



## Application for works approval

Division 3 Part V of the *Environmental Protection Act 1986*

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<b>Works approval number</b>	W6725/2022/1
<b>Applicant</b>	Sangarra Southern Pty Ltd
<b>ACN</b>	637 348 666
<b>DWER file number</b>	DER2022/000420
<b>Premises</b>	Sangarra Southern Piggery 1028 Yungup Road NAPIER WA 6330
<b>Date of report</b>	10 May 2023
<b>Status of report</b>	Final

## 1. Purpose and scope of assessment

Sangarra Southern Pty Ltd (Sangarra/the applicant) is seeking to establish an outdoor piggery in the Great Southern region. An application for works approval was submitted under Division 3 Part V of the *Environmental Protection Act 1986* (EP Act) on 22 August 2022.

This report sets out the delegated officer's assessment of potential risk events arising from emissions and discharges that will be generated from the intensive keeping of animals on the premises.

In completing the assessment documented in this report, the department has considered and given due regard to its regulatory framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

## 2. Application details

### Overview

Sangarra proposes to establish an outdoor piggery on farming land in Napier, about 22 km north of Albany.

The proposal comprises a 750-sow breeder farm, in which only breeding animals will be kept and piglets removed at weaning (about 4 weeks of age) for grow-out at other premises. Animals will be kept in a free range setting over one of three operational areas that will be rotated biennially, using moveable skid shelters and huts, and feeding equipment (no fixed infrastructure).

Dry sow paddocks will comprise 5 radial units, each with 10 sub-areas and 8 x 5 m shelters; at full capacity there will be 65 dry sow shelters. Farrowing huts are designed to house a single sow and litter of piglets; there will be 200 of these huts at full capacity.

Following 2 years on one operational area, all piggery activities will be rotated to the next operational area. The previous area will then be remediated over the following 4 year period, with accumulated nutrients removed through a hay and silage cropping program.

The total composition of animals, based on a 750-sow breeding program, is 2,071 (equates to 1,587 standard pig units, SPUs), which comprises 76 boars, 638 gestating sows and 129 lactating sows, and 1,228 suckers/piglets.

Table 1 describes the prescribed premises category the application is subject, as defined in Schedule 1 of the Environmental Protection Regulations 1987.

**Table 1: Prescribed premises category**

Classification of premises	Assessed design capacity (as per application)
Category 2: Intensive piggery: premises on which pigs are fed, watered and housed in pens.	Not more than 750 sows, being the equivalent herd size of 2,071 animals (1,587 SPUs)

### Exclusions to this assessment

The following matters are out of the scope of this assessment and have not been considered within the risk assessment detailed in this report:

- historical and existing rearing of livestock (other than pigs) on the premises, including the land for production of cattle and blue gum plantation;
- surface water and groundwater licensing requirements (subject to separate approvals under the RIWI Act); and
- land use zoning and compatibility with surrounding land uses.

### 3. Industry guidelines

The *National Environmental Guidelines for Rotational Outdoor Piggeries* (NEGROP) (Australian Pork Ltd 2013) provides a general framework for managing the environmental issues associated with outdoor piggeries in Australia.

The criteria outlined in Appendix A of the NEGROP has been used as a baseline for rating the vulnerability of major natural resources from the proposal and the risk of environmental impacts from the proposed design and operational features.

Table 2 provides a summary of the risk of the proposed piggery using the NEGROP criteria, where 1 is low risk and 4 is high risk.

**Table 2: Summary of Sangarra proposal against NEGROP criteria**

NEGROP aspect	Risk criteria	Risk rating
<b>Natural resources and amenity</b>		
Soils of pig paddocks	Paddocks used to run pigs:	
	<ul style="list-style-type: none"> <li>are suited to growing crops or pastures that can be cut and carted</li> </ul>	3
	<ul style="list-style-type: none"> <li>have a soil depth of at least 1 m</li> </ul>	1
	<ul style="list-style-type: none"> <li>have soils that are well structured, non-rocky, non-saline and non-sodic</li> </ul>	1
	<ul style="list-style-type: none"> <li>have soils that are loam to light clay in texture</li> </ul>	1
	<ul style="list-style-type: none"> <li>are not prone to waterlogging</li> </ul>	1
	<ul style="list-style-type: none"> <li>are located above the 1:100 year flood level</li> </ul>	1
Groundwater quality and availability	<ul style="list-style-type: none"> <li>have slopes of 2 – 4%</li> </ul>	1
	The depth to groundwater is always at least 2 m below the ground surface of paddocks used to run pigs	3
Surface water quality and availability	Water for potable use is not sourced from bores within 1 km of the piggery	1
	Paddocks used to run pigs:	
	<ul style="list-style-type: none"> <li>are located at least 100 m from the closest watercourse</li> </ul>	2
	<ul style="list-style-type: none"> <li>are located at least 800 m from the closest major water supply</li> </ul>	1
	<ul style="list-style-type: none"> <li>do not comply with the buffer distances in Table 8.1 of the NEGROP but there are vegetative filter strips (VFS) or terminal ponds between these areas and all watercourses</li> </ul>	3
Community amenity	<ul style="list-style-type: none"> <li>are located above the 1:100 year flood level</li> </ul>	1
	There is ample allocation and supply of surface water that is a suitable quality to meet requirements for use in the piggery	1
Community amenity	The pig paddocks will always meet the minimum fixed separation distances specified in Table 8.2 of the NEGROP	1
	Surrounding land is all designated rural and is not designated for future development or rezoning	1
<b>Design and operation</b>		
Nutrient budgeting and monitoring	The quantity of nutrients deposited over the paddocks as pig manure will be estimated before or within the first 12 months of the pigs moving onto an area and a pig-crop/forage/pasture rotation able to remove the added N, P & K or achieve sustainable soil nutrient levels over a maximum	1

	of six years is planned	
	Soil sampling will occur before the commencement of each pig phase that is expected to exceed 24 months in length; at the end of any 24 month period in which pigs are stocked on an area for any length of time; and at the end of any subsequent 24 month period that includes a pig phase	1
	Soil sampling will produce a set of samples that are representative of the expected nutrient-rich area of each block of paddocks	1
	Soil sampling depths and analysis parameters will be in accordance with Table 15.1 of the NEGROP	1
	Before the commencement of a pig phase expected to exceed 24 months in length the results of soil testing will show the soil properties are below the trigger values of sustainability in Section 15 of the NEGROP or similar to those of a background plot or they are satisfactory to DWER	1
Distribution of manure nutrients	In breeder paddocks, shelters and/or feeding points will be moved at least every 6 months to promote more even nutrient deposition over the land	2
	Spent bedding produced from the shelters will be dispersed over land within the piggery that includes the expected nutrient rich areas	4
Nutrient loss prevention	Potential nutrient loss pathways are identified in a Nutrient Management Plan which also includes an action plan for addressing these concerns	1
	Nutrient export from pig paddocks will be minimised by selecting sites with a gentle slope and maintaining sufficient groundcover over the paddocks for most of the year in conjunction with structures that effectively limit erosion (e.g., contour banks) and runoff	2
	Nutrients in runoff or soil eroded from the pig paddocks will be controlled through meeting the recommended buffer distances specified in section 8.1 of the NEGROP and appropriately designed VFS at least 10 m wide	1
	Wallows will be lined with clay-loam to clay soils	1
Mortalities management	Dead pigs will be removed from the paddocks daily	1
	Mortality management will always occur within 24 hours of death	1
	Mortality management will be by rendering (off-site)	1
	To be prepared for a mass mortalities event, there is a suitable site selected and a detailed plan for managing mass mortalities	1
Paddock rehabilitation	Inspection of each block of paddocks to identify soil erosion or structural issues will occur on completion of the pig phase and a plan to address the issues is developed and implemented within a month of inspection	1
	Where significant soil erosion has resulted from the pig phase, the site will be remediated by back-filling the eroded area with soil and growing a pasture ley crop in the first year after the pig phase	1
	Where significant soil compaction has resulted from the pig phase, the site will be remediated by growing a pasture ley crop in the first year after the pig phase and by only	1

	cultivating soil when the moisture content is between wilting point and field capacity	
	Wallows will be remediated when they are replaced and if needed within 3 months of completion of the pig phase by deep ripping the soil, applying gypsum, filling with soil and levelling to match the slope of the land	1
	Before a new pig phase commences, pasture or a forage crop will be well established over the whole paddock area	1
Odour, dust and noise	Odour, dust and noise will be minimised by maintaining clean dry bedding in shelters; promptly remediating and/or replacing wallows and other wet areas if they become odorous; ensuring noisy activities only occur during the day; ensuring dust does not reach nuisance levels off-farm	1
	There is a complaints management procedure in place that includes complaints recording, investigation, corrective action and appropriate consultation	1
	Mediation will be used to try and settle disputes with neighbours if there are issues	1

### Summary of risk against NEGROP criteria

The piggery is located on priority agricultural land and is well separated from populated areas. The proposed pig paddocks should always be able to comply with the minimum fixed separation distances specified in the NEGROP.

The low risk determined for many of the design and operational aspects are entirely based on the applicant's commitment to comply with the specified criteria.

It is noted the majority of the proposed pig paddocks currently comprise blue gum plantation, which the applicant proposes to harvest ahead of being required to hold pigs. The applicant proposes to grind the tree stumps to ground level; however, it is unclear how effective this will be in producing arable land suited to growing crops or pastures that can be cut and carted, without damaging machinery or equipment.

It is noted that spent bedding and manure will not be scraped and removed from pig paddocks; based on the nutrients accumulated during each 2-year operational period the applicant has been required to reduce the herd composition from an initial 1,000 to 750 sows, to ensure there will not be a surplus of soil P after the proposed 4-year hay and silage cropping program.

Several large seasonal wetlands and a perennial watercourse with riparian vegetation traverse the premises that pig paddocks will need to be separated from – careful management (as per the NEGROP) and regular monitoring will be required to ensure the risk of nutrient leakage to groundwater and surface water, and other forms of land degradation, do not occur.

## 4. Other approvals

### Planning approvals

The proposed piggery received development approval on 28 March 2023 from the City of Albany (city).

The city received several submissions from surrounding landowners, raising concerns about potential land use conflicts and environmental impacts of the proposal.

## 5. Consultation

The application was referred to relevant public authorities and was advertised for public comment on the department's website during September 2022.

## Public authorities

The Department of Primary Industries and Regional Development (DPIRD) advised on compliance with the environment and design aspects of the proposed piggery, and the capability of the applicant to manage the amount of solid waste produced. DPIRD's commentary is summarised for each of these aspects in the risk assessment table below.

The city provided an update on the DA for the proposal (see above).

## Public submissions

One submission was received during the public comment period, which raised concerns about potential impacts to Napier Creek that traverses the premises. Other concerns were raised that are not directly related to emissions and discharges from the proposal and are beyond the scope of Division 3 Part V of the EP Act, including animal health and welfare, ethics of intensive farming of animals, and biosecurity and disease.

## 6. Risk assessment

### Determination of emission, pathway and receptor

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

### Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account identified potential source-pathway and receptor linkages. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls, these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in the below table.

## Risk assessment table

The table below describes the risk events associated with the proposal consistent with the *Guideline: Risk Assessments* (DWER 2020). The table identifies whether the risk events are acceptable and tolerated, or unacceptable and not tolerated, and the appropriate treatment and degree of regulatory control, where required.

Risk Event				Consequence rating <sup>1</sup>	Likelihood rating <sup>1</sup>	Risk <sup>1</sup>	Reasoning	Regulatory controls
Source/ Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
<b>Category 69: Intensive piggery</b>								
Feeding, watering and housing of animals within paddocks	Nutrient-laden leachate (from manure, urine) accumulated in paddocks	Seepage/infiltration, causing contamination of shallow groundwater Land degradation, erosion, nutrient contamination, salinity	Paddocks with medium stocking density (30 SPU/ha) Not allowing pigs to access waterlogged land or within 100 m of seasonal wetlands Refer to controls listed in Table 2 for: <ul style="list-style-type: none"> <li>• Nutrient budgeting and monitoring;</li> <li>• Distribution of manure nutrients</li> <li>• Nutrient loss prevention</li> </ul>	Mid-level on-site impacts Low-level off-site impacts on local scale <b>Moderate</b>	Will probably occur in most circumstances <b>Likely</b>	<b>High</b> May be acceptable, subject to multiple regulatory controls	<p>The local area is likely to support minor to major aquifers with fresh to saline groundwater; the regional groundwater table has a standing water level of 80 mAHD, which is between 5 – 10 mBGL at the site. Shallow groundwater within 2 m of the surface was not encountered during drilling, likely due to the duplex nature of soils on the premises (sand and gravel over clay). Seasonally perched water exists in low-lying depressions across the site, where water perches on the clay component of the duplex.</p> <p>Soils on the premises are deemed suitable for the proposed use as a free-range piggery. The applicant acknowledges there are seasonal wetlands and areas of perched water on the premises that become waterlogged during winter or following heavy rainfall; the piggery range areas will therefore be fenced and located at least 100 m from these features.</p> <p>The applicant proposes to allow spent bedding and manure to accumulate within pig paddocks; this material will not be physically removed. Allowing for this, the nutrient budget for the proposal indicates that for each 2-year rotation (for a herd based on 750 breeding sows), followed by a 4-year cropping program of high-yielding pasture production (silage – clover and/or ryegrass), there will be a minor surplus of soil P remaining (1 kg/ha), which indicates the proposal can be acceptable.</p> <p>However, the applicant's nutrient budget is based on each rotational area being at least 43.1 ha in size – the delegated officer has calculated the available area within the nominated pig paddocks, to more accurately reflect the 100 m buffer to wetlands and the Napier Creek and 50 m from the premises boundary and excludes areas of native vegetation, and has determined the actual areas to be much smaller than the areas used in the nutrient budget calculations (revised areas: Area A – 42.3 ha; Area B – 34.9 ha; Area C – 34.7 ha). This indicates the nutrient uptake estimations, which are borderline acceptable at 43.1 ha (as it will result in minor surplus soil P after 4 years), have been overestimated – now with less land available it is clear there is insufficient land for sustainable operation at the proposed stocking densities (based on 750 breeding sows). This results in a high risk of nutrient leakage to groundwater and other forms of land degradation occurring.</p> <p>In the absence of changes to management of manure (such as removing bedding, reducing rotational timeframes, etc., which require the nutrient budget to be updated), or refusing the application on risk, the delegated officer has considered further reducing the herd size, to 700 breeding sows, to limit the concentration of nutrients and ensure the risk of nutrient leakage to groundwater and other forms of land degradation occurring can be acceptable.</p>	<p><u>Works controls:</u></p> <ul style="list-style-type: none"> <li>• Reduced herd size based on 700 breeding sows</li> <li>• Establishing fenced off pig paddocks</li> <li>• Pig paddocks to include diversion banks or drains to prevent surface water ingress into pig paddocks</li> <li>• Baseline groundwater monitoring and soil testing</li> </ul> <p><u>Operational controls:</u></p> <ul style="list-style-type: none"> <li>• Reduced herd size based on 700 breeding sows</li> <li>• Pig paddock controls, rotations, cropping requirements</li> <li>• Waterlogging controls</li> <li>• Ongoing groundwater and surface water monitoring, annual soil testing</li> <li>• Measuring offtake from each cropping phase, to demonstrate whether there is adequate update of P</li> </ul>
	Surface water runoff contaminated with nutrients (from manure, urine), salts, etc.	Overland runoff from paddocks to wetlands, Napier Creek, causing surface water contamination	Pig paddocks will be fenced to ensure at least 100 m separation to wetlands and low-lying depressions VFS will be in place using existing established grasses Rollover drains will be constructed across paddocks to divert surface flows to a terminal dam	Mid-level on-site impacts Low-level off-site impacts on local scale <b>Moderate</b>	Risk event could occur at some time <b>Possible</b>	<b>Medium</b> Acceptable, subject to regulatory controls	<p>Surface water runoff during rainfall events may become contaminated from pig paddocks and cause impacts to wetlands and low-lying areas and the Napier Creek if not controlled. A public submission raised concerns about potential impacts to local waterways from uncontrolled runoff from pig paddocks.</p> <p>All pig paddocks will be fenced off to ensure a minimum separation of 100 m to wetlands, low-lying areas, and the Napier Creek, with VFS in place comprising existing established paddock grasses.</p> <p>Surface water will be managed by the applicant to reduce inundation and waterlogging and to collect surface water in a new dam. This will involve constructing rollover drains – the applicant must ensure flows from earthworks and not discharged indiscriminately on neighbouring properties and that stream flows are not significantly diminished or degraded (expert advice should be used to plan the works and use appropriately qualified contractors for construction).</p>	<p><u>Works controls:</u></p> <ul style="list-style-type: none"> <li>• Construction of rollover drains</li> <li>• Construction of terminal pond</li> </ul> <p><u>Operational controls:</u></p> <ul style="list-style-type: none"> <li>• Maintain surface water controls, VFS, buffers</li> </ul>

Risk Event				Consequence rating <sup>1</sup>	Likelihood rating <sup>1</sup>	Risk <sup>1</sup>	Reasoning	Regulatory controls
Source/ Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
	Odour, from animals and manure accumulated in paddocks	Unreasonable interference with the health, welfare, convenience, comfort or amenity of nearby sensitive receptors (>630 m away and others within 1 km radius)	Paddocks with medium stocking density (30 SPU/ha) Shelters, feeders, etc. within breeder paddocks relocated every 6 months	Low level off-site impacts <b>Minor</b>	Likely to occur only in exceptional circumstances <b>Rare</b>	<b>Low</b> Acceptable, subject to regulatory controls	The NEGROP recommends fixed separation distances of at least 250 m to rural dwellings, 500 m to rural residential areas and 750 m to a townsite. The closest rural dwelling is about 630 m from the proposed pig paddocks, with several other rural dwellings within a 1 km radius. The nearest small town of Narrikup is about 15 km west.  The delegated officer considers outdoor piggeries, in general, pose a lower risk of causing odour impacts, due to the less intensive nature of the operations, and providing they are managed according to sustainable nutrient loading rate criteria.  Providing the applicant manages the pig paddocks to ensure even distribution of manure, wallows are managed before they become odorous, etc., the delegated officer considers there is a low risk of odour from the piggery significantly impacting on the amenity and health of off-site human receptors.	<u>Operational controls:</u> <ul style="list-style-type: none"> <li>• Minimum frequency of shelter rotation, removal of manure and spent bedding from paddocks</li> <li>• Maintenance of groundcover over all operational pig areas (no bare patches)</li> <li>• No on-site spreading of solid waste</li> </ul>
	Dust, from animals and machinery movements		Paddocks with medium stocking density (30 SPU/ha) Maintenance of groundcover in paddocks Provision, maintenance and remediation of wallows	Low level off-site impacts <b>Minor</b>	Likely to occur only in exceptional circumstances <b>Rare</b>	<b>Low</b> Acceptable, not subject to controls	Some fugitive dust is expected during operation of the piggery; however, given the small scale of the proposed piggery, separation to nearby receptors and being located in a rural area, and the requirement to maintain ground cover over active pig paddocks (for managing land degradation issues), the delegated officer does not reasonably foresee dust levels reaching nuisance levels off the premises.	None specified.
	Noise, from animals and machinery movements		Sufficient separation distance in place to nearby human receptors	Low level off-site impacts <b>Minor</b>	Likely to occur only in exceptional circumstances <b>Rare</b>	<b>Low</b> Acceptable, not subject to controls	Some noise is expected during operation of the piggery; however, the nature of animal noise and machinery movements is likely to be consistent with that of a typical rural area and given the separation to nearby receptors and being located within a rural area, the delegated officer does not reasonably foresee off-site receptors being impacted by noise.	None specified.



## 7. Decision

The delegated officer has determined the proposal to establish an outdoor rotational piggery on the premises, based on a 750-sow breeding program (1,587 SPUs), poses a high risk of impacts to surface and groundwaters and other forms of land degradation. This determination is based on there being insufficient land within each rotational area to sustain the level of nutrients that would be accumulated at the proposed herd size, for the proposed rotational timeframe, and with the proposed 4-yearly offtake strategy.

The delegated officer also holds concerns over the suitability of the proposed pig paddocks for cropping and whether it is feasible, given the proposal is to harvest the blue gums and grind the stumps to ground level (assumed to be below ground level and the holes filled in); it is unclear how seeding, harvesting the crops, etc., can be done without damaging machinery and equipment.

The applicant was provided an opportunity to address these aspects, prior the delegated officer making a final determination on the application, which resulted in a reduction of the herd size based on 700 sows.

The remaining aspects of the proposal, such as the siting, design and day-to-day management of the piggery, do not pose an unacceptable level of risk of impacts to on- and off-site receptors. This is based on the following:

- the relatively small scale and outdoor (free range) nature of the proposed piggery;
- being suitably located on priority agricultural land; and
- the proposal mostly complies with relevant environmental guidelines (NEGROP) and has adequately addressed the separation distances to water bodies and other sensitive receptors, mortalities and groundwater monitoring.

To minimise the potential for impacts to human health and the environment, the applicant has proposed the following controls, which will be imposed on the works approval as they are critical for ensuring an acceptable level of risk can be maintained during operations:

- fencing the piggery range area, away from the lowest lying areas on the premises and watercourses; and
- construction of rollover drains that divert surface water runoff from the piggery range area to terminal ponds, i.e., away from existing wetlands and the Napier Creek that flows through the premises.

In addition, the applicant proposes to conduct groundwater monitoring and soil testing on a biannual basis, to provide assurance that piggery operations are not impacting on groundwater quality.

The delegated officer is satisfied the above controls and monitoring lower the overall risk profile of the premises, and adequately address the concerns raised in public submissions regarding the impacts to local amenity from odour and dust and impacts to the Napier Creek surface water catchment and local groundwater resources.

### **Land use planning**

The department recognises the importance of land use planning in the context of the delivery of appropriate public health and environmental outcomes and will have regard to the processes and views of other authorities in its decision making process.

Having regard to the above, the delegated officer initially declined to make a determination on the works approval application, until a planning decision had been made on the proposal.

### **Works approval and licence**

W6725/2022/1 that accompanies this report authorises establishment of the outdoor piggery infrastructure and time limited operations only. The works approval conditions, as outlined in

the above risk table, have been determined in accordance with the *Guideline: Setting Conditions* (DWER 2020).

A licence is required to authorise emissions associated with the ongoing operation of the piggery following its establishment. A risk assessment for the operational phase has been included in this report, however licence conditions will not be finalised until the department assesses the licence application. Conditions will be imposed to ensure day-to-day operations do not pose an unacceptable risk of impacts to on- and off-site receptors.

***The applicant is advised to apply for a licence following the completion of works and submission of the Environmental Compliance Report.***

### **Draft decision and applicant comments**

The applicant was provided with drafts of the works approval and this report on 22 December 2022 and sought only minor comments and clarifications, which have been considered in the final decision.

## **8. Conclusion**

Based on this assessment, it has been determined that once all relevant planning approvals have been obtained a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

## **References**

1. Australian Pork Ltd 2013, *National Environmental Guidelines for Outdoor Rotational Piggeries* (NEGROP).
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Risk Assessments*, Perth, Western Australia.