

Lowesdale Breeder Farm

Environmental Management Plan

2026 Version 1

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Executive Summary

This Environment Management Plan (EMP) describes the environmental management processes of JBS Pork Australia Pty Ltd at the proposed Lowesdale Breeder Piggery as a part of JBS Group. The document has been designed to comply with NSW EPA legislative requirements including the Protection of the Environment Operations Act (1997) and all other associated Acts and Regulations. The EMP is an integral management tool within the JBS Environmental Management System (EMS). This document sits below the Combined Environment Management System Manual (CEMS) which is reviewed and controlled by the JBS Group Environment Manager.

This EMP is a dynamic document with a planned review every 2 years conducted by the Environmental Team and approved by the Environmental Manager. This document has been developed in alignment with ISO 14001, the EMP will aid in the long-term viability and sustainability of the site.

The objectives of this EMP are as follows:

- To present in a single document our Planned Environmental Management system
- To outline an overview of the current environmental practices and procedures undertaken at the site
- To outline environmental risk and risk minimisation methods
- To outline methods of assessing and improving environmental performance

The plan ensures that the undertaking of activities at the site will not cause or is not likely to cause environmental harm. The duty to notify of environmental harm is a legal requirement that ensures that the administering authority and other relevant persons are made aware of incidents that may cause or threaten serious or material environmental harm. The plan also includes a pollution incident response management plan (PRIMP) that describes the notification process.

Environmental monitoring and review are an important part of the Environmental Management System (EMS) and appropriate controls have been put in place to ensure that there is constant management and assessment of these risks.

Revision

Revision Number	Date	Section	Comments	Authorised
Draft	March 2026	Review and update to new template		Leanda Watts
Version 1	April 2026	Updated		Leanda Watts

Approval

Title	Name	Signature	Date
JBS Pork Division Environmental Compliance Manager	Leanda Watts		16/04/26

Company Details and Site Contacts

Company Details

Owner's name	JBS AUSTRALIA PTY LTD
Company Name	JBS PORK AUSTRALIA PTY LTD

Contacts

Address of Piggery	Lowesdale
Mailing Address	
CEO (or equivalent)	Edison Alvares Edison.alvares@jbspork.com.au (M) 0407 742 029
General Manager Pig Operations	Cherie Collins Cherie.Collins@jbspork.com.au (O) 02 6033 8347, (M) 0418 572 025
Breeder Manager	Warren Smith Warren.Smith@jbspork.com.au (O) 03 5440 1526, (M) 0408 935 318
Farm Manager	
Site Telephone Number	
After Hours/ emergencies	
Facsimile Number	
Head Office (Corowa)	02 6033 8333
JBS Group Environment Manager	Troy White Troy.white@jbssa.com.au (T) 03 9316 4732, (M) 0409 189 308
Environment Manger	Leanda Watts Leanda.Watts@jbspork.com.au T 02 6033 8044 M 0466 543 994
Senior Environment Officer	Divyank Tiwari Divyank.Tiwari@jbspork.com.au M 0434 479 116
Environment Officer	Julie Hollier Julie.Hollier@jbspork.com.au T 02 6033 8592 M 0422 232 384
Federation Council	Corowa Office

	100 Edward Street Corowa NSW 2646
Environment Protection Agency (EPA) NSW	131 555 620 Macauley Street Albury NSW 2640 info@epa.nsw.gov.au
Local Land Services	Local Land services office - Corowa
Exotic Diseases Hotline	1800 675 888
ALS	48 Faithful Street
Wangaratta	Wangaratta Vic 3676

Environmental Policy

The JBS Pork Division Environmental Policy is the JBS group policy, this can found on the JBS Website located [here](#). There is also a Net Zero commitment from the company to reduce emissions at all facilities by 30% by 2030 and to use 100% renewable electricity by 2040. This information is located [here](#) on the JBS website for reference.

Leadership and Commitment

Leadership and management commitment is a pillar requirement of ISO 14001:2016. Refer to CEMS_5.0_Leadership and Commitment for senior management leadership and commitment requirements.

At a site level, the leadership commitment rests with the site COO, General Manager Pig Farms and Breeder Manager as part of the senior management team. The Site Manager reports to the senior management team members.

To support the leadership and commitment requirement at a site level, environmental steering committee groups are implemented. This allows for regular discussion relating to environmental requirements, Key Performance Indicators (KPI's), metrics, projects, environmental issues and audits/inspections.

This supports roles and responsibilities across the organisation and assists with measurement of performance for the Senior Company Management Team as a part of the CEMS.

Responsibilities

This EMP will be administered by the Site Environmental Team and the relevant Site Manager. Any changes to this document must be reported through to the corporate environment team.

The following responsibilities have been identified:

Table 1: Roles and Responsibilities.

Title	Responsibility
Site Manager	Ensure this Plan is implemented and adhered to; Ensure that all activities comply with all relevant environmental obligations; Ensure that environmental monitoring programs are adequate and well executed; Liaise with the relevant statutory authorities (in association with the Corporate Environmental Team and Senior Management Team); Co-ordinate the gathering of all environmental monitoring samples for the relevant authorities (in association with the Corporate Environmental Team and Senior Management Team); Ensure regular audits and reviews are undertaken of this management plan.
Pork Division Environment Team	Report directly to the Site Manager, on all environmental matters; Co-ordinate all statutory permit applications and renewals; Carry out or oversee monitoring specified in the EMP and the licence; Notify the Manager in the form of a written report immediately following the identification of any non-conformances; Ensure data is captured and collated for Key Environmental Performance Indicator (EPI) reporting requirements;

Title	Responsibility
	and Prepare internal incident investigation reports and ensure that such documentation is stored on the relevant area of the SharePoint site.
Maintenance Labour Unit	Coordinate environmental sampling and preventative maintenance specified in this EMP.
Workers (including all employees and Contractors)	Ensure familiarity, implementation and compliance with this EMP; Support JBS'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 Site Management Representatives without delay; and, Report any inappropriate operational and/or environmental management practices to Site Management Representatives without delay.

Regulations and Legislation

A number of Acts, Regulations, policies and guidelines are applicable to the site. Due to legislative requirements, there are Annual reports that are due to government bodies every year.

These reports are:

- National Pollutant Inventory (NPI)
- National Greenhouse Gas Emission Reporting (NGER)
- EPA Permit or Licence

- PIRMP's (annual review)
- Annual External audit
- Council Annual Monitoring Reports (as requested/required)

The reporting requirements detail what is monitored at the site and how frequently monitoring is required. Monitoring is based on EPA Licences, Council Conditions of Consent and on advice from JBS Pork Environmental Department. All monitoring records are kept for at least five years.

Any new developments or alterations at the site will require a Planning Permit and an EPA Works Approval/Permit.

EPA Permit

The New South Wales Environment Protection Authority is the environmental regulator for the site and all activities are governed by the Protection of the Environment Operations Act (1997) under which all EPA Licences are issued.

State Legislation

The primary state legislation is the Protection of the Environment Operations Act (1997) and this initially came into effect in July 1999.

Key within this regulation is the General Environmental Duty, this states that *A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.*

For planning and development, the site is within the area covered by Federation Council in NSW. All approvals for works must be lodged through this government body or through the NSW state planning portal.

Federal/National Legislation

A number of National Acts and Regulations are applicable to the site.

The main Acts are:

- Environment Protection and Biodiversity Conservation Act (1999)
- National Environment Protection Council Act (1994)
- Carbon Credits (Carbon Farming Initiative) Act (2011)
- Water Act (2007)
- National Greenhouse Energy Reporting Act (2007)
- Environment Protection Reform Act (2025)

Local Government Permits/Approvals

Refer to the local council in reference to the requirements for permits and approvals for planning and infrastructure on the site.

Refer to project files, legislation under SharePoint for copies of [approvals](#) or the table at the end of this document for major documents.

Planning – Key Performance Indicators

Compliance Testing

Table 2 Legal Requirements for Site Testing

Document Name	Document Section	Monitoring point and ID	Legal Requirement Frequency	Testing Required
		Soil Sampling	Annual	TBD
		Groundwater Sampling	6 Monthly	TBD

Soil, Effluent, Groundwater testing and their frequency where applicable in the table above.

Record Keeping

Environmental documentation is required to be maintained on the JBS Pork Intranet within the specific environmental folders managed by JBS environmental delegates in accordance with the JBS Corporate Environmental Management System (CEMS). This includes any external communications regarding environmental matters around regulatory site inspections and/or local community complaints/concerns to be recorded and maintained in the incident database.

JBS shall maintain all records of sampling and monitoring undertaken as part of the broader environmental monitoring program and refer to Table 2 above for any testing requirements. All records to be kept readily available to supply and/or respond to a request from a regulatory authority. Records of any aspect are to be recorded within the dedicated monitoring database to allow for a historical analysis of the activities and future opportunities for environmental management improvements.

Internal Auditing

Audits of the environmental management activities at site are conducted by the environmental team and any findings are discussed with the site Manager. Prior to each audit the auditor is to familiarise themselves with the process(s) to be audited.

The results of the internal audits are to be recorded, presented and discussed at the following ESC meeting/site audit/inspection visit. Any non-conformances identified are to be handled in accordance with the process for the control of non-conformances.

Site Overview, Property Description and Topography

Location

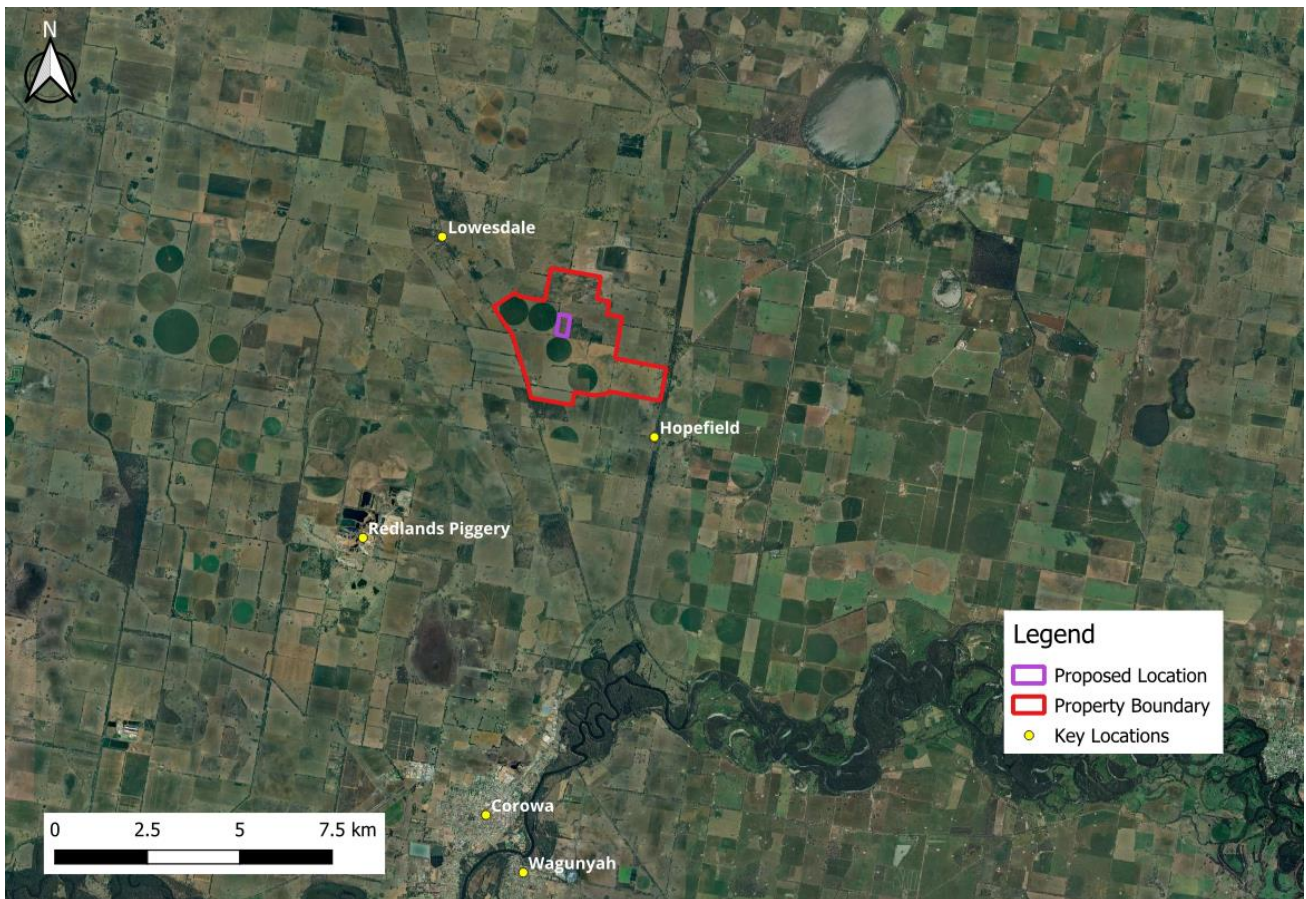


Figure 1 Proposed Location

Aerial Maps

Figure 1 (above) details site boundary and surrounding towns. Figure 2 details the proposed key locations on the site. Figure 4 details buffer areas for the site and Figure 5 includes the local planning overlay.

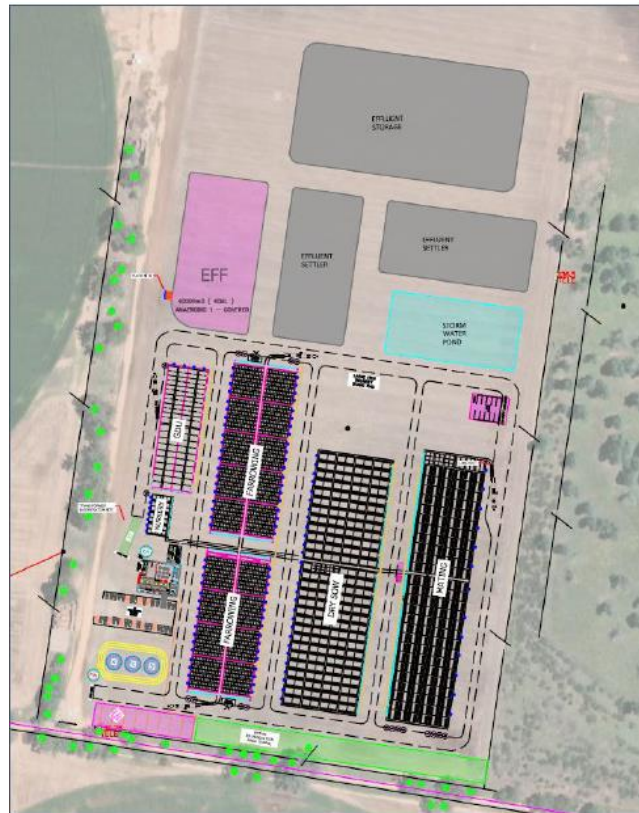


Figure 2 Lowesdale Breeder (Refer PSA JBS Lowesdale Pig Breeder Farm SSD (2025)).

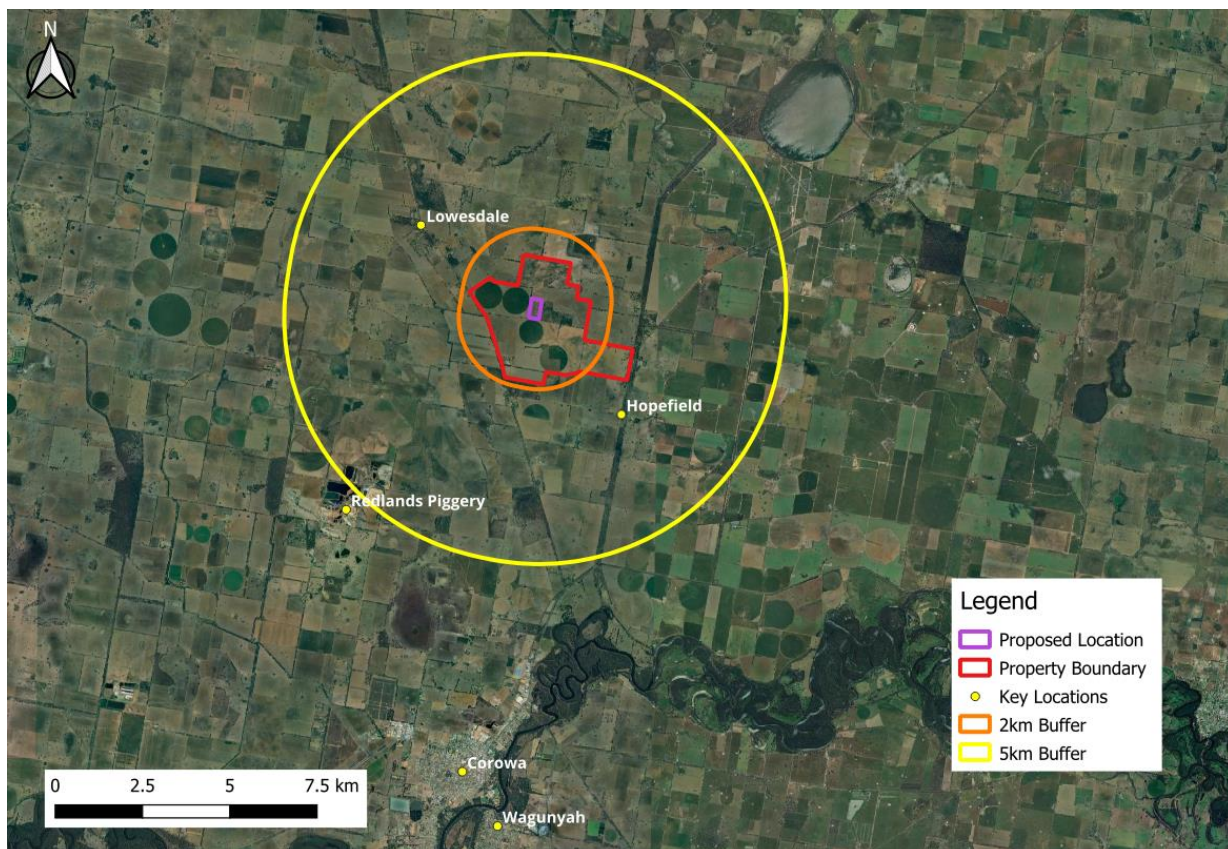


Figure 3 2km and 5km Buffer

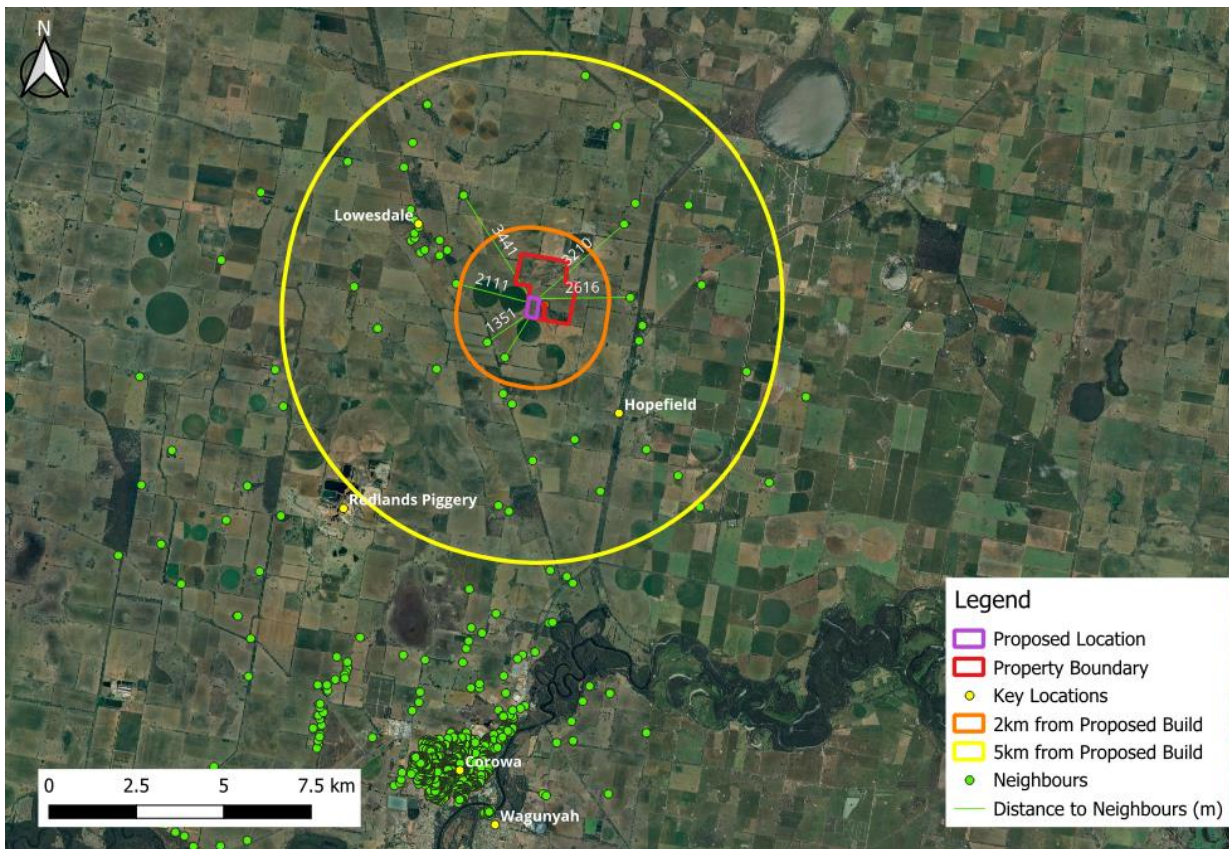


Figure 4 Proximity to Farm

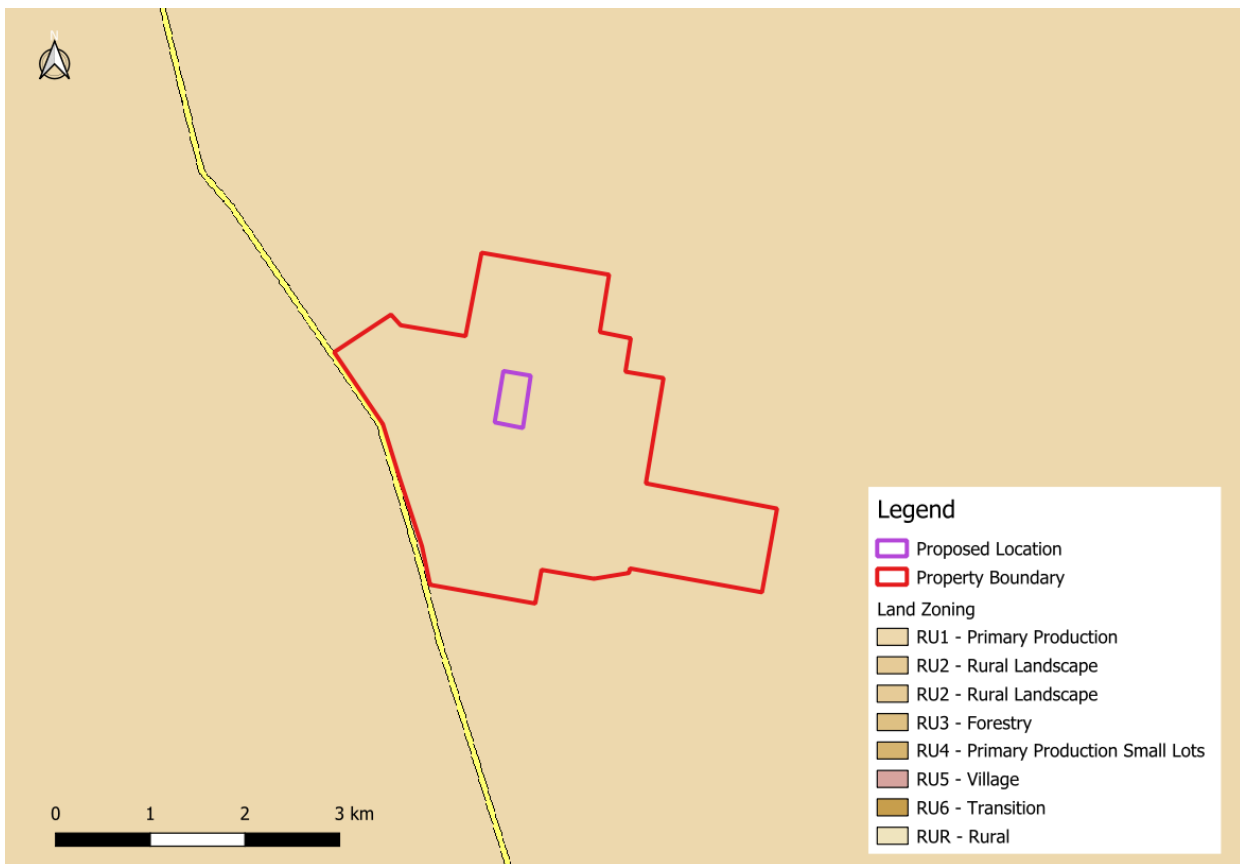


Figure 5 Planning Overlay for Proposed Site

Current Parcel Lots for the Property

Table 3 Current Parcel Lots for the Property

Site	Property Id	Area (Ha)
Lowesdale	Lot 125 DP661622	
	Lot 1 DP753728	
	Lot 6 DP753728	
	Lot 7 DP753728	
	Lot 23 DP753728	
	Lot 32 DP753728	
	Lot 42 DP753728	
	Lot 58 DP753728	
	Lot 68 DP753728	
	Lot 253 DP753728	
	Lot 254 DP753728	
	Lot 250 DP753728	
	Lot 255 DP753728	
	Lot 1 DP169173	
	Lot 3 DP580875	
	Lot 4 DP580875	
	Lot 1 DP577464	
	Lot 2 DP577464	
	Lot 111 DP753728	
	Lot 124 DP753728	

Site Topography

Site is relatively flat with some surrounding vegetation to the proposed construction area.

Figure 6 below shows the elevation scale for the site.

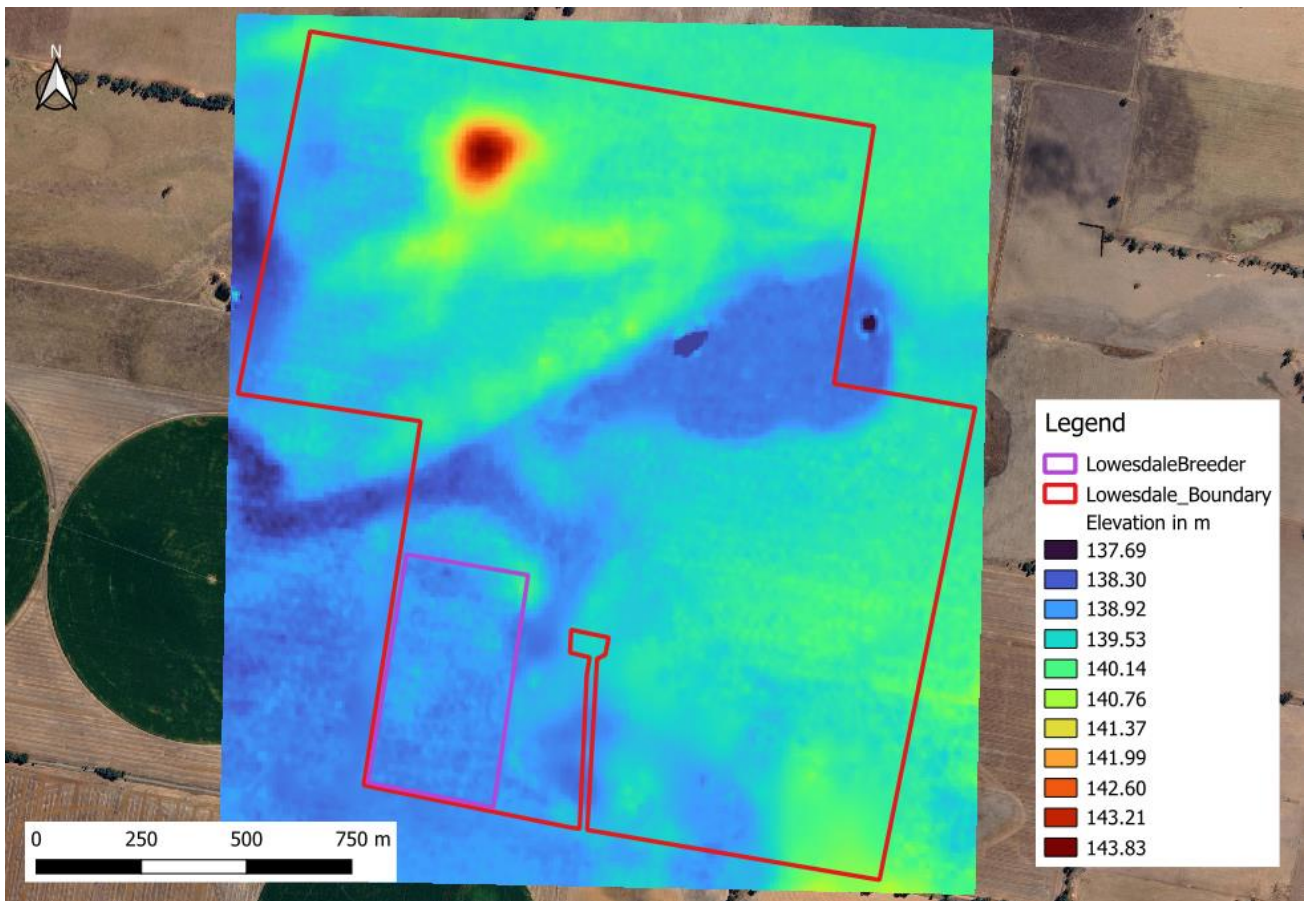


Figure 6 Site Elevation Map (Breeder Farm Location in Purple)

Site Development History

Potential greenfield site as of 2025.

Sensitive Receptors

Refer to Table 4 and Figure 7 in relation to neighbour proximity to the site location. The map and table shows the proximity of neighbours to the site

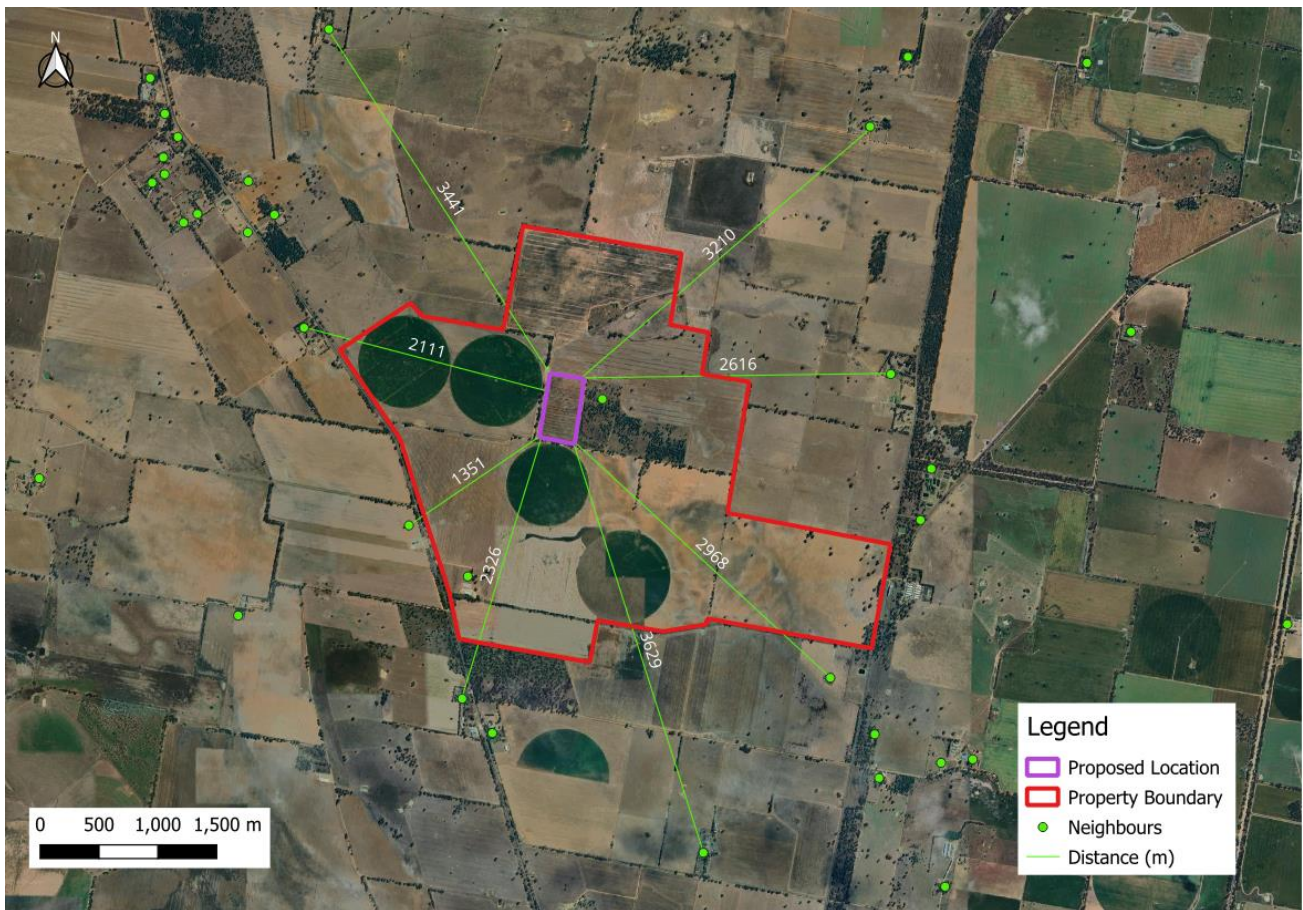


Figure 7 Neighbour Location and Distance

Table 4 Distances between the piggery and nominated receptors

Receptor	Direction	Distance (km)
House	South west	1.4
House	East	2.1
House	West	2.6
House	North east	2.6
House	South east	3.0
House	North east	3.2
House	North west	3.4
House	South east	3.6

Cultural Heritage Management

The area has been used for grazing for several generations and there is no known evidence of Aboriginal occupation. The Department of Sustainability and Environment are to be notified immediately if relics are discovered.

There is no Cultural Heritage Sensitivity Area defined on the NSW spatial planning portal for the site as of March 2026.

Piggery Operation

The site will be a new greenfield construction specifically for the breeding of pigs for grow out at other locations.

Once site is operational, refer to the PigFM database located [here](#) for pig numbers located onsite. Refer to the National Environmental Guidelines for Indoor Piggeries (NEGIP) produced by Australian Pork Limited, for Standard Pig Unit (SPU) calculation figures to calculate total pig numbers. There is a calculator set up in the environmental files with a SPU calculator, it is located [here](#) and requires current pig numbers to calculate the SPU number.

Feed Consumption

The type of feed a pig receives depends upon its sex, age and whether it is lactating. All feed will be provided from the JBS Stock Feed Mill in Corowa.

Feeding occurs in the mornings via automatic drop feeders, or by hand. Lactating sows are fed twice a day.

Entry Requirements

Information regarding entry requirements can be found on the companies SharePoint site and entry into the site must be pre-approved. The following conditions must be met¹:

- 12 hours quarantine away from pigs (*overnight*).
- A shower must be taken since last contact with pigs.
- Must put on company overalls and boots on site.

Overseas travellers or visitors

- Must have been in Australia for at least 3 days before entry.
- If they have had contact with Foot and Mouth diseased animals, then entry to the site is not permitted for six months.

Refer to the Biosecurity Matrix located on SharePoint for further details

https://jbsaustralia.sharepoint.com/:x:/r/sites/QAFarmingTeam/_layouts/15/Doc.aspx?sourcedoc=%7B59442275-8E13-4937-BF3C-CFE18EE389BD%7D&file=APP%20III%20Quarantine%20Master%20Plan.xlsx&action=default&mobileredirect=true.

Emergency Management

Emergency Management Plan

An emergency management plan has been developed as a part of the Safety Management System. A Pollution Incident Response Management Plan (PIRMP) will be developed on issuance of an EPA Licence for the site.

JBS Pork follows the JBS process for incident reporting, incidents are to be documented and assessed as per documents CEMS_10.2_CA-1 (Environmental Incident Protocol) and CEMS_10.2_CA-2 (Hazard, Complaint, Incident Investigation and Regulatory Contact Reporting).

Emergency Management is documented as a part of the Work Health Safety Management Plan, refer [here](#).

Bushfire Management

The site is not considered to be bushfire prone land according to the NSW spatial planning portal as of March 2026.

Flood Management

There is no flood overlay listed for the site on the NSW spatial planning portal.

Pollution Incident Response Management Plan

A Pollution Incident Response Management Plan (PIRMP) will be in place for any location issued a NSW EPA Licence.

Contingency Management

In the event of an emergency follow the above PIRMP for environmental reporting, evacuate if necessary and do not re-enter until it is determined it is safe to do so. An emergency management plan is currently in development for the company and a link will be included when it is completed.

For specific scenarios refer below for relevant actions and activities.

Pig Population Infection with Fatal/Contagious disease

If the pig population was to be infected with a contagious/fatal disease, the company preference is to manage stock via on site composting. This would restrict the ability to transfer the disease by moving carcasses. Instructions received from the Department of Agriculture would need to be followed and implemented as required. This may take the form of a cull of all animals at the site or isolation and treatment of infected stock. Full clean out and disinfection of the infrastructure would need to be completed.

Dead stock would need to be managed in a way that would minimise the impact of animal carcasses to the surrounding area. Burial of carcasses would not be permitted unless specifically instructed to do so by Government Departments. Preference is for removal of carcasses from site and management offsite through contracted rendering company or on-site composting of mortalities.

Loss of Power

Contingency equipment: Diesel Generator

Loss of Water Supply

There will be sufficient water supply for 24-48hrs if there is a breakdown with pumping systems.

Temporary pump could be bought in to use stormwater as a back up.

Breakdown in Feed Supply

Feed is delivered from the Feedmill.

Procedures:

Reschedule delivery time.

Organise alternative feed delivery (As a contingency there is an agreement between other feedmill manufacturers to supply feed in the case of an emergency)

Equipment Malfunction/Breakdown

Equipment breakdown occurs infrequently. Site staff have the skills to fix most minor equipment malfunction.

Procedure

1. Determine problem and order parts as soon as possible.

Contingency equipment

2. Portable pump as back up.

Effluent Overflow

Throughout the year irrigation keeps lagoon volumes to a minimum (weather permitting). This allows for storage in the event that weather prevents irrigation.

There will be a spare pump available on site. Diversion banks prevent effluents from directly entering the stormwater.

Arrangements can be made for application of treated water to land to mitigate potential pond

overflow.

Build-up of Solid Wastes

This may result if third parties fail to take solid waste offsite.

Procedure:

1. Determine volume and on analysis determine application rate and spread on areas available on site, OR
2. Contact other people in the local area who may be interested in taking the product for reuse.

Fire Threatening Site and Sheds

Procedure:

1. Notify the Site Manager of fire and its location.
2. Notify local RFS of the circumstances [Call '000'].

Follow Pollution Incident Response Management Plan or Emergency Management Plan (where applicable) for further guidance around reporting of incidents with potential for environmental impact.

Fire in Shed

Procedure:

1. Know extinguisher location and type.
2. Follow Emergency Preparedness ([Incident Management](#)) Evacuate if necessary, and do not re-enter until determined safe to do so.

Follow Emergency Management Plan and Incident Reporting Instruction for further guidance around reporting of incidents with potential for environmental impact.

Algal Bloom Event

Algal blooms are monitored from October each year when the weather starts to warm up. The ponds are tested and checked for algae levels. If an algal bloom occurs, the ponds need to be treated with a copper sulfate solution to control the algae. If this is not sufficient to control the bloom, it may be necessary to dose the ponds with chlorine, copper sulfate or coprol to kill off all biologicals to control the pond health. This is to be done only under advice from the Environment Compliance Manager.

Operation of Critical Equipment

There will be provision for organizing the rental of a generator when deemed necessary.

Critical Equipment Daily Checklist

Checklists are used to monitor day to day operations and a log sheet is used to log any critical repairs required at the site.

Flushing of Sheds

All sheds will operate a pull plug system so its important to monitor the level of effluent in the under floor pits.

Disease Management

There are veterinarians on staff within JBS Pork to oversee herd health programs. This includes quarantine to prevent herd infection or disease transfer, vaccination to prevent disease outbreaks and the use of medication to control disease.

An accredited Quality Assurance Program known as APIQ ensures any medication used is recorded and any stock under treatment are easily identifiable.

All stock is constantly monitored for signs of ill health. Any injured or unwell animal is treated immediately or, if required, humanely destroyed. Personnel handling stock attend courses given by the veterinarians on supervising the herd health program, topics covered include; 'Signs of Ill Health', 'Use of Antibiotics' and the 'Care of Sick Pigs'.

Disease outbreaks are attended to immediately by a veterinarian, diagnosis of the disease is carried out and may include post-mortems and pathology sampling (sent to an appropriate veterinary pathology laboratory). Following the diagnosis, appropriate treatment is prescribed. There are follow up visits by the veterinarian to confirm that treatment has been successful.

If the presence of an exotic disease is suspected, the nearest Veterinary Officers and Animal Health Officers are to be notified by telephone (136 186). A national Exotic Diseases Hotline operates 24 hours a day and is to be if notified if no communication can be made using the above number (1800 675 888).

All personnel and animal movement are stopped until arrival of the government veterinary officer. Government officials will then put the appropriate protocol for exotic disease investigation and control in place.

All staff and contractors follow strict quarantine guidelines with the intent of preventing transport of any disease-causing organism. Biosecurity is part of the portfolio for the Australian Government Department of Agriculture, Water and the Environment as of Feb 2020.

Procedure:

1. Notify a JBS Pork vet.
2. Undertake directions based on their diagnosis.
3. If an exotic disease is suspected contact District Veterinary Officer of DNRE on 136 186 or call the Exotic Diseases Hotline on 1800 675 888. Any procedures will be then at their discretion.
4. Refer to the [contingency section](#) of this document for management of stock if a disease outbreak occurs.

Climate

Weather Station

A weather station will be installed if required.

Average Weather conditions

Rainfall and other detailed information can be obtained from the Bureau of Meteorology Website.

Table 5 Average weather data for Corowa

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max (°C)	32.1	31.4	28.0	22.6	17.8	13.9	13.1	15.0	18.5	22.3	26.7	30.2	22.6
Mean Min (°C)	15.8	15.7	12.7	8.6	5.7	3.5	2.8	3.7	5.7	8.1	11.1	13.7	8.9
Mean Rain (mm)	36.6	37.1	38.1	36.4	46.4	56.3	54.2	52.7	47.4	51.7	43.0	41.3	541.0

Average maximum and minimum temperatures have been obtained from the Bureau of Meteorology website for 1907 to 2021/2022 (total of 96 years). Average rainfall data is available from 1890 to 2026 (total of 135 years).

Evaporation

Evaporation data is listed below for the Corowa area. This is not readily available online.

Table 6 Evaporation Data for Corowa (2012)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Evaporation (mm)	319	258	192	102	68	48	53	60	84	133	210	303	1,830

Primary Wind Direction

The prevailing wind direction for the area to be included at a later date.

Chemical Management

All chemicals will be stored as per best practice, this entails bunded storage either constructed bunded containment or bunded pallets under shelter for chemicals to be stored on.

All chemicals will be stored out of the weather to prevent ingress of rain and potential overflow from bunding. Bunding will comply with the relevant standard for the Dangerous Goods or Hazardous classification of the chemical.

Risk Management

Numerous environmental risks of varying degrees are associated with all piggeries. As part of the EMS system for Lowesdale, environmental risks associated with onsite activities have been identified. Table 7 as shown below, details each risk identified and existing operation and mitigation measures, in place to address each risk. These risks are reviewed periodically and after any incident/hazard, review is completed by Managers and the Environmental Team.

Risk Matrix

Table 7 Summary of the risk identified at Piggery site

Source	Pathway/Exposure Route	Potential Receptor	Mitigation measures	Risk Control Performance Objectives
1. Effluent	Contamination of groundwater from pond leakage	Neighbours	Check for leaks around lagoons, lines and pumps. Regular site inspections by Manager and staff with quarterly inspection by environmental team. Monitoring for visible leakage around pond banks	External communication (regulator and community complaints) and construction documents to be kept and should be easily retrievable on request.
	Overtopping of lagoons and uncontrolled discharge to surrounding paddocks	Onsite staff and visitors.	Irrigation occurs all year round, when weather permits. Lagoons are kept at levels to ensure adequate storage capacity in the event of a storm. There are multiple dams for holding of effluent and effluent can be moved around to balance out pond levels.	If pond levels are high, irrigation can take place on site, or it can be piped to a neighbour's property for application via a travelling irrigator. It is applied to land in a controlled manner.
	Short circuiting due to high effluent and/or sludge levels	Onsite staff and visitors	Treatment ponds are de-sludged as required and monitored regularly by the site manager. to ensure they are functioning correctly. Regular monitoring of pond levels by Site Manager/Maintenance Labourer. Preventative maintenance with	Preventative maintenance and repairing records to maintained by Maintenance Supervisor, and records should be retrievable, when required.

Source	Pathway/Exposure Route	Potential Receptor	Mitigation measures	Risk Control Performance Objectives
			clean out of pond solids.	
	Odour	Onsite staff, visitors and nearby receptors.	Distance to neighbours in vicinity of sites. Weather conditions may impact odour management.	Communication with neighbouring business as to when effluent is going to be applied to reduce impact on receptors.
2. Effluent reuse	Offsite runoff	Neighbours	Check wind conditions on the day of application, weather conditions may impact potential odour and no irrigation if weather is adverse.	Irrigation of treated effluent does not occur within 50m of the boundary or any water body
	Soil structure decline	Onsite staff, visitors and nearby receptors.	Soils are analysed yearly for nutrient build up and structural decline	Assessment of soil results by qualified agronomist
	Groundwater contamination	Local Environment	Groundwater > 20 metres depth Annual soil sampling to monitor the nutrient load in the soil and track if other soil fertilisers are required	Annual cropping program for removal of nutrients Assessment of nutrients by qualified agronomist to ensure nutrient removal is sufficient for sustainable practice
3. Dead pigs	Odour	Onsite staff, visitors and nearby receptors.	Dead pigs are collected from the sheds daily and composted for	All mortalities are tracked, and all composting is logged on

Source	Pathway/Exposure Route	Potential Receptor	Mitigation measures	Risk Control Performance Objectives
			management of volume. No burial of mortalities	the composting form for the site.
	Land contamination	Local Environment	No burial to take place, regular inspections to monitor effluent pits, pumps, pipes. Management of solid manure so that volumes are used annually.	Inspection of site and monitoring of waste volumes to ensure volumes are managed and no loss of containment Any issue is reported and response managed to reduce impact.
4. Power loss	Odour	Onsite staff, visitors and nearby receptors.	Rare and only last up to 3 hours All sheds are pull plug, manual release of effluent. Gravity fed wherever possible to reduce the reliance on power for movement of manure.	Maintenance repair of effluent pumping system as required.
5. Disease outbreak	Occurring and then spreading	Livestock, site staff and visitors	JBS Pork vets are available. Strict quarantine regulations on the movement of company personnel and visitors. Young stock is kept separate from older stock with all weaners offsite by ≈ 17 days of age.	All livestock regularly inspected, and any unusual deaths are reported to Veterinary team for investigation. In the case of Japanese Encephalitis Virus outbreak, staff can opt in for vaccination. Site visitors are informed of any issues and

Source	Pathway/Exposure Route	Potential Receptor	Mitigation measures	Risk Control Performance Objectives
				biosecurity questionnaires are undertaken by visitors prior to any visit and on the day of the visit.
6. Equipment malfunction	Odour	Onsite staff, visitors and nearby receptors.	Machinery and equipment are maintained and used correctly within the guidelines of the Occupational Health and Safety Act	Maintenance Daily log sheet tracks day to day maintenance on site. Log sheets can be requested at any time and provided. Breakdown maintenance is scheduled as a priority
	Disposal of treated effluent	Onsite staff, visitors and nearby receptors.	Irrigation to onsite paddocks can be implemented. Spare pumps are available (refer to section 19.0 Contingency Plans)	Spare pump maintained and replaced.
Chemical Management	Chemical spill to ground	Onsite staff and visitors	SDS are located online for access and in some areas may be available in hard copy. All storage areas for chemicals are bunded to contain any spills. Chemical storage is checked every 3 months as a part of site environmental inspections.	Records for chemical and fuel purchase (use where practicable) along with any external communication with regulators should be maintained. All chemicals are risk assessed for use as a part of the chemical

Source	Pathway/Exposure Route	Potential Receptor	Mitigation measures	Risk Control Performance Objectives
			Appropriate spill kits are held on site. Any spills are documented in Beakon.	approval process. Spills are responded to in a timely fashion to minimise impact Chemical disposal is organised as per SDS recommendations.
Biogas Operation	Emissions to air	Onsite Staff	All equipment used in the vicinity of the pond must be intrinsically safe/appropriately rated to reduce the likelihood of ignition. Cover must be regularly inspected to maintain integrity Anchor trench integrity inspected to ensure cover will not move UV stability of liner must be tested as required to monitor stability of the HDPE liner material Manual Vent on pond will only be used in extreme conditions e.g. to control gas volume to prevent rupture of pond liner. Automated plant to reduce human error issues.	Any issues must be reported/logged into Beakon for immediate action to address. Flare is on a maintenance schedule to ensure it is in good working condition. Log sheet system is implemented for regular inspections Flare is a registered Type B appliance and hazardous area assessment is completed as a part of commissioning

Aspects and Impacts

Significant aspects are recorded into the Environment SharePoint site. An aspects and impacts register is located [here](#).

Risk Review Mechanism

Risk review is important to do on a regular basis. It is critical that the site's risk is reviewed on both a regular basis and after any incident occurs, to make sure that the incident root cause is included in the sites risk assessment. Risk review process is as per JBS Australia Risk Management Process or as a part of incident investigation and review process CEMS_10 2_CA-1 (Environmental Incident Protocol) and CEMS_10.2_CA-2 (Hazard, Complaint, Incident Investigation and Regulatory Contact Reporting).

When there is an environmental incident, it is weighed against the Environmental Significance and Risk Assessment Tool (Table 8). When the environmental incident significance rating is above 12, it is classified as a significant environmental incident (SEI).

Table 8 – Environmental Significance and Risk Assessment Tool

ENVIRONMENTAL SIGNIFICANCE & RISK ASSESSMENT TOOL					
Applicable to the evaluation of Significant Environmental Impacts				Applicable only to Risk Level evaluation	
RATING:	SCALE: (Volume of discharge or usage/ Cost)	SEVERITY:	SENSITIVITY:	CONTROL RATING:	PROBABILITY: (With existing Controls in place)
1	Insignificant	No detectable change to the environment, internally contained	No complaints, no perceived legal / community threat	Fully Controlled	Rare/Remote – theoretically possible, has not occurred
2	Low	Reversible, internally contained requiring clean-up, short term change to the environment	Employees / neighbour / community concern / potential legal exposure – FIRB referral	<75% Effective Controls	Unlikely – not expected, has not occurred in the past 10 years
3	Medium	Reversible change to the environment, off-site release (accidental or uncontrolled)	Community / local media attention / legal exposure (e.g. breach of license) / Non-Compliance with JBS Policy– FIRB referral	<50% Effective Controls	Possible - Likely – potential to occur multiple times per year
4	High	Irreversible change to the environment, uncontrolled off-site release	National media attention / legal exposure / Non-Compliance with JBS Policy– FIRB referral	<25% Effective Controls	Almost Certain – known to occur

The significance score (multiplication of the scale, severity and sensitivity) gives a rating to determine the level of environmental impact.

- 1-11 Environmental Impact
- 12-64 Significant Environmental Impact

The Control rating and probability factors are multiplied by the impact level to assign a risk score, this is used to determine a priority rating. Anything determined to be high risk must

have additional controls, plans or actions to reduce or manage risk.

- 1-128 is Low risk (annual review)
- 129-431 is Medium Risk.
- 432-1024 is High Risk.

Training

JBS Pork Australia is a Registered Training Organization (RTO). Employees are trained in nationally accredited vocational courses endorsed by the Australian National Training Authority (ANTA). Accredited courses delivered by JBS Pork (or organized through accredited providers) include but are not limited to:

- Certificates II and III in Agriculture (with a focus on production, OH&S, environment, animal welfare and QA)
- Workplace Trainer
- Workplace Assessor
- OH&S Committee
- Confined Space Entry
- Crane and Riggers

A number of other in-house non-accredited courses are conducted on a regular basis with a focus on Supervisory Skills and workplace responsibilities (e.g. Harassment, Equal Employment Opportunity, etc).

Work instructions/procedures for site processes are kept [here](#) for reference. Training records are held by the People and Performance Group for management.

Staff, employees and contractors who are engaged to perform work under JBS/Rivalea are made aware of their environmental responsibilities through their initial induction process, task specific training, company newsletters, media platforms and corporate environmental training programs.

Complaint Management

Any complaint that is received is to be recorded into the JBS Pork SharePoint site [Environmental Complaints](#). The Environmental Manager is to be notified that a complaint has been received and of any follow up assessment that has occurred.

Information to be recorded includes the weather conditions at the time and any tasks that have been carried out that may have resulted in the cause of the complaint.

The complaint is to be followed up by the Site Manager to identify the validity and possible cause of the complaint. Where possible, mitigation procedures can then be put into place to prevent the cause of the complaint reoccurring.

Records of the complaint and associated investigation and communication are kept on SharePoint.

JBS Pork follow the JBS process for complaints reporting, complaints are to be assessed as per documents CEMS_10 2_CA-1 (Environmental Incident Protocol) and CEMS_10.2_CA-2 (Hazard, Complaint, Incident Investigation and Regulatory Contact Reporting).

Community Engagement

There is currently no requirement for regular community engagement meetings for these sites.

The introduction of a community hotline service in March 2017 is designed to improve the distribution of enquiries being received by the community as Senior Managers, operations and Environmental staff will receive instantaneous notification of each call. The service will provide community members access to a staffed hotline to register any enquiries in relation to the activities, both inside and outside normal operating hours. The number of the Community Hotline is **02 6033 8080**.

The Environmental Manager is to be notified that a complaint has been received and of any follow up assessment that has occurred. Records of the complaint and associated investigation and communication are logged to the complaint register located [here](#).

Odour Management

Sources of Odour

Piggeries have the potential to produce odour. Odour generated is likely to come from one or more of the following sources:

- Piggery sheds
- Treatment Ponds
- Dead pigs
- Onsite Irrigation
- Offsite Irrigation

Odours tend to be worse under stable conditions, usually during early evenings and mornings. This is due to the odour causing particles limited ability to disperse under stable conditions.

Piggery Sheds

Odour from sheds is mainly due to effluent in collection pits becoming anaerobic. This system will operate with a pull plug system so manure will be trapped under water to reduce odour. Plugs can be pulled on a scheduled basis to maintain pit volumes and shed cleaning schedules.

In poorly ventilated buildings odours can build up and be released in concentrated doses. This makes it important to have clean sheds and good ventilation. Floors are hosed regularly to minimise the build-up of dust/manure particles in these areas.

Treatment Ponds

Treatment ponds are considered the main odour source due to the anaerobic composition of the raw effluent. Odorous compounds found within treatment ponds include volatile fatty acids (VFA), phenol, p- cresol and skatole. Certain anaerobic bacteria can degrade these compounds into less offensive compounds (Chen, Liao, & Lo, 1994). This was part of the reason that the company decided to install biogas a biogas pond at the site.

Onsite Irrigation

Irrigation occurs onsite when weather permits. There is little odour generated from this process as the liquid for irrigation has undergone treatment, limiting the amount of odour causing particles present. The effluent is also spread on the ground's surface, a minimum of 50m from JBS Pork boundary preventing spray drift to neighbouring properties.

Offsite Irrigation

Offsite irrigation can occur (this will be only under discussion based on high pond volumes) when weather permits (rainfall, wind direction and speed are considered). There is little odour generated from this process as the liquid for irrigation has undergone treatment, limiting the concentration of offensive odours. The effluent is spread on the ground's surface at appropriate buffer distances to minimise any adverse amenity effects (including applying effluent a minimum of 50m from the property boundary preventing spray drift to neighbouring properties).

Compost Pad

The compost pads are a potential source of odour at the site. All mortality composting will take place in the purpose built shed on site. Mortalities and spent beddings are transported to the compost pad by the site staff. There can be odour produced from the composting process, so it is critical that all pigs are covered with a layer of compost/rice hulls/straw to minimise the odour produced during decomposition. It is important that work instructions are followed for maintenance of the compost area to reduce the potential for offensive odours to form during the composting process. Compost windrows/bays will be contained with a shed to better control odour from this process.

Energy Infrastructure Management

Energy Use Monitoring

There are two major energy sources used at the sites, electricity for site infrastructure and Diesel fuel for vehicles. All energy use is tracked by billing data for the site, and it is logged in the Environmental database for tracking. For tracking of electricity data, all grid energy is logged by an external company called Yurika and imported into the company database on a daily basis.

Electricity Management

All electricity bills are received, usage logged and recorded for reporting purposes. Hard copies are held as part of the audit trail for reporting.

A Diesel Generator will be located at the site as a back up supply.

Biogas Management

A CAL will be installed at the site for management of methane produced from the effluent. this will be set up with a flare for combustion of the gasses produced.

Assessment of biogas output will determine if a generator/turbine may be installed at the site to use the biogas for generation of electricity.

Natural Gas Management

No natural gas used at this site.

Liquefied Petroleum Gas (LPG) Management

No LPG used at this site.

Water Management

Water Supply Source

Water for the site will be sourced from the groundwater bore located at the site, this will be under agreement with the property owner and under contract.

Site Water Monitoring

All water metering data is tracked in the JBS Pork database and reported as a part of the JBS Credit 360 program.

Influent Management

The total amount of fresh water used each year will be assessed after the first year of operation. This is used for a variety of purposes:

- Drinking and cleaning by piggery
- Cooling sprays for the pigs
- Cleaning to remove effluent and shed decontamination
- Human usage (showers)

Effluent Management/ Spent Bedding

Liquid Effluent Waste

Refer to the Environmental database for testing results related to the quality of the effluent waste produced at the site. The results are located [here](#).

Effluent collects in open pits (below the pens) and is released as required. The treated effluent will be irrigated onsite.

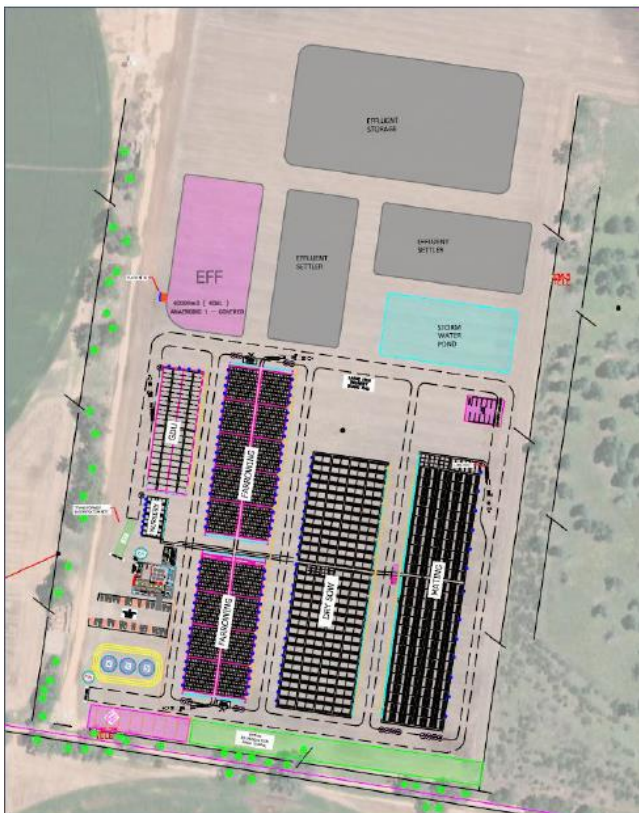


Figure 8 Diagram of the Waste System at site (new map to be added once detailed design is completed)

Piggery Effluent

Effluent is generated from:

- Spilt drinking water and feed.
- Cooling water
- Urine and faeces
- Shed and laneway cleaning.

1. EFFLUENT TREATMENT

The treatment of effluent at the piggery is achieved by biological treatment, which converts the organic matter to more stable and less offensive forms. Effluent produced from the piggery is treated by a sequence of biological treatment lagoons. Odorous compounds found within treatment ponds include volatile fatty acids (VFA), phenol, p- cresol and skatole. Certain anaerobic bacteria can degrade these compounds into less offensive compounds.

Anaerobic ponds break down organic material into less reactive substances and gases (Kruger, Taylor, & Ferrier, 1995). This process removes solids and reduces the BOD level of the effluent. The anaerobic organisms present in these treatment ponds play a major role in the breakdown of malodorous compounds.

Table 9 Pond Sizing and Volumes (to be updated)

	Dam Name	Area (m ²)	Depth	Capacity (ML)
			Total	

Irrigation Plan

Treated effluent at the site will be irrigated on to the surrounding paddocks associated with the site. All irrigation will place using a pivot irrigator for distribution of effluent. The land is cropped to continuously remove nutrients from the soil.

An Irrigation map will be included once detailed designs completed.

Any irrigation needs to consider that wastewater from this site is classed as a Restricted Animal Material (RAM). 'Effluent should not be irrigated onto human food crops that are eaten raw or with minimal processing within 4 weeks of harvest.' Considering grazing of land that is irrigated with effluent 'To protect livestock from pathogen risks, a withholding period of at least 21 days is recommended for paddocks that have been irrigated with effluent'. A visual inspection of irrigation area is necessary prior to allowing livestock to graze an irrigated paddock. If there is visible manure present on the paddock, then grazing must not take place.

Holding of Effluent

There is some capacity for storage of effluent. It must be managed in conjunction with irrigation to manage the levels in the storage areas.

All ponds must be inspected on a regular basis to ensure they do not overflow. If adverse weather conditions are experienced and high pond levels are present, management of effluent must be discussed with the environmental team to implement mitigation strategies for overflow prevention.

Evaporation

During dry weather conditions some of the effluent will be evaporated reducing the amount of water available for irrigation. The primary use of the effluent management system ponds is for capture and irrigation on crops.

Groundwater Management

Refer to consultant recommendations (EHS Support) for groundwater management recommendations at the site.

Stormwater Management

All stormwater at these locations is directed to run off ponds and/or to ground.

No rainwater tanks are currently located at the site. A stormwater dam is to be installed to help manage stormwater generated at the site.

Staff Amenities

The site will have its own septic tank arrangement for handling sewage waste produced at the site. Inspection of septic system will be by external and internal team, maintenance and management will depend on the type of system installed.

Carparks are near the office location for each site, refer to site access section for further information.

Land Management

The Environmental Department has in place a highly structured Environmental Management System (EMS) in place. The JBS EMS Manual provides an overview of the EMS. The EMS incorporates a number of factors including management review, objectives and targets, policy, responsibility, legal and regulatory information, inspection, review, audit and monitoring information.

Monitoring is based on advice from the JBS Pork Environmental Manager. All monitoring records are kept for at least five years in the environmental data base or in SharePoint. Testing is completed by offsite accredited National Association of Testing Authorities (NATA) Australia laboratories. Monitoring includes:

- Soils (Annually)

- Effluent (quarterly)
- Complaints (as occurs)
- Off and Onsite re-use of effluent and solids (as occurs)
- Environmental Audits/Site Inspections (as scheduled in Teams)

Annual results will be compared with previous years to assess practices carried out at site (and determine if they are having a positive, negative or neutral effect on the environment). Assessment will be carried out by a suitably qualified person.

Each task shows:

- Who is responsible?
- When the sample is to be done
- What is to be sampled?

Site tasks are also listed in Planner section of the Teams portal. This list is reviewed by the Environment Group monthly. It shows what tasks are completed, due or overdue.

The piggery has externally certified QA systems as a part of their day-to-day management. A list of current accreditations is listed on the JBS Pork internet site.

Farm Management

Farms are managed under their relevant production processes. Refer to the Manager for farming processes. Company work instructions are located [here](#).

Site Managers task list:

As Occurs

- Record irrigation details.
- Record volumes of solid waste taken off site.

Daily

- Remove all dead pigs and record numbers.
- Write up any complaints/inquiries when they are received and record weather conditions from onsite weather station.
- Leaking drinkers are to be fixed as soon as possible.
- Maximum of three weeks
- Ensure a Pest Control Officer (PCO) has completed the Pest Control Log.

Monthly

- Record the volume of liquid applied to all areas. Or this system may be automated.

As Required

- Coordinate collection of effluent samples for analysis

Annually

- Collect soil samples from paddocks that have had effluent spread on them in the last 12 months.
- Collect samples of solids from the de-sludging of a lagoon (if applicable).

Vegetation Management

Refer to consultant report produced for the construction of the site. Primarily cypress pine/box woodland present at site.

Weed and Pest Management

Feral Pigs pest management in production areas is the major management concern due to the potential for feral pigs to carry disease.

Pests and rodents include flies, cats, insects, sparrows, foxes and rodents.

Pest and rodent numbers are managed by the prevention and control measures outlined in "Procedures" and "Work Instructions" for Pest Control, Site Cleaning and Silo Cleaning (QA Audit database).

Procedures include:

- Chemical bait stations
- Physical barriers from feed, bedding and wastes.
- Trapping for humane destruction or relocation
- Shooting
- Cleaning areas that may harbour pests.

The procedures are carried out by Pest Control Operators (PCO) and are recorded on the "Pest Control Log".

Pests are controlled at the compost pad by site staff or contractors following correct management procedures. The turning of the compost for the first 6 weeks when it is on the pad prevents flies using the area as a breeding site.

Work has been put into replacing fencing to reduce the potential for feral animals like feral pigs being able to enter sites. This is to minimise the potential for feral pigs to transfer diseases to stock populations.

Land Contamination

This is a greenfield site and there is no known contamination issue.

Wildlife Management

Refer to documentation compiled for the approval of the site.

Waste Management

Piggery Waste

Waste generated from Piggery activities includes waste listed under effluent waste. This also includes small quantities of bedding materials removed as a waste (hospital pens). Liquid wastes are sent to ponds for treatment and the effluent is irrigated at the site.

Composting Management

There is a work instruction that has been developed for the management of composting at the site. The instruction is held by the training department and is located here – [Mortality composting.pdf](#)

Each external location that receives manure from the site is also supplied a copy of a management plan which details risk management in relation to the land application of manure, pond solids, effluent or bedding materials.

Carcass Management

Pig mortalities in the sheds are recorded regularly and tracked using the online database located here. Dead pigs are removed from the pens and placed outside the sheds as soon as possible. All mortalities are transferred to the compost pad for treatment and management.

Solid Waste Management

Domestic Waste

Household type waste is generated from the staff and occasional contractors that are employed at the site. It is stored and collected on a weekly basis by a licenced contractor.

Daily maintenance generates scrap metal waste. This waste is stored and removed as required.

Industrial Waste

Minimal industrial waste should be produced from this site, outside of manures and mortality composting. This includes pond solids when ponds are cleaned out to maintain their capacity.

Construction and Demolition Waste

This is generated under the scope of projects and must be managed within the bounds of the construction and/or demolition project.

Recovery of Waste Material

It is preferable to adhere to the waste hierarchy when managing waste generated at the site.



Figure 9 Waste Hierarchy

This means there must always be consideration for reduction of waste generated at site. This means looking at reuse of waste materials where possible to minimise the amount of waste generated, reduce the amount waste requiring treatment and lowering the level of waste sent to landfill. In addition, it means recycling as much waste as possible to prevent it filling up landfills.

Noise and Traffic Management

Refer to the report produced by SoundIN (2026). Any noise complaint will be used as an indicator to achieve the objectives using the mitigation measures summarized in Table 5 in Section 10.1 Risk Matrix and discussed below.

Day Time Noise Management

Most noise is generated from pigs during feeding time. This applies specifically to sows, boars and gilts, which are fed once per day (in the morning). The noise levels can rise significantly when feeding occurs.

Other sources of noise include truck movements from deliveries and pick up, tractor movement and the operation of feed equipment and pumps. Table 10 shows the number and type of vehicles entering the site. These numbers apply when the site is operating at full capacity.

Table 10 Vehicle movements at the Units per week

Vehicle Type	Number
Semi-trailers	
Trucks	
Cars	

Piggery employee hours are as follows: -

Monday- Thursday	6:30am until 3:30pm
Friday	6.30am until 2.30pm
Saturday and Sunday	6am until 10am

On weekends, staff check the sites between 1.30 – 3.30pm. Trucks usually enter within working hours.

2. NIGHTTIME NOISE MANAGEMENT

There should be very minimal nighttime noise, tasks are set up to manage noise at the site primarily for daytime operation/tasks by choosing the times to feed pigs, move pigs and undertake maintenance tasks. This reduces the potential for noise to be generated from the site at night.

References

- Chen, Liao, & Lo. (1994). Headspace Analysis of Malodorous Compounds from Swine Wastewater under Aerobic Treatment. *Bioresource Technology*, 83-87.
- Kruger, I., Taylor, G., & Ferrier, M. (1995). *Australian Pig Housing Series: Effluent at Work*. Tamworth: NSW Agriculture.

Listing of Projects, Upgrades or Development Applications Relevant to Site

Table 11 Projects, Upgrades and Planning/Development Applications

[illegible]

<https://jbspork.sharepoint.com/:x:/r/sites/environment-team/Shared%20Documents/Admin/Documentation/Council%20Applications.xlsx?d=w028798706ba147d685921bbb42e3cf4c&csf=1&web=1&e=5tlzbU>