098RP1 | Prepared for CAPRA Developments Pty Ltd | 22 November 2016

Prepared by	**Andrew Crisp**	Approved by	**Nicole Armit**
Position	Project Archaeologist	Position	Associate, Services Manager – Environmental Assessment & Management
Signature		Signature	
Date	22 November 2016	Date	22 November 2016

Document Control

Version	Date	Prepared by	Reviewed by
V01	30 June 2016	Andrew Crisp	Pamela Kottaras
V02	19 July 2016	Andrew Crisp	Pamela Kottaras
V03	15 September 2016	Andrew Crisp	Nicole Armit
V04	22 November 2016	Andrew Crisp	Nicole Armit

T +61 (0)2 9493 9500 | F +61 (0)2 9493 9599

Ground Floor | Suite 01 | 20 Chandos Street | St Leonards | New South Wales | 2065 | Australia

www.emmconsulting.com.au

Table of contents

Table of contents *(Cont'd)*

Appendices

Tables

Figures

1 Background

1.1 Introduction

This Aboriginal cultural heritage management plan (ACHMP or "the plan") documents procedures for the management of Aboriginal heritage values associated with the Bourke Small Stock Abattoir ("the abattoir").

This ACHMP has been prepared in accordance with Conditions C41 to C46 of the Development Consent SSD 7268 for the abattoir, which was issued on 14 November 2016. Accordingly, this ACHMP includes:

- details all Aboriginal sites identified for the abattoir;
- details the management procedures for Aboriginal heritage within the project area (as defined in the Environmental Impact Statement(EIS) for the development, refer to Figure 1.1);
- presents methods for archaeological salvage collections, analysis and reporting;
- presents a detailed process for ongoing Aboriginal consultation;
- outlines the obligations of CAPRA Developments Pty Ltd (CAPRA) and Darling River Goat Exports Pty Ltd (DRGE) staff and contractors to protect Aboriginal heritage not subject to approved harm;
- describes the roles and responsibilities of CAPRA and DRGE staff in relation to Aboriginal heritage management; and
- outlines reporting requirements.

Development consent SSD 7268 is attached in Appendix A.

1.2 Responsibility for implementation of this plan

Responsibility for the implementation of this plan is to be split between two phases of activity: construction of the abattoir and operation of the abattoir. The individual responsible for the implementation of the plan during the construction phase is the Project Manager (responsible to CAPRA) while the individual responsible during the operational phase is the Abattoir Operator (responsible to DRGE). The plan will be stored in DRGE's document control system; the latest version will be available electronically at all times. The responsibilities for implementing this plan are provided in Table 1.1.

Table 1.1 Roles and responsibilities for Aboriginal heritage management

Phase	Role	Responsibilities
Construction	Project Manager	• Ensure that adequate financial and personnel resources are made available for the implementation of the plan. • Ensure the Aboriginal heritage management measures required to be undertaken prior to construction, such as the collection of identified artefacts, is conducted in accordance with the measures outlined in this plan. • Oversee signage and fencing of areas containing artefacts in accordance with the plan.
Operation	Abattoir Operator	• Ensure that adequate financial and personnel resources are made available for the implementation of the plan. • Manage the implementation of the plan at the abattoir. • Ensure signage and fencing of artefacts is maintained. • Ensure inclusion of Aboriginal heritage in work inductions through delivery or input to induction documents. • Distribute copies of this plan as required. • Maintain records of Aboriginal consultation. • Arrange for a review of the plan if any new sites are identified at the abattoir site, or if an approved modification to the development consent introduces new impacts on Aboriginal heritage which are not generally covered by the ACHMP.

The implementation of this plan will be responsibility of the Project Manager during construction of the works. On completion of the construction activities the plan will be handed over to the Abattoir Operator for implementation during operations. As the document owner, the Project Manager and subsequently the Abattoir Operator, is the contact point for this plan and its requirements, and will provide guidance and training to any person that requires additional training regarding this plan.

1.3 The abattoir development

1.3.1 Background

CAPRA has development consent (SSD 7268) for the construction and operation of the Bourke Small Stock Abattoir. An Aboriginal cultural heritage assessment (ACHA) was prepared as part of the EIS and development application, and identified Aboriginal cultural heritage values, impacts to those values and measures to manage those impacts by either avoidance or salvage. The ACHA was reviewed by the registered Aboriginal parties (RAPs).

The abattoir will process up to 6000 head per day includes livestock holding yards, staff amenities, water treatment infrastructure, roads and the abattoir buildings.

1.3.2 Project area and disturbance footprint

The abattoir site (referred to as the project area) is approximately 14 km north of Bourke in the far north-west of New South Wales, and around 760 km north-west of Sydney. The abattoir site to which development consent SSD 7268 applies comprises 246 ha of rural land. It is positioned off the Mitchell Highway and is identified as Lot 17 in Deposited Plan (DP) 753546 within the local government area (LGA) of Bourke.

The *project area* is characterised by flat stony terrain with sparse vegetation and red-brown scalded quaternary alluvium plains. Reddish-brown cobbles, around 4-8 cm in length, are scattered across the study area and are particularly abundant in highly eroded, scalded areas. Soils are deep red acid to calcareous, loamy to sandy soil forming an undulating plain with abundant small internal drainage areas and vegetated hummocks.

Within the project area, a *disturbance footprint* has been defined, and comprises the footprint of the abattoir and all associated infrastructure, as well as the irrigation area. This encompasses the land within the fence line of the main abattoir facility and the wastewater treatment ponds, the manure composting facility, the mass disposal area, the access road between the Mitchell Highway and the abattoir, and the irrigation area. The disturbance footprint associated the abattoir and ancillary infrastructure is approximately 15.78 ha, and the irrigation area is 38 ha, totalling 53.78 ha.

The project area and disturbance footprint are shown on Figure 1.1.

1.3.3 Development consent conditions

The relevant conditions of development consent SSD 7268 relating to Aboriginal heritage and the preparation of an ACHMP are presented in Table 1.2.

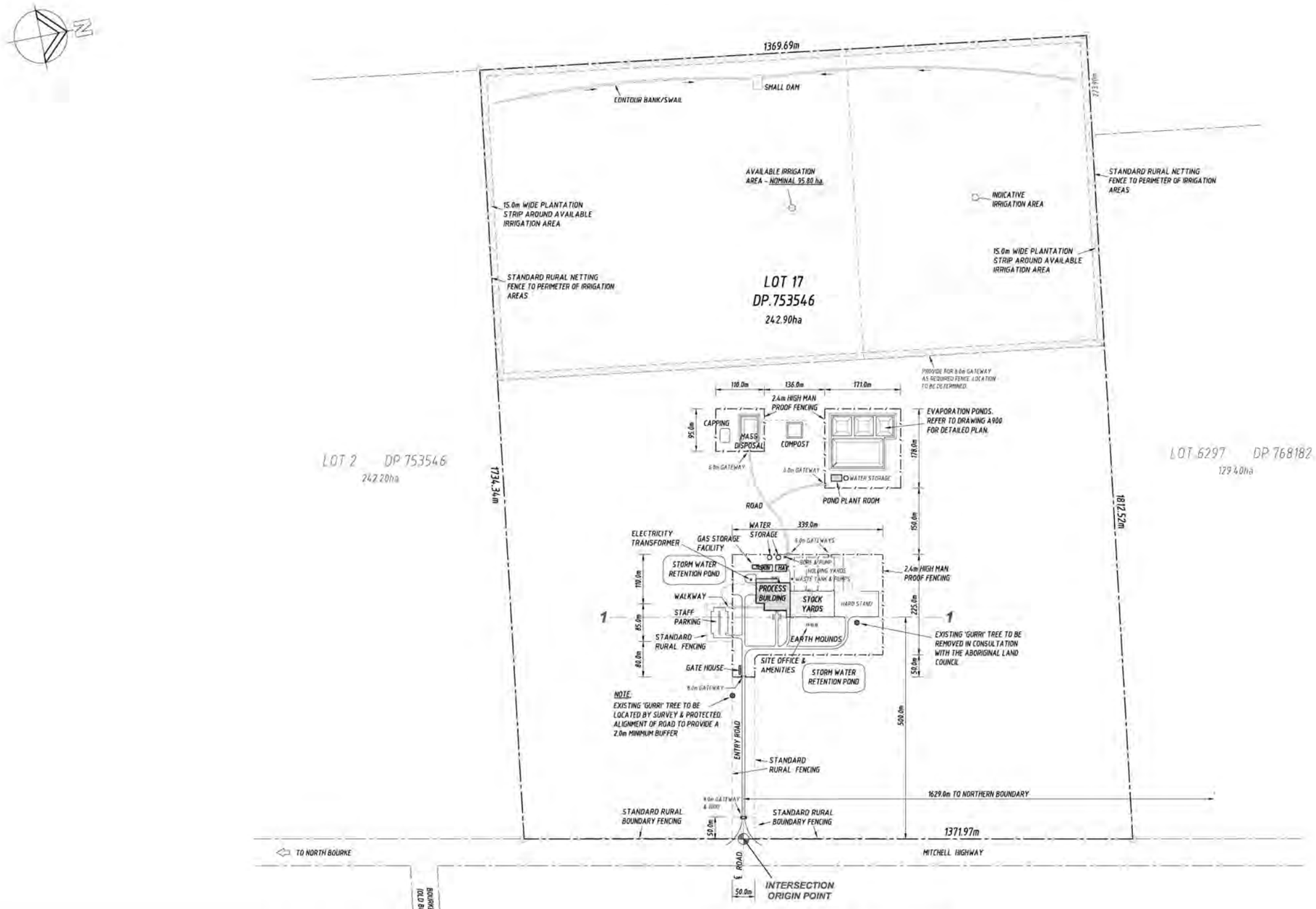
Table 1.2 Development consent conditions relating to Aboriginal heritage

Condition reference	Condition	Where condition is addressed in ACHMP
C41	**Preparation and Registration of Aboriginal Site Cards** Prior to the commencement of construction, the Applicant shall prepare Aboriginal site cards to be registered with the OEH for all Aboriginal sites discovered during the site surveys.	Site cards are in draft form to be submitted following irrigation survey/salvage.
C42	**Protection of Aboriginal Heritage Items** Prior to the commencement of construction and prior to any ground works within the irrigation area, the Applicant shall conduct preclearance surveys within the irrigation area in accordance with the survey methodology outlined in the EIS.	Sections 6.2.3 and 7.3
C43	**Unexpected Finds Protocol** If any archaeological relics are uncovered during the course of construction of the Development, then all works shall stop immediately in the area and the OEH Heritage Branch contacted. ***Note:*** *Depending on the possible significance of the relics, an archaeological assessment and an excavation permit under the NSW Heritage Act 1977 may be required before further work can continue in that area.*	Section 7
C44	If any Aboriginal objects are uncovered during work, excavation or disturbance of the work area, work must stop immediately and the Regional Operations Group of the OEH, Council and the RAPs are to be consulted.	Section 7
C45	**Aboriginal Cultural Heritage Management Plan** Prior to the commencement of operation, the Applicant shall prepare an Aboriginal Cultural Heritage Management Plan (ACHMP) to the satisfaction of the Secretary. The ACHMP shall form part of the OEMP in Condition D3 and be prepared in accordance with Condition D5 and shall: a) be prepared in consultation with the Registered Aboriginal Parties (RAPs) identified in the EIS;	This document is the ACHMP a) Section 2;

Table 1.2 Development consent conditions relating to Aboriginal heritage

Condition reference	Condition	Where condition is addressed in ACHMP
	b) include a clear long term management plan for artefacts collected from the site; c) determine whether a Care Agreement is required; d) describe the management actions for the surveyed Aboriginal sites during construction and operation; e) incorporate any additional sites found during the survey of the irrigation area; and f) describe the management actions for the remnant Gurri tree/s located on the site and the replacement Gurri Trees required by Condition C46 of this development consent.	b) Section5.3; c) Section5.3; d) Section 5 and 6.2.2; e) Sections 6.2.3 and 7.3; and f) Section 5.1.2
C46	**Gurri Tree Removal and Compensatory Planting** Prior to the commencement of operation, the Applicant shall compensate for the removal of one Gurri tree through:: a) the purchase of 12 Gurri trees and funding of the necessary resources for planting the trees, soil and fertiliser, drip line irrigation and maintenance; and b) ensuring the trees are planted in locations that enable continued access to the Aboriginal community for educational and cultural usage, following consultation with the Registered Aboriginal Parties (RAPs) identified in the EIS. Documentation of consultation with the RAPs including the final location(s) of the trees shall be included in the ACHMP required by Condition C45 and provided to the Secretary prior to the commencement of operation. *Note: The Applicant* is *not responsible for the trees after the actions required by this condition have been completed.*	a/b) Section 5.1.2 and 5.2.3

Figure 1.1 Project area and disturbance footprint



PLAN OF ALLOTMENT

SCALE 1:5,000

REFER TO DRAWING 32061-A102.1 A FOR INTERSECTION ORIGIN POINT CO-ORDINATES

0 50 100 150 200 250m
SCALE 1:5000 AT ORIGINAL SIZE

FOR APPROVAL

No	Revision Description	Drawn	Approved	Date
N	ENTRY ROAD TO BOUNDARY ORIGIN POINT ADDED	LGH	-	14.10.16
M	MANOEUVRING AREA TO DOCKS	LGH	-	03.08.16
L	MANOEUVRING AREA TO DOCKS	LGH	-	01.08.16
K	GENERALLY REVISED	LGH	-	29.07.16
J	TREATMENT PONDS	LGH	-	18.07.16
I	NOTES RE 'GURRI' TREES	LGH	-	08.07.16
H	DRAWING NUMBER CHANGED, TREES ADDED	LGH	-	07.07.16
G	YARDS & REVERSING BAY ADDED	LGH	-	28.06.16
F	FENCING, SMALL DAM & SWAIL	LGH	-	22.06.16
E	GENERALLY REVISED	LGH	-	21.06.16
D	RETENTION PONDS	LGH	-	17.06.16
C	STAGES REMOVED	LGH	-	17.06.16
B	FENCING REVISED	LGH	-	16.06.16
A	ISSUED FOR APPROVAL	LGH	-	14.06.16

SARAN
ENGINEERS & MANAGERS
Unit 3, 9 Gateway Crescent, Orange. NSW 2800
P.O. Box 8431, Orange. N.S.W 2800

DO NOT SCALE

COOK ROE
STRUCTURAL ENGINEERS
P 02 6360 2561 F 02 6360 2907
E OFFICE@COOKANDROE.COM.AU
PO BOX 1935 ORANGE NSW 2800
COOKANDROE.COM.AU

Project: **PROPOSED SMALL STOCK ABATTOIR MITCHELL HIGHWAY. BOURKE N.S.W.**

Title: **PLAN OF ALLOTMENT**

Client: **CAPRA DEVELOPMENTS PTY LTD**

Drawn	LGH	Designed		Approved	
Scale	AS SHOWN	Date	FEB. 2016	This Drawing must not be used for Construction unless signed as Approved	

Drawing No: **32061-A102** Rev: **N** Original Size **A1**

1.4 Review of this plan

1.4.1 Changes to the plan

This plan will guide Aboriginal cultural heritage actions for the life of the abattoir, during which time changes to the plan should be made in the following circumstances:

- where new Aboriginal sites are discovered, they must be added to the inventory in this ACHMP; and
- where approved modifications to the project introduce new impacts on Aboriginal heritage which are not generally covered by the ACHMP.

1.4.2 Aboriginal consultation

Where changes are made to the ACHMP, a draft of the modified plan will be provided to the registered Aboriginal parties for their review. Matters raised in consultation which are specific to the changes in the plan will be acknowledged and addressed in the modified plan.

2 Aboriginal community consultation

2.1 Registered Aboriginal parties

2.1.1 Agency contact

As part of preparation of the ACHA and EIS for the abattoir, a letter requesting advice on which Aboriginal parties to invite for consultation, and all known heritage matters to be taken into consideration, was posted to the following organisations on 4 November 2015:

- The Office of Environment and Heritage (OEH) North West Region;
- Nulla Nulla Local Aboriginal Land Council (NNLALC);
- Bourke Shire Council;
- Western Local Land Service (replacing the Catchment Management Authority);
- National Native Title Tribunal;
- the office of the Registrar of Aboriginal Owners; and
- NTSCorp.

2.1.2 Registered Aboriginal parties for the project

Table 2.1 provides information on the Aboriginal parties who registered an interest in being consulted for the project. A total of five groups registered.

Table 2.1 List of RAPs for the project

Organisation	Contact name	Date of registration
Muda Aboriginal Corporation	Charlotte Finch	9 December 2015
Bourke Aboriginal Health Service (BAHS)	Phil Naden	9 December 2015
Murdi Paaki Regional Enterprise Corporation	Rene Wykes	4 December 2015
Bourke Aboriginal Community Working Party	Alistair Ferguson and Phillip Sullivan	6 January 2016
Murrawarri Traditional Council State	Fred Hooper	11 January 2016

2.2 Consultation process for the EIS

The SEARS stipulated the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010) and the *Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation* (DEC 2005) as the documents guiding consultation for the project.

In accordance with the DECCW 2010 guidelines, each private Aboriginal organisation or individual who responded with a written request to be registered for consultation is referred to as a registered Aboriginal party (RAP).

RAPs were invited to provide fieldwork representatives during the field survey conducted during the Aboriginal cultural heritage assessment. RAPs were issued with the draft Aboriginal cultural heritage assessment report in January 2016 for their review and feedback. The draft report outlined the management measures which are now detailed in this report.

2.3 Consultation in developing this plan

Aboriginal consultation for this plan continued in the same manner as that conducted for the ACHA. Reference was made to the development of an ACHMP with invitation for feedback throughout the ACHA consultation.

A draft of this ACHMP was provided to all of the RAPs in July 2016, allowing for a two week review period. Feedback was received from two RAPs; Fred Hooper from Murrawarri Traditional Council State and Phil Naden from Bourke Aboriginal Health Services (BAHS). A summary of the feedback is provided in Table 2.2. Documentation of this consultation process is included in Appendix B.

Table 2.2 Comments made through consultation for ACHMP

Date	RAP	Comments
4/8/2016	Fred Hooper (MTCS)	Fred communicated that he agrees with the heritage management recommendations in the daft ACHMP and had no further comment.
11/8/2016	Phil Naden (BAHS)	Phil communicated that the Board of BAHS continued to support the abattoir.

2.4 Ongoing consultation

The RAPs will continue to be consulted on matters of Aboriginal heritage management at the abattoir. The following process applies:

- the Abattoir Operator for the project or delegate will be responsible for consulting with the RAPs;
- primary communication between RAPs and Abattoir Operator will be via letter which may be faxed, posted or emailed;
- issues that arise in conversations, whether by telephone or in person, will be documented in a letter by the person raising the concern, and within a reasonable time of the conversation;
- issues requiring the attention of the RAPs will be communicated no later than one week of the issue arising; and
- feedback from the RAPs will be requested by the Abattoir Operator no later than two weeks from the date the correspondence is issued by the Abattoir Operator.

2.4.1 Consultation for the placement of Gurri trees

RAPs were consulted regarding the planting of the 12 Gurri trees (*Capparis mitchellii*) in accordance with development consent condition C46.

Consultation was conducted with Phillip Sullivan (Bourke Aboriginal Community Work Party), Fred Hooper (Murrawarri Traditional Council State) and Bruce Turnbull (Aboriginal Education Officer – Bourke High

School) in November 2016. A summary of the feedback is provided in Table 2.3. Documentation of this consultation process is included in Appendix B.

Table 2.3 Comments made through consultation for placement of Gurri trees

Date	RAP/Individual	Comments
18/11/2016	Phil Sullivan	Phil discussed entering into a Care agreement for the collected artefacts and that the keeping place at the Gundabooka National Park would be suitable. Phil agreed that the planting of the Gurri Trees in a park/publicly accessible place in Bourke would be a good result.
18/11/2016	Bruce Turnbull Jnr.	Bruce explained that the proposed planting location is within an established community garden to the east of Bourke High School on the southern side of the Kamilaroi Highway. The location is accessible to the wider community. Bruce discussed his previous experience growing a Gurri tree from seed.
18/11/2016	Fred Hooper	Fred agrees with the proposed planting location for the Gurri trees in the community garden to the east of Bourke High School.

2.4.2 Aboriginal community access to stored objects

Local Aboriginal community access to the salvaged Aboriginal objects will be made available by DRGE, subject to reasonable safety and security measures, and prior notification and availability of DRGE assistance as per standard site procedures. Aboriginal community access will commence after the objects are transferred to the on-site offices and stored in a secure area.

Local Aboriginal community members seeking access to stored objects will need prior written endorsement from one of the RAPs which identifies the name of the person, briefly describes their basis of interest and nominates the timeframe for access to the stored Aboriginal objects. This measure will provide confidence to the Abattoir Operator that the access request is authentic so that the artefacts are kept safely.

For security purposes the Aboriginal objects must not be removed from their storage location, however adequate inspection table space will be available for those authorised to view the material. A keeping place visitor log book must be signed by persons viewing stored Aboriginal objects.

3 Aboriginal objects and sites

3.1 Aboriginal cultural heritage values

Aboriginal heritage sites with archaeological evidence are all of value to the Aboriginal community through the tangible connection that they represent with pre-European Aboriginal land use.

Research and consultation with the Aboriginal community was conducted in the course of preparing the ACHA to accompany the EIS (EMM 2016) and development application for the abattoir. The community consultation was to determine whether socio-cultural heritage values relating specifically to the project area were present regardless of archaeological evidence. While it is accepted that the broader landscape is of significance to Aboriginal people, this study sought to identify whether the portions of the landscape within the project area held specific values either in themselves, or as part of a specific local area of particular significance.

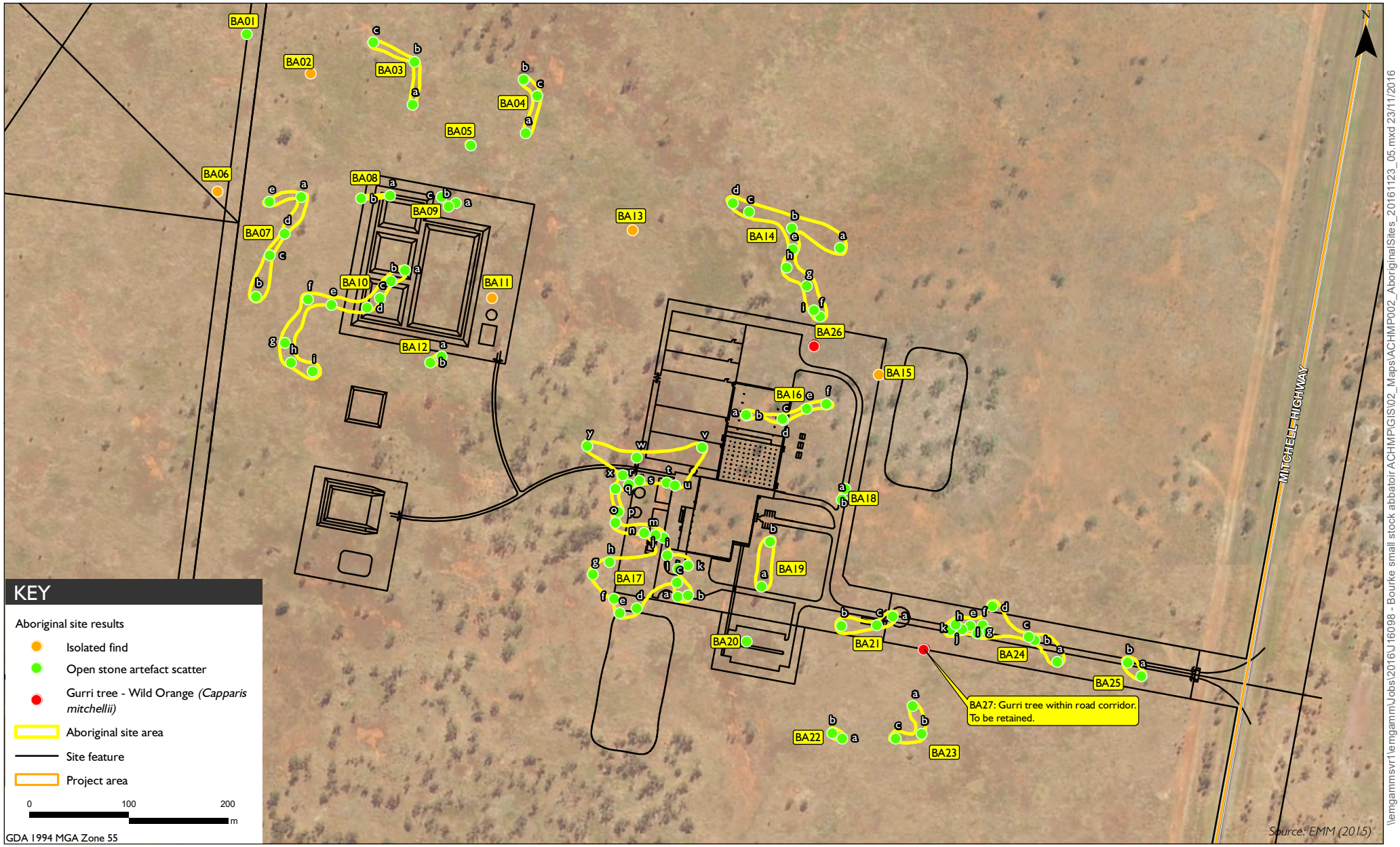
After comments received following both the survey and the review of the draft ACHA, a Gurri or wild orange tree (species name here) was identified in the disturbance footprint (in the vicinity of the access road) by Fred Hooper and Phillip Sullivan as an item of socio-cultural significance. The tree is not culturally modified and is therefore not strictly an Aboriginal object, but it is clear from the comments received that the tree is considered to retain some cultural value to contemporary Aboriginal groups as an example of a native food source. Therefore, measures shall be taken to avoid impact to it (see Section 5.1). A second Gurri tree was identified within the footprint of the proposed stockyard buildings during ecological survey conducted by EMM. Fred Hooper (RAP) who attended site and made an assessment has indicated that retention of this tree is not necessary. Notwithstanding, provisions to mitigate the loss of this tree are set out in section 5.2.3.

3.2 Aboriginal sites

The field survey conducted as part of the ACHA identified a total of 184 individual stone artefacts within the project area, divided between 25 Aboriginal sites as defined by the presence of one or more Aboriginal artefacts on the ground surface. The site boundaries were defined using a 50 m separation rule between sites. No changes in landform were identified to define the sites using a landform based approach. The 25 defined sites consist of 20 open artefact sites and five isolated finds. Two sites comprise the Gurri trees.

Nineteen Aboriginal sites (18 stone artefact sites and a single Gurri tree) will be impacted by the abattoir development; 16 of these are completely within the disturbance footprint (which includes a precautionary 20 m buffer to account for construction impacts) and therefore will experience total loss; and two are partially within the disturbance footprint and therefore will be subject to partial loss. The site details are shown in Figure 3.1.

The irrigation area and final abattoir footprint needs to be surveyed prior to any project related disturbance occurring on the site, to identify whether there are any Aboriginal sites in this area. Once the survey and salvage measures have been completed under this ACHMP, it will be updated to reflect the findings of that survey, if required.



EMM

Aboriginal site results

Bourke Small Stock Abattoir

Aboriginal Cultural Heritage Management Plan

Figure 3.1

3.3 Management overview of Aboriginal sites

A summary of the Aboriginal sites identified in the project area, and how each of the sites will be managed, is presented in Table 5.1.

Table 3.1 Management of identified sites in the project area

Site name	Site type	AHIMS number	Significance	Impact type	Level of impact	Consequence of impact	Management method
BA01	Open stone artefact scatter	TBC	Low	Irrigation area	Total loss	Total loss of value	Collection
BA02	Isolated find	TBC	Low	To the east of wastewater treatment ponds	No impact	Nil	Avoidance and fencing
BA03	Open stone artefact scatter	TBC	Moderate	None	No impact	Nil	Avoidance and fencing
BA04	Open stone artefact scatter	TBC	Low	None	No impact	Nil	Avoidance and fencing
BA05	Open stone artefact scatter	TBC	Low	None	No impact	Nil	Avoidance and fencing
BA06	Isolated find	TBC	Low	Irrigation area	Total loss	Total loss of value	Collection
BA07	Open stone artefact scatter	TBC	Low	Between irrigation area and wastewater treatment ponds.	Total loss	Total loss of value	Collection (precautionary approach due to proximity to impact footprint)
BA08	Open stone artefact scatter	TBC	Low	Wastewater treatment ponds	Total loss	Total loss of value	Collection (precautionary approach due to proximity to impact footprint)
BA09	Open stone artefact	TBC	Low	Wastewater treatment ponds	Total loss	Total loss of value	Collection

Table 3.1 Management of identified sites in the project area

Site name	Site type	AHIMS number	Significance	Impact type	Level of impact	Consequence of impact	Management method
	scatter						
BA10	Open stone artefact scatter	TBC	Moderate	Wastewater treatment ponds and area to the southwest of northern wastewater treatment pond	Partial loss	Partial loss of value	Collection inside and within 20 m of disturbance footprint
BA11	Isolated find	TBC	Low	Wastewater treatment ponds	Total loss	Total loss of value	Collection
BA12	Open stone artefact scatter	TBC	Low	Adjacent to fence of wastewater treatment ponds	Total loss	Total loss of value	Collection
BA13	Isolated find	TBC	Low	None	No impact	Nil	Avoidance
BA14	Open stone artefact scatter	TBC	Low	Road and yard beside stockyards building	Partial loss	Partial loss of value	Collection within 20 m of disturbance footprint
BA15	Isolated find	TBC	Low	Boundary fence	Total loss	Total loss of value	Collection
BA16	Open stone artefact scatter	TBC	Low	Stockyard building and landscaped forecourt	Total loss	Total loss of value	Collection
BA17	Open stone artefact scatter	TBC	Moderate	Road, sheds and area inside the boundary fence.	Total Loss	Total loss of value	Collection (precautionary approach due to proximity to impact footprint)
BA18	Open stone artefact scatter	TBC	Low	Road	Total loss	Total loss of value	Collection
BA19	Open stone artefact scatter	TBC	Low	Landscaped forecourt	Total loss	Total loss of value	Collection
BA20	Open stone artefact	TBC	Low	Car park	Total loss	Total loss of value	Collection

Table 3.1 Management of identified sites in the project area

Site name	Site type	AHIMS number	Significance	Impact type	Level of impact	Consequence of impact	Management method
	scatter						
BA21	Open stone artefact scatter	TBC	Low	Road and area between road and fence	Total loss	Total loss of value	Collection
BA22	Open stone artefact scatter	TBC	Low	None	No impact	Nil	Avoidance
BA23	Open stone artefact scatter	TBC	Low	None	No impact	Nil	Avoidance
BA24	Open stone artefact scatter	TBC	Moderate	Road	Partial loss	Total loss of value	Collection (precautionary approach due to proximity to impact footprint)
BA25	Open stone artefact scatter	TBC	Low	Road and area between road and fence	Total loss	Total loss of value	Collection
BA26	Gurri tree	TBC	Moderate	Hardstand	Total loss	Total loss of value	Compensate with the planting 12 Gurri trees
BA27	Gurri tree	TBC	Moderate	Road and area between road and fence	No impact	Nil	Avoidance

4 Operational and training protocols

4.1 Obligation to protect Aboriginal cultural heritage

4.1.1 Obligation to avoid harm

All employees, contractors, sub-contractors and visitors to the project site during construction and the Bourke Small Stock Abattoir site once operational have an obligation to avoid harming Aboriginal heritage unless engaged in an Aboriginal heritage management activity described in this plan.

The *National Parks and Wildlife Act 1974* (NPW Act) defines "harm" to an object or place as any act or omission that:

(a) destroys, defaces or damages the object or place, or

(b) in relation to an object-moves the object from the land on which it had been situated, or

(c) is specified by the regulations, or

(d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c),

but does not include any act or omission that:

(e) desecrates the object or place, or

(f) is trivial or negligible, or

(g) is excluded from this definition by the regulations.

4.1.2 Obligation to protect Aboriginal sites and objects

Abattoir personnel, contractors and subcontractors who have responsibility for land management or construction have an obligation to protect Aboriginal heritage within their area of work responsibility.

Protection means active recognition of known Aboriginal heritage and active measures to avoid Aboriginal heritage. This may include fencing, modification of work plans to avoid heritage etc.

Active and passive protection measures are described in Section 5 of this plan.

4.2 Aboriginal heritage induction and permitting process

All employees, contractors, sub-contractors and visitors to the Bourke Small Stock Abattoir will be made aware of the obligation to avoid harm to Aboriginal heritage through an Aboriginal heritage component of a general site induction.

The Aboriginal heritage component of the site induction will include the following points expressed in plain language. The message is to convey that Aboriginal sites and objects:

- are protected by law;

- were distributed across the disturbance footprint and are likely to continue within the broader project area;
- are of significance to the Aboriginal community, are important to the wider community and should be treated with respect;
- include stone tool sites and culturally significant vegetation; and
- can be hard to recognise, therefore reference should be made to Aboriginal heritage map in this ACHMP in order to clearly identify them.

5 Aboriginal heritage protection

5.1 Passive protection –avoidance

5.1.1 Identified stone artefact sites

Of the 25 Aboriginal stone artefact sites identified in the project area, seven Aboriginal sites; BA02, BA03, BA04, BA05, BA13, BA22, and BA23, will be avoided by the project as they occur outside the project disturbance boundaries.

5.1.2 Gurri trees

Two Gurri trees (*Capparis mitchellii*), also called "wild orange", have been identified within the disturbance footprint (sites BA26 and BA27). These trees are native arid area trees and were/are used as a food source by Aboriginal people.

The site BA27 was identified during the survey conducted by Fred Hooper and Phillip Sullivan from Murrawarri Traditional Council State. The final design for the access road has taken this tree into consideration so that it can be avoided (refer Figure 5.1).

Site BA26 will be removed by the construction of the abattoir. Compensatory measures to be implemented for this site are described in Section 5.2.3.

5.2 Active protection and compensatory planting

5.2.1 Proximity less than 20 m

Following a precautionary approach all Aboriginal heritage sites within 20 m of the project disturbance footprint will be salvaged through collection. This will be implemented to avoid any inadvertent impacts to sites outside the disturbance footprint during the construction of the abattoir. The abattoir will have a security fence surrounding its perimeter and therefore will not require additional fencing to protect sites outside the disturbance boundary.

5.2.2 Fencing

Fencing will be erected around the Gurri tree, site BA27 prior to abattoir construction commencing. The fencing contractor will construct suitable fencing within a suitable distance so as to not harm the roots of the Gurri tree.

A durable sign will be attached to the fencing including words to the effect of:

"Environmentally Sensitive Area

Do not disturb

Contact the Abattoir Operator on [phone number]"

The fencing shall be maintained for the life of the abattoir.

5.2.3 Compensatory planting of Gurri trees

A Gurri tree (site BA26) is situated within the footprint of the stockyard buildings and hardstand, and will therefore be removed. To compensate for the removal of one Gurri tree, in accordance with condition C46 of development consent SSD 7268, the following will be completed:

- the purchase of 12 Gurri trees and funding of the necessary resources for planting the trees, soil and fertiliser, drip line irrigation and maintenance; and
- the 12 Gurri trees will be planted within the established community garden to the east of Bourke High School, with continued access to the Aboriginal community for educational and cultural usage (Refer to Figure 5.2).

5.3 Keeping place and care agreements

5.3.1 Temporary storage of recovered artefacts

Immediately following the collection of salvaged artefacts, they will be catalogued by archaeologists at temporary accommodation in the Bourke area. Once this process is complete, the salvaged artefacts will be transferred to a secure storage facility.

The temporary keeping place will be in a secure location within the National Parks and Wildlife Services' facilities within Gundabooka National Park, situated approximately 50 km south-west of Bourke.

A Care Agreement will be entered into with OEH by a designated organisation, which and will allow for the transfer to another person of persons for safekeeping. The Care Agreement (under Section 85A of the NPW Act) will be for the period between the completion of artefact cataloguing and the construction of the keeping place within the on-site offices for the Bourke Small Stock Abattoir.

It is likely that the Care Agreement will cover a period of approximately one year, during which time the construction for the project will have been completed.

A Care Agreement application form will be submitted to OEH prior to the salvage fieldwork period, with the intention of obtaining a care agreement as soon as possible.

5.3.2 Long-term keeping place

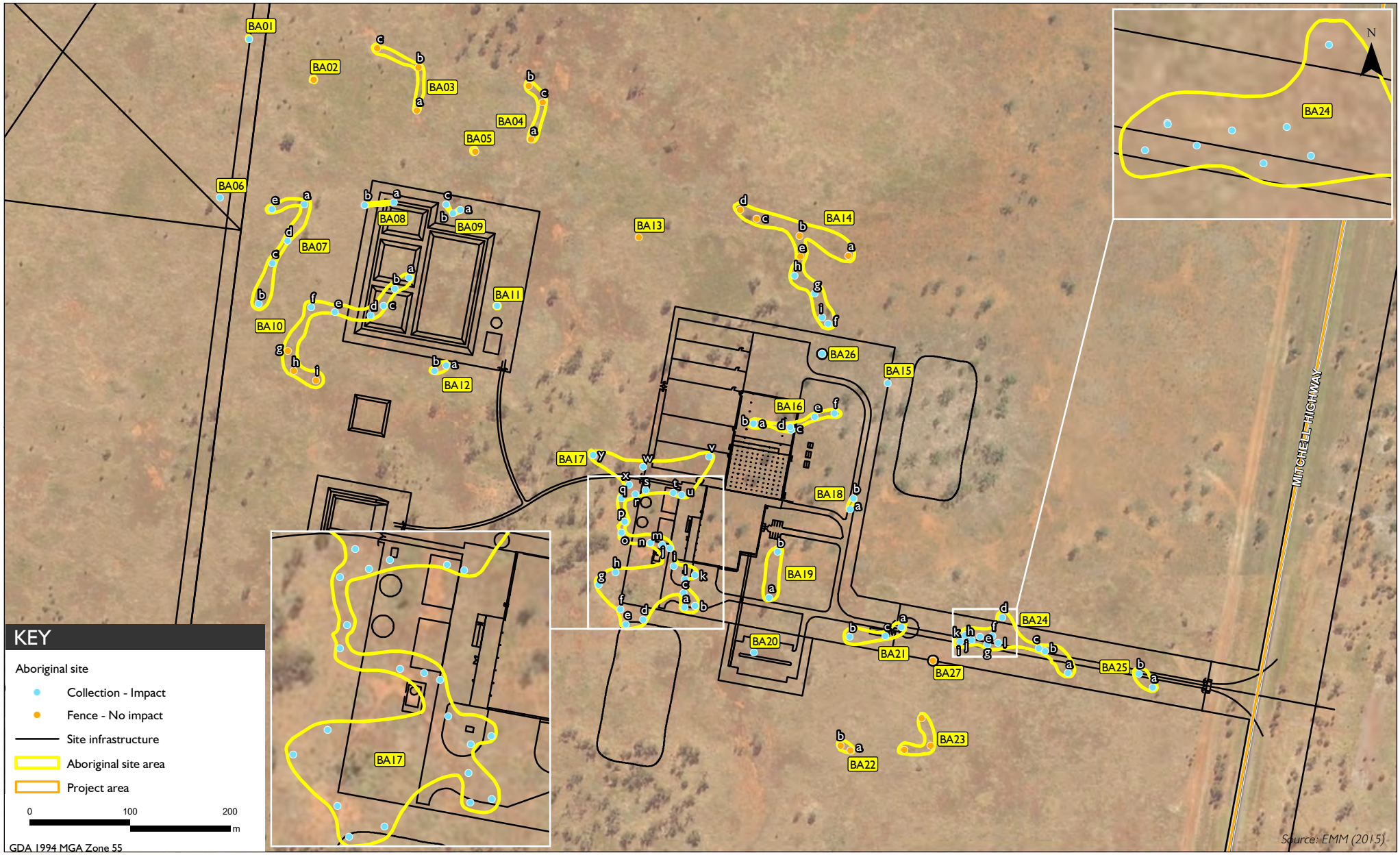
A keeping place is a designated secure area with the purpose of storing and curation of Aboriginal cultural materials and their associated documentation. A dedicated storage facility will be established within the administration offices of the Bourke Small Stock Abattoir as a keeping place where all Aboriginal stone artefacts collected from the site will be stored. The on-site office location will provide the level of security required for safe keeping. All associated reports and records in bound hard copy and digital form will be stored in the same location. A selection of artefacts will also be put on display in the foyer of the abattoir administration building

Following the completion of construction for the project and specifically the site-office keeping place, the artefacts will be transferred from the temporary keeping place into the custodianship of the Abattoir Operator.

The materials will be retained at the keeping place for the life of the project unless otherwise determined by DRGE in consultation with the RAPs and approved by OEH in a care agreement. In the event that the abattoir shuts down a new keeping place for all the artefacts collected from the site will be developed in

consultation with the RAPs. All materials are to be held in locked cabinets with access managed by the Abattoir Manager or other nominated senior staff member.

The cabinet is to be clearly labelled with the contents and conditions for access.



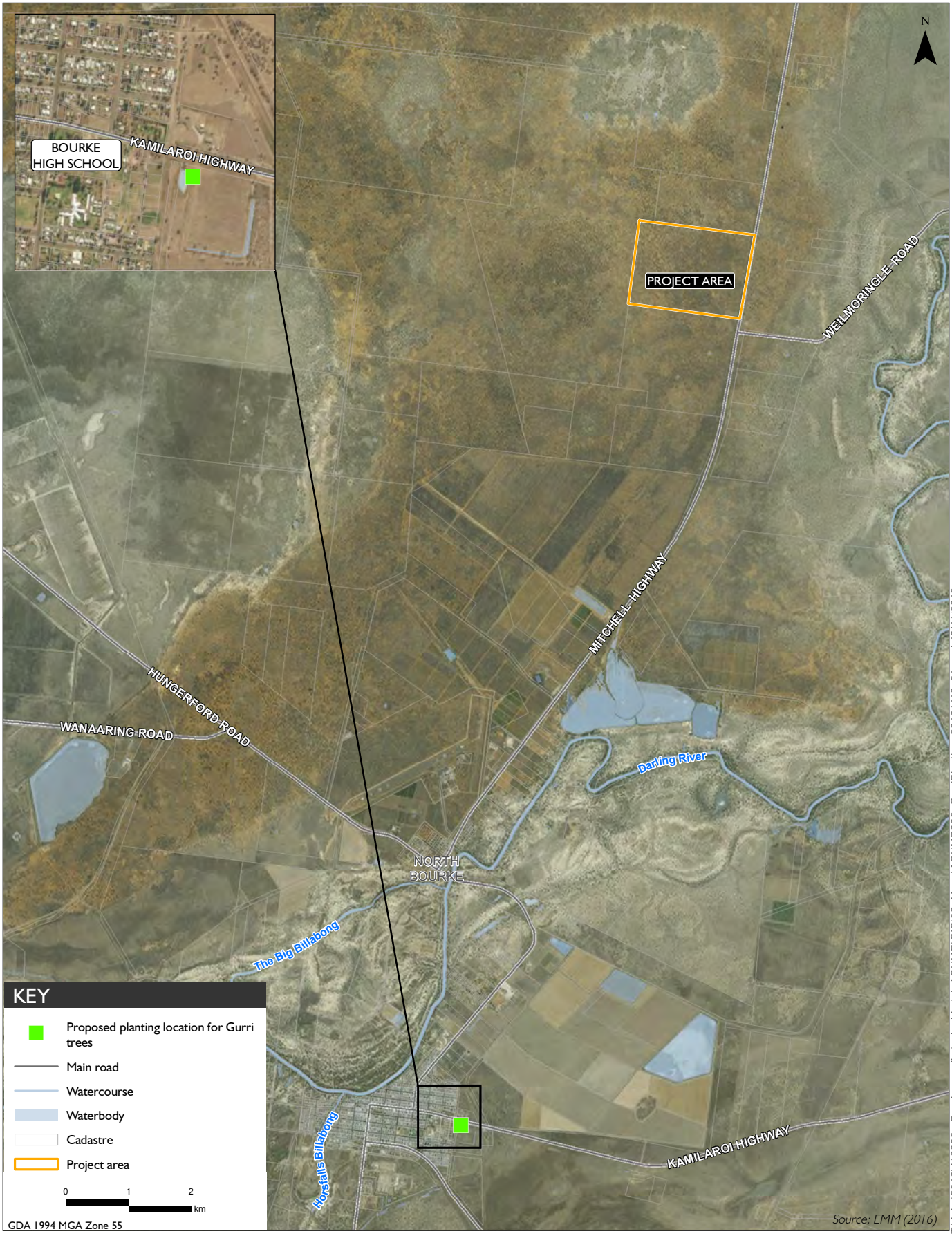
EMM

Impacts to Aboriginal sites

Bourke Small Stock Abattoir

Aboriginal Cultural Heritage Management Plan

Figure 5.1



Proposed planting location for Gurri trees

Bourke Small Stock Abattoir
Aboriginal Cultural Heritage Management Plan

Figure 5.2

6 Salvage methods

6.1 Salvage scope

Archaeological salvage for the abattoir will be in the form of surface collection. Each site or quadrant will be collected into labelled bags recording the project name, site name or quadrant and collection date. The location of all collected artefacts will be recorded by GPS for distribution maps.

A technical salvage report will be prepared describing the work and including a catalogue of all recovered Aboriginal objects. The scope of any research questions will be guided by the size of the salvaged assemblage.

6.2 Collection

6.2.1 Overview

Collection of all Aboriginal stone artefacts will be undertaken at Aboriginal sites identified as being impacted by the project.

Where archaeological sites cannot be avoided, all Aboriginal heritage sites in and within approximately 20 m of the project disturbance footprint will be collected by qualified archaeologists and RAPs. This will involve surface collection of stone artefacts of the Aboriginal sites subject to total loss and partial loss. This includes the sites recorded during this assessment and any additional sites identified during the surface collection fieldwork.

Surface collection of the sites will be conducted only within the boundary of the disturbance footprint and the 20 m buffer surrounding it (even if the Aboriginal site extends beyond this footprint). This is because artefacts are consistently scattered throughout the landscape and it is likely that Aboriginal site boundaries could extend well beyond the disturbance footprint. It is preferable to avoid disturbance to Aboriginal sites where possible and for this reason, only artefacts within the disturbance footprint should be collected.

Sixteen complete stone artefact sites will be collected, comprising: BA01, BA06, BA07, BA08, BA09, BA11, BA12, BA15, BA16, BA17, BA18, BA19, BA20, BA21, BA24 and BA25.

Two sites will be partially collected: BA10, and BA14.

The Aboriginal Heritage Information Management System (AHIMS) records will be updated with a site impact recording form.

6.2.2 Known sites and unknown sites in the abattoir footprint

This section refers to Aboriginal objects within in the abattoir footprint. This will involve collecting the 18 identified sites in the disturbance footprint and any additional objects identified during survey of the footprint. Any additional objects will be attributed to existing sites if within 50 m of an existing site, or recorded as a new site if found outside 50 m of the nearest site. The method is as follows:

- each artefact will be pin flagged;
- the flagged area will be photographed;

- a central location for the site will be taken along with a number of points to delineate the edges of the site;
- each artefact within each site will collected in a zip-lock plastic bag labelled as follows;

  "BSSAP SURFACE COLLECTION" (Short for Bourke Small Stock Abattoir Project)

  SITE NAME

  DATE

  "BAG N OF N" (eg Bag 1 of 3 – if there is more than one bag from the same site)
- Each bag will have a Tyvek tag with the same label information as the bag.

6.2.3 Irrigation, mass disposal and composting areas

The unsurveyed irrigation area, mass disposal area and composting area will be firstly split into four survey quadrants NORTH-WEST, NORTH-EAST, SOUTH-WEST and SOUTH-EAST prior to the following procedure being conducted by qualified archaeologists and RAPs:

- coordinates (GPS) of the south-west corner of each quadrant are to be recorded;
- pedestrian survey by qualified archaeologists and RAPs;
- flag every artefact;
- photograph the quadrant or sections of the quadrant to show flag locations;
- unless obvious high density scatters are identified during survey of the quadrant all artefacts within each quadrant shall be collected together;
- if a high density scatter is identified than the recording methods outlined for the 'study area' (not irrigation area) shall be followed;
- each artefact within each quadrant shall collected in an artefact bag labelled as follows;

  "BSSAP SURFACE COLLECTION" (Short for Bourke Small Stock Abattoir Project)

  QUADRANT

  DATE

  "BAG N OF N" (eg Bag 1 of 3 – if there is more than one bag from the same quadrant)

6.3 Analysis

6.3.1 Analysis scope

Collected artefacts will be entered into a database with basic attributes recorded for each artefact. Analysis of collected stone artefacts will include:

- initial sorting and cleaning of salvaged material;
- establishment of a computer database to record artefact provenance; and
- measuring and recording basic artefact attributes, comprising:
    - artefact type;
    - raw material type;
    - maximum length;
    - weight; and
    - implement type (if applicable).

6.3.2 Analysis work team

The analysis team will comprise of the project archaeologist and assisting archaeologists.

7 New finds procedures

7.1 Discovery of Aboriginal ancestral remains

In the event that known or suspected human skeletal remains are encountered during the activity, the following procedure must be followed:

- the immediate vicinity will be secured to protect the find and the find will be immediately reported to the work supervisor who will immediately advise the site supervisor or other nominated senior staff member;
- the site supervisor or other nominated senior staff member will promptly notify the police and the state coroner (as required for all human remains discoveries);
- the site supervisor or other nominated senior staff member will contact the OEH for advice on identification of the skeletal material as Aboriginal and management of the material; and
- if it is determined that the skeletal material is ancestral Aboriginal remains, the RAPs will be contacted and consultative arrangements will be made to discuss ongoing care of the remains.

7.2 Discovery of new Aboriginal sites outside the disturbance footprint

In the event of discovery of new Aboriginal sites which are outside project disturbance footprint (as defined on Figure 3.1) but within the project area (comprised of 246 ha of rural land), the following procedures must be followed:

- the immediate vicinity will be secured to protect the find and the find will be immediately reported to the work supervisor who will immediately advise the site supervisor or other nominated senior staff member;
- an archaeologist and members of the RAPs must be contacted to determine the significance of the objects(s);
- any new sites must also be registered in the AHIMS database; and
- objects will be managed in a manner consistent with the management measures outlined in Section 5.

7.3 Discovery of rare Aboriginal sites during irrigation survey

The extent of impact to Aboriginal sites within the irrigation area is currently undetermined as this area was not surveyed during the ACHA. However, given its close proximity to the surveyed area and that is shares the same landscape context, it is likely that sites will comprise open stone artefact sites and isolated finds distributed across the landscape.

Rare site types include modified trees, hearths, burials and stone arrangements. It is unlikely that modified trees will be impacted as the area has been historically cleared, but any remnant mature trees cannot be discounted until inspected. Hearths are unlikely to occur in the irrigation area as land clearance and use since European settlement has led to high levels of erosion in the study area and the probable loss of hearth remains. Burials can occur anywhere in the landscape but their identification is very rare.

Generally they would be identified by mounds of earth or stone markers. Archaeological evidence of burial sites is rare in the region and only one has been recorded. However, in the event of discovery of rare Aboriginal sites during survey of the irrigation area the following procedures must be followed and completed by an archaeologist:

- record the feature (including GPS, photos, field notes/measurements);
- survey of the surrounding quadrant will intensify with the aim of identifying associated sites/ landscape features;
- an assessment of significance will be completed to inform the management measures for the location; and
- RAPs, OEH and DP&E will be consulted to determine the most appropriate management measures.

It should be noted that all new sites will have to be recorded on AHIMS.

8 Reporting requirements

8.1 Statutory reporting requirements

Notifications to OEH are required in relation to discovery, impact and care of Aboriginal objects under the NPW Act. This will be the responsibility of the Project Manager during the construction phase and the Abattoir Operator during the operational phase.

8.1.1 Discovery of Aboriginal objects

Under Section 89A of the NPW Act, it is a requirement that OEH is notified of the existence of Aboriginal objects as soon as practicable after they are first identified. This is done through the completion of an OEH Aboriginal Site Card which is submitted to the Registrar of AHIMS for inclusion on the Aboriginal site database. Information regarding AHIMS and site recording forms can be downloaded from the OEH website located at:

- http://www.environment.nsw.gov.au/licences/DECCAHIMSSiteRecordingForm.htm

8.1.2 Care agreement application

Under s85A of the NPW Act, Aboriginal objects remain the property, and under the protection of, the Crown until formal transfer to a person or persons of a class prescribed by the regulations occurs. An application for a Care Agreement should be made to the relevant regional office of OEH. Care Agreement application forms can be downloaded from the OEH website located at:

- http://www.environment.nsw.gov.au/licences/CareAgreements.htm

8.1.3 Reporting impact to Aboriginal sites

An Aboriginal Site Impact Recording Form must be completed following impacts to AHIMS sites that are:

a) a result of test excavation carried out in accordance with the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW

b) authorised by an Aboriginal Heritage Impact Permit (AHIP) issued by the Office of Environment and Heritage (OEH)

c) undertaken for the purpose of complying with Secretary's environmental assessment requirements issued by the Department of Planning and Infrastructure (DP&I) for:

   i) state significant development (SSD),

   ii) state significant infrastructure (SSI) , or

   iii) a major project, or

d) authorised by a SSD/SSI/former Part 3A consent/approval under the EP&A Act.

Completed forms must be submitted to the AHIMS Registrar at:

- www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm.

Aboriginal Site Impact Recording Forms can be downloaded from the OEH website located at:

- http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf

9 Summary

9.1 Summary of commitments

Below is a list of the commitments under this ACHMP:

- 18 stone artefact sites within the abattoir's disturbance footprint will be salvaged or partially salvaged;
- 8 stone artefact sites will be avoided;
- areas within the disturbance footprint that were not surveyed as part of preparation of the ACHA will be surveyed during the salvage program, and any identified sites managed in accordance with this ACHMP;
- a care agreement will be entered into for the salvaged artefacts for short term and long term storage;
- a short term keeping place will be established within the Gundabooka National Park site facilities for the duration of time between the post-collection artefact analysis and the storage of the artefacts at the abattoir offices;
- a long term keeping place will be established within the abattoir offices for the safe storage of all artefacts collected on site;
- the Gurri tree adjacent to the abattoir access road will be fenced and protected; and
- the Gurri tree within the impact footprint of the abattoir shall be removed and compensatory measures shall be taken in the form of the planting of 12 new Gurri trees within the established community garden on the southern side of the Kamilaroi Highway, Bourke.

References

EMM (2016a) Bourke Small Stock Abattoir – SSD 7268 – Environmental Impact Statement, Prepared for CAPRA Developments Pty Ltd

EMM (2016b) Bourke Small Stock Abattoir Aboriginal Cultural Heritage Assessment

Appendix A

Development consent SSD 7268

Development Consent

Section 89E of the *Environmental Planning and Assessment Act 1979*

As delegate for the Minister for Planning under delegation executed on 14 September 2011, the Planning Assessment Commission (the Commission) of New South Wales, approves the Development Application referred to in Schedule A, subject to the conditions in Schedules B to D.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the Development.

Mr Garry West (Chair)
Member of the Commission

Mr Alan Coutts
Member of the Commission

Sydney | 14 November 2016 | File: 15/14416

SCHEDULE A

Application No.:	SSD 7268
Applicant:	Capra Developments Pty Limited
Consent Authority:	Minister for Planning
Land:	Lot 17 DP 753546, Mitchell Highway, Bourke, and the Mitchell Highway road reserve between North Bourke and Lot 17 DP 753546
Development:	Construction and operation of a small stock abattoir

TABLE OF CONTENTS

DEFINITIONS

Applicant, the	CAPRA Developments Pty Limited, or anyone else entitled to act on this consent
AUSTVETPLAN	Australian Veterinary Emergency Plan
BCA	Building Code of Australia
Blue Book	*Managing Urban Stormwater: Soils and Construction 2004*
Care Agreement	A Care Agreement with the OEH under the *National Parks and Wildlife Act 1974* (NPW Act) to allow the transfer of Aboriginal objects to an Aboriginal person or Aboriginal organisation for safekeeping. The person or organisation must enter into a care agreement with OEH
CEMP	Construction Environmental Management Plan
Certifying Authority	Means a person who is authorised by or under section 109D of the EPA&A Act to issue certificates
Construction	The demolition of buildings or works, the carrying out of works, including bulk earthworks, and erection of buildings and other infrastructure covered by this consent
Council	Bourke Shire Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Environment and its successors
Development	The Development to which this consent applies, the scope of which is described in Schedule A, being for the construction and operation of a small stock abattoir
DPI	NSW Department of Primary Industries
Earthworks	The bulk earthworks, site levelling, import and compaction of fill material, excavation for installation of drainage and services
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement titled, "*Bourke Small Stock Abattoir - SSD 7268*," prepared by EMM Consulting, dated 3 March 2016
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence under the *Protection of the Environment Operations Act 1997*
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
Heavy vehicle	Any vehicle with a gross vehicle mass of 5 tonnes or more
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement such as a shared associations in pastoral landscapes as well as associations linked with the mission period
Heritage Item	An item as defined under the *Heritage Act 1977*, and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974*
ICNG	NSW Interim Construction Noise Guideline, DECC 2009
Incident	A set of circumstances that causes or threatens to cause material harm to the environment; and/or breaches or exceeds the limits or performance measures/criteria in this consent
INP	NSW Industrial Noise Policy, EPA 2000

Livestock	Goats, lambs and sheep only
Management and Mitigation Measures	The Management and Mitigation Measures at Appendix A of this consent
Minister	Minister for Planning (or delegate)
Mitigation	Activities associated with reducing the impacts of the Development prior to or during those impacts occurring
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
OEH	Office of Environment and Heritage
OEMP	Operational Environmental Management Plan
POEO Act	*Protection of the Environment Operations Act 1997*
Q-Fever	An infection caused by the bacterium *Coxiella burnetii*
RAPs	Registered Aboriginal Parties
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
RMS	Roads and Maritime Services
RTS	Response to Submissions titled, "*Bourke Small Stock Abattoir (SSD 7268), Response to Submissions*," prepared by EMM Consulting, dated 28 June 2016, including the *RTS Addendum*, prepared by EMM Consulting, dated 7 July 2016
Secretary	Secretary of the Department of Planning and Environment, or nominee
Site	Land referred to in Schedule A

SCHEDULE B – ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

B1. In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the Development.

TERMS OF CONSENT

B2. The Applicant shall carry out the Development in accordance with the:
(a) SSD 7268;
(b) EIS;
(c) RTS;
(d) Development layout plans and drawings in the EIS and RTS (see Appendix A); and
(e) the Management and Mitigation Measures (see Appendix B).

B3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.

B4. The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of:
(a) any reports, plans or correspondence that are submitted in accordance with this consent; and
(b) the implementation of any actions or measures contained within these reports, plans or correspondence.

LIMITS OF CONSENT

B5. This consent lapses five years after the date from which it operates, unless the Development has physically commenced on the land to which the consent applies before the date on which the consent would otherwise lapse under section 95 of the EP&A Act.

Abattoir Operations

B6. The Applicant shall ensure:
(a) the Development site holds no more than a maximum population of 11,000 livestock at any one time;
(b) the Development processes no more than a maximum of 6,000 livestock per day;
(c) the stocking densities of the Development complies at all times with the standards detailed in the *National Animal Welfare Standards for Livestock Processing Establishments 2nd edition*, Meat and Livestock Australia, 2009; and
(d) the operation of the Development is consistent with the relevant best practice guidelines and standards including the *Australian Standard for Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007)*.

B7. This consent does not provide for the disposal of livestock processing waste by on-site composting. Livestock mortalities and livestock processing waste shall not be disposed of to land by burial or any other method at the site, for the life of the Development, unless otherwise permitted by a relevant authority during a bio-security/mass mortality emergency at the site as determined by Condition C6.

Note: *Any proposal for on-site composting of livestock processing waste and/or livestock mortalities shall be the subject of a separate application under the EP&A Act.*

STAGED SUBMISSION OF PLANS AND PROGRAMS

B8. With the approval of the Secretary, the Applicant may:
(a) submit any strategy, plan or program required by this consent on a progressive basis; and/or
(b) combine any strategy, plan or program required by this consent.

B9. If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program shall clearly describe the specific stage to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program. A clear relationship between the strategy, plan or program that is to be combined shall be demonstrated.

EVIDENCE OF CONSULTATION

B10. Where consultation with any public authority is required by the conditions of this consent, the Applicant shall:
(a) consult with the relevant public authority prior to submitting the required documentation to the Secretary or the certifying authority for approval, where required;
(b) submit evidence of this consultation as part of the relevant documentation required by the conditions of this consent; and
(c) include the details of any outstanding issues raised by the relevant public authority and an explanation of disagreement between any public authority and the Applicant or any person acting on this development consent.

DISPUTE RESOLUTION

B11. In the event that a dispute arises between the Applicant and Council or a public authority, in relation to an applicable requirement in this consent or relevant matter relating to the development, either party may refer the matter to the Secretary for resolution. The Secretary's determination of any such dispute shall be final and binding on the parties.

STATUTORY REQUIREMENTS

B12. The Applicant shall ensure all licences, permits and approvals/ consents are obtained and kept up to date as required throughout the life of the Development. No condition of this consent removes the obligation of the Applicant to obtain, renew or comply with such licences, permits or approvals.

Note: *The Applicant is required to obtain the relevant license/approval from Council under section 68 of the Local Government Act 1993 prior to the commencement of construction for all domestic effluent disposal and management systems on-site.*

STRUCTURAL ADEQUACY AND CERTIFICATION

B13. The Applicant shall ensure all new buildings and structures, and any alterations or additions to existing buildings and structures are constructed in accordance with the relevant requirements of the BCA.

Note: *Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works. Part 8 of the EP&A Regulation sets out the requirements for the certification of the Development.*

UTILITIES AND SERVICES

B14. Prior to the construction of any utility works associated with the Development, the Applicant shall obtain relevant approvals from service providers.

PROTECTION OF PUBLIC INFRASTRUCTURE

B15. Prior to the commencement of earthworks, the Applicant shall:
(a) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and
(b) submit a copy of this report to the Secretary and relevant public authority.

B16. The Applicant shall:
(a) repair or pay the full costs associated with repairing any public infrastructure that is damaged by the Development; and
(b) relocate or pay the full costs associated with relocating any infrastructure that needs to be relocated as a result of the Development.

COMPLIANCE

B17. The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.

B18. The Applicant shall be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.

SCHEDULE C – ENVIRONMENTAL PERFORMANCE

AIR QUALITY AND ODOUR

Air Quality Discharges

C1. The Applicant shall ensure the Development complies with all load limits, air quality criteria and air quality monitoring requirements as specified in the EPL for the site.

Odour

C2. The Applicant shall ensure the Development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

Dust Management

C3. The Applicant shall carry out all reasonable and feasible measures to minimise dust generated by the Development.

C4. During construction and operation of the Development, the Applicant shall ensure that:
(a) all vehicles on-site do not exceed a speed limit of 60 kilometres per hour;
(b) all loaded vehicles entering or leaving the site have their loads covered;
(c) all loaded vehicles leaving the site are cleaned of dirt, sand and other materials before they leave the site, to avoid tracking these materials on public roads; and
(d) all heavy vehicles do not use engine brakes.

ANIMAL WELFARE AND BEST PRACTICE

C5. The Applicant shall ensure the Development complies with the relevant requirements for the welfare of livestock, particularly health, housing, watering, feeding, handling and transport, including but not limited to those contained within the:
(a) *National Animal Welfare Standards for Livestock Processing Establishments 2nd edition*, (Meat and Livestock Australia, 2009)
(b) *Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock* (Animal Health Australia, 2012);
(c) Australian Industry Welfare Standards and Guidelines - Goats (Animal Health Australia, 2016);
(d) Australian Animal Welfare Standards and Guidelines for Sheep (Animal Health Australia, 2016);
(e) *Model Code of Practice for the Welfare of Animals: The Goat* (CSIRO, 1991);
(f) *Model Code of Practice for the Welfare of Animals: Livestock at Slaughtering Establishments* (CSIRO, 2001); and
(g) any other relevant document that supersedes the above.

Emergency Disposal and Biosecurity

C6. Prior to the commencement of operation, the Applicant shall prepare an **Emergency Disposal and Bio-security Protocol**, detailing the procedures for a biosecurity emergency including a mass mortality event, to the satisfaction of the Secretary. The protocol shall form part of the OEMP in Condition D3 and be prepared in accordance with Condition D5. The protocol shall:
(a) be prepared in consultation with Council, EPA, DPI and other relevant public authorities;
(b) be consistent with the relevant AUSTVETPLAN manuals and supporting documents;
(c) describe the notification procedures;
(d) detail all transport routes to be used in a mass mortality event;
(e) detail any requirements to stage the mass disposal of dead livestock;
(f) detail the burial location(s) for the disposal of dead livestock, including plans and drawings;
(g) detail the measures to maintain quarantine control;
(h) detail measures to prevent ground water contamination; and
(i) detail the mass mortality disposal procedures and options, consistent with section 2.5.9 of the RTS.

Disease Management

C7. The Applicant shall ensure the following key Q-Fever controls are in place during the operation of the Development:
(a) ensuring livestock is rested prior to transport to the Development site as detailed in Appendix A of this consent;
(b) a driver protocol is in place to ensure drivers transporting livestock to the Development site do not stop in built up areas when carrying livestock;
(c) the Meat Livestock Australia's guide "Is it Fit to Load?" is considered before livestock is transported to the Development site;
(d) implementation of an immunisation program for all abattoir workers;
(e) ensuring animal waste is removed from the Development in enclosed containers;
(f) ensuring the design (i.e. irrigation, ventilation, dust suppression, fencing) of the Development meets industry best practice for the control of disease as outlined in Appendix H of the EIS; and
(g) details of measures for continuous improvement in disease management to be reported in the annual review required under Condition D7.

BIODIVERSITY

Biodiversity Offset Strategy

C8. Within 12 months of the operation of this development consent, the Applicant shall purchase and retire 2,068 Ecosystem Credits to offset the removal of 55.3 hectares of native vegetation as calculated in the Biodiversity Assessment Report, prepared by EMM (EIS, Appendix I).

The ecosystem credit shall be determined in accordance with the *Framework for Biodiversity Assessment* (OEH 2014) and the *NSW Biodiversity Offsets Policy for Major Projects* (OEH 2014).

C9. Any proposed management activities shall be in addition to other obligations for conservation that are attached to the land such as actions being carried out under a Property Vegetation Plan.

Note: *If the Applicant seeks a variation to the offset rules, the Applicant shall demonstrate that reasonable steps have been taken to find like-for-like offsets in accordance with Section 10.5.4.2 of the FBA and Appendix A of the OEH's NSW Biodiversity Offsets Policy for Major Projects 2014.*

TRAFFIC AND TRANSPORT

Road Works and Site Access

C10. Prior to the commencement of operation of the Development, the Applicant shall complete the private vehicular road access road connection to the Mitchell Highway to the satisfaction of the roads authority. The Applicant shall obtain approval for the works under Section 138 of the *Roads Act 1993.*

C11. Prior to the commencement of operation of the Development, the private vehicular access road connection to the Mitchell Highway is to be constructed to the satisfaction of the RMS and is to include the following:
(a) a Basic Right-Turn Treatment (BAR) as shown in Figure 7.5 Part 4A of the Austroads Guide to Road Design on the Mitchell Highway at its intersection with the vehicular access servicing the site;
(b) a Rural Auxillary Left Turn Treatment - Short Turn Lane [AUL(S)] on the Mitchell Highway generally in accordance with Figure 8.3 Part 4A of the Austroads Guide to Road Design and relevant RMS Supplements;
(c) the private vehicle access road at the approaching connection to the Mitchell Highway is to be wide enough to accommodate the simultaneous passing of turning road train vehicles. The access road is to be sealed a minimum of 60 m from the edge of the hold line; and
(d) Safe Intersection Site Distance (SISD) requirements outlined in the Austroads Guide to Road Design Part 4A and relevant RMS Supplements shall be provided and maintained at the site access to the Mitchell Highway.

Signage

C12. Size C Gateway Truck (crossing or entering) Signs (W5-22) with 300 metre distance plates are to be provided 300 metres either side of the site access. The signs are to be erected and visible during construction and operation of the Development.

Works Authorisation Deed

C13. Prior to the commencement of construction works on the Mitchell Highway, a Works Authorisation Deed (WAD) shall be executed between the Applicant and the RMS to enable the Applicant to undertake "private financing and construction" works on the Mitchell Highway.

Note: *'Commencement of construction" includes both the vehicular access and water pipeline works*

Road Occupancy Licence

C14. Prior to the commencement of construction works on the Mitchell Highway, the Applicant shall contact the RMS Traffic Operations Coordinator to determine if a Road Occupancy Licence (ROL) is required. In the event a ROL is required, the Applicant shall obtain the ROL prior to works commencing within three metres of the travel lanes in the Mitchell Highway.

Note: *'Commencement of construction" includes both the vehicular access and water pipeline works*

Construction Traffic Management Plan

C15. Prior to the commencement of construction, the Applicant shall prepare a **Construction Traffic Management Plan** for the Development. The plan shall form part of the CEMP required under Condition D1 and shall:

(a) be prepared by a suitably qualified and experienced person/s in consultation with Council and the RMS;
(b) detail the management measures that would be implemented to ensure road safety, network efficiency and access during construction;
(c) contain a drivers code of conduct to:
    (i) minimise the impacts of construction on the local and regional road network; and
    (ii) minimise conflicts with other road users;
(d) detail heavy vehicle numbers, routes, site access and parking arrangements; and
(e) if necessary, detail procedures for notifying any nearby residents of any potential disruptions to routes.

Operating Conditions

C16. The Applicant shall ensure:

(a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the Development are constructed and maintained in accordance with the latest versions of AS 2890.1 and AS 2890.2;
(b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with AUSTROADS Guide to Road Design;
(c) the Development does not result in any vehicles queuing on the public road network;
(d) heavy vehicles and bins associated with the Development do not park or stand on local roads or footpaths in the vicinity of the site;
(e) all vehicles are wholly contained on site before being required to stop;
(f) all loading and unloading of materials is carried out on site; and
(g) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times.

WASTE

Waste Management

C17. The Applicant shall ensure any liquid and non-liquid wastes generated on the site is classified in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste*, (EPA, 2014), or its latest revision.

C18. Prior to the commencement of operation, the Applicant shall provide the Secretary and the EPA with documentary evidence, including a copy of any executed Waste Agreement(s), confirming it has secured a suitably licensed waste collection facility capable of lawfully receiving the relevant waste from the site with consideration to the POEO Act, *Protection of the Environment Operations (Waste) Regulation 2014* and the relevant development consents of receiver facilities.

C19. All waste removed from the site shall only be directed to a waste management facility or premises lawfully permitted to accept the waste.

Waste Management Plan

C20. Prior to the commencement of operation, the Applicant shall prepare a **Waste Management Plan** (WMP) for the Development to the satisfaction of the Secretary. The WMP shall from part of the OEMP in Condition D3 and be prepared in accordance with Condition D5. The WMP shall:
(a) be prepared in consultation with the EPA;
(b) detail the type and quantity of waste to be generated during construction and operation of the Development;
(c) describe the handling, storage and disposal of all waste streams generated on site, consistent with the POEO Act, *Protection of the Environment Operations (Waste) Regulation 2014* and the EPA's *Waste Classification Guideline*;
(d) detail the materials to be reused or recycled, either on or off site; and
(e) include the Management and Mitigation Measures included in Appendix A.

C21. Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the POEO Act, if such a licence is required in relation to that waste.

HAZARD AND RISK

Dangerous goods

C22. Dangerous goods, as defined by the *Australian Dangerous Goods Code*, shall be stored and handled strictly in accordance with:
(a) all relevant Australian Standards;
(b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and
(c) the *Environment Protection Manual for Authorised Officers: Bunding and Spill Management, technical bulletin* (Environment Protection Authority, 1997).

In the event of an inconsistency between the requirements listed from (a) to (c) above, the most stringent requirement shall prevail to the extent of the inconsistency.

C23. The quantities of dangerous goods stored and handled at the site shall be below the threshold quantities listed in the Department of Planning's *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* (Applying SEPP 33) at all times.

In this regard, the total quantity of ammonia to be stored/handled on the site shall be below 5 tonnes at all times.

Note: *Should it be necessary to store/handle 5 tonnes or more of ammonia or quantities of other potentially hazardous materials above the threshold quantities listed in 'Applying SEPP 33', this will necessitate application for approval and further environmental assessment under Part 4 of the EP&A Act.*

NOISE

Hours of Work

C24. The Applicant shall comply with the hours detailed in Table 1, unless otherwise agreed in writing by the Secretary.

Table 1: Hours of Work

Activity	Day	Time
Earthworks and construction	Monday – Friday	7:00am to 6:00pm
	Saturday	8:00am to 1:00pm
	Sunday	Nil
Operation	Monday – Sunday	24 hours

C25. Works outside of the hours identified in Condition C24 may be undertaken in the following circumstances:
(a) works that are inaudible at the nearest sensitive receivers;
(b) works agreed to in writing by the Secretary;
(c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
(d) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

Construction Noise Limits

C26. The Development shall be constructed with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). All feasible and reasonable noise mitigation measures shall be implemented and any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the CEMP.

C27. Where feasible and reasonable, operation noise mitigation measures shall be implemented at the start of construction (or at other times during construction) to minimise construction noise impacts.

Operational Noise Limits

C28. The Applicant shall ensure that noise generated by the operation of the Development does not exceed the noise limits in Table 2.

Table 2: Noise Limits (dB(A))

Location	Day	Evening	Night	Night
	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$	$L_{A1(1\ minute)}$
All residential receivers	35	35	35	45

Note: *Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. Refer to the plan in Appendix D for the location of residential receivers.*

SOIL AND WATER

Construction Soil and Water Management

C29. Soil and water management measures consistent with *Managing Urban Stormwater - Soils and Construction Vol. 1* (Landcom, 2004) (the Blue Book) shall be employed during the construction

of the Development to minimise soil erosion and the discharge of sediment and other pollutants to land and/or waters.

Surface Water Discharge Limits

C30. The Applicant shall ensure that all licensed surface water discharges from the site comply with the discharge limits (volume and quality) set for the Development in any EPL or relevant provisions of the POEO Act.

Stormwater

C31. The Applicant shall design, construct, operate and maintain all stormwater and water storage facilities on site with the internal surfaces equivalent to, or better than, a clay liner of permeability 1×10^{-9} ms^{-1} or less and a thickness of no less than 900mm, or an equivalent alternative.

Bunding

C32. The irrigation area, four process wastewater treatment ponds, mass-burial area and the manure stockpiling area shall be bunded to prevent clean stormwater run-off from entering these areas.

Groundwater

C33. The groundwater bores for the Development shall be constructed in accordance with the *Minimum Construction Requirements for Water Bores in Australia, Third Edition, February 2012*, (National Uniform Drillers Licensing Committee, 2012) to a minimum depth of 20 metres below ground level.

WASTEWATER

Irrigation Area

C34. The Applicant shall ensure the quantity and quality of wastewater applied to the irrigation area shall not exceed the capacity of that area to effectively utilise the wastewater. This includes the use of the wastewater for pasture or crop production, and the ability of the soil to absorb the nutrient, salt, hydraulic load and organic material from the wastewater.

Design

C35. Prior to the commencement of operation, the Applicant shall prepare and implement a **Wastewater Management Plan** (WWMP) for the Development to the satisfaction of the Secretary. The WWMP shall:

(a) be developed in consultation with the EPA;
(b) include a summary of the management of wastewater streams on-site, as detailed in the EIS and RTS;
(c) detail the controls to minimise manure being flushed from stockyards to effluent treatment systems;
(d) include final details on pond specifications such as liners and leak detection systems;
(e) detail the retention periods for each pond and measures to prevent sludge build up;
(f) provide evidence that wet weather effluent storage capacity is adequate to prevent effluent discharge in 90 percent of years based on water balance modelling, for high strength effluent, as detailed in the *Environmental Guidelines – Use of Effluent by Irrigation* (EPA, 2004);
(g) ensure the wastewater treatment system is maintained to avoid odour generation including ensuring crust formation on the anaerobic ponds and controlling irrigation droplet size; and
(h) include details on bunding around ponds and the fate of first-flush stormwater collected inside the bund area and in sediment basins after a rainfall event.

Monitoring

C36. The Applicant shall undertake a commissioning stage monitoring program in consultation with the EPA for the wastewater treatment system, including details on the effluent volume and quality.

C37. The Applicant shall undertake a soil and water monitoring program during operation of the Development, in consultation with the EPA and as may be included in the EPL for the Development, for irrigation water (volume and quality), soils, groundwater and crops based on risk factors that aim to detect when specific water quality, soil or crop sustainability trigger values are nearing or have exceeded, trigger values.

Irrigation Management

C38. Prior to the commencement of operation, the Applicant shall update the **Irrigation Management Plan** (IMP) (referred to Appendix K of the EIS) to the satisfaction of the Secretary. The IMP shall form part of the OEMP in Condition D3 and be prepared in accordance with Condition D5. The IMP shall be prepared in consultation with the EPA and shall include:

(a) a detailed soil report prepared by a suitably qualified expert for the range of site limitations including salinity, sodicity, low permeability and low phosphorus sorption capacity;
(b) identification of baseline soil monitoring sites to allow comparison between impacted and non-impacted sites;
(c) management and mitigation measures available for any potential site limitations for irrigation; and
(d) clearly defined management actions that are to be implemented when approaching or exceeding agreed sustainability trigger values.

Note: *Potential sustainability trigger values can be found in Resource Manual of Development of indicators of Sustainability for Effluent Reuse in the Intensive Livestock Industries: Piggeries and Cattle Feedlots. Project No. 1816, Australian Pork Limited, May 2003.*

SURFACE WATER AND GROUNDWATER

Water Management Plan

C39. Prior to the commencement of operation, the Applicant shall prepare a **Water Management Plan (WMP)** to the satisfaction of the Secretary. The WMP shall form part of the OEMP in Condition D3 and be prepared in accordance with Condition D5. The WMP shall:

(a) be prepared in consultation with the DPI, Council and the EPA;
(b) detail water use, metering, disposal and management on-site;
(c) detail the number and location of piezometers on-site;
(d) include contingency measures in the event of inadequate water supply being available to meet all water demands;
(e) contain a **Surface Water Management Plan**, including;
    (i) a program to manage and monitor:
        - surface water flows and quality;
        - surface water storage and use; and
        - stormwater retention pond;
    (ii) sediment and erosion control plans;
(f) contain a **Groundwater Management Plan**, including:
    (i) a minimum of nine months baseline data on groundwater levels and quality;
    (ii) a program to monitor groundwater levels and quality including details on:
        - the number, design and location for the monitoring bores;
        - timelines for establishment and sampling regime(s) for the monitoring bores;
        - monitoring frequency and suites of analytes to be monitored;
        - reporting requirements for the sampling results;
    (iii) verify the Development meets the minimal impact considerations in the *NSW Aquifer Interference Policy*;
    (iv) groundwater impact assessment criteria, including how trigger levels for investigating any potentially adverse groundwater impacts will be established; and

(v) a protocol for the investigation and mitigation of identified exceedances of the groundwater impact assessment criteria.

VISUAL AMENITY

External Lighting

C40. The Applicant shall ensure the lighting associated with the Development:
(a) complies with the latest version of AS 4282 (INT) - *Control of Obtrusive Effects of Outdoor Lighting*; and
(b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

HERITAGE

Aboriginal Site Cards

C41. Prior to the commencement of construction, the Applicant shall prepare Aboriginal site cards to be registered with the OEH for all Aboriginal sites discovered during the site surveys.

Protection of Aboriginal Heritage Items

C42. Prior to the commencement of construction and prior to any ground works within the irrigation area, the Applicant shall undertake Aboriginal heritage pre-clearance surveys within the irrigation area in accordance with the survey methodology outlined in the EIS.

Unexpected Finds Protocol

C43. If any archaeological relics are uncovered during the course of construction of the Development, then all works shall stop immediately in that area and the OEH Heritage Branch contacted.

Note: *Depending on the possible significance of the relics, an archaeological assessment and an excavation permit under the NSW Heritage Act 1977 may be required before further work can continue in that area.*

C44. If any Aboriginal objects are uncovered during work, excavation or disturbance of the work area, work must stop immediately and the Regional Operations Group of the OEH, Council and the RAPs are to be consulted.

Aboriginal Cultural Heritage Management Plan

C45. Prior to the commencement of operation, the Applicant shall prepare an **Aboriginal Cultural Heritage Management Plan** (ACHMP) to the satisfaction of the Secretary. The ACHMP shall form part of the OEMP in Condition D3 and be prepared in accordance with Condition D5 and shall:
(a) be prepared in consultation with the OEH and Registered Aboriginal Parties (RAPs) identified in the EIS;
(b) include a clear long-term management plan for artefacts collected from the site;
(c) determine whether a Care Agreement is required;
(d) describe the management actions for the surveyed Aboriginal sites during construction and operation;
(e) incorporate any additional sites found during the survey of the irrigation area; and
(f) describe the management actions for the remnant Gurri tree/s located on the site and the replacement Gurri trees required by Condition C46 of this development consent.

Gurri Tree Removal and Compensatory Planting

C46. Prior to the commencement of operation, the Applicant shall compensate for the removal of one Gurri tree through:

(a) the purchase of 12 Gurri trees and funding of the necessary resources for planting the trees, soil and fertiliser, drip line irrigation and maintenance; and
(b) ensuring the trees are planted in locations that enable continued access to the Aboriginal community for educational and cultural usage, following consultation with the Registered Aboriginal Parties (RAPs) identified in the EIS.

Documentation of consultation with the RAPs including the final location(s) of the trees shall be included in the ACHMP required by Condition C45 and provided to the Secretary prior to the commencement of operation.

Note: *The Applicant is not responsible for the trees after the actions required by this condition have been completed.*

SCHEDULE D – ENVIRONMENTAL MANAGEMENT AND REPORTING

ENVIRONMENTAL MANAGEMENT

Construction Environmental Management Plan

D1. The Applicant shall prepare a **Construction Environmental Management Plan** (CEMP) to the satisfaction of the Secretary. The CEMP shall:
- (a) be prepared by a suitably qualified and experienced person in consultation with Council;
- (b) be approved by the Secretary prior to the commencement of construction;
- (c) outline all environmental management practices and procedures to be followed during earthworks and construction, including:
  - (i) dust management;
  - (ii) traffic management as required by Condition C15;
  - (iii) noise management;
  - (iv) construction soil and water management as required by Condition C29; and
  - (v) community consultation and complaints handling;
- (d) describe all activities to be undertaken on the site during earthworks and construction, including a clear indication of construction stages;
- (e) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts; and
- (f) describe of the roles and responsibilities of all relevant employees involved in earthworks and construction.

D2. The Applicant shall carry out the construction of the Development in accordance with the CEMP approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

Operational Environmental Management Plan

D3. The Applicant shall prepare an **Operational Environmental Management Plan** (OEMP) for the Development to the satisfaction of the Secretary. The OEMP shall:
- (a) be submitted to the Secretary for approval prior to the commencement of operation;
- (b) be consistent with the relevant best practice guidelines and standards including those described in Conditions B6(d) and C5;
- (c) be prepared by a suitably qualified and experienced expert;
- (d) provide the strategic framework for environmental management of the Development;
- (e) identify the statutory approvals that apply to the Development;
- (f) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the Development;
- (g) describe the procedures that would be implemented to:
  - (i) keep the local community and relevant agencies informed about the operation and environmental performance of the Development;
  - (ii) receive, handle, respond to, and record complaints;
  - (iii) resolve any disputes that may arise;
  - (iv) respond to any non-compliance;
  - (v) respond to emergencies; and
- (h) include the following environmental management plans:
  - (i) Emergency Disposal and Bio-security Protocol as required by Condition C6;
  - (ii) Waste as required by Condition C20;
  - (iii) Wastewater as required by Condition C35;
  - (iv) Irrigation as required by Condition C38;
  - (v) Water as required by Condition C39; and
  - (vi) Aboriginal Cultural Heritage as required by Condition C45.

D4. The Applicant shall operate the Development in accordance with the OEMP approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

MANAGEMENT PLAN REQUIREMENTS

D5. The Applicant shall ensure that the environmental management plans required under Condition D3 of this consent are prepared by a suitably qualified person or persons in accordance with best practice and include:

(a) detailed baseline data;
(b) a description of:
  (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);
  (ii) any relevant limits or performance measures/criteria; and
  (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the Development or any management measures;
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
(d) a program to monitor and report on the:
  (i) impacts and environmental performance of the Development;
  (ii) effectiveness of any management measures (see (c) above);
(e) a contingency plan to manage any unpredicted impacts and their consequences;
(f) a program to investigate and implement ways to improve the environmental performance of the Development over time;
(g) a protocol for managing and reporting any:
  (i) incidents;
  (ii) complaints;
  (iii) non-compliances with statutory requirements; and
  (iv) exceedances of the impact assessment criteria and/or performance criteria; and
(h) a protocol for periodic review of the plan.

Revision of Strategies, Plans and Programs

D6. Within 3 months of:

(a) an annual review submitted under Condition D7;
(b) an incident report submitted under Condition D8;
(c) an audit submitted under Condition D11; or
(d) the approval of a modification to the development consent,

the Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary.

Note: *This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the Development.*

ANNUAL REVIEW

D7. Each year, unless otherwise agreed by the Secretary, the Applicant shall review the environmental performance of the Development to the satisfaction of the Secretary. This review shall:

(a) describe the Development that was carried out during the reporting period, and the Development that is proposed to be carried out over the next reporting period;
(b) include a comprehensive review of the monitoring results and complaints records of the Development over the previous reporting period, which includes a comparison of these results against the:
  (i) the relevant statutory requirements, limits or performance measures/criteria;
  (ii) requirements of any plan or program required under this consent;
  (iii) the monitoring results of previous years; and
  (iv) the relevant predictions in the EIS;
(c) identify any non-compliance over the previous reporting period, and describe what actions were (or are being) taken to ensure compliance;
(d) identify any trends in the monitoring data over the life of the Development;

(e) identify any discrepancies between the predicted and actual impacts of the Development, and analyse the potential cause of any significant discrepancies; and
(f) describe what measures will be implemented over the next reporting period to improve the environmental performance of the Development.

REPORTING

Incident Reporting

D8. Within 24 hours of the occurrence of an incident that causes (or may cause) harm to the environment, the Applicant shall notify the Secretary and any other relevant agencies of the incident.

Within seven (7) days of the detection of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

Regular Reporting

D9. The Applicant shall provide regular reporting on the environmental performance of the Development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.

Access to Information

D10. The Applicant shall make the following information publicly available on its website and keep the information up to date:
(a) the EIS;
(b) current statutory approvals for the Development;
(c) approved strategies, plans or programs;
(d) a complaints register, updated on an annual basis; and
(e) any other matter required by the Secretary.

Note: *This condition does not require any confidential information to be made available to the public.*

AUDITING

Independent Environmental Audit

D11. Within 2 years of the date of this consent, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the Development. This audit shall:
(a) be conducted by a suitably qualified, experienced and independent team of experts, including wastewater management, whose appointment has been endorsed by the Secretary;
(b) include consultation with the relevant agencies;
(c) assess the environmental performance of the Development and assess whether it is complying with the requirements in this consent, and any other relevant approvals, relevant EPL(s) (including any assessment, plan or program required under these approvals);
(d) review the adequacy of any approved strategy, plan or program required under the abovementioned consents; and
(e) recommend measures or actions to improve the environmental performance of the Development, and/or any strategy, plan or program required under these consents.

Note: *The audit team must be led by a suitably qualified auditor, and include relevant experts in any other fields specified by the Secretary.*

D12. Within 3 months of commissioning this audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report.

APPENDIX A: MANAGEMENT AND MITIGATION MEASURES
(Source: EIS and RTS)

Commitment
Air Quality and Odour
Construction
Construction activities will be managed so that the works are conducted in a manner that minimises the generation of air emissions. Construction contractors will undertake regular environmental inspections of their works and worksite which will include; • visual inspection of dust generation; • inspection of the erosion and sediment controls; • ensuring vehicles entering/exit the site are covered to prevent escape of materials during transport; and • ensure the Mitchell Highway in the vicinity of the site is kept free of soil, and soil tracking onto the road network is prevented.
Operation
• Stock holding yards will be regularly cleaned. • Potential odour-generating material will be removed from site in accordance with operational procedures. • Waste will be transported off site in enclosed systems. • The wastewater treatment system will be maintained to avoid odour generation in accordance with operational procedures, including crust formation on the anaerobic ponds • Irrigation droplet size will be controlled by preventing excessively high pressure in the system design, so as to minimise spray drift. • Spill management will include immediate clean-up of any spill/leakage in accordance with operational procedures. • Boilers will be installed and operated in accordance with manufacturer's instructions, including regular maintenance and tuning to minimise pollutant emissions and to optimise the fuel efficiency. • Unsealed access roads will be constructed and maintained so as to minimise wheel generated dust. • An odour complaint logbook will be maintained on site. In the event of a complaint, an investigation of any unusual odour sources within the site boundary will occur and appropriate action taken to mitigate these sources.
Traffic
Construction
• A construction traffic management plan will be prepared and implemented prior to the commencement of construction activities.
Operation
• Approximately 150 car parks will be provided on site. Car parking areas will have appropriate dimensions to accommodate the required number and size of the vehicles using the car park. • The site access intersection with the Mitchell Highway will be designed to comply with the relevant Austroads intersection traffic capacity and safety design standards. • The new intersection into the project site on the Mitchell Highway will include a dedicated auxiliary left turn lane that will allow following traffic to pass a left turning vehicle. The AUL(s) treatment will be consistent with that provided in Figure 8.3 of Part 4A of Austroads Guide to Road Design. • Internal pedestrian linkages will be included in the design of the on-site car park to direct employees to the staff entrances to the abattoir.
Health
• Livestock will be sourced from suppliers, including properties and depots where standard operating procedures include that prior to transport, animals are rested to "empty out" to reduce urination and defecation during transport, and where screening of heavily pregnant does from transport occurs.

Commitment

- All waste to be removed from site will be transported off site in enclosed containers and disposed of at an appropriately licensed facility.
- The abattoir will be fenced (1.8m high man proof fencing) as shown in the detailed site plans in Appendix A of the Response to Submissions Report, and access to the site will be controlled by a security gatehouse and boom gate.
- Onsite procedures will be implemented in accordance with industry standards in relation to provision of appropriate PPE and good hygiene practice.
- A Q fever vaccination program will be implemented to ensure all employees are vaccinated appropriately.
- Contract truck drivers will be encouraged to come directly to the site when carrying loaded trucks of livestock to avoid stopping in Bourke or North Bourke.

Biodiversity

- Felling of hollow-bearing trees in the disturbance footprint will follow a two-stage clearing protocol, where surrounding non-hollow vegetation is cleared 24 hours prior to the hollow trees to allow fauna time to move.
- A biodiversity offset strategy will be prepared in consultation with OEH, DP&E and DPI-Lands within 12 months of project approval, and will involve:
  - Identifying if suitable credits are available on the market to meet offset requirements.
  - Finding potential offset sites with the biodiversity values required to compensate for the project's impacts, including possibly within the project site and CAPRA landholdings.
  - In the absence of suitable offset credits or properties, applying the variation criteria rules of the FBA and finding suitable offsets to meet the requirements.
- Weeds will be managed within the project site in accordance with relevant DPI – Lands best practice guidelines.
- The PVP which applies to the broader property of 'Artesia' (of which the project site forms a small part) will be amended to exclude the project site.

Heritage

- An Aboriginal Heritage Management Plan will be prepared in consultation with OEH and the RAPs prior to construction commencing.
- Surface collection of known Aboriginal objects within the disturbance footprint of the project will be undertaken prior to construction works commencing. All areas within the disturbance footprint (as shown in the layout plan in Appendix A of the Response to Submissions report) that were not surveyed as part of the heritage assessment completed for the EIS will be surveyed, and surface collection of any artefacts found, prior to the commencement of construction activities in conjunction with the surface collection program for the site.
- A keeping place (designated secure area) will be established within the offices on site to store all Aboriginal stone artefacts collected from the project site. A selection of these artefacts will be put on display. All associated reports and records will be stored in close proximity to the artefacts in a bound hard copy and digital form. All materials will be held in a locked cabinet (both those objects on display and those in storage).
- The identified Gurri tree (wild orange tree – *Capparis mitchellii*) will be avoided during construction of the site access road. Other Gurri trees identified within the project site will be managed in accordance with the approved Aboriginal Heritage Management Plan and in consultation with the RAPs.

Water resources

Construction

- Effective temporary erosion and sediment control structures, such as hay bales and silt fencing, will be used to prevent soil loss and sediment-laden runoff from leaving the project site.
- All clean surface water from upslope of construction areas will be diverted around areas of disturbance where required.

Commitment

- Areas disturbed as part of construction activities that are not part of the final footprint of the project will be promptly revegetated.
- Temporary erosion and sediment control structures used during construction will be regularly inspected and maintained.
- Two groundwater monitoring bores will be drilled at the commencement of construction works within the project site to intercept the water table in the Upper Darling Alluvial Groundwater Source, to a minimum depth or 20 m below ground level, to establish groundwater levels and baseline groundwater quality.

Operation

- An assessment of the impact of the project against the minimal impact considerations in the Aquifer Interference Policy will be undertaken once sufficient baseline data is obtained, and prior to irrigation commencing.
- A 15 m wide vegetative buffer zone consisting of grasses, shrubs and trees will be maintained immediately downslope of the irrigation area to slow down and capture any runoff that occurs from the irrigation area.
- The wastewater treatment ponds will be lined so as to prevent any seepage occurring.
- Storage areas for all liquids will be appropriately bunded.
- Spill kits including absorbing materials will be provided nearby handling and storage areas.
- Water use will be minimised through regular inspections of pipes and connections to ensure there is minimal leakage occurring, use of high impact, low flow nozzles where high pressure is required, dry collection of manure, dry cleaning of equipment prior to wash down; and prioritising the order of washdown procedures eg stands, walls and then the floor.

Waste, wastewater and irrigation

- Waste produced by the abattoir will be transported offsite by licensed contractors and disposed of at facilities appropriately licensed to accept such waste. Waste will not be disposed of at the Bourke Shire Council landfill unless an appropriate upgrade of the facility occurs.
- A pit for the on-site burial of carcasses in the unlikely event of a mass mortality will be constructed, as per the design and layout shown in the plans attached in Appendix A of the Response to Submissions report. This pit will be lined with an EPDM synthetic rubber liner with a permeability of 2.233 x10-11, and in the event carcasses are disposed of there, the pit will be capped with approximately 1 m of cover.
- Manure collected from the holding yards will be composted in the designated area as shown in the plans included in Appendix A of the Response to Submissions report. The area will be lined with the same impervious rubber membrane that will be used to line the wastewater treatment ponds and mass disposal area, over which 600 mm of compacted base material will be placed to protect the liner.
- Treated effluent will be irrigated over 38 ha as per the findings of the on-site irrigation study (Envirowest 2016).
- Monitoring of vegetation will be undertaken on an annual basis and will involve visual assessments of crop species and bare areas to provide an indication of the presence of soil toxicities and soil degradation.
- A site specific irrigation management plan will be developed for the abattoir in consultation with the EPA prior to irrigation commencing, and will include:
  - a detailed monitoring program for:
    - i) pre-irrigation (baseline) monitoring;
    - ii) commissioning monitoring; and
    - iii) ongoing monitoring during irrigation.
  - contingencies in irrigation management to be implemented if the effluent quality determined during commissioning monitoring differs from that predicted. In this instance nutrient and salt balances will be recalculated, and the planned management of effluent irrigation adjusted accordingly;
  - management and mitigation measures for the range of potential site limitations for irrigation, including saline soils, sodic soils, and low phosphorus sorption capacity;

Commitment

- wet weather overflow management measures;
- the procedures for emptying the standing pond and irrigation pond prior to a major storm event, including responsibilities for management of these ponds;
- the size of the areas to be planted with summer and winter crops;
- site specific monitoring triggers for action and specific actions for key risk factors will also be identified as follows:
  - i) the salinity, major ions and sodium absorption rate (SAR) of effluent;
  - ii) salinity and exchangeable sodium percentage of soil at depths;
  - iii) permeability and water logging measures; and
  - iv) measures to account for yield reductions due to salinity and sodicity.
- design and management of the bund and sediment dam to be constructed to capture runoff from the irrigation area.

- Soil samples will be taken during construction works and further analysed to confirm the phosphorus absorption rates in comparison to the 4,500 kg/ha derived in the irrigation study prepared as part of the EIS.

Greenhouse gas

- Regular checks of seals on all refrigerated areas will be undertaken as part of routine site maintenance.
- Where possible, high efficiency lighting will be used.
- The option of installing solar panels at the abattoir will be assessed and determined within three years of commencement of operations.

Socio-economic

CAPRA's approach to employment will adopt the following principles:

- a preference for local employment wherever possible; and
- encourage local contractors to tender for work, both during the construction and operations phases. Selection of suppliers will be based on merit, assessed capability and competitive dynamics.

APPENDIX B: SITE AND DEVELOPMENT LAYOUT PLANS

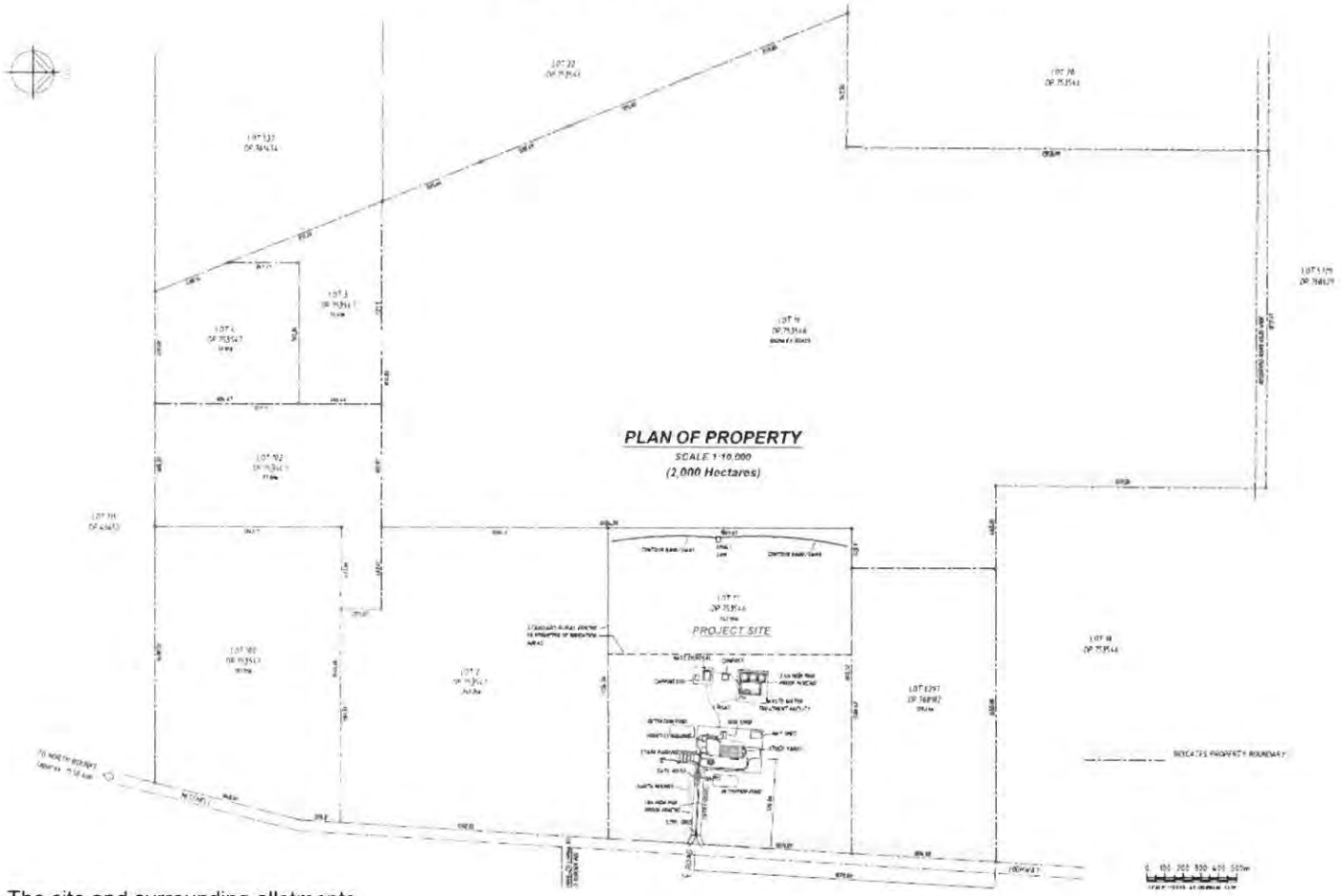


Figure1: The site and surrounding allotments

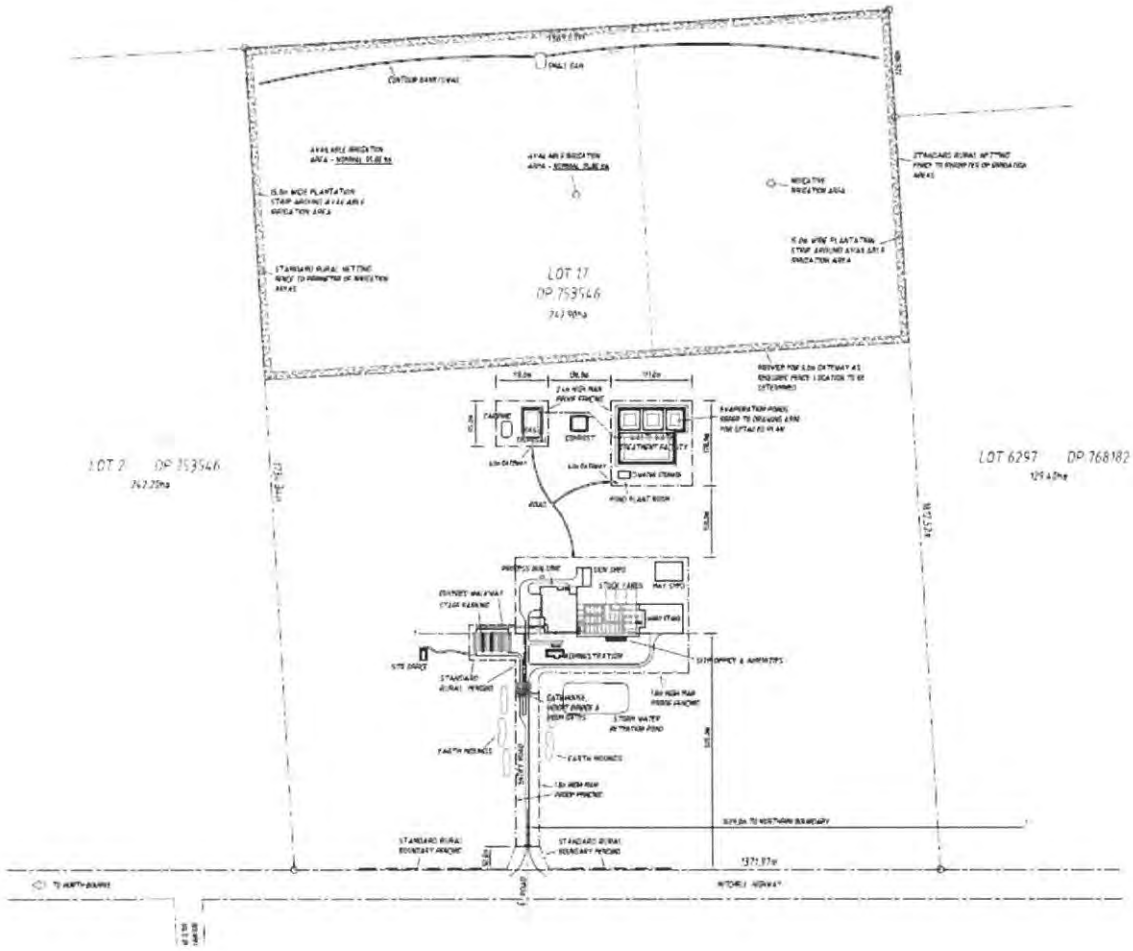


Figure 2: Site Layout

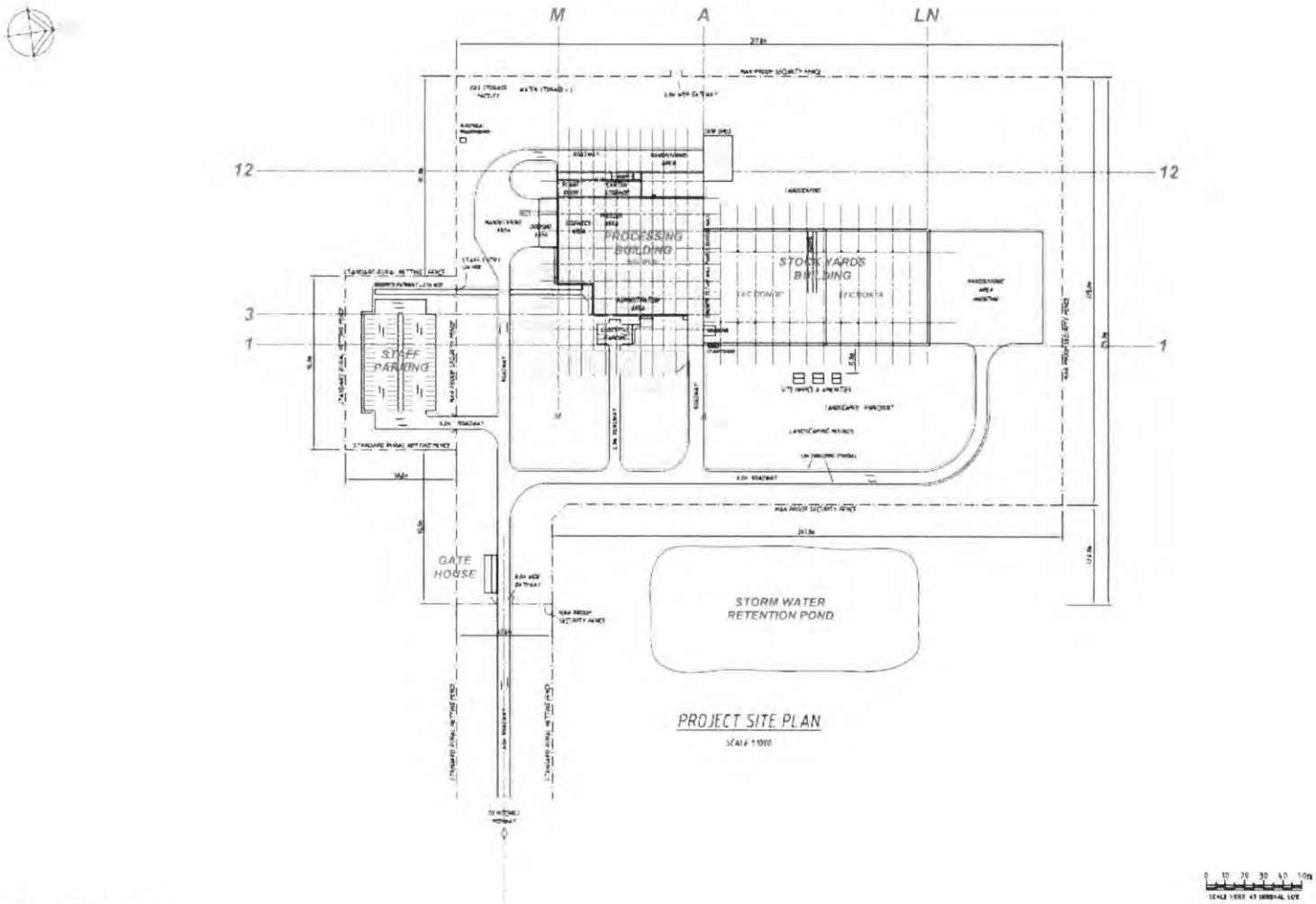


Figure 3: Detailed Layout

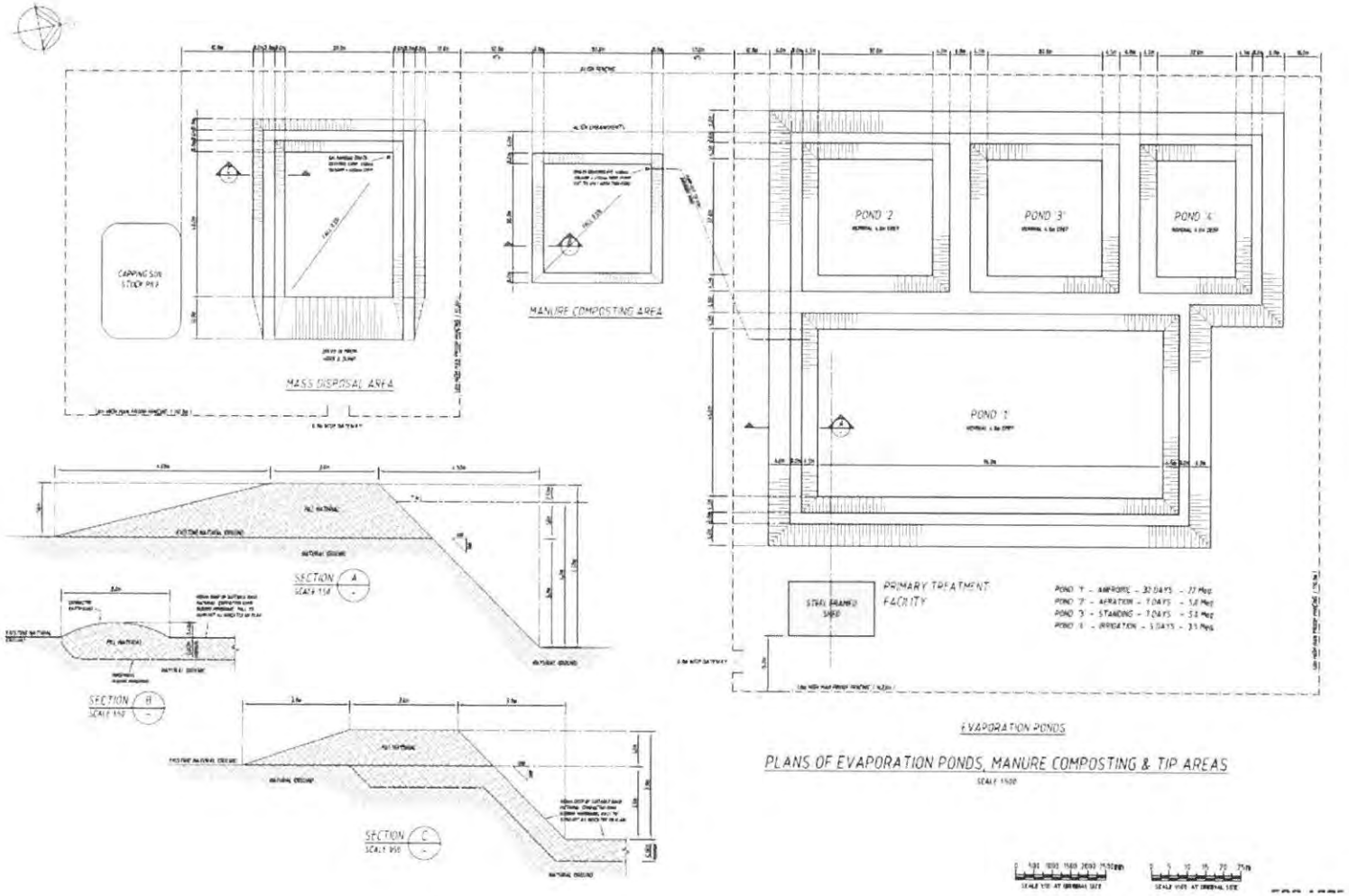


Figure 4: Wastewater Treatment Ponds

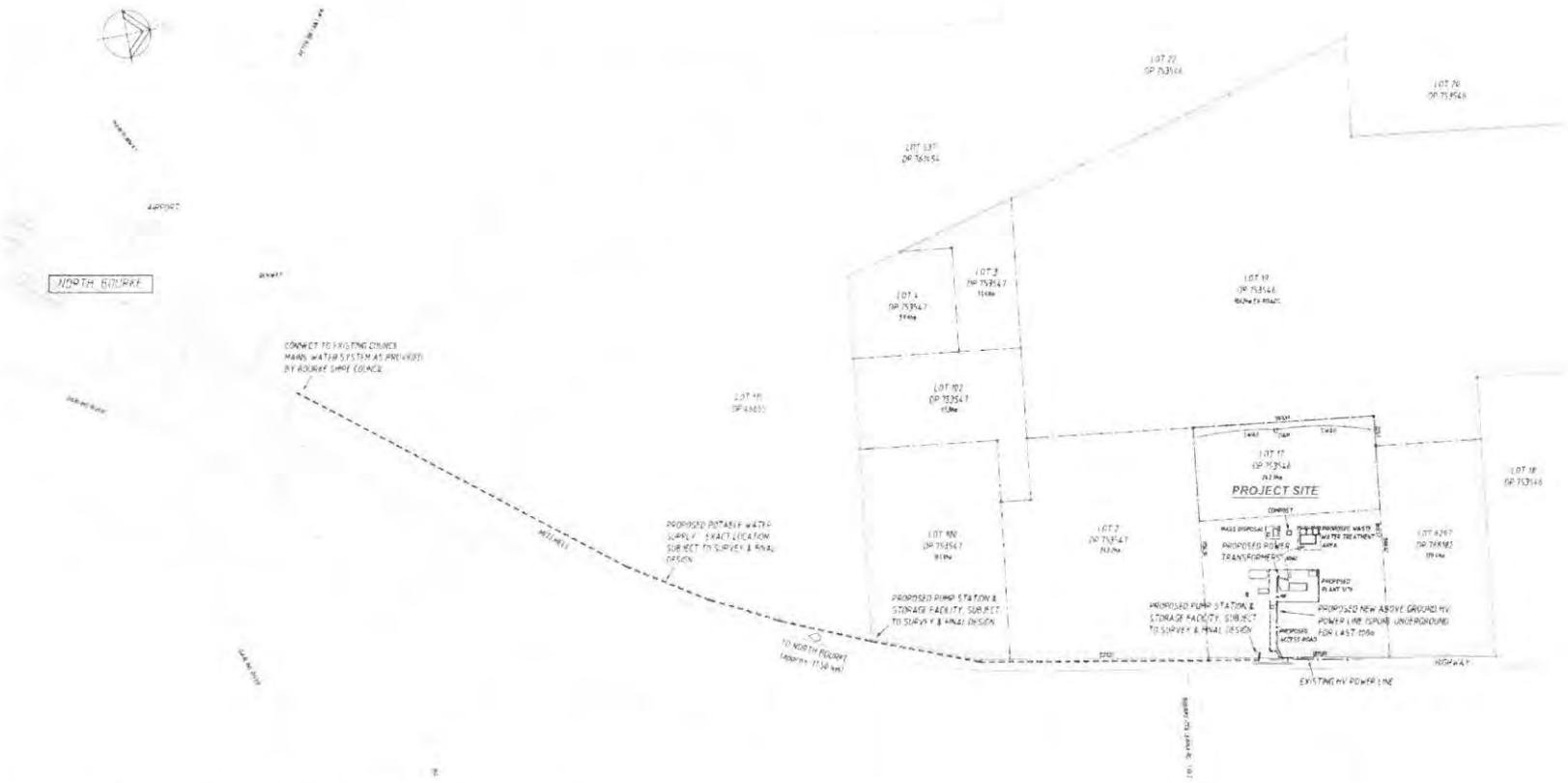


Figure 5: Reticulated water and electricity mains connections

Appendix B

Aboriginal Community Consultation

Aboriginal Consultation Log

Bourke Abattoir

Stage 1 - Advisory Requests Sent

Organisation	Contact type	Date Sent	Comment
Nulla Nulla Aboriginal Land Council	Letter	26-Nov-15	
Muda Aboriginal Corporation	Letter	26-Nov-15	
Bourke Aboriginal Health Service (BAHS)	Letter	26-Nov-15	
Murdi Paaki Regional Enterprise Corporation	Letter	26-Nov-15	
Bourke Aboriginal Community Working Party	Letter	26-Nov-15	
Badger Bates	Letter	26-Nov-15	
Barkindji Elders Council	Letter	26-Nov-15	
Mt Grenfell Historic Site Board of Management	Letter	26-Nov-15	
Gundabooka Aboriginal Management Committee	Letter	26-Nov-15	
Murrawari LALC	Letter	26-Nov-15	
Wanaaring LALC	Letter	26-Nov-15	

Aboriginal Group Notifications Sent - see "addresses" sheet

Organisation	Contact type	Date	Comments

Aboriginal Group Registrations & Communications

Organisation	Contact type	Date	Comments
Murdi Paaki Regional Enterprise Corporation	email	04-Dec-15	Registration request from Rene Wykes
Bourke Aboriginal Health Service (BAHS)	email	09-Dec-15	Registration request from Phil Naden
Muda Aboriginal Corporation	email	09-Dec-15	Registration request from Dot Martin
Bourke Aboriginal Community Working Party	email	06-Jan-16	Alistair Ferguson
Murrawarri Traditional Council State	phone	11-Jan-16	Fred Hooper
Nulla Nulla Local Aboriginal Land Council	phone	18-Feb-16	Late registration: see comms record

OEH & LALC notified of Registered Stakeholders

Organisation	Contact type	Date	Comments
OEH	letter	19/01/2016	Copy of newsaper ad, invite to register and methodology for survey.
Nulla Nulla Aboriginal Land Council	letter	19/01/2016	Copy of newsaper ad, invite to register and methodology for survey.

Stage1 - Methodology Advice
Sent with request for registration

Organisation	Contact type	Date Sent	Comments
Murdi Paaki Regional Enterprise Corporation	letter	26-Nov-15	
Bourke Aboriginal Health Service (BAHS)	letter	26-Nov-15	
Muda Aboriginal Corporation	letter	26-Nov-15	
Bourke Aboriginal Community Working Party	letter	26-Nov-15	
Murrawarri Traditional Council State	letter	26-Nov-15	
Nulla Nulla LALC	letter	26-Nov-15	
	letter	26-Nov-15	

Stage 2 - Fieldwork details

Organisation	Contact type	Date Sent	Comments
Murdi Paaki Regional Enterprise Corporation	email	07-Dec-15	
Bourke Aboriginal Health Service (BAHS)	email	07-Dec-15	
Muda Aboriginal Corporation	email	07-Dec-15	
Bourke Aboriginal Community Working Party	email	06-Jan-16	
Murrawarri Traditional Council State	phone	11-Jan-16	
Nulla Nulla LALC	email	07-Dec-15	

Draft ACHA sent to RAPs for review

Organisation	Contact type	Date Sent	Comments
Murdi Paaki Regional Enterprise Corporation	email	29-Jan-16	
Bourke Aboriginal Health Service (BAHS)	email	29-Jan-16	
Muda Aboriginal Corporation	email	29-Jan-16	
Bourke Aboriginal Community Working Party	email	29-Jan-16	
Murrawarri Traditional Council State	email	29-Jan-16	

Nulla Nulla LALC	letter	02-Feb-16	Email sent on 29.01.2016 but seems to not have worked, therefore letter was sent

Bourke Abattoir Aboriginal Cultural Heritage Assessment: proposed irrigation area

Organisation	Contact type	Date Sent	Comments
Nulla Nulla LALC	Email and phone	18-Feb-16	
Muda Aboriginal Corporation	Email and phone	18-Feb-16	
Bourke Aboriginal Health Service (BAHS)	Email and phone	18-Feb-16	
Murdi Paaki Regional Enterprise Corporation	Email and phone	18-Feb-16	
Bourke Aboriginal Community Working Party	Email and phone	18-Feb-16	
Murrawarri Traditional Council State	Email and phone	18-Feb-16	

Stage 3 - Review of Draft ACHA

Organisation	Contact type	Date Sent	Comments
Murdi Paaki Regional Enterprise Corporation	Email and phone	26-Feb-16	
Bourke Aboriginal Health Service (BAHS)	Email and phone	26-Feb-16	
Muda Aboriginal Corporation	Email and phone	26-Feb-16	
Bourke Aboriginal Community Working Party	Email and phone	26-Feb-16	
Murrawarri Traditional Council State	Email and phone	26-Feb-16	
Nulla Nulla LALC	Email and phone	26-Feb-16	

Stage 4 - Final ACHA sent to groups

Organisation	Contact type	Date Sent	Comments
Murdi Paaki Regional Enterprise Corporation	Email	10-Mar-16	letter saved in file
Bourke Aboriginal Health Service (BAHS)	Email	10-Mar-16	
Muda Aboriginal Corporation	Email	10-Mar-16	
Bourke Aboriginal Community Working Party	Email	10-Mar-16	
Murrawarri Traditional Council State	Email	10-Mar-16	
Nulla Nulla LALC	Email	10-Mar-16	

J16098 Draft ACHMP sent to groups

Murdi Paaki Regional Enterprise Corporation	Letter	19-Jul-16	letter saved in file - J16098, email sent to all the following day
Bourke Aboriginal Health Service (BAHS)	Letter	19-Jul-16	letter saved in file - J16098, email sent to all the following day
Muda Aboriginal Corporation	Letter	19-Jul-16	letter saved in file - J16098, email sent to all the following day
Bourke Aboriginal Community Working Party	Letter	19-Jul-16	letter saved in file - J16098, email sent to all the following day
Murrawarri Traditional Council State	Email	19-Jul-16	letter saved in file - J16098, email sent to all the following day
Nulla Nulla LALC	Letter	19-Jul-16	letter saved in file - J16098, email sent to all the following day

J16098 Reminder for comments on Draft ACHMP sent to groups

Murdi Paaki Regional Enterprise Corporation	Email	29-Jul-16	Reminder email sent to RAP group to supply comment on ACHMP by 3 August. Included cover leter and draft ACHMP with email.
	Phone call	4-Aug-16	Phone call to remind group of comments deadline
Bourke Aboriginal Health Service (BAHS)	Email	29-Jul-16	Reminder email sent to RAP group to supply comment on ACHMP by 3 August. Included cover leter and draft ACHMP with email.
	Phone call	4-Aug-16	Phone call to remind group of comments deadline
Muda Aboriginal Corporation	Email	29-Jul-16	Reminder email sent to RAP group to supply comment on ACHMP by 3 August. Included cover leter and draft ACHMP with email.

	Phone call	4-Aug-16	Phone call to remind group of comments deadline
Bourke Aboriginal Community Working Party	Email	29-Jul-16	Reminder email sent to RAP group to supply comment on ACHMP by 3 August. Included cover leter and draft ACHMP with email.
	Client conversation with RAP	3-Aug-16	EMM was informed by the client (on 3 August) that Alistair had been away in the NT but would get comments on the ACHMP to EMM by Friday 9 August.
Murrawarri Traditional Council State	Email	29-Jul-16	Reminder email sent to RAP group to supply comment on ACHMP by 3 August. Included cover leter and draft ACHMP with email.
	Phone call	4-Aug-16	Phone call to remind group of comments deadline
Nulla Nulla LALC	Email	29-Jul-16	Reminder email sent to RAP group to supply comment on ACHMP by 3 August. Included cover leter and draft ACHMP with email.
	Phone call	4-Aug-16	Phone call to remind group of comments deadline

J16098 - Bourke Small Stock Abattoir ACHMP Communication Log

Date	RAP	RAP Person	EMM person	Details
4/12/2015	Nulla Nulla Aboriginal Land Council	George Orcher	PC	Calling re invitation to register - tried both numbers. Disconnected or engaged. Will try again
4/12/2015	Muda Aboriginal Corporation	Charlotte Finch	PC	Calling re invitation to register - left a message
4/12/2015	Bourke Aboriginal Health Service (BAHS)	Phil Naden	PC	Calling re invitation to register - spoke to someone who advised us of the correct email by which to contact Phil Naden. Email re-sent 4/12/15. He replied same day saying he'll attend to it on Monday
4/12/2015	Murdi Paaki Regional Enterprise Corporation	Rene Wykes	PC	Calling re invitation to register - spoke to a someone who said they would email Melissa with my details for her to follow up
4/12/2015	Bourke Aboriginal Community Working Party	Alistair Ferguson	PC	Previously expressed interest via phone. Called and spoke to someone who is going to let him know that he needs to register in writing via email.
4/12/2015	Murdi Paaki Regional Enterprise Corporation	Rene Wykes	RN	Received email and letter requesting to register
8/12/2015	DAA, DoE, Maranguka, Maranguka, Bourke Shire Council, Bourke High School, OEH, CAPRA			Meeting in Bourke organised by Alistair Ferguson/CAPRA? to discuss the Abattoir Project. EMM not involved. Minutes saved in consultation file
9/12/2015	Bourke Aboriginal Health Service (BAHS)	Phil Naden	PC	Received email and letter requesting to register
9/12/2015	Muda Aboriginal Corporation	Dot Martin	RN	Received email requesting to register
9/12/2015	Bourke Aboriginal Community Working Party	Alistair Ferguson	PC	Called and followed up with an email (copy of application pack attached) to be passed on to Alistair requesting him to register in writing
18/12/2015	all registered parties		RD	Email sent re. Fieldwork start time/place, insurance and liability requirements. Saved in consultation file
5/01/2016	Muda Aboriginal Corporation	Dot Martin	PC	Phone call to follow up on email sent 18/12/15 regarding fieldwork time/place and insurance details. Spoke to Dot who will look into it tonight and get back to me.

5/01/2016	Nulla Nulla Aboriginal Land Council	George Orcher	PC	Tried to phone to follow up email we sent on 18/12/15 but number (from LALC website) didn't connect. Also tried 6872 2056 (as listed on Bourke Community Directory http://bourke.localinfo.org.au/community_dir.php) but that number didn't go through either.
5/01/2016	Bourke Aboriginal Health Service (BAHS)	Phil Naden	PC	Phone rang out
5/01/2016	Murdi Paaki Regional Enterprise Corporation	Rene Wykes	PC	Phoned and left a message re. Follow up to email sent 18/12/15
5/01/2016	Bourke Aboriginal Community Working Party	Alistair Ferguson	PC	Phoned and spoke to Vivian who was able to locate the letter from 18/12/15 I went through it with her and she will follow up with Alistair.
5/01/2016	OEH, Dubbo	Phil Purcell	PC	Phoned to obtain contact details for Nulla Nulla - he is out of the office until 12/1/16
5/01/2016			PC	Rang around to try and find details for Nulla Nulla LALC - Bourke National Parks Service told me the building had burnt down. Also tried the Aboriginal Health Service but they didn't have a phone number for Nulla Nulla either. Called head office, Dubbo OEH and left a message.
6/01/2016	Bourke Aboriginal Health Service (BAHS)	Phil Naden	PC	Phone conversation with Phil - he confirmed that he will be coming on fieldwork on 12 Jan and that he does have insurance. He will email the details.
6/01/2016	Muda Aboriginal Corporation	Dot Martin	PC	Called Dot who said she is unable to do the fieldwork (8 hours is too long)
6/01/2016	Bourke Aboriginal Health Service (BAHS)	Phil Naden	PC	Email received with insurance details
6/01/2016	Bourke Aboriginal Community Working Party	Alistair Ferguson	PC	Phoned and spoke to Kelly. Alistair is on holidays until 11/1/16. She gave me his wife's number

6/01/2016	Bourke Aboriginal Community Working Party	Alistair Ferguson	PC	Spoke to Alistair on the phone. He will speak to Phil Sullivan about insurance and send me the details. Phil will probably be the person coming out on fieldwork next week. Sent him an email with updated fieldwork info and a request for insurance details
6/01/2016	Murdi Paaki Regional Enterprise Corporation	Vicky Ansin	PC	Tried phoning but phone out of range
7/01/2016	Murdi Paaki Regional Enterprise Corporation	Vicky Ansin	PC	Tried phoning but phone out of range
7/01/2016	Murdi Paaki Regional Enterprise Corporation	Rene Wykes	PC	Spoke on the phone with Rene who confirmed that Vicky will be coming on fieldwork but that she is travelling at the moment and is not contactable.
7/01/2016	Murdi Paaki Regional Enterprise Corporation	Vicky Ansin	PC	Email sent with details of fieldwork time/meeting place and request for insurance details.
11/01/2016	Murdi Paaki Regional Enterprise Corporation	Vicky Ansin	PC	Insurance details received via email
29/01/2016	all registered parties		PC	Email - draft report and request for review.
29/01/2016	Nulla Nulla LALC	Leanne Orcher	PC	Phone rang out. Tried to call in response to a message she left for Nicole that she'd like to provide community consultation
1/02/2016	Nulla Nulla LALC	Leanne Orcher	PC	Phone rang out. Tried to call in response to a message she left for Nicole and to obtain an email so I can send her the draft report
2/02/2016	Nulla Nulla LALC	Leanne Orcher	PC	Phone rang out. Tried to call in response to a message she left for Nicole and to obtain an email so I can send her the draft report
2/02/2016	Nulla Nulla LALC		PC	Letter posted with copy of draft report for review
18/02/2016	Nulla Nulla LALC	George Orcher	AV	Phone call to follow up email. Bourke Abattoir document received. Will follow up with a phone call or email if he has any questions.
18/02/2016	Muda Aboriginal Corporation	Charlotte Finch	AV	Phone call to follow up email. Out of the office at the moment but will read through the Bourke document tonight and respond with any feedback if necessary.

18/02/2016	Bourke Aboriginal Health Service (BAHS)	Phil Naden	AV	Phone call to follow up email. Out of the office but Gloria has passed on a message to Phil asking him to read the email and respond with feedback if necessary.
18/02/2016	Murdi Paaki Regional Enterprise Corporation	Rene Wykes	AV	Phone call to follow up email. Out of the office but secretary will ask Rene to read the letter and email feedback if necessary.phillip.sullivan@environment.nsw.gov.au
18/02/2016	Murdi Paaki Regional Enterprise Corporation	Vicky Ansin	AV	Email sent and tried following up with a phone call, but no answer. Tried calling again in afternoon, but again no answer.
18/02/2016	Bourke Aboriginal Community Working Party	Alistair Ferguson	AV	Phone call to follow up email. Secretary will ask him to review Bourke document later and respond with feedback if necessary
18/02/2016	Bourke Aboriginal Community Working Party	Phil Sullivan	AV	Email sent and tried following up with a phone call, but no answer. Tried calling again in afternoon, but again no answer.
18/02/2016	Murrawarri Traditional Council State	Fred Hooper	AV	Phone call to follow up email. Document received, will review it and respond with feedback if necessary.
18/02/2016	Muda Aboriginal Corporation	Dot Martin	AV	Phone call to follow up email. Dot requested to have the document sent to her personal email address (dotmartin45@gmail.com). Will review it and respond with feedback.
26/02/2016	Nulla Nulla LALC	George Orcher	AC	Tried twice on 02 6872 3003 with no success. Tried 6872 2056 with same result. Tried 02 6872 1281 which rang out. Follow up with email.

26/02/2016	Muda Aboriginal Corporation	Charlotte Finch	AC	Left a message on the answering machine at 02 6872 1869. Called Dot Martin who informed me that she didn't have much to do with the project, I told her I would call Charlotte in that case. Called Charlotte and she asked if i could call her back in 10 minutes. Charlotte informed me that Muda Aboriginal Corporation have no further comments to be made. Followed up with email.
26/02/2016	Bourke Aboriginal Health Service (BAHS)	Phil Naden	AC	Left a message with Gloria at reception detailing the consultation period is ending today and if he wants to make any more comments to return my call here at the office. Followed up with email.
26/02/2016	Murdi Paaki Regional Enterprise Corporation	Rene Wykes	AC	Called Rene and was told to speak to Vicky Ansin (the Regional Manager). I called Vicky on 02 6836 3787 and spoke to Matt who informed me that Vicki was on the road and will give me a call back in approx 1 hour. Followed up with email.
26/02/2016	Bourke Aboriginal Community Working Party	Alistair Ferguson	AC	Called Alistair on 02 5834 7915 which rang out. Called alternative number 0419 975 624 and actually connected to the voice mail of Phil Naden - left another message anyway. Followed up with email.
26/02/2016	Bourke Aboriginal Community Working Party	Phil Sullivan	AC	Paraphased comments received from Phil: "Firstly - this is a great thing for Bourke. The arch survey was very good, nothing in particular in the main pad where the building is going to be but no survey where the dam is which we should do and survey down to the river. Avoid native orange where possible. Exhisting pipe for town water from north Bourke to cover everything where the freshwater pipes are going there should be a monitoring Rep while the pipe is going down. Monitoring program during work and any artefacts found should be on display. Murrawarri". Followed up with email.

26/02/2016	Murrawarri Traditional Council State	Fred Hooper	AC	Left a message on his answering machine with my contact number and a quick brief. Followed up with email.
26/02/2016	Murdi Paaki Regional Enterprise Corporation	Vicky Ansin	AC	Vicki Ansin emailed to inform EMM that she had no further comments.
2/03/2016	Nulla Nulla LALC	George Orcher	AC	Tried twice on 02 6872 3003 with no success. Tried 6872 2056 with same result. Tried 02 6872 1281 and spoke to Robert Knight 0475438514.Wants to make sure that he is included in the survey when it happens. On the land of a native title claimant Baakandji Kurnu and was reasonably upset that other groups, those not part of the Native Title Claim, were involved in the project. I informed Robert that the guidelines stipulate that we advertise to all Aboriginal groups that claim cultural knowledge of the land and if they reply within the given time frame then they are involved in the project. We do not have the authority to decide who does and who doesn't take part. How ever I did mention that the guidelines change when there is a sucessful
2/03/2016	Muda Aboriginal Corporation	Charlotte Finch	AC	Called Charlotte - informer Charlotte of the increase in area to the project and she had no furthero cmments other than being curious as to why they have increased the area for irrigation. I informed her that I has unsure but that one could speculate that perhaps they were taking the precation of clearing a larger area incase of future need. I reiterated that that was purely speculative.
2/03/2016	Bourke Aboriginal Health Service (BAHS)	Phil Naden	AC	Phil was out of the office and was informed to call back on Monday 7/3/2016 when he returns.

2/03/2016	Murdi Paaki Regional Enterprise Corporation	Vicky Ansin	AC	I called Vicky on 02 6836 3787. Vicky was please with the proposed survey and collection program and was curious from a sustainablility point of view about details of what they are going to be doing in the irrigation area, ie to be more carbon friendly.
2/03/2016	Bourke Aboriginal Community Working Party	Alistair Ferguson	AC	Alistair was in a meeting so I left a message with a brief outline of the expansion of the irr area to 38 ha and for him to call me back to talk when he has a moment.
2/03/2016	Murrawarri Traditional Council State	Fred Hooper	AC	Agreed with the program of survey and collection. He stated that only his group could truly speak of country and the artefact assemblage. Other than that Fred had no further comment.
19/07/2016	Murrawarri Traditional Council State	Fred Hooper	AC	Called and left a message on Fred's phone asking for the best postal address to send the draft ACHMP to.
4/08/2016	Bourke Aboriginal Community Working Party	Alistair Ferguson	N/A	EMM was informed from the client (on 3 August) that Alistair had been away in the NT but will get comments on the ACHMP to EMM by Friday 9 August.
4/08/2016	Nulla Nulla LALC	Leanne Orcher	AC	1:50pm Tried 02 6872 1281 three times with no success - line dead sound. 2pm Tried 02 687 22 056 twice with no response.
4/08/2016	Muda Aboriginal Corporation	Charlotte Finch	AC	2:10pm Contacted Charlotte on 02 68 721 065. Board is not meeting til the 11 August 2016 and following that meeting comments will be supplied to EMM. Charlotte informed me that she has handed the ACHMP to handed to Chairman Dot Martin and that she will ask her asap whether she has any comments to make on it prior to the board meeting.
4/08/2016	Bourke Aboriginal Health Service (BAHS)	Phil Naden	AC	2:24pm Contacted Phil Naden on 02 68 723 088. Phil informed me that BAHS will be having a board meeting on Saturday 6 August and any comments will be sent to EMM afterwards.

4/08/2016	Murrawarri Traditional Council State	Fred Hooper	AC	2:33pm Contacted Fred Hooper. Agrees with the recommendations in the ACHMP and has no further comments. Has been travelling around for the last 10 weeks but will return the email to EMM early next week to state that he has no further comments on the ACHMP.
4/08/2016	Murdi Paaki Regional Enterprise Corporation	Vicky Ansin	AC	3pm Contacted Murdi Paaki on 02 68 721 065. Vicky was out of the office but I left a message with Tanya.
11/08/2016	Bourke Aboriginal Health Service (BAHS)	Phil Naden	PC	Phil Naden (CEO) emailed EMM following the BAHS board meeting to inform EMM "to endorse the continued support for the Abattoirs from the BAHS Board".
18/11/2016	Bourke Aboriginal Community Working Party	Phil Sullivan	AC	Called Phil Sullivan at 11:30am on supplied mobile number and caught him just as he was going into a meeting. I explained that Ryan Desic had spoken with Phil Purcell (OEH) and that Phil P. mentioned that Phil S. may have access to an interim artefact keeping place as a result of his working for NPWS. Phil S. said he would call me back after the meeting.

18/11/2016	Bourke Aboriginal Community Working Party	Phil Sullivan	AC	Called Phil Sullivan at 1pm on supplied mobile number. Discussed whether Phil/RAP would be amenable to entering into a Care Agreement for the artefacts to be collected at the abattoir site. The Agreement period would be between the end of the artefact analysis and when the final keeping place is established at the abattoir. Phil agreed that the location at the Gundabooka NP keeping place would be suitable. Phil said he would discuss with Fred Hooper and confirm. Phil told me to call Fred to discuss the keeping place as well. We also discussed that the client had been in discussion with Bruce Turnbull regarding the planting of the Gurri Trees in a park/publicly accessible place in Bourke. Phil agreed that this approach would be a good result. Phil asked if I could send through a short email covering our conversation.
18/11/2016	Bourke Aboriginal Community Working Party	Phil Sullivan	AC	AC sent a short email to Phil Sullivan summarising the points covered on the phone.
18/11/2016	Murrawarri Traditional Council State	Fred Hooper	AC	AC called Fred Hooper at 1:30pm on supplied mobile number just as he was going into a meeting. Fred asked if I could call him back in around half an hour.
18/11/2016	Aboriginal Education Officer at Bourke High School	Bruce Turnbull Jnr.	AC	AC called Bruce and discussed the proposed location to plant the twelve Gurri trees. Bruce explained that the proposed planting location is within an established community garden to the east of Bourke High School on the southern side of the Kamilaroi Highway. The location is accessible to the wider community. Bruce discussed his previous experience growing a Gurri tree from seed. I explained that I had been in conversation with Fred Hooper and Phil Sullivan about the location of the trees and would clarify this location with them.

18/11/2016	Murrawarri Traditional Council State	Fred Hooper	AC	AC called Fred Hooper at 1:30pm on supplied mobile number just as he was going into a meeting. Fred asked if I could call him back in around half an hour.
18/11/2016	Murrawarri Traditional Council State	Fred Hooper	AC	AC called Fred Hooper at 2pm on supplied mobile number. No answer. Left voice mail.
18/11/2016	Murrawarri Traditional Council State	Fred Hooper	AC	AC called Fred Hooper at 3pm on supplied mobile number. No answer.
18/11/2016	Murrawarri Traditional Council State	Fred Hooper	AC	AC called Fred Hooper at 3:25pm on supplied mobile number. As Fred was in a meeting we had a short conversation in which I stated that the proposed planting location is within the community garden to the east of Bourke High School, Fred agreed with the chosen location.

Appendix K

AGENCY CONSULTATION

Bourke Small Stock Abattoir – OEMP

2023 OEMP (Version 9.0)

The 2023 OEMP was updated in accordance with the changes proposed via the approved MOD 2 application report. During the preparation of the MOD 2 application report a meeting was held with the Department of Planning and Environment (DPE), Thomas Foods International (TFI) and Premise on 15 August 2022 to discuss the proposed modification. Following this meeting additional consultation was undertaken during the preparation of the MOD 2 application report with Bourke Shire Council (BSC), the NSW Environmental Protection Authority (EPA) and NSW Department of Primary Industries (DPI) – Biosecurity & Food Safety. Agencies consulted were supportive of the proposed modifications. A summary of agency consultation undertaken during the preparation of the MOD 2 application report and referenced to inform the preparation of the 2023 OEMP (version 9.0) is summarised in **Table K1**.

Table K1 – 2023 Agency consultation

Agency	Consultee	Response	Comment
BSC	• Mr Peter Brown Manager of Works • Ms Leonie Brown General Manager	*It is advised that Council endorses the proposed modifications as outlined in Table 1 as attached to such letter to Council of 30 August 2022. The modifications sought will amend specific requirements in relation to the mass carcass disposal pit, stormwater dam and manure stockpile area and allows the developer to provide practicable and achievable solutions.* *Bourke's socio- economic issues have been well documented and compounded by the impact of water buy backs under the Murray Darling Basin Plan. The proposal by TFI to open the Bourke Abattoir has been welcomed by Bourke Shire Council and the wider community. The facility will provide significant employment opportunities for the town with approximately 120 direct job to be created and a similar number anticipated in supporting industry and services.* *Council is most supportive of the development which will be a significant economic boost not only to Bourke but the wider region.*	BSC are supportive of the proposed modifications. No action required.
EPA	• Mr Damien Rindfleish Unit Head Regulatory Operations	EPA responded to the consultation letter over several emails. The final outcome of consultation with the EPA included: • *The EPA supports the proposed modifications as described in the consultation letter.* • *The EPA accepts TFI's approach to design and construct a leachate barrier system for the manure stockpile area in accordance with Section 5.2 of the DEC (2004) Environmental Guidelines: Composting and related organics processing facilities*	The EPA are supportive of the proposed modifications. No action required.

Table K1 – 2023 Agency consultation

Agency	Consultee	Response	Comment
DPI	• Mr Darren Waterson Team Leader Northern Region Regulatory Operations Unit Compliance and Integrity Systems	*Premise's Chloe Bigg (Senior Environmental Scientist) contacted Darren Waterson by phone twice (31/08/2022 and 02/09/2022) following issue of the consultation letter. The outcome of those conversations confirmed that DPI support the proposed modifications as described in the consultation letter, specifically the proposed modifications to the mass carcass disposal pit.* Email response received from Darren Waterson on 06/09/22 stating: *We cannot see any concerns in relation to biosecurity as long as the normal protocols, regularly implemented at similar processing facilities, are adhered to in relation to carcase disposal, waste water management and manure and effluent disposal.* *With respect to the consent modification, I can offer the following:* *Mass carcase disposal pit* *In the unlikely event of a mass stock mortality, NSW DPI/Animal Biosecurity will determine how the carcases will be disposed.* *It will not be the decision of the processor so implementing the measures originally outlined in 2016 may be irrelevant not to mention extremely costly.* *It is not a current requirement for any red meat abattoir in NSW to contain such a liner.* *Storm water dam* *Regarding the storm water dam, it is stated that it would be "clean storm water " so no issue with the lining, as the role of this dam is to collect clean stormwater and the risk of contamination from the dam would be low.* *Manure stockpile area* *There is no issue as long as all manures are treated as per normal in a processing facility and the stockpile area is constructed as per the minimum design requirements: Environmental Guidelines: Composting and related organics processing facilities (DEC, 2004).*	DPI are supportive of the proposed modifications. No action required.
DPI	• Mr Darren Waterson Team Leader Northern Region Regulatory Operations Unit Compliance and Integrity Systems	TFI sought DPI's view on hot to manage mass mortality at the BSSA. DPI's response was as follows: *Just as response to this impasse, NSW DPI Biosecurity and Food Safety does not require a mass mortality pit in order to license the facility.*	DPI are supportive of the proposed modifications. No action required.

2018 OEMP (Version 8.0)

Previous agency consultation, undertaken as part of the 2018 OEMP, was limited to that required by specific conditions or to clarify specific issues. A summary of agency consultation during the preparation of the previous revision of the OEMP (version 8.0) is provided in **Table K2**.

Table K2 – 2018 Agency consultation

Consent Condition	OEMP Section	Agency	Contact
C6	*Appendix D Emergency Disposal and Biosecurity Protocol*	*Council*	*Bourke Shire Council Ph: 02 6830 8000*
		EPA	*EPA North – Dubbo Joshua Loxley joshua.loxley@epa.nsw.gov.au central.west@epa.nsw.gov.au Ph: 02 6883 5326*
		DPI	*DPI Biosecurity Division Ph: 1800 808 095*
C20	*Appendix E Waste Management Plan*	*EPA*	*EPA North – Dubbo Joshua Loxley joshua.loxley@epa.nsw.gov.au central.west@epa.nsw.gov.au Ph: 02 6883 5326*
C35	*Appendix F Wastewater Management Plan*	*EPA*	*EPA North – Dubbo Joshua Loxley joshua.loxley@epa.nsw.gov.au central.west@epa.nsw.gov.au Ph: 02 6883 5326*
C38	*Appendix G Irrigation Management Plan*	*EPA*	*EPA North – Dubbo Joshua Loxley joshua.loxley@epa.nsw.gov.au central.west@epa.nsw.gov.au Ph: 02 6883 5326*
C39	*Appendix H Water Management Plan*	*Council*	*Bourke Shire Council Ph: 02 6830 8000*
		EPA	*EPA North – Dubbo Joshua Loxley joshua.loxley@epa.nsw.gov.au central.west@epa.nsw.gov.au Ph: 02 6883 5326*
		DPI	*Department of Industry - Water (Dubbo) Tim Baker Tim.Baker@dpi.nsw.gov.au Ph: 02 6841 7403*
C45	*Appendix J*	*OEH*	*OEH – Dubbo (Regional Operations) Ph: 02 6883 5300*

Table K2 – 2018 Agency consultation

Consent Condition	OEMP Section	Agency	Contact
	Aboriginal Cultural Heritage Management Plan	*RAPs*	*Muda Aboriginal Corporation:* *Contact: Charlotte Finch* *Ph: 02 6872 1065* *Bourke Aboriginal Health Services (BAHS)* *Contact: Phil Naden* *Ph: 02 6872 3088* *Murdi Paaki Regional Enterprise Corporation* *Contact: Rene Wykes* *Ph: 02 6841 0111* *Bourke Aboriginal Community Working Party* *Contact: Alistair Ferguson/Phillip Sullivan* *Ph: 0488 352 130* *Murrawarri Traditional Council State* *Contact: Fred Hooper* *Ph: 0427 957 960*
D3	*OEMP (complete)*	*DPE*	*DPE – Sydney* *Chris Ritchie and Joanna Bakopanas*

Consultation outcomes are summarised in **Table K3**.

Table K3 – Summary of Agency consultation

Agency	Consultation	Outcome
DPE – Sydney	*Draft OEMP sent by email to Chris Ritchie on 1 June 2018 from JPA Business.*	*Email comments received from Melissa Prochazka by email to JPA Business on 14 June 2018. Comments addressed in updated documents.* *Further email comments received 12 September 2018 from Pamela Morales by email to JPA Business. Comments addressed for final OEMP.* *Refer to correspondence in **Appendix K1**.*
EPA North – Dubbo	*Email sent to Joshua Loxley 6 June 2018 with the following documents:* • *EDBP Version 1.1* • *WatMP Version 2.1* • *IMP Version 2.1* • *WMP Version 2.1* • *WWMP Version 2.1*	*Letter received dated 28 June 2018 providing comments on the IMP, WWMP and WMP. Comments addressed in updated documents.* *Letter received dated 26 June 2018 advising the EPA had no comments on the EDBP.* *Refer to correspondence in **Appendix K2**.*
	Email sent to Joshua Loxley 26 July 2018 with the following documents: • *IMP Version 3.0* • *WMP Version 3.0* • *WWMP Version 2.1*	*Letter received dated 30 August 2018 advising the EPA had no further comments.* *Refer to correspondence in **Appendix K2**.*
Department of Industry - Water (Dubbo)	*WatMP Version 2.1 sent to Tim Baker of Department of Industry - Water (Dubbo) by email on 6 June 2018.*	*Letter received from Natural Resource Access Regulator (NRAR) dated 6 July 2018 providing comments on the WatMP.* *Comments addressed in updated documents.* *Refer to correspondence in **Appendix K3**.*

Table K3 – Summary of Agency consultation

Agency	Consultation	Outcome
	Email sent to Teagan-Lee Shepherd (NRAR) 25 July 2018 with the following documents: • *WatMP Version 3.0*	*Letter received from Natural Resource Access Regulator (NRAR) dated 3 September 2018 providing comments on the WatMP. All changes supported with one remaining question.* *Refer to correspondence in **Appendix K3**.*
	Email to Teagan-Lee Shepherd on 10 September 2018 providing response to one remaining question.	*Email received from Teagan-Lee Shepherd on 14 September 2018 confirming NRAR believes all concerns raised in regard to the Water Management Plan have been addressed. Requested a reporting component added which has been included in Section 4.4.1 of WatMP.* *Refer to correspondence in **Appendix K3**.*
DPI Biosecurity Division	*EDBP Version 1.1 sent to DPI Biosecurity Division by email on 6 June 2018.*	*Digital comments provided back by email on 2 July 2018 from Geoff Campbell (Veterinary Officer Biosecurity Strategy & Standards).* *Comments incorporated and EDBP updated.* *Refer to correspondence in **Appendix K4**.*
Bourke Shire Council	*EDBP Version 1.1 and WatMP Version 2.1 sent to Bourke Shire Council by email on 6 June 2018.*	*Letter received from Bourke Shire Council dated 9 July 2018 acknowledging receipt.* *No changes required as a results of these comments.* *Refer to correspondence in **Appendix K5**.*
OEH – Dubbo (Regional Operations)	*Refer to Section 2.3 of the ACHMP.*	*Refer to Section 2.3 of the ACHMP.*

Appendix K1

DP & E CORRESPONDENCE

Martin Haege

From: James Price <james@jpabusiness.com.au>
Sent: 15 June 2018 9:16 AM
To: Martin Haege; Phillip James
Subject: Fwd: SSD 7268 - Bourke Small Stock Abattoir - DRAFT OEMP
Attachments: image001.png; ATT00001.htm; image004.jpg; ATT00002.htm; Post Approval Lodgement Checklist for Applicant's.docx; ATT00003.htm

Martin and Phillip

Please see below for your initial review and comments to me please about amendments and issues to address at your earliest.

Regards

James Price
Managing Director
JPAbusiness Pty Ltd

M - +61 439601207
T - +61 2 63600360
F - + 61 2 63610933
W - jpabusiness.com.au

ORANGE - BATHURST
SYDNEY-MELBOURNE-BRISBANE

Corporate Office:
Suite 7, Level 2
113 Byng Street
ORANGE NSW 2800

Sent from my iPhone

Begin forwarded message:

> **From:** Melissa Prochazka <Melissa.Prochazka@planning.nsw.gov.au>
> **Date:** 14 June 2018 at 3:52:51 pm AEST
> **To:** "james@jpabusiness.com.au" <james@jpabusiness.com.au>
> **Cc:** Joanna Bakopanos <Joanna.Bakopanos@planning.nsw.gov.au>, Kate Masters <Kate.Masters@planning.nsw.gov.au>
> **Subject: SSD 7268 - Bourke Small Stock Abattoir - DRAFT OEMP**
>
> Hi James,
>
> The Department has reviewed the Operational Environmental Management Plan (OEMP) and considers the following information is required prior to the lodgement of the final document:
>
> - Referencing to the conditions that have been addressed in the OEMP. It is noted the relevant conditions have been referenced in the attached environment management plans, however the OEMP must contain a conditions compliance table which outlines where in the plan the condition (including the sub-conditions) has been addressed. Noting Conditions D3(a) to D3(h) outline the requirements of the OEMP and further requirements for the

attached environmental management plans are detailed in Conditions C6, C20, C35, C38, C39 and C45.

- Evidence of consultation with the relevant agencies. The Department is aware this process is underway, please ensure evidence of this consultation once completed is provided in the final OEMP or relevant environmental management plan.
- An understanding operational practices and measures discussed in the OEMP and attached environmental management plans are consistent with relevant best practice guidelines and standards including those described in Conditions B6(d) and C5.
- Consideration of the Statement of Commitments and their relevance to the OEMP and attached environmental management plans.
- A table up front in section 6 would be useful in summarising the monitoring programs subject to the OEMP with further details provided in the underlying sub headings. The table could include:
    - who undertakes the monitoring program (i.e. in house environmental staff or consultants/specialists)
    - the frequency of the monitoring (i.e. quarterly, biannually, annually etc.)
    - a short summary of what the monitoring program involves, with reference to the relevant sub heading and
    - reporting requirements under the consent conditions and EPL.

To assist with the finalisation of the OEMP and attached environmental management plans, please find attached a lodgement checklist which outlines the Department's expectations when lodging management plans.

If you have any further questions, do not hesitate to call me on (02) 8289 6695.

Kind regards,

Melissa Prochazka
Senior Planning Officer (Part-time: Monday to Thursday)
Industry Assessments
Department of Planning & Environment
Level 29 | 320 Pitt Street | GPO Box 39 SYDNEY NSW 2001
T 02 8289 6695 E melissa.prochazka@planning.nsw.gov.au

Martin Haege

From: James Price <james@jpabusiness.com.au>
Sent: 12 September 2018 11:16 AM
To: Martin Haege
Cc: Phillip James
Subject: FW: URGENT: Bourke Small Stock Abattoir Water Management Plan
Attachments: SSD 7268 - Bourke Abattoir Management Plan - comments September 2018.docx

Importance: High

Martin

Please see attached the comments/feedback from DP&E on the OEMP.

We need a quick turnaround on these (i.e. a response to each) – I suggest you use the attached document to indicate a response and how we can/will address the feedback and/or any queries.

Can you please respond today with this. I'd appreciate it if you can revert with a quick email just confirming (ahead of time) that this is doable, as I need to determine a meeting with DP&E for tomorrow.

Regards

james price | **managing director**
bbm | aapi certified practising valuer (business)

T: +61 (0) 2 6360 0360 | **F:** +61 (0) 2 6361 0933 | **M:** +61 (0) 439 601 207
E: james@jpabusiness.com.au | **W:** jpabusiness.com.au

orange • bathurst • sydney • melbourne • brisbane

JPAbusiness
Advice • Valuations • Transactions

MEMBER OF THE API AUSTRALIAN PROPERTY INSTITUTE
Leading the property professions

JPAbusiness Pty Ltd ABN 62 150 534 099
Operating under Principal Business Agents Licence No. 1710192 (NSW), 3485836 (QLD), 073491L (VIC), RLA224925 (SA)
Member of the Institute of Managers and Leaders
Corporate Office : 261 Lords Place, Orange NSW 2800 Australia

---

From: Pamela Morales [mailto:pamela.morales@planning.nsw.gov.au]
Sent: Wednesday, 12 September 2018 10:52 AM
To: James Price <james@jpabusiness.com.au>
Cc: Melissa Prochazka <Melissa.Prochazka@planning.nsw.gov.au>
Subject: RE: Bourke Small Stock Abattoir Water Management Plan

Hi James,

Please find attached the Department's comments on the OEMP. I am not in the office today but if you would like to meet and go through the comments, Melissa and I are available tomorrow morning from 10.30 am. We can also discuss the carpark relocation as well.

Regards

Pamela Morales
Senior Planning Officer
Industry Assessments
Department of Planning & Environment
T 02 9274 6386

From: James Price <james@jpabusiness.com.au>
Sent: Wednesday, 12 September 2018 8:21 AM
To: Pamela Morales <pamela.morales@planning.nsw.gov.au>; Chris Ritchie <Chris.Ritchie@planning.nsw.gov.au>
Cc: Sally Munk <Sally.Munk@planning.nsw.gov.au>
Subject: RE: Bourke Small Stock Abattoir Water Management Plan

Pamela and Chris

I am following up from my various emails. I am available later today to meet up and go through any outstanding issues DP&E has with the OEMP, alternatively I can do tomorrow morning.

I await your response.

Regards

james price | **managing director**
bbm | aapi certified practising valuer (business)

T: +61 (0) 2 6360 0360 | **F:** +61 (0) 2 6361 0933 | **M:** +61 (0) 439 601 207
E: james@jpabusiness.com.au | **W:** jpabusiness.com.au

orange • bathurst • sydney • melbourne • brisbane

JPAbusiness
Advice • Valuations • Transactions

MEMBER OF THE API AUSTRALIAN PROPERTY INSTITUTE
Leading the property professions

JPAbusiness Pty Ltd ABN 62 150 534 099
Operating under Principal Business Agents Licence No. 1710192 (NSW), 3485836 (QLD), 073491L (VIC), RLA224925 (SA)
Member of the Institute of Managers and Leaders
Corporate Office : 261 Lords Place, Orange NSW 2800 Australia

From: James Price
Sent: Tuesday, 11 September 2018 8:27 AM
To: Pamela Morales <pamela.morales@planning.nsw.gov.au>; Chris Ritchie <Chris.Ritchie@planning.nsw.gov.au>
Cc: Sally Munk <Sally.Munk@planning.nsw.gov.au>
Subject: FW: Bourke Small Stock Abattoir Water Management Plan
Importance: High

Pamela and Chris

Please see attached and below some remaining consultations with NRAR on the Water Management Plan. We are still awaiting NRAR's formal conformation for their point with respect to point 4 in their letter, however the email below and attached email should provide you with an update. Apology for sending this through like this, but given our timeframes I wanted to keep you abreast of things.

Further to our communications last week, I am keen to understand DP&E final position on the OEMP and when approval will be forthcoming given our operational timelines (i.e. to be operating by 24th September. As previously canvassed, can you please advise whether you feel it is worthwhile meeting this week to discuss any outstanding items?

Regards

james price | **managing director**
bbm | aapi certified practising valuer (business)

T: +61 (0) 2 6360 0360 | **F:** +61 (0) 2 6361 0933 | **M:** +61 (0) 439 601 207
E: james@jpabusiness.com.au | **W:** jpabusiness.com.au

orange • bathurst • sydney • melbourne • brisbane

JPAbusiness Advice • Valuations • Transactions

MEMBER OF THE API AUSTRALIAN PROPERTY INSTITUTE Leading the property professions

JPAbusiness Pty Ltd ABN 62 150 534 099
Operating under Principal Business Agents Licence No. 1710192 (NSW), 3485836 (QLD), 073491L (VIC), RLA224925 (SA)
Member of the Institute of Managers and Leaders
Corporate Office : 261 Lords Place, Orange NSW 2800 Australia

---

From: Martin Haege [mailto:mhaege@geolyse.com]
Sent: Monday, 10 September 2018 9:08 AM
To: James Price <james@jpabusiness.com.au>
Cc: Phillip James <phillip@jpabusiness.com.au>
Subject: RE: Bourke Small Stock Abattoir Water Management Plan

Hi James

I left several messages for Teagan on Friday and she returned my call this morning. I discussed their final remaining issue and she was happy with our response. She asked that I send her an email to confirm our discussion.

I have sent her the attached and she has promised to provide their final reply today.

Regards
Martin

Martin Haege
Principal Environmental Engineer / Director
Geolyse Pty Ltd
154 Peisley Street
Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Mob: 0418 402 249
Email: mhaege@geolyse.com
Web: www.geolyse.com

Facebook | LinkedIn

From: James Price [mailto:james@jpabusiness.com.au]
Sent: 7 September 2018 1:20 PM
To: Martin Haege <mhaege@geolyse.com>
Cc: Phillip James <phillip@jpabusiness.com.au>
Subject: Re: Bourke Small Stock Abattoir Water Management Plan

Thank you Martin

I need to pass this on the DP&E, but before I do I really need the result of your clarification (as mentioned). Can we please put an URGENT on this one! Apology to hassle but time is running out.

Regards

James Price
Managing Director
JPAbusiness Pty Ltd

M - +61 439601207
T - +61 2 63600360
F - + 61 2 63610933
W - jpabusiness.com.au

ORANGE - BATHURST
SYDNEY-MELBOURNE-BRISBANE

Corporate Office:
Suite 7, Level 2
113 Byng Street
ORANGE NSW 2800

Sent from my iPhone

On 7 Sep 2018, at 12:47 pm, Martin Haege <mhaege@geolyse.com> wrote:

> Hi Phillip
>
> Please see attached response from NRAR for the Water Management Plan.
>
> I have a call in to Teagan to clarify the fourth dot point, but otherwise they have supported the amended documents.
>
> Will wait to hear from DP&E (through JPA) before finalising the OEMP.
>
> Regards
> Martin
>
> **Martin Haege**
> *Principal Environmental Engineer / Director*
> **Geolyse Pty Ltd**
> 154 Peisley Street
> Orange NSW 2800
> Ph: 02 6393 5000
> Fx: 02 6393 5050
> Mob: 0418 402 249
> Email: mhaege@geolyse.com
> Web: www.geolyse.com

From: Teagan-Lee Shepherd [mailto:teagan-lee.shepherd@nrar.nsw.gov.au]
Sent: 7 September 2018 8:39 AM
To: Martin Haege <mhaege@geolyse.com>
Cc: Water Referrals <water.referrals@nrar.nsw.gov.au>
Subject: Re: Bourke Small Stock Abattoir Water Management Plan

Hi Martin,

Sorry for the delay, attached below are the Natural Resources Access Regulator's additional comments regarding the Bourke Small Stock Abattoir Water Management Plan.

Regards
Teagan

On Wed, Aug 29, 2018 at 10:58 AM, Martin Haege <mhaege@geolyse.com> wrote:

> Hi Teagan
>
> Just checking - have you sent these additional comments? I have not received them.
>
> Thanks
>
> Martin
>
> **Martin Haege**
>
> *Principal Environmental Engineer / Director*
>
> **Geolyse Pty Ltd**
>
> 154 Peisley Street
>
> Orange NSW 2800
>
> Ph: 02 6393 5000
>
> Fx: 02 6393 5050
>
> Mob: 0418 402 249
>
> Email: mhaege@geolyse.com

Web: www.geolyse.com

Facebook | LinkedIn

.....

From: Teagan-Lee Shepherd [mailto:teagan-lee.shepherd@nrar.nsw.gov.au]
Sent: 15 August 2018 3:43 PM
To: Martin Haege <mhaege@geolyse.com>
Subject: Re: Bourke Small Stock Abattoir Water Management Plan

Hi Martin,

I have finished my additional comments for the draft Water Management Plan (WMP) for the Bourke Small Stock Abattoir (BSSA). I just have to get my comments checked over (hopefully this will be by tomorrow) then I will flick them over to you. I am on leave from today till Monday 20 August I will check my emails to see if they have flicked the comments back then ill forward them straight on, so I don't hold you up any longer.

Kind regards,

Teagan

On Wed, Jul 25, 2018 at 5:52 PM, Martin Haege <mhaege@geolyse.com> wrote:

> Hi Teagan
>
> Thank you for your letter dated 6 July 2018 with comments on the draft Water Management Plan (WMP) for the Bourke Small Stock Abattoir (BSSA).

Attached is an updated draft for your further review. Each item has been addressed as follows:

Dot Point 1 – I had a discussion with Peter Brown of Bourke Shire Council and have made some amendments to Section 2.3 and 2.4. It now clearly states that priority would be given to town water supply and that BSSA would need to comply with Council's Drought Management Plan in terms of restrictions.

Dot Point 2 – I did not change the WMP for this, but added some additional wording in one of the actions in the Dust Management section of the OEMP as follows:

The Plant Manager and Workers are responsible for monitoring dust generation and employing dust control measures as required. Appropriate dust control measures shall include:

- Strategic watering using water sourced from the stormwater pond or, in the event that no water is available in the pond, from the raw water supply system
- Sweeping and/or cleaning of hard surfaces
- Controlling stock movements
- Not undertaking potential dust generating activities in unfavourable conditions (e.g. in strong winds, or when winds are in the direction of off-site receivers).

Dot Points 3-5

On my review of the groundwater monitoring section, I agree it required revision. I have used nitrate as the indicator of any issues as it is mobile and a good indicator for the activity. Monitoring nitrate is consistent with recommendations in *Development of Indicators of Sustainability for Effluent Reuse in the Intensive Livestock Industries: Piggeries and Cattle Feedlots* (McGahan and Tucker, 2003). I also added a section on groundwater levels.

I would appreciate if you could review these changes and confirm if they adequately address your comments.

Happy to discuss as required.

Thanks and regards

Martin

Martin Haege

Principal Environmental Engineer / Director

Geolyse Pty Ltd

154 Peisley Street

Orange NSW 2800

Ph: 02 6393 5000

Fx: 02 6393 5050

Mob: 0418 402 249

Email: mhaege@geolyse.com

Web: www.geolyse.com

Facebook | LinkedIn

.....

--

Teagan-Lee Shepherd | Water Regulation Officer

Regional Water Regulation (West – Murray Darling)

Natural Resource Access Regulator

209 Cobra Street Dubbo | PO Box 717 | Dubbo NSW 2830

T: 02 6841 7420

E: teagan-lee.shepherd@nrar.nsw.gov.au

W: www.dpi.nsw.gov.au

--

Teagan-Lee Shepherd | Water Regulation Officer
Regional Water Regulation (West – Murray Darling)
Natural Resource Access Regulator
209 Cobra Street Dubbo | PO Box 717 | Dubbo NSW 2830
T: 02 6841 7420
E: teagan-lee.shepherd@nrar.nsw.gov.au
W: www.industry.nsw.gov.au/water

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

<Bourke Small Stock Abattoir WMP Additonal Comments.pdf>

Appendix K2

EPA CORRESPONDENCE

Martin Haege

From: Claire McQueeney <cmcqueeney@geolyse.com>
Sent: 6 June 2018 9:57 AM
To: joshua.loxley@epa.nsw.gov.au
Cc: central.west@epa.nsw.gov.au; Martin Haege; james@jpabusiness.com.au; phillip@jpabusiness.com.au
Subject: Agency Consultation - Bourke Small Stock Abattoir
Attachments: 217436_EDBP_1.1.pdf; 217436_IMP_2.1.pdf; 217436_WatMP_2.1.pdf; 217436_WMP_2.1.pdf; 217436_WWMP_2.1.pdf

Good morning Joshua,

Geolyse has been engaged by Darling River Goat Exports to prepare an Operational Environmental Management Plan (OEMP) for the Bourke Small Stock Abattoir in accordance with Condition D3 of development consent SSD 7268.

The OEMP includes various sub-plans which are required to be prepared in consultation with relevant government agencies. Conditions C6, C20, C35, C38 and C39 require that the following plans are prepared in consultation with the EPA:

- Emergency Disposal and Biosecurity Protocol;
- Waste Management Plan;
- Wastewater Management Plan;
- Irrigation Management Plan; and
- Water Management Plan.

The above plans are attached as draft versions for your review. Any comments will be discussed and incorporated into these plans before the final OEMP is submitted to the DPE for approval.

It would be appreciated if you could advise of your timeframe to provide comments on the draft plans as we would like to finalise the OEMP by the end of June 2018.

Please do not hesitate to contact myself or Martin Haege if you wish to discuss any matters arising from your review.

Regards,

Claire McQueeney
Environmental Scientist
Geolyse Pty Ltd
154 Peisley St
PO Box 1963
Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Email: cmcqueeney@geolyse.com
Web: www.geolyse.com

.....

Your reference :
Our reference : EF17/2926; DOC18/363747-02
Contact : Joshua Loxley, 02 6883 5326

Capra Development Pty Ltd
137 Newbridge Road
BLAYNEY NSW 2799

Attention: Claire McQueeney

28 June 2018

Dear Mr Price

Bourke Small Stock Abattoir

I refer to Geolyse Pty Ltd email of 6 June 2018 to the Environment Protection Authority (EPA) on behalf of Capra Developments Pty Ltd (the licensee) requesting comment on the Bourke Small Stock Abattoir (the premises) Operational Environmental Management Plan (OEMP) which includes the Irrigation Management, Wastewater Management and Waste Management Plans.

The EPA has reviewed the management plans provided for the premises and considers the Irrigation Management Plan (IMP), Wastewater Management Plan (WWMP) and Water Management Plan (WMP) are generally adequate. It must be noted that the overarching OEMP has not been provided to the EPA. The EPA would like to provide the following comments with respect to the management plans received:

Irrigation Management Plan and Wastewater Management Plan

The IMP identifies the wet weather storage capacity is adequate to prevent effluent discharge in 90 percent of years on average. However, there is no mechanism to confirm modelled predictions with actual volume and quality outcomes.

It is recommended that the IMP be revised addressing:

- a trigger, after a period of commissioning monitoring, to confirm that the actual effluent volume and quality is consistent with the modelled quality and volume data and where necessary update the water and nutrient balance submitted as part of the development assessment.

- as Crop yield monitoring is proposed, it is recommended that the actual crop salt tolerances and the effect on nutrient uptake are adequately incorporated into the ongoing nutrient balance for the site.

The WWMP describes sludge management but does not clearly identify the system to be used to measure and trigger management of sludge build up in treatment ponds to ensure treatment and volume capacity are maintained. It is recommended that these aspects are addressed in the OEMP, if not already included, prior to submitting a final OEMP to Planning for approval.

PO Box 2111 Dubbo NSW 2830
Level 1, 52 Wingewarra Street, Dubbo NSW 2830
Tel: (02) 6883 5330 Fax: (02) 6884 8675
ABN 43 692 285 758
www.epa.nsw.gov.au
central.west@epa.nsw.gov.au

The WWMP and IMP have adequately addressed:

- the terminal ponds system management with irrigation tailwater proposed to be re-irrigated;
- effluent volume and quality monitoring (including commissioning monitoring);
- soil and groundwater monitoring, including potential risks associated with salinity, sodicity, low permeability soils and low phosphorus sorption capacity;
- baseline soil and groundwater data to allow comparison between pre-irrigation and operation stage soil and groundwater conditions; and
- sustainability trigger values for soil amelioration measures and actions based on trigger values.

Waste Management Plan

The Waste Management Plan states (in Section 2.1.1) that:

> "*Wastewater from the abattoir is directed through coarse screens to remove solids (paunch, manure, hair and floating solids) prior to treatment and approximately 750 tonnes of wastewater solids is collected annually. The solids captured is dewatered and stored in designated screenings bins for removal and offsite disposal at a licensed facility.*"

Section 2.1.9, however, states that:

> *"Approximately 750 tonnes of paunch is collected annually, equating to approximately 0.5 kilograms per head. The paunch material is mixed with manure and stockpiled in the manure composting area prior to spreading as detailed above."* i.e. "spreading over areas adjacent to the irrigation area or surrounding CAPRA Developments Pty Ltd allotments."

These sections are inconsistent. If solids are to be reused on site then it is recommended that appropriate nutrient and salt balances and solids reuse management procedures be incorporated into the OEMP to ensure sustainable reuse of the solids. Any interaction with the nutrient and salt balances for effluent irrigation should also be accounted for, e.g. runoff from the applied solids areas to the irrigation area or application of solids to the irrigation areas.

It is the expectation of the EPA that the above is addressed prior to the commencement of the schedule activity at the premises.

If you have any questions, or wish to discuss this matter further please contact Mr Joshua Loxley at the EPA's Central West Dubbo office by telephoning 02 6883 5326 or by email at central.west@epa.nsw.gov.au.

Yours sincerely

DARRYL CLIFT
Head Regional Operations Central West
Environment Protection Authority

Your reference :
Our reference : SF18/41804; DOC18/368747-04
Contact : Joshua Loxley, 02 6883 5326

Capra Developments Pty Ltd
137 Newbridge Road
BLAYNEY NSW 2799

26 June 2018

Dear Mr Price

Bourke Small Stock Abattoir – Emergency Disposal and Biosecurity Protocol

I refer to Geolyse Pty Ltd email of 6 June 2018 to the Environment Protection Authority (EPA) on behalf of Capra Developments Pty Ltd (the Licensee) requesting comment on the Bourke Small Stock Abattoir Emergency Disposal and Biosecurity Protocol (the Protocol).

Thank you for forwarding the Protocol to the EPA as required in accordance with Condition D3 Schedule D of the NSW Project Approval (SSD7268). The EPA encourages the development of Environmental Management Plans/Programs to ensure that proponents have determined how they will meet their statutory obligations and environmental objectives as specified by any Project/Development Approval and/or the conditions of an environment protection licence.

Please note the EPA does not review these plans/programs (unless in circumstances deemed necessary) as the role of the EPA is to set conditions/criteria for environmental protection and management, not to be directly involved in the development of strategies to comply with such conditions/criteria. As such on this occasion the EPA will not be reviewing or endorsing either the Protocol.

As a management tool, such plans should assist Capra Developments in meeting its commitment to statutory compliance and wider environmental management and where appropriate should be integrated with other operational or management plans. The EPA recommends that such plans be audited to an industry standard or certified to the ISO 14001 standard (if applicable) as part of any overall environmental management system.

If you have any questions, or wish to discuss this matter further please contact Mr Joshua Loxley at the EPA's Central West (Dubbo) office by telephoning 02 6883 5326 or by email at central.west@epa.nsw.gov.au

Yours sincerely

SHERIDAN LEDGER
A/Unit Head Central West Region
Environment Protection Authority

PO Box 1388 Bathurst NSW 2795
Level 102, 346 Panorama Avenue Bathurst NSW 2795
Tel: (02) 63 333800
ABN 30 841 387 271
www.epa.nsw.gov.au

Martin Haege

From: Martin Haege <mhaege@geolyse.com>
Sent: 26 July 2018 9:22 AM
To: 'Joshua Loxley'
Subject: RE: Agency Consultation - Bourke Small Stock Abattoir
Attachments: 217436_IMP_3.0.docx; 217436_WWMP_2.1.docx; 217436_WMP_3.0.docx

Hi Josh

Thank you for your letter dated 28 June 2018 with comments on the draft Irrigation Management Plan (IMP), Wastewater Management Plan (WWMP) and Waste Management Plan (WMP) for the Bourke Small Stock Abattoir (BSSA).

Attached are updated drafts for your further review (track changes show where each document has been changed). Each item has been addressed as follows:

IMP

- added a trigger and action in Table 3.2 to review the water/nutrient balance following commissioning
- added crop quality monitoring in section 3.5.6

WWMP

- provided a link back to OEMP Section 5.2 and added the following action in Section 5.2 of the OEMP:

  Pond sludge levels shall be measured every year in January and recorded on the relevant Form 1 – Environmental Checklist. Pond sludge measurements shall be undertaken using a sludge judge, solids interface meter or other suitable method. The PM shall arrange sludge removal once the pond volume has been reduced by 25%.

WMP

- removed the inconsistency by deleting the wording in Section 2.1.9
- paunch will be removed offsite as per the response to submissions document

I would appreciate if you could review these changes and confirm if they adequately address your comments.

Happy to discuss as required.

Thanks and regards
Martin

Martin Haege
Principal Environmental Engineer / Director
Geolyse Pty Ltd
154 Peisley Street
Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Mob: 0418 402 249
Email: mhaege@geolyse.com
Web: www.geolyse.com

Facebook | LinkedIn

.....

From: Joshua Loxley [mailto:Joshua.Loxley@epa.nsw.gov.au]
Sent: 2 July 2018 11:17 AM
To: Claire McQueeney <cmcqueeney@geolyse.com>
Cc: Martin Haege <mhaege@geolyse.com>
Subject: RE: Agency Consultation - Bourke Small Stock Abattoir

Good morning Claire,

Attached is the EPA's response to the management plans.

If you have any questions please call to discuss.

Regards

Josh

Joshua Loxley
Regional Operations Officer
South West Branch, NSW Environment Protection Authority
p) +61 2 6883 5326 f) +61 2 6883 5330
joshua.loxley@epa.nsw.gov.au www.epa.nsw.gov.au @EPA_NSW
Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555

Please Note: EPA Central West Dubbo office has recently changed our electronic document receipt mailbox. We request that you now electronically submit all letters and documents for the EPA's Dubbo office to our new email address: central.west@epa.nsw.gov.au. Attachments up to 10Mb can be accepted in a single email, larger documents will need to be separated over a number of e-mails. When you submit a larger document (i.e. more than ~ 20 pages) please also send a hard copy to: "EPA, PO Box 2111, Dubbo NSW 2830".

From: Claire McQueeney [mailto:cmcqueeney@geolyse.com]
Sent: Thursday, 21 June 2018 10:49 AM
To: Joshua Loxley <Joshua.Loxley@epa.nsw.gov.au>
Cc: EPA RSD Central West Mailbox <central.west@epa.nsw.gov.au>
Subject: Agency Consultation - Bourke Small Stock Abattoir

Good morning Joshua,

Just a polite reminder that consultation comments for the below are due prior to the end of June. Please let me know if there is likely to be a delay in providing comments (or if no comments are likely).

Many thanks in advance.

Kind regards,

Claire McQueeney
Environmental Scientist
Geolyse Pty Ltd
154 Peisley St
PO Box 1963

Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Email: cmcqueeney@geolyse.com
Web: www.geolyse.com

From: Claire McQueeney [mailto:cmcqueeney@geolyse.com]
Sent: Wednesday, 6 June 2018 9:57 AM
To: 'joshua.loxley@epa.nsw.gov.au' <joshua.loxley@epa.nsw.gov.au>
Cc: 'central.west@epa.nsw.gov.au' <central.west@epa.nsw.gov.au>; Martin Haege (mhaege@geolyse.com) <mhaege@geolyse.com>; 'james@jpabusiness.com.au' <james@jpabusiness.com.au>; 'phillip@jpabusiness.com.au' <phillip@jpabusiness.com.au>
Subject: Agency Consultation - Bourke Small Stock Abattoir

Good morning Joshua,

Geolyse has been engaged by Darling River Goat Exports to prepare an Operational Environmental Management Plan (OEMP) for the Bourke Small Stock Abattoir in accordance with Condition D3 of development consent SSD 7268.

The OEMP includes various sub-plans which are required to be prepared in consultation with relevant government agencies. Conditions C6, C20, C35, C38 and C39 require that the following plans are prepared in consultation with the EPA:

- Emergency Disposal and Biosecurity Protocol;
- Waste Management Plan;
- Wastewater Management Plan;
- Irrigation Management Plan; and
- Water Management Plan.

The above plans are attached as draft versions for your review. Any comments will be discussed and incorporated into these plans before the final OEMP is submitted to the DPE for approval.

It would be appreciated if you could advise of your timeframe to provide comments on the draft plans as we would like to finalise the OEMP by the end of June 2018.

Please do not hesitate to contact myself or Martin Haege if you wish to discuss any matters arising from your review.

Regards,

Claire McQueeney
Environmental Scientist
Geolyse Pty Ltd
154 Peisley St
PO Box 1963
Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Email: cmcqueeney@geolyse.com
Web: www.geolyse.com

Your reference :
Our reference : EF18/41804; DOC18/368747-06
Contact : Joshua Loxley, 02 6883 5326

Capra Developments Pty Ltd
137 Newbridge Road
BLAYNEY NSW 2799

Attention: Martin Haege

30 August 2018

Dear Mr Price

Bourke Small Stock Abattoir – Operational Environmental Management Plan

I refer to Geolyse Pty Ltd email of 26 July 2018 to the Environment Protection Authority (EPA) on behalf of Capra Developments Pty Ltd (the Licensee) requesting comments on the Bourke Small Stock Abattoirs (the premises) Operational Environmental Management Plan (OEMP) which includes the Irrigation management, Wastewater Management and Waste Management Plans.

I also refer the EPA's letter to the licensee dated 28 June 2018 recommending a revision of the OEMP.

The EPA acknowledges that the development of these plans in consultation with the EPA is a general requirement of the development consent for the premises and confirm that the revised OEMP adequately addresses the comments provided in the EPA's letter dated 28 June 2018.

The EPA encourages the development of Environmental Management Plans and Programs to ensure that licensees have determined how they will meet their statutory obligations and environmental objectives as specified by Development Consent SSD_5581 and/or the conditions of environment protection licence 20918 (the licence). However, the EPA does not review and endorse these plans/programs (unless in circumstances deemed necessary) as the role of the EPA is to establish and regulate against environment protection and management criteria.

As a management tool, such plans and programs should assist the licensee in meeting their commitment to statutory compliance and wider environmental management and where appropriate should be integrated with other operational or management plans. The EPA recommends that such plans be audited to an industry standard or certified to the ISO 14001 standard (if applicable) as part of any overall environmental management systems.

If you have any questions, or wish to discuss this matter further please contact Mr Joshua Loxley at the EPA's Central West Dubbo office by telephoning 02 6883 5326 or by email at central.west@epa.nsw.gov.au

Yours sincerely

SHERIDAN LEDGER
A/Unit Head Central West Region
Environment Protection Authority

Appendix K3

NRAR CORRESPONDENCE

Martin Haege

From: Claire McQueeney <cmcqueeney@geolyse.com>
Sent: 6 June 2018 9:56 AM
To: Tim.Baker@dpi.nsw.gov.au
Cc: Martin Haege; james@jpabusiness.com.au; phillip@jpabusiness.com.au
Subject: Agency Consultation - Bourke Small Stock Abattoir
Attachments: 217436_WatMP_2.1.pdf

Good morning Tim,

Geolyse has been engaged by Darling River Goat Exports to prepare an Operational Environmental Management Plan (OEMP) for the Bourke Small Stock Abattoir in accordance with Condition D3 of development consent SSD 7268.

The OEMP includes various sub-plans which are required to be prepared in consultation with relevant government agencies. Condition C39 requires that the *Water Management Plan* is prepared in consultation with the DPI.

The above plan is attached as a draft version for your review. Any comments will be discussed and incorporated into this plan before the final OEMP is submitted to the DPE for approval.

It would be appreciated if you could advise of your timeframe to provide comments on the draft plan as we would like to finalise the OEMP by the end of June 2018.

Please do not hesitate to contact myself or Martin Haege if you wish to discuss any matters arising from your review.

Regards,

Claire McQueeney
Environmental Scientist
Geolyse Pty Ltd
154 Peisley St
PO Box 1963
Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Email: cmcqueeney@geolyse.com
Web: www.geolyse.com

.....

NSW GOVERNMENT | Natural Resources Access Regulator

Contact Teagan-Lee Shepherd
Phone 02 6841 7420
Fax 02 6884 0096
Email teagan-lee.shepherd@nrar.nsw.gov.au

Clair McQueeney
Geolyse Pty Ltd
Environmental Scientist
PO BOX 1963
ORANGE NSW 2800

Our ref V15/4528#24
SSD 7268

Email: cmcqueeney@geolyse.com

6 July 2018

Dear Ms McQueeney,

Re: Draft Water Management Plan for the Bourke Small Stock Abattoir (SSD 7268) – Darling River Goat Exports Pty Ltd.

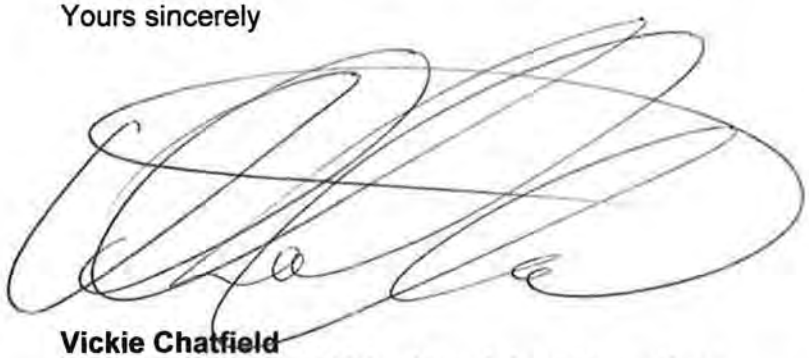
Thank you for your correspondence dated 6 June 2018 in relation to preparation of a Draft Water Management Plan (WMP) for the Bourke Small Stock Abattoir. The Natural Resources Access Regulator (NRAR) has reviewed your request and recommends that the following matters be addressed in the Water Management Plan (WMP).

- NRAR suggest consultation be commenced with Bourke Shire Council in regard to water supply forecasts. This is due to the current drought conditions and rather than waiting till level three water supply shortages are exceeded. Determining priorities between the abattoir and town water supply is necessary, not just suggested implementation of small water demand reductions for the abattoir. The outcome of this discussion should be incorporated into the WMP.
- Water for dust suppression purposes has been identified in Section 3.2.1 as sourced from water collected from the stormwater retention pond. Due to limitations on rainfall and runoff, clarification is requested that this would be supplemented via Bourke Shire Councils raw water supply arrangements.
- Section 4.4.1 and 4.4.2 refers to water quality analyte triggers being based on two times the maximum baseline data, however Appendix C refers to the trigger values as just the maximum monitoring values. This indicates an inconsistency in the WMP, and further to this Lands and Water are concerned with the approach of a 2 times baseline trigger value. Further justification is requested as to the suitability of this approach based on industry standards for site specific trigger values.
- Triggers for water level, Temp, pH, EC and DO have been included in Appendix C however on review of the baseline data it appears some of these triggers were exceeded in the sampling carried out to date. A review is therefore requested of the suitability of these triggers and to ensure the approach for developing site specific triggers is based on industry standards.
- The groundwater investigation procedure which is to follow when a trigger level is reached appears to be focused on water quality and there is no reference to water level. It is requested this be reviewed to ensure all parameters with triggers have an adequate approach developed. It is also recommended consultation with relevant agencies eg. Lands and Water, and the EPA be included when re-testing confirms triggers have been exceeded.

- The proposal to incorporate relevant water monitoring data into the Annual Review is supported.

Should you have any further queries in relation to this submission please do not hesitate to contact Teagan-Lee Shepherd on (02) 6841 7420.

Yours sincerely



Vickie Chatfield
Manager Regional Water Regulatory Operations
Department of Industry- Natural Resources Access Regulator

Martin Haege

From: Martin Haege <mhaege@geolyse.com>
Sent: 25 July 2018 5:53 PM
To: 'teagan-lee.shepherd@nrar.nsw.gov.au'
Subject: Bourke Small Stock Abattoir Water Management Plan
Attachments: 217436_WatMP_3.0.docx

Hi Teagan

Thank you for your letter dated 6 July 2018 with comments on the draft Water Management Plan (WMP) for the Bourke Small Stock Abattoir (BSSA).

Attached is an updated draft for your further review. Each item has been addressed as follows:

Dot Point 1 – I had a discussion with Peter Brown of Bourke Shire Council and have made some amendments to Section 2.3 and 2.4. It now clearly states that priority would be given to town water supply and that BSSA would need to comply with Council's Drought Management Plan in terms of restrictions.

Dot Point 2 – I did not change the WMP for this, but added some additional wording in one of the actions in the Dust Management section of the OEMP as follows:

The Plant Manager and Workers are responsible for monitoring dust generation and employing dust control measures as required. Appropriate dust control measures shall include:

- Strategic watering using water sourced from the stormwater pond or, in the event that no water is available in the pond, from the raw water supply system
- Sweeping and/or cleaning of hard surfaces
- Controlling stock movements
- Not undertaking potential dust generating activities in unfavourable conditions (e.g. in strong winds, or when winds are in the direction of off-site receivers).

Dot Points 3-5

On my review of the groundwater monitoring section, I agree it required revision. I have used nitrate as the indicator of any issues as it is mobile and a good indicator for the activity. Monitoring nitrate is consistent with recommendations in *Development of Indicators of Sustainability for Effluent Reuse in the Intensive Livestock Industries: Piggeries and Cattle Feedlots* (McGahan and Tucker, 2003). I also added a section on groundwater levels.

I would appreciate if you could review these changes and confirm if they adequately address your comments.

Happy to discuss as required.

Thanks and regards
Martin

Martin Haege
Principal Environmental Engineer / Director
Geolyse Pty Ltd
154 Peisley Street
Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Mob: 0418 402 249
Email: mhaege@geolyse.com
Web: www.geolyse.com

Facebook | LinkedIn

NSW GOVERNMENT | Natural Resources Access Regulator

Contact Teagan-Lee Shepherd
Phone 02 6841 7420
Fax 02 6884 0096
Email teagan-lee.shepherd@nrar.nsw.gov.au

Martin Haege
Geolyse Pty Ltd
Environmental Scientist
PO BOX 1963
ORANGE NSW 2800

Email: cmcqueeney@geolyse.com

Our ref V15/4528#24

3 September 2018

Dear Martin,

Additional comments on a Draft Water Management Plan for proposed project Bourke Small Stock Abattoir (SSD 7268) – Darling River Goat Exports Pty Ltd.

Thank you for your correspondence dated 25 July 2018 regarding the review of additional comments to the Draft Water Management Plan (WMP) for the Bourke Small Stock Abattoir (BSSA). The Natural Resources Access Regulator (NRAR) has reviewed your request and recommends that the following matters be recognised and addressed where required:

- NRAR supports the discussions that have occurred with Bourke Shire Council (BSC) to confirm the water supply prioritisation. It is recommended this continue, particularly during the current drought conditions, to ensure adequate supply is available and that alternative arrangements can be made to onsite activities if required. NRAR advises that it should be confirmed that the two bores proposed for use are licensed correctly for the water activities relating to this project
- NRAR supports additional measures incorporated into the WMP. These state that BSSA needs to comply with the BSC Drought Management Plan regarding water restrictions as town water supply takes priority over the supplies to the abattoir.
- NRAR supports the additional wording added to the actions in the Dust Management section of the OEMP. This concerns ensuring an additional supply of water is available for dust suppression if water cannot be sourced from stormwater retention ponds.
- The updated WMP states that the groundwater investigation procedure process would occur when a water level of less than 10 m below the surface occurred at either monitoring point. NRAR questions how a value of less than 10 m was identified as an appropriate trigger level. It is requested that the trigger level be reviewed to ensure that it adequately represents a measured value of which exceedance indicates the project is causing impacts, and would require management intervention. Once a trigger value has been exceeded, there needs be a clear set of steps to verify, manage, and mitigate impacts.

- NRAR supports the use of nitrate concentration to be used as an indicator and trigger level for possible groundwater contamination. The trigger value of 10 mg/L of nitrate is supported as it is consistent with recommendations in the guideline, "*Development of Indicators of Sustainability for Effluent Reuse in the Intensive Livestock Industries: Piggeries and Cattle Feedlots* (McGahan and Tucker, 2003)". Consultation is recommended with the EPA to confirm this is consistent with their requirements.
- NRAR supports the updated groundwater investigation procedure. This procedure includes consultation with EPA and Lands and Water division if re-testing confirms that trigger levels have been exceeded, and the preparation of a Groundwater Assessment Plan with additional monitoring and assessment procedures/programs.

Please direct any questions regarding this correspondence to Teagan-Lee Shepherd on (02) 6841 7420.

Yours sincerely

Vickie Chatfield
Manager Water Regulatory Operations – West
Department of Industry – Natural Resource Access Regulator

Martin Haege

From: Martin Haege <mhaege@geolyse.com>
Sent: 10 September 2018 9:06 AM
To: 'Teagan-Lee Shepherd'
Cc: 'Water Referrals'
Subject: RE: Bourke Small Stock Abattoir Water Management Plan

Hi Teagan

Thanks for the response and supporting the changes made to the Water Management Plan.

Dot point 4 in your letter questions how a groundwater level of less than 10 m below surface level was selected as an appropriate trigger level.

As discuss this morning, 9 rounds of groundwater monitoring have been completed between June 2017 and March 2018 (piezometers installed in May 2017). These indicate the minimum groundwater level below surface level is 12.4 m. This data is relatively limited and does not pick up any long terms trends and/or seasonal variations, and the regional groundwater levels may be lower due to dry conditions. Therefore we adopted a trigger level of 10 m below surface level for the trigger level as ongoing monitoring may show groundwater levels rising as seasons move towards average or wetter. Once this trigger is reached, monitoring frequency would increase as described in the Water Management Plan.

The other consideration for the entire OEMP (including its sub-plans) is that it is a living document and it will be reviewed, as required, based on monitoring data. In the case of groundwater monitoring, a dataset extending over several years will help identify and regional trends etc and can be used to refine site specific trigger levels if required.

We trust this adequately addresses the question raised. And would be happy to discuss further if required.

Thanks and regards
Martin

Martin Haege
Principal Environmental Engineer / Director
Geolyse Pty Ltd
154 Peisley Street
Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Mob: 0418 402 249
Email: mhaege@geolyse.com
Web: www.geolyse.com

Facebook | LinkedIn

From: Teagan-Lee Shepherd [mailto:teagan-lee.shepherd@nrar.nsw.gov.au]
Sent: 7 September 2018 8:39 AM
To: Martin Haege <mhaege@geolyse.com>
Cc: Water Referrals <water.referrals@nrar.nsw.gov.au>
Subject: Re: Bourke Small Stock Abattoir Water Management Plan

Hi Martin,

Sorry for the delay, attached below are the Natural Resources Access Regulator's additional comments regarding the Bourke Small Stock Abattoir Water Management Plan.

Regards
Teagan

On Wed, Aug 29, 2018 at 10:58 AM, Martin Haege <mhaege@geolyse.com> wrote:

> Hi Teagan
>
> Just checking - have you sent these additional comments? I have not received them.
>
> Thanks
>
> Martin
>
> **Martin Haege**
>
> *Principal Environmental Engineer / Director*
>
> **Geolyse Pty Ltd**
>
> 154 Peisley Street
>
> Orange NSW 2800
>
> Ph: 02 6393 5000
>
> Fx: 02 6393 5050
>
> Mob: 0418 402 249
>
> Email: mhaege@geolyse.com
>
> Web: www.geolyse.com
>
> Facebook | LinkedIn
>
> .....
>
>

From: Teagan-Lee Shepherd [mailto:teagan-lee.shepherd@nrar.nsw.gov.au]
Sent: 15 August 2018 3:43 PM
To: Martin Haege <mhaege@geolyse.com>
Subject: Re: Bourke Small Stock Abattoir Water Management Plan

Hi Martin,

I have finished my additional comments for the draft Water Management Plan (WMP) for the Bourke Small Stock Abattoir (BSSA). I just have to get my comments checked over (hopefully this will be by tomorrow) then I will flick them over to you. I am on leave from today till Monday 20 August I will check my emails to see if they have flicked the comments back then ill forward them straight on, so I don't hold you up any longer.

Kind regards,

Teagan

On Wed, Jul 25, 2018 at 5:52 PM, Martin Haege <mhaege@geolyse.com> wrote:

> Hi Teagan
>
> Thank you for your letter dated 6 July 2018 with comments on the draft Water Management Plan (WMP) for the Bourke Small Stock Abattoir (BSSA).
>
> Attached is an updated draft for your further review. Each item has been addressed as follows:
>
> **Dot Point 1** – I had a discussion with Peter Brown of Bourke Shire Council and have made some amendments to Section 2.3 and 2.4. It now clearly states that priority would be given to town water supply and that BSSA would need to comply with Council's Drought Management Plan in terms of restrictions.
>
> **Dot Point 2** – I did not change the WMP for this, but added some additional wording in one of the actions in the Dust Management section of the OEMP as follows:

The Plant Manager and Workers are responsible for monitoring dust generation and employing dust control measures as required. Appropriate dust control measures shall include:

- Strategic watering using water sourced from the stormwater pond or, in the event that no water is available in the pond, from the raw water supply system
- Sweeping and/or cleaning of hard surfaces
- Controlling stock movements
- Not undertaking potential dust generating activities in unfavourable conditions (e.g. in strong winds, or when winds are in the direction of off-site receivers).

Dot Points 3-5

On my review of the groundwater monitoring section, I agree it required revision. I have used nitrate as the indicator of any issues as it is mobile and a good indicator for the activity. Monitoring nitrate is consistent with recommendations in *Development of Indicators of Sustainability for Effluent Reuse in the Intensive Livestock Industries: Piggeries and Cattle Feedlots* (McGahan and Tucker, 2003). I also added a section on groundwater levels.

I would appreciate if you could review these changes and confirm if they adequately address your comments.

Happy to discuss as required.

Thanks and regards

Martin

Martin Haege

Principal Environmental Engineer / Director

Geolyse Pty Ltd

154 Peisley Street

Orange NSW 2800

Ph: 02 6393 5000

Fx: 02 6393 5050

Mob: 0418 402 249

Email: mhaege@geolyse.com

Web: www.geolyse.com

Facebook | LinkedIn

.....

--

Teagan-Lee Shepherd | Water Regulation Officer

Regional Water Regulation (West – Murray Darling)

Natural Resource Access Regulator

209 Cobra Street Dubbo | PO Box 717 | Dubbo NSW 2830

T: 02 6841 7420

E: teagan-lee.shepherd@nrar.nsw.gov.au

W: www.dpi.nsw.gov.au

--

Teagan-Lee Shepherd | Water Regulation Officer

Regional Water Regulation (West – Murray Darling)
Natural Resource Access Regulator
209 Cobra Street Dubbo | PO Box 717 | Dubbo NSW 2830
T: 02 6841 7420
E: teagan-lee.shepherd@nrar.nsw.gov.au
W: www.industry.nsw.gov.au/water

Martin Haege

From: Teagan-Lee Shepherd <teagan-lee.shepherd@nrar.nsw.gov.au>
Sent: 14 September 2018 8:56 AM
To: Martin Haege
Subject: Re: FW: Bourke Small Stock Abattoir Water Management Plan

Hi Martin,

Thank you for providing the information above. The Natural Resources Access Regulator (NRAR) advises that this information has satisfactorily answered the questions that have been raised to address.

Additionally, NRAR suggests with the inclusion of a "WHY" report into the Water Management Plan, if this trigger level is reached and this "WHY" report should be distributed to the EPA and Lands & Water division as per the consultation agreement to notify both agencies if trigger levels have been exceeded.

This “WHY” report should cover all elements to why the trigger level has been reached and all supporting documentation.

NRAR believes you have addressed all concerns raised in regard to the Water Management Plan.

If you have any more questions please let me know.

Regards
Teagan

On Tue, Sep 11, 2018 at 11:54 AM, Martin Haege <mhaege@geolyse.com> wrote:

> Hi Teagan
>
> How did you go chasing up a response to this?
>
> I am getting a reasonable amount of pressure from the client to wrap up the OEMP so it can be submitted to DP&E prior to operations commencing. Any help would be appreciated.
>
> Thanks and regards
>
> Martin
>
> **Martin Haege**
>
> *Principal Environmental Engineer / Director*

Geolyse Pty Ltd

154 Peisley Street

Orange NSW 2800

Ph: 02 6393 5000

Fx: 02 6393 5050

Mob: 0418 402 249

Email: mhaege@geolyse.com

Web: www.geolyse.com

Facebook | LinkedIn

.....

From: Martin Haege [mailto:mhaege@geolyse.com]
Sent: 10 September 2018 9:06 AM
To: 'Teagan-Lee Shepherd' <teagan-lee.shepherd@nrar.nsw.gov.au>
Cc: 'Water Referrals' <water.referrals@nrar.nsw.gov.au>
Subject: RE: Bourke Small Stock Abattoir Water Management Plan

Hi Teagan

Thanks for the response and supporting the changes made to the Water Management Plan.

Dot point 4 in your letter questions how a groundwater level of less than 10 m below surface level was selected as an appropriate trigger level.

As discuss this morning, 9 rounds of groundwater monitoring have been completed between June 2017 and March 2018 (piezometers installed in May 2017). These indicate the minimum groundwater level below surface level is 12.4 m. This data is relatively limited and does not pick up any long terms trends and/or seasonal variations, and the regional groundwater levels may be lower due to dry conditions. Therefore we adopted a trigger level of 10 m below surface level for the trigger level as ongoing monitoring may show groundwater levels rising as seasons move towards average or wetter. Once this trigger is reached, monitoring frequency would increase as described in the Water Management Plan.

The other consideration for the entire OEMP (including its sub-plans) is that it is a living document and it will be reviewed, as required, based on monitoring data. In the case of groundwater monitoring, a dataset extending over several years will help identify and regional trends etc and can be used to refine site specific trigger levels if required.

We trust this adequately addresses the question raised. And would be happy to discuss further if required.

Thanks and regards

Martin

Martin Haege

Principal Environmental Engineer / Director

Geolyse Pty Ltd

154 Peisley Street

Orange NSW 2800

Ph: 02 6393 5000

Fx: 02 6393 5050

Mob: 0418 402 249

Email: mhaege@geolyse.com

Web: www.geolyse.com

Facebook | LinkedIn

.....

From: Teagan-Lee Shepherd [mailto:teagan-lee.shepherd@nrar.nsw.gov.au]
Sent: 7 September 2018 8:39 AM
To: Martin Haege <mhaege@geolyse.com>
Cc: Water Referrals <water.referrals@nrar.nsw.gov.au>

Subject: Re: Bourke Small Stock Abattoir Water Management Plan

Hi Martin,

Sorry for the delay, attached below are the Natural Resources Access Regulator's additional comments regarding the Bourke Small Stock Abattoir Water Management Plan.

Regards

Teagan

On Wed, Aug 29, 2018 at 10:58 AM, Martin Haege <mhaege@geolyse.com> wrote:

> Hi Teagan
>
> Just checking - have you sent these additional comments? I have not received them.
>
> Thanks
>
> Martin
>
> **Martin Haege**
>
> *Principal Environmental Engineer / Director*
>
> **Geolyse Pty Ltd**
>
> 154 Peisley Street
>
> Orange NSW 2800
>
> Ph: 02 6393 5000
>
> Fx: 02 6393 5050
>
> Mob: 0418 402 249
>
> Email: mhaege@geolyse.com
>
> Web: www.geolyse.com
>
> Facebook | LinkedIn

.....

From: Teagan-Lee Shepherd [mailto:teagan-lee.shepherd@nrar.nsw.gov.au]
Sent: 15 August 2018 3:43 PM
To: Martin Haege <mhaege@geolyse.com>
Subject: Re: Bourke Small Stock Abattoir Water Management Plan

Hi Martin,

I have finished my additional comments for the draft Water Management Plan (WMP) for the Bourke Small Stock Abattoir (BSSA). I just have to get my comments checked over (hopefully this will be by tomorrow) then I will flick them over to you. I am on leave from today till Monday 20 August I will check my emails to see if they have flicked the comments back then ill forward them straight on, so I don't hold you up any longer.

Kind regards,

Teagan

On Wed, Jul 25, 2018 at 5:52 PM, Martin Haege <mhaege@geolyse.com> wrote:

> Hi Teagan
>
> Thank you for your letter dated 6 July 2018 with comments on the draft Water Management Plan (WMP) for the Bourke Small Stock Abattoir (BSSA).
>
> Attached is an updated draft for your further review. Each item has been addressed as follows:
>
> **Dot Point 1** – I had a discussion with Peter Brown of Bourke Shire Council and have made some amendments to Section 2.3 and 2.4. It now clearly states that priority would be given to town water

supply and that BSSA would need to comply with Council's Drought Management Plan in terms of restrictions.

Dot Point 2 – I did not change the WMP for this, but added some additional wording in one of the actions in the Dust Management section of the OEMP as follows:

The Plant Manager and Workers are responsible for monitoring dust generation and employing dust control measures as required. Appropriate dust control measures shall include:

- Strategic watering using water sourced from the stormwater pond or, in the event that no water is available in the pond, from the raw water supply system
- Sweeping and/or cleaning of hard surfaces
- Controlling stock movements
- Not undertaking potential dust generating activities in unfavourable conditions (e.g. in strong winds, or when winds are in the direction of off-site receivers).

Dot Points 3-5

On my review of the groundwater monitoring section, I agree it required revision. I have used nitrate as the indicator of any issues as it is mobile and a good indicator for the activity. Monitoring nitrate is consistent with recommendations in *Development of Indicators of Sustainability for Effluent Reuse in the Intensive Livestock Industries: Piggeries and Cattle Feedlots* (McGahan and Tucker, 2003). I also added a section on groundwater levels.

I would appreciate if you could review these changes and confirm if they adequately address your comments.

Happy to discuss as required.

Thanks and regards

Martin

Martin Haege

Principal Environmental Engineer / Director

Geolyse Pty Ltd

154 Peisley Street

Orange NSW 2800

Ph: 02 6393 5000

Fx: 02 6393 5050

Mob: 0418 402 249

Email: mhaege@geolyse.com

Web: www.geolyse.com

Facebook | LinkedIn

.....

--

Teagan-Lee Shepherd | Water Regulation Officer

Regional Water Regulation (West – Murray Darling)

Natural Resource Access Regulator

209 Cobra Street Dubbo | PO Box 717 | Dubbo NSW 2830

T: 02 6841 7420

E: teagan-lee.shepherd@nrar.nsw.gov.au

W: www.dpi.nsw.gov.au

--

Teagan-Lee Shepherd | Water Regulation Officer

Regional Water Regulation (West – Murray Darling)

Natural Resource Access Regulator

209 Cobra Street Dubbo | PO Box 717 | Dubbo NSW 2830

T: 02 6841 7420

E: teagan-lee.shepherd@nrar.nsw.gov.au

W: www.industry.nsw.gov.au/water

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

--

Teagan-Lee Shepherd | Water Regulation Officer
Regional Water Regulation (West – Murray Darling)
Natural Resource Access Regulator
209 Cobra Street Dubbo | PO Box 717 | Dubbo NSW 2830
T: 02 6841 7420
E: teagan-lee.shepherd@nrar.nsw.gov.au
W: www.industry.nsw.gov.au/water

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

Appendix K4

DPI CORRESPONDENCE

Martin Haege

From: Claire McQueeney <cmcqueeney@geolyse.com>
Sent: 6 June 2018 9:58 AM
To: biosecuritylegislation@dpi.nsw.gov.au
Cc: Martin Haege; james@jpabusiness.com.au; phillip@jpabusiness.com.au
Subject: Agency Review - Bourke Small Stock Abattoir
Attachments: 217436_EDBP_1.1.pdf

Good morning,

Geolyse has been engaged by Darling River Goat Exports to prepare an Operational Environmental Management Plan (OEMP) for the Bourke Small Stock Abattoir in accordance with Condition D3 of development consent SSD 7268.

The OEMP includes various sub-plans which are required to be prepared in consultation with relevant government agencies. Condition C6 requires that the *Emergency Disposal and Biosecurity Protocol* is prepared in consultation with the DPI.

The above plan is attached as a draft version for your review. Any comments will be discussed and incorporated into this plan before the final OEMP is submitted to the DPE for approval.

It would be appreciated if you could advise of your timeframe to provide comments on the draft plan as we would like to finalise the OEMP by the end of June 2018.

Please do not hesitate to contact myself or Martin Haege if you wish to discuss any matters arising from your review.

Regards,

Claire McQueeney
Environmental Scientist
Geolyse Pty Ltd
154 Peisley St
PO Box 1963
Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Email: cmcqueeney@geolyse.com
Web: www.geolyse.com

.....

Martin Haege

From: Geoffrey Campbell <geoff.campbell@dpi.nsw.gov.au>
Sent: 2 July 2018 2:43 PM
To: Claire McQueeney; mhaege@geolyse.com
Subject: Re: Emergency Disposal and Biosecurity Protocol
Attachments: Goat Abbattoir.docx; 217436_EDBP_1.1.pdf

Hi Claire,

I'm sending you some comments on this draft regarding the protocol for the Bourke small stock abattoir.

Apologies- I have comments on two different documents (the word doc you sent didn't have the two appendix attachments- so I've just added this as a pdf doc with comments. Let me know if this is not clear).

Is this also going to EPA- as they would need to comment as well?

Kind regards,

Geoff

Geoff Campbell BVSc | Veterinary Officer Biosecurity Strategy & Standards | Biosecurity NSW
Department of Primary Industries |161 Kite Street | Orange NSW 2800| Locked Bag 21 | Orange NSW 2800
T: 02 6391 3534| F: 02 6361 9976 |
E: geoff.campbell@dpi.nsw.gov.au
W: www.dpi.nsw.gov.au/biosecurity

On 26 June 2018 at 11:20, Claire McQueeney <cmcqueeney@geolyse.com> wrote:

> Hi Geoff,
>
> Thank you for your phone call earlier.
>
> Please find attached a word version of the Emergency Disposal and Biosecurity Protocol (and associated sub-plan) for Bourke Small Stock Abattoir.
>
> Any comments/guidance would be most appreciated.
>
> Kind regards,
>
> **Claire McQueeney**
>
> *Environmental Scientist*

Geolyse Pty Ltd

154 Peisley St

PO Box 1963

Orange NSW 2800

Ph: 02 6393 5000

Fx: 02 6393 5050

Email: cmcqueeney@geolyse.com

Web: www.geolyse.com

.....

From: Geoffrey Campbell [mailto:geoff.campbell@dpi.nsw.gov.au]
Sent: Tuesday, 26 June 2018 11:10 AM
To: cmcqueeney@geolyse.com
Cc: mhaege@geolyse.com
Subject: Emergency Disposal and Biosecurity Protocol

Hi Claire,

Just sending you my email address so you could send me a word version of the Emergency Disposal and Biosecurity Protocol for the Bourke abattoir.

Kind regards,

Geoff

Geoff Campbell BVSc | Senior Veterinary Officer Biosecurity Strategy & Standards | Biosecurity NSW

Department of Primary Industries |161 Kite Street | Orange NSW 2800| Locked Bag 21 | Orange NSW 2800

T: 02 6391 3534| F: 02 6361 9976 |

E: geoff.campbell@dpi.nsw.gov.au

W: www.dpi.nsw.gov.au/biosecurity

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

Appendix K5

BSC CORRESPONDENCE

Martin Haege

From: Claire McQueeney <cmcqueeney@geolyse.com>
Sent: 6 June 2018 11:02 AM
To: bourkeshire@bourke.nsw.gov.au
Cc: Martin Haege; james@jpabusiness.com.au; phillip@jpabusiness.com.au
Subject: Agency Consultation - Bourke Small Stock Abattoir
Attachments: 217436_EDBP_1.1.pdf; 217436_WatMP_2.1.pdf

Good morning,

Geolyse has been engaged by Darling River Goat Exports to prepare an Operational Environmental Management Plan (OEMP) for the Bourke Small Stock Abattoir in accordance with Condition D3 of development consent SSD 7268.

The OEMP includes various sub-plans which are required to be prepared in consultation with relevant government agencies. Condition C6 and C39 requires that the *Emergency Disposal and Biosecurity Protocol* and *Water Management Plan* are prepared in consultation Bourke Shire Council.

The above plans are attached as a draft version for your review. Any comments will be discussed and incorporated into these plans before the final OEMP is submitted to the DPE for approval.

It would be appreciated if you could advise of your timeframe to provide comments on the draft plans as we would like to finalise the OEMP by the end of June 2018.

Please do not hesitate to contact myself or Martin Haege if you wish to discuss any matters arising from your review.

Regards,

Claire McQueeney
Environmental Scientist
Geolyse Pty Ltd
154 Peisley St
PO Box 1963
Orange NSW 2800
Ph: 02 6393 5000
Fx: 02 6393 5050
Email: cmcqueeney@geolyse.com
Web: www.geolyse.com

.....

The Council of The Shire of Bourke

29 Mitchell St, Bourke, N.S.W 2840
P.O. Box 21, Bourke, N.S.W 2840
Telephone (02) 6830 8000 Fax (02) 6872 3030
Email: bourkeshire@bourke.nsw.gov.au
Web: http://www.bourke.nsw.gov.au

Please address all communications to the General Manager

Our Ref: DW-CC-D2.17

9th July 2018

Claire McQueeney
Geolyse Pty Ltd
154 Peisley St
Orange NSW 2800

Dear Claire

Re: Consultation – Bourke Small Stock Abattoir

Bourke Shire Council has received a draft copy of both the Emergency Disposal and Biosecurity Protocol and Water Management Plan and recognise that these are sub plans to the Operational Environmental Management Plan.

Bourke Shire Council recognises the importance of these documents and will make reference to the documents if required. Council would appreciate being made aware of any changes if and when they occur to the draft documents before being finalised.

Yours sincerely

Dwayne Willoughby
Manager Environmental Services

Appendix L

EPL 20918

Section 58(5) Protection of the Environment Operations Act 1997

Licence Variation

Licence - 20918

THOMAS FOODS INTERNATIONAL BOURKE PTY LIMITED
LEVEL 2/162 FULLARTON ROAD
ROSE PARK SA 5067

Attention: Andrew Manning

Notice Number	1623678
File Number	EF21/18363
Date	08-Nov-2022

NOTICE OF VARIATION OF LICENCE NO. 20918

BACKGROUND

A. THOMAS FOODS INTERNATIONAL BOURKE PTY LIMITED ("the licensee") is the holder of Environment Protection Licence No. 20918 ("the licence") issued under the *Protection of the Environment Operations Act 1997* ("POEO Act"). The licence authorises the carrying out of activities at MITCHELL HIGHWAY, BOURKE, NSW, 2840 ("the premises").

B. On 17-Oct-2022 the Environment Protection Authority (EPA) received an application for the variation of the licence.

C. The EPA has reviewed the application and supporting documentation and has made the requested changes to the licence, in line with development modification SSD-7268-Mod-2.

D. The EPA has therefore varied the Licence, taking into consideration Sections 3 and 45 of the POEO Act.

E. These changes are outlined below.

VARIATION OF LICENCE NO. 20918

1. By this notice the EPA varies licence No. 20918. The attached licence document contains all variations that are made to the licence by this notice.
2. The following variations have been made to the licence:
   - Condition A1.1 (existing): updated to reflect development modification SSD-7268-Mod-2.
   - Condition U1.1 (existing): updated in line with development modification SSD-7268-Mod-2.

Licence Variation

.....

Damien Robert Rindfleish

Unit Head

Environment Protection Authority

(by Delegation)

INFORMATION ABOUT THIS NOTICE

- This notice is issued under section 58(5) of the POEO Act.
- Details provided in this notice, along with an updated version of the licence, will be available on the EPA's Public Register (http://www.epa.nsw.gov.au/prpoeo/index.htm) in accordance with section 308 of the POEO Act.

Appeals against this decision

- You can appeal to the Land and Environment Court against this decision. The deadline for lodging the appeal is 21 days after you were given notice of this decision.

When this notice begins to operate

- The variations to the licence specified in this notice begin to operate immediately from the date of this notice, unless another date is specified in this notice.
- If an appeal is made against this decision to vary the licence and the Land and Environment Court directs that the decision is stayed the decision does not operate until the stay ceases to have effect or the Land and Environment Court confirms the decision or the appeal is withdrawn (whichever occurs first).

Environment Protection Licence

Licence - 20918

Licence Details	
Number:	20918
Anniversary Date:	01-May

Licensee

THOMAS FOODS INTERNATIONAL BOURKE PTY LIMITED

LEVEL 2/162 FULLARTON ROAD

ROSE PARK SA 5067

Premises

THOMAS FOODS INTERNATIONAL BOURKE

MITCHELL HIGHWAY

BOURKE NSW 2840

Scheduled Activity

Livestock processing activities

Fee Based Activity	Scale
Slaughtering or processing animals	> 30000 T annual processing capacity

Contact Us

NSW EPA

4 Parramatta Square

12 Darcy Street

PARRAMATTA NSW 2150

Phone: 131 555

Email: info@epa.nsw.gov.au

Locked Bag 5022

PARRAMATTA NSW 2124

Environment Protection Licence

Licence - 20918

Environment Protection Licence

Licence - 20918

Environment Protection Licence

Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

Environment Protection Licence

The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

THOMAS FOODS INTERNATIONAL BOURKE PTY LIMITED
LEVEL 2/162 FULLARTON ROAD
ROSE PARK SA 5067

subject to the conditions which follow.

Environment Protection Licence

Licence - 20918

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled development work listed below at the premises listed in A2.
Initial site works: On-site earthworks and construction in preparation for commencement of scheduled activities as approved by Department of Planning and Environment on 5 October 2022 (reference SSD-7268-Mod-2).

A1.2 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Livestock processing activities	Slaughtering or processing animals	> 30000 T annual processing capacity

A1.3 The licensee is prohibited from carrying out the scheduled activities identified at condition A1.2 during the undertaking of the scheduled development work identified at condition A1.1.

A2 Premises or plant to which this licence applies

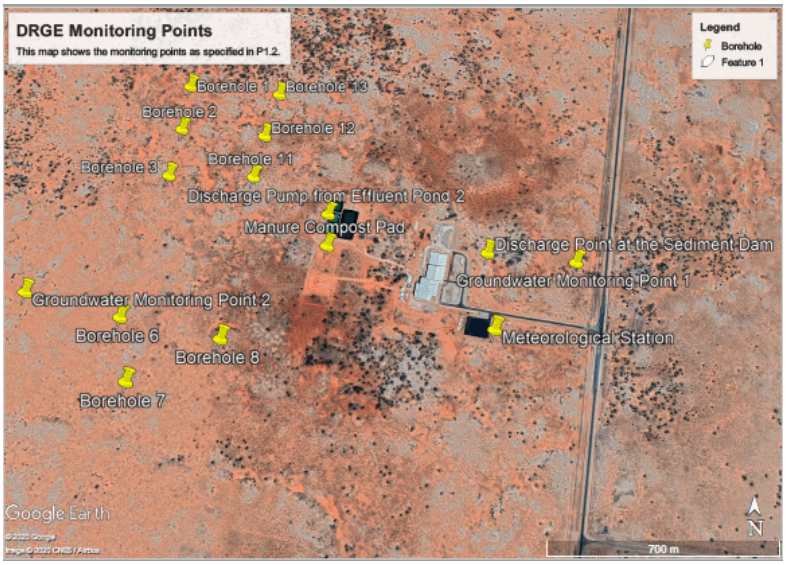
A2.1 The licence applies to the following premises:

Premises Details
THOMAS FOODS INTERNATIONAL BOURKE
MITCHELL HIGHWAY
BOURKE
NSW 2840
LOT 17 DP 753546

A2.2 The premises location is shown on the map below.

Environment Protection Licence

Licence - 20918



A2.3 For the purposes of Condition A2.2, "premises location" means the locations of monitoring points referred to in the licence, as described at Condition P1.2 and Condition P1.3.

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

Environment Protection Licence

Licence - 20918

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
3	Sediment dam	Sediment dam	Sediment stormwater dam to the east of the abattoir complex labelled as "Discharge Point at the Sediment Dam" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281).
4	Groundwater monitoring		Groundwater monitoring bore to the east of the abattoir complex labelled as "Groundwater Monitoring Point 1" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281)
5	Groundwater monitoring		Groundwater monitoring bore to the west of the abattoir complex labelled as "Groundwater Monitoring Point 2" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281).
6	Effluent quality and volume discharge	Effluent quality and volume discharge	Irrigation pump at effluent treatment pond No. 2 labelled as "Discharge Pump from Effluent Pond 2" on map titled "DRGE Monitoring Points" (EPA reference DOC20/1004281).
7	Soil monitoring		Effluent utilisation area labelled as "Borehole 1" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281)
8	Soil monitoring		Effluent utilisation area labelled as "Borehole 2" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281)
9	Soil monitoring		Effluent utilisation area labelled as "Borehole 3" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281).
10	Soil Monitoring		Effluent utilisation area labelled as "Borehole 11" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281)
11	Soil Monitoring		Effluent utilisation area labelled as "Borehole 12" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281)
12	Soil Monitoring		Effluent utilisation area labelled as "Borehole 13" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281).
13	Soil Monitoring		Background soil sampling area labelled as "Borehole 6" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281)

14	Soil Monitoring	Background soil sampling area labelled as "Borehole 7" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281)
15	Soil Monitoring	Background soil sampling area labelled as "Borehole 8" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281).
16	Manure monitoring	Manure compost pad labelled as "Manure Compost Pad" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281).

P1.3 The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.

Noise/Weather

EPA identification no.	Type of monitoring point	Location description
1	Meteorological Station	Meteorological station labelled as "Meteorological Station" on map titled "DRGE Monitoring Points" (EPA reference: DOC20/1004281)
2	Noise monitoring	Properties located to the south of the premises as depicted in document titled "Bourke Small Abattoirs - SSD 7268 - Environmental Impact Statement: Volume 1 - Figure 3.2 - Nearest receptors" (EPA reference: DOC16/132032-01).

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Concentration limits

L2.1 For each monitoring\discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those

specified in the table\s.

L2.4 Water and/or Land Concentration Limits

POINT 3

Pollutant	Units of Measure	50 Percentile concentration limit	90 Percentile concentration limit	3DGM concentration limit	100 percentile concentration limit
Total suspended solids	milligrams per litre				50

L3 Volume and mass limits

L3.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:
a) liquids discharged to water; or;
b) solids or liquids applied to the area;
must not exceed the volume/mass limit specified for that discharge point or area.

Point	Unit of Measure	Volume/Mass Limit
6	kilolitres per day	1550

L4 Waste

L4.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal of any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises under the Protection of the Environment Operations Act 1997.

L5 Noise limits

L5.1 Noise generated at the premises that is measured at each noise monitoring point established under this licence must not exceed the noise levels specified in Column 4 of the table below for that point during the corresponding time periods specified in Column 1 when measured using the corresponding measurement parameters listed in Column 2.

POINT 2

Environment Protection Licence

Licence - 20918

Time period	Measurement parameter	Measurement frequency	Noise level dB(A)
Day	Day-LAeq (15 minute)	-	35
Evening	Evening-LAeq (15 minute)	-	35
Night	Night-LAeq (15 minute)	-	35
Night	LAmax	-	45

L5.2 For the purposes of condition L5.1:
- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays.
- Evenings is defined as the period from 6pm to 10pm.
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

L5.3 The noise emission limits set out in condition L5.1 apply under all meteorological conditions except for the following:
a) Wind speeds greater than 3 metres/second at 10 metres above ground level;
b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
c) Stability category G temperature inversion conditions.

L5.4 For the purposes of condition L5.3:
a) Data recorded by a meteorological station installed on site must be used to determine meteorological conditions; and
b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part 4E of Appendix E to the NSW Industrial Noise Policy.

L5.5 To determine compliance:
a) with the Leq(15 minute) noise limits in condition L5.1, the noise measurement equipment must be located:

- approximately on the property boundary, where any dwelling is situated 30 metres of less from the property boundary closest to the premises; or
- within 30 metres of a dwelling façade, but not closer than 3 metres, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable
- within approximately 50 metres of the boundary of a National Park or a Nature Reserve.

b) with LAmax noise limits in condition L5.1, the noise measurement equipment must be located within 1 metres of a dwelling façade.

c) with the noise limits in condition L5.1 the noise measurement equipment must be located:

- at the most affected point at a location where there is no dwelling at the location; or
- at the most affected point within an area at a location prescribed by conditions L5.5(a) or L5.5(b).

L5.6 A non-compliance of condition L5.1 will still occur where noise generated from the premises in excess of the appropriate limit is measured:

- at a location other than an area prescribed by conditions L5.5(a) and L5.5(b); and/or
- at a point other than the most affected point at a location.

L5.7 For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measure by the noise monitoring equipment.

L6 Blasting

L6.1 Blasting at the premises is prohibited.

L7 Hours of operation

L7.1 Unless otherwise specified by any other condition of this license, all construction activities are:
a) restricted to between hours of 7:00am and 6:00pm Monday to Friday;
b) restricted to between the hours of 8:00am and 1:00pm Saturday; and
c) not to be undertaken on Sundays or Public Holidays.

L7.2 Works outside of the hours identified in condition L7.1 may be undertaken in the following circumstances:
a) works that are inaudible at the nearest receivers;
b) works agreed to in writing by the Secretary of the NSW Department of Planning and Environment;
c) or the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons;
d) Where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

L7.3 Unless otherwise specified by any other condition of this licence, scheduled activities are permitted to operate 24 hours a day Monday to Sunday.

L8 Potentially offensive odour

L8.1 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environmental protection licence as a potentially offensive odour and the odour emitted in accordance with the conditions of a licence directed at minimising odour.

L8.2 No condition of this license identifies a potentially offensive odour for the purposes of Section 129 of the Protection of the Environment Operations Act 1997.

Environment Protection Licence

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
a) must be maintained in a proper and efficient condition; and
b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 All areas in or on the premises must be maintained in a condition that prevents or minimises the emission into the air of air pollutants (which includes dust).

O3.2 Trucks entering and leaving the premises that are carrying any material must have their loads covered at all times to prevent the generation of dust, except during loading and unloading.

O3.3 Any activity in or on the premises must be carried out by such practicable means as to prevent or minimise the emission into the air of air pollutants (which includes dust).

O3.4 Any plant in or on the premises must be operated by such practicable means as to prevent or minimise the emission into the air or air pollutants (which includes dust).

O4 Effluent application to land

O4.1 The quantity of effluent/solids applied to the utilisation area must not exceed the capacity of the area to effectively utilise the effluent/solids.

For the purpose of this condition, 'effectively utilise' includes the use of the effluent/solids for pasture or crop production, as well as the ability of the soil to absorb the nutrient, salt, hydraulic load and organic material.

O4.2 At least 14 days prior to a utilisation area being rendered unavailable for use, the EPA must be advised in writing of this intention.

O4.3 Effluent application must not occur in a manner that causes surface runoff.

O4.4 Spray from effluent application must not drift beyond the boundary of the premises.

O4.5 Livestock access to any effluent application area must be denied during effluent application and until the applied effluent area has dried.

O4.6 The licensee must retain the utilisation area.

O4.7 Effluent application must not occur on any other area except the defined utilisation area.

O5 Processes and management

O5.1 All tanks and storage areas for drums containing material that has potential to cause environmental harm must be bunded or have an alternative spill containment system in-place.

The bunding and/or spill containment systems must be properly designed, engineered, and constructed to be suitable for the material types and quantities stored therein in accordance with all appropriate standards, including Australian Standards (AS)1940 and AS1596.

O5.2 The holding pen surface must be maintained to prevent infiltration.

O5.3 Solids must be stored on an impermeable pad within the controlled drainage area.

O6 Waste management

O6.1 Any waste materials removed from the site must only be disposed of at a waste management facility or premises lawfully permitted to accept the materials.

O6.2 The licensee must ensure that any liquid and/or non liquid waste generated and/or stored at the premises is assessed and classified in accordance with the EPA's Waste Classification Guidelines as in force from time to time.

O7 Other operating conditions

Bunding requirements

O7.1 All above ground storage facilities containing flammable and combustable liquids must be bunded in accordance with Australian Standard AS 1940-2004.

O7.2 All Toxic Chemicals must be stored in accordance with the requirements of AS/NZS4452- The Storage and Handling of Toxic Substances.

Effluent ponds

O7.3 All effluent, contaminated and stormwater structures internal surfaces must have an equivalent to, or better than, a clay liner of permeability of 10-9 m/s over a minimum depth of 900mm or an equivalent alternative. When an alternative liner is proposed, a minimum of 600mm compacted base materials must be used

to protect the liner.

5 Monitoring and Recording Conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Water and/ or Land Monitoring Requirements

POINT 3

Pollutant	Units of measure	Frequency	Sampling Method
Total suspended solids	milligrams per litre	Daily during any discharge	Grab sample

POINT 4,5

Pollutant	Units of measure	Frequency	Sampling Method
Electrical conductivity	microsiemens per centimetre	Yearly	In situ
Nitrogen (nitrate)	milligrams per litre	Yearly	Grab sample
Nitrogen (total)	milligrams per litre	Yearly	Grab sample
pH	pH	Yearly	In situ
Phosphorus (total)	milligrams per litre	Yearly	Grab sample

Environment Protection Licence

Standing Water Level	metres	Yearly	In situ
Total dissolved solids	milligrams per litre	Yearly	Grab sample

POINT 6

Pollutant	Units of measure	Frequency	Sampling Method
BOD	milligrams per litre	Quarterly	Grab sample
Chemical oxygen demand	milligrams per litre	Quarterly	Grab sample
Electrical conductivity	microsiemens per metre	Quarterly	In situ
Exchangeable calcium	milligrams per litre	Quarterly	Grab sample
Exchangeable magnesium	milligrams per litre	Quarterly	Grab sample
Exchangeable potassium	milligrams per litre	Quarterly	Grab sample
Exchangeable sodium	milligrams per litre	Quarterly	Grab sample
Nitrogen (ammonia)	milligrams per litre	Quarterly	Grab sample
Nitrogen (nitrate)	milligrams per litre	Quarterly	Grab sample
Nitrogen (nitrite)	milligrams per litre	Quarterly	Grab sample
Nitrogen (total)	milligrams per litre	Quarterly	Grab sample
pH	pH	Quarterly	In situ
Phosphorus (total)	milligrams per litre	Quarterly	Grab sample
Sodium Adsorption Ratio	-	Quarterly	Grab sample
Total suspended solids	milligrams per litre	Quarterly	Grab sample

POINT 7,8,9,10,11,12,13,14,15

Pollutant	Units of measure	Frequency	Sampling Method
Available phosphorus	milligrams per kilogram	Yearly	Special Method 1
Electrical conductivity	microsiemens per metre	Yearly	Special Method 1
Exchangeable calcium	centimoles of positive charge per kilogram of soil	Yearly	Special Method 1
Exchangeable magnesium	centimoles of positive charge per kilogram of soil	Yearly	Special Method 1
Exchangeable potassium	centimoles of positive charge per kilogram of soil	Yearly	Special Method 1
Exchangeable sodium	centimoles of positive charge per kilogram of soil	Yearly	Special Method 1
Exchangeable sodium percentage	percent	Yearly	Special Method 1
Nitrogen (nitrate)	milligrams per kilogram	Yearly	Special Method 1
Nitrogen (total)	milligrams per kilogram	Yearly	Special Method 1
Organic carbon	percent	Yearly	Special Method 1

pH	pH	Yearly	Special Method 1
Phosphorus (total)	milligrams per kilogram	Yearly	Special Method 1

M2.3 For the purpose of the table(s) above, Special Method 1 means that representative composite soil samples are to be collected from the top soils (0-10 cm) yearly and from the subsoils (>10 cm) every 3 years in accordance with the *Environmental Guidelines: Use of effluent by irrigation (DEC 2004)*.

M2.4 The monitoring required by Condition M2.1 at points 6 to 15 is only required once the irrigation system is installed and there is sufficient treatable effluent for the irrigation system to be commissioned. Monitoring at these points must commence prior to any irrigation.

M3 Testing methods - concentration limits

M3.1 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Weather monitoring

M4.1 At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.

POINT 1

Parameter	Sampling method	Units of measure	Averaging period	Frequency
Rainfall	AM-4	millimetres	1 hour	Continuous
Wind Direction at 10 metres	AM-2 & AM-4	Degrees	15 minutes	Continuous
Wind Speed at 10 metres	AM-2 & AM-4	metres per second	15 minutes	Continuous
Siting	AM-1 & AM-4	-	-	-
Sigma Theta	AM-2 & AM-4	degrees Celsius	-	Continuous

M5 Recording of pollution complaints

M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M5.2 The record must include details of the following:
a) the date and time of the complaint;

b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M6 Telephone complaints line

M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M6.3 The preceding two conditions do not apply until - the date of the issue of this licence.

M7 Requirement to monitor volume or mass

M7.1 For each discharge point or utilisation area specified below, the licensee must monitor:
a) the volume of liquids discharged to water or applied to the area;
b) the mass of solids applied to the area;
c) the mass of pollutants emitted to the air;
at the frequency and using the method and units of measure, specified below.

POINT 6

Frequency	Unit of Measure	Sampling Method
Continuous during discharge	kilolitres per day	In line instrumentation

POINT 16

Frequency	Unit of Measure	Sampling Method
Yearly	tonnes	Special Method 2

M7.2 For the purpose of the table above, Special Method 2 means the amount of manure solids removed from the manure composting pad that is estimated and/or weighed.

Environment Protection Licence

Licence - 20918

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

Environment Protection Licence

R1.8 The licensee must supply with the Annual Return the most recent Annual Review Report required by Condition D7 of project approval SSD-7268 that provides:
a) tabulated results of all monitoring data;
b) graphical presentation of all monitoring data collected over the current and previous reporting periods in order to show variability and/or trends overtime;
c) an analysis and interpretation of all monitoring data; and
d) actions to correct identified adverse trends.

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which they became aware of the incident.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
a) where this licence applies to premises, an event has occurred at the premises; or
b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
a) the cause, time and duration of the event;
b) the type, volume and concentration of every pollutant discharged as a result of the event;
c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

Environment Protection Licence

7 General Conditions

G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

G2 Contact number for incidents and responsible employees

G2.1 The licensee must provide the EPA with up to date contact details to enable the EPA:
a) to contact either the licensee or a representative of the licensee who can respond at all times to incidents relating to the premises; and
b) to contact the licensee's senior employees or agents authorised at all times to:
i) speak on behalf of the licensee, and
ii) provide any information or document required under licence.

G2.2 The contact details required by Condition G2.1 above must include:
a) the full name and title of the authorised representatives and the scope of their respective authorisations; and
b) the direct telephone number, mobile number, pager number, fax number, email address and postal address for contacting each authorised representative.

G2.3 The licensee is to inform the EPA in writing of the appointment of any subsequent contact persons, or changes to the person's contact details as soon as practicable and in any event within fourteen days of the appointment or change.

G3 Signage

G3.1 The location of EPA points numbered 1 (Meteorological Station), 3 (Sediment Dam), 4 (Groundwater monitoring), 5 (Groundwater monitoring), 6 (Effluent discharge), 7 to 14 (Soil monitoring) and 15 (Manure compost pad) must be clearly marked by signs that indicate the point identification number used in this licence and that are located as close as practical to the point.

8 Pollution Studies and Reduction Programs

U1 Installation of environmental protection works and effluent commissioning study

Pollution control measures

Environment Protection Licence

U1.1 The licensee must undertake the following works as agreed with the EPA and in line with Development Consent SSD-7268-Mod-2.

Site feature	Works to be undertaken
Manure stockpile area	a) Designed and constructed in accordance with the leachate barrier system in Section 5.2 of the DEC (2004) Environmental Guidelines: Composting and related organics processing facilities
Biosecurity	b) Revise the Emergency Disposal and Biosecurity Protocol detailing the procedures for a biosecurity emergency including a mass mortality event as required under Condition C6A in Development Consent SSD-7268-Mod-2

U1.2 The licensee must submit a report including photographs documenting the completion of the works required by Condition U1.1 to the EPA prior to undertaking slaughtering activities.

U1.3 The licensee must undertake the installation of the works identified in the table below prior to treated effluent being applied to the irrigation utilisation area.

Site feature	Works to be undertaken
Irrigation system	a) Install irrigator, pump stations and irrigation main
Surface water bunds	b) Construct clean water diversion bunds and tailwater catch drains around the entire perimeter of the effluent reuse area
Tailwater pond	c) Construct tailwater collection basin

U1.4 The licensee must submit a report including photographs documenting the completion of the works required by Condition U1.3 to the EPA prior to treated effluent being applied to the irrigation utilisation area.

Effluent System Commissioning Study

U1.5 Prior to the plant re-commencing operations the licensee must provide the EPA with a status update advising estimated timing for sufficient treatable effluent to commission the effluent management and related irrigation system.

U1.6 No more than 30 days after commissioning of the effluent treatment and irrigation system, the licensee must provide the EPA with a report summarising the outcomes of commissioning against expected results, including but not limited to:
a) comparisons between the predicted effluent quality and quantity and actual measured effluent quality and quantity, and
b) any actions needed to ensure that the system adequately treats effluent and that the irrigation area sustainably utilises the effluent.

If there is a significant difference between predicted and measured results, the licensee must provide updated nutrient, salt and water balance models and must also demonstrate that the size of the effluent irrigation area is appropriate.

Notification of recommencing on-site operations

Environment Protection Licence

U1.7 The licensee must inform the EPA of recommencing the undertaking scheduled activity of livestock processing activities at the premises within seven days of recommencing on-site operations.

Environment Protection Licence

Licence - 20918

Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 20918

flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder describe d at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

Environment Protection Licence

Licence - 20918

TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste
Wellhead	Has the same meaning as in Schedule 1 to the Protection of the Environment Operations (General) Regulation 2021.

Mr Joshua Loxley

Environment Protection Authority

(By Delegation)

Date of this edition: 01-May-2017

End Notes

1	Licence transferred through application 1569476 approved on 12-Sep-2018 , which came into effect on 17-Sep-2018
2	Licence varied by notice 1598287 issued on 07-Dec-2020
3	Licence varied by notice 1604074 issued on 18-Dec-2020
4	Licence transferred through application 1614555 approved on 16-Dec-2021 , which came into effect on 16-Dec-2021

Appendix M

ENVIRONMENTAL POLICY STATEMENT

ENVIRONMENTAL POLICY STATEMENT

Thomas Foods International (TFI) operates under strict Government environmental guidelines and is committed to sustainable management and conservation of the environment throughout its operations. To this end, TFI will:

- Meet or exceed all legislative requirements for environmental management and protection at all times;
- Establish objectives and targets relating to environmental key performance indicators such as utility usage, to minimise the impact of the business on the local environment;
- Develop appropriate programs to achieve objectives and targets;
- Continually monitor its environmental performance, and implement corrective actions if a problem is identified;
- Give due consideration to industry environmental best practice, including the requirements of ISO14000 on Environmental Management Systems;
- Regularly review the environmental aspects and potential impacts of its supply chain, covering farms, transport, property and plants;
- Give due consideration to environmental issues when making decisions about changes in its operations;
- Continue to investigate ways in which it can cost effectively reduce the impact of its operation and improve environmental performance, such as through reducing resource consumption and waste generation;
- Ensure that staff, contractors and visitors have the training and resources required to achieve the company's commitment to environmental performance; and;
- Support the development of a company culture which values environmental awareness such as waste management, cleaner production, environmental protection and reduced carbon footprint.

This policy is the cornerstone of TFI's commitment to the environment. It will be communicated to all staff throughout TFI and be readily accessible to all.

TFI will review this policy at least every two years to ensure its continued suitability.

Signed: 

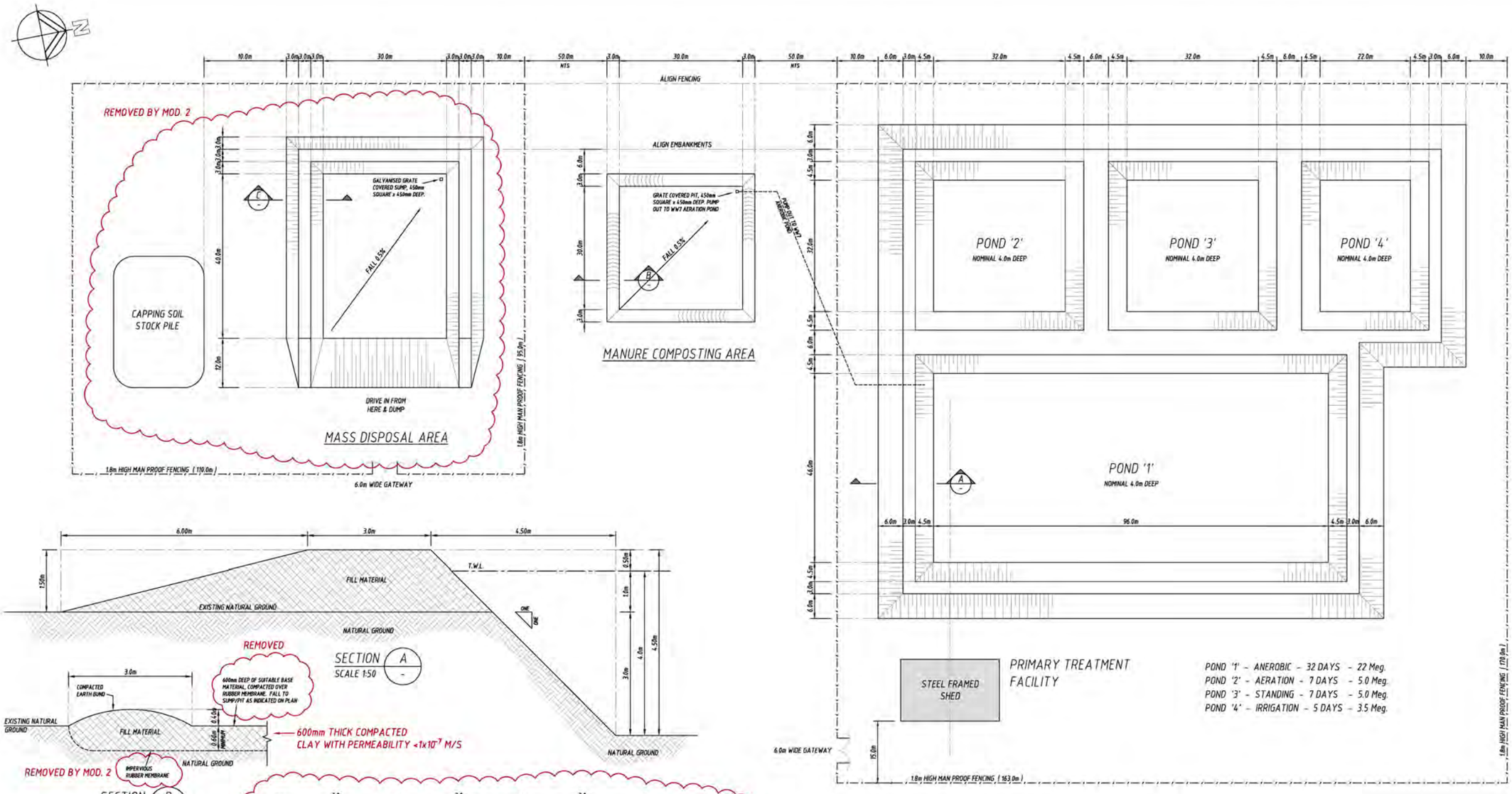
Date: 9th January 2020

Name: Darren Thomas

Position: Chief Executive Officer

Appendix N

LOCATION AND DESIGN OF MANURE STOCKPILE AREA



FOR APPROVAL

No	Revision Description	Drawn	Approved	Date
B	GENERALLY REVISED	LGH	-	16.06.16
A	ISSUED FOR APPROVAL	LGH	-	14.06.16

SARAN
ENGINEERS & MANAGERS
Unit 3, 9 Gateway Crescent, Orange. NSW 2800
P.O. Box 8431, Orange. N.S.W 2800

COOK ROE
STRUCTURAL ENGINEERS
E OFFICE@COOKANDROE.COM.AU
PO BOX 1933, ORANGE NSW 2800
COOKANDROE.COM.AU

Project
PROPOSED SMALL STOCK ABATTOIR
MITCHELL HIGHWAY. BOURKE N.S.W.

Title
PLAN OF WASTE TREATMENT FACILITIES

Client **CAPRA DEVELOPMENTS PTY LTD**

Drawn	LGH	Designed		Approved	
Scale	AS SHOWN	Date	JUNE 2016	This Drawing must not be used for Construction unless signed as Approved	

Drawing No: **32061-A.05** Rev: **B** Original Size **A1**