ODOUR

Environmental Risk Assessment

Farm name: Bridge House Farm **Operator:** Mr R Thompson **Permit number:** QP3831MX

Table 1 Assessment of Odour Risk

What do you do that can harm and what could be harmed?			Managing the risk		Assessing the risk	
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs, who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence**
Odour from feed mixing, delivery and storage	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Measures as described in 'How to comply with your environmental permit for intensive farming V2 Jan 2010' (EPR 6.09 Sector Guidance Note) Odour Management Plan in place Feed delivery will be sealed to minimise atmospheric dust. Any spillage of feed around the bin is immediately cleaned up. The condition of feed bins is checked frequently so that any damage or leaks can be identified All feed ingredients are stored in covered tanks	Unlikely	Odour annoyance	Not significant

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			Breeding and finishing herds are fed liquid diets to minimise dust The unit is relatively isolated so there is minimal risk of dust causing direct odour nuisance All mixing and milling operations carried out within enclosed building and doors kept closed during operation			
• Odour arising from problems with housing ventilation system • Inadequate air movement in the house leading to high humidity and wet bedding • Inadequate system design causing poor dispersal of odours.	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Measures as described in 'How to comply-Intensive Farming'. The ventilation system will be regularly adjusted according to the age and requirements of the pigs. The ventilation system will be designed to efficiently remove moisture from the house. Buildings with higher ventilation rates will discharge exhaust air via roof vents for improved dispersal. Stocking density maintained at or below levels set out in Welfare Regulations.	Unlikely	Odour annoyance	Not significant
Manure and slurry management: • Odours arising from poorly managed muck	Neighbouring dwelling houses within 400m of the installation	Air	Measures as described in 'How to comply-Intensive Farming'	Unlikely	Odour annoyance	Not significant

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and slurry collection, removal and distribution • The use of insufficient or poor quality straw • Spillage of water from drinking systems • Disease and vice outbreaks	– Non applicable currently		Controls on feed and ventilation (see above) help to maintain air quality Additional controls include: Insulated walls and ceilings to prevent condensation Regular maintenance and correct positioning to avoid overflow from feed and drinking systems Concrete floors to prevent water ingress and surfaces arranged to avoid build-up of stagnant water Stocking density at optimal levels to prevent overcrowding Pens and yards kept clean Manure loaded directly to trailers for transport to muck stores rather than being moved by scrapers across the yard Dirty water collection systems enclosed and regularly emptied to avoid anaerobic conditions			

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			Frequent removal of manure and slurry; wind direction observed Slurry not agitated on removal and potentially odorous spillages cleaned up promptly			
Carcase disposal: • Inadequate storage of carcases on site • On-site disposal of carcases by incineration.	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Measures as described in 'How to comply-Intensive Farming' Carcases are placed in sealed containers immediately after they are removed and are promptly disposed of by on-site incinerator Approved incinerator used; intermittent activity Odours controlled by after burner All odour complaints are logged and investigated	Unlikely	Odour annoyance	Not significant
Buildings: • Cleaning and disinfection • Emptying slurry pits • Removal of manure	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Pens and yards kept clean Manure loaded directly to trailers for transport to manure stores rather than being moved by scrapers across the yard Dirty water collection systems enclosed and regularly emptied to avoid anaerobic conditions	Likely	Odour annoyance	Not significant if carefully managed

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			Frequent removal of manure and slurry, wind direction observed Slurry not agitated on removal unless absolutely necessary and potentially odorous spillages cleaned up promptly			
Odour arising from manure/slurry spreading	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	As above FYM mainly exported to other farms for utilisation Any which is land-spread is highlighted in the manure management plan and also follows NVZ rules Intermittent activity only	Likely	Odour annoyance	Not significant if carefully managed
Odour arising from manure and slurry. Storage – dirty tanks, slurry tank/lagoon FYM field heaps	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Site will operate under odour management plan Feed selection to minimise excretion of nutrients Storage areas (including field heaps) sited away from neighbours Reduced surface area of above ground store	Likely	Odour annoyance	Not significant if carefully managed

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			Dirty water tank covered Areas of open, dirty concrete minimised Stores regularly emptied Composting of manure			

NOISE

Table 2 Assessment of Noise Risk

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence**
Noise problems from large vehicles travelling to and from the farm. Mobile source	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Measures as described in 'How to comply-Intensive Farming' Vehicles are required to be driven on to and off site with due consideration for neighbours Deliveries of feed and fuel are made only during the daytime, if possible, so that disturbance is minimised General animal movements made during daylight hours and of short duration with minimum stress All vehicles maintained so as to minimise engine noise and are driven slowly to and from the site Roads and tracks maintained to minimise noise produced	Unlikely	Noise annoyance	Not significant if managed carefully

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What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence**
Large vehicles on site for delivering feed, loading live pigs at end of the growing period, removal of muck and slurry from houses, removal of dirty water from underground tanks Mobile source	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Measures as described in 'How to comply-Intensive Farming' Vehicles have to be well maintained and must be driven slowly around the site Engines to be switched off when not in use Vehicles which are fitted with an audible 'vehicle reversing' warning system are generally used only in the daytime Idling of machines avoided and engine revs kept low with an effective silencer Minimal manual feeding restricted to day working hours, limited at weekends and bank holidays Need for scraping minimised and underground slurry transfer systems in place from house to store Slurry tanker filling and emptying done as an intermittent activity	Unlikely	Noise annoyance	Not significant

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			Slurry store location not in direct line of sight with residential housing Machinery and equipment sited as far as possible from neighbours Electric submersed pump, intermittent operation, regular servicing			
Small vehicles travelling to and from the farm eg staff and visitors' cars, courier van deliveries, etc Mobile source	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Measures as described in 'How to comply-Intensive Farming' Small vehicles arrive during the normal working day and therefore are seen as low risk	Unlikely	Noise annoyance	Not significant
Feed transfer from lorry to bins and tanks Fixed source	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Feed building acts as a screen between delivery vehicle discharge point and nearest housing Vehicles are well maintained and designed so that noise during feed transfer is minimised Conveyors and augers not operated when empty	Unlikely	Noise annoyance	Not significant

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			Tipping type delivery vehicles and augers used whenever possible for bulk dry ingredient delivery Blower and vacuum type delivery vehicles fitted with low noise units			
Operation of fans Fixed source	Neighbouring dwelling houses within 400m of the installation – Non applicable currently	Air	Some buildings naturally ventilated Efficient extractor fans used and maintained in good condition to avoid excessive noise Fans sited away from neighbours and cowls used to muffle noise, as appropriate Forced ventilation systems with automated controls to minimise run time and fan speed	Unlikely	Noise annoyance	Not significant
Alarm system and standby generator Fixed source	Neighbouring dwelling houses within 400m of the installation, staff and pigs	Air	Weekly system test (required by law) is carried out each Friday morning, timed in order to minimise nuisance to neighbours All electrics and equipment are routinely maintained so that the back-up systems rarely need to be used in practice	Unlikely	Noise annoyance	Not significant
Pigs	Neighbouring dwelling houses	Air	Noise from pigs may be considered to be a likely cause for	Unlikely	Noise annoyance	Not significant

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Mobile source	within 400m of the installation		complaint during the growing period During loading, noise from animals is minimised by careful handling and by prompt removal of the lorry from the site when full			
Personnel Mobile source	Neighbouring dwelling houses within 400m of the installation	Air	Staff and other contractors are required to carry out their work without creating excessive noise from shouting and use of radios, etc	Unlikely	Noise annoyance	Not significant
Repairs	Neighbouring dwelling houses within 400m of the installation	Air	Noise Management Plan in place If repairs to the site are required, the work is undertaken with due regard for possible noise nuisance and during the normal working day In the event of major repair work being undertaken which is likely to cause significant noise and disruption, neighbouring residents will be notified in advance	Unlikely	Noise annoyance	Not significant
Manure/slurry spreading	Neighbouring dwelling houses within 400m of the installation, wildlife	Air	Machinery operated at reasonable times where possible and idling avoided Equipment maintained to optimum standards	Likely	Noise annoyance	Not significant if managed carefully

FUGITIVE EMISSIONS

Table 3 Assessment of Fugitive Emissions Risk

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence.**
To air						
Dust Sources: • Straw • Feed • Incinerator ash	Neighbouring dwelling houses within 400m of the installation: • Nuisance • Contributes to odours • Human health (inhalation) Surrounding vegetation: Covers leaves and inhibits photosynthesis Surrounding land: Nutrient enrichment of soils Contributes to respiratory problems for pigs and staff	Air	Use of suitable bedding materials and good storage of such materials Use of liquid and pelleted feed delivered in sealed systems and stored in covered containers Incinerator ash is transferred to covered container prior to removal from the site Regular clearing of dust to prevent build up within buildings, on roofs and around vents, as part of the disease control strategy Treatment of lightly contaminated surface water by swale/soak-away	Dust could potentially reach the road and neighbouring houses and surrounding land when a strong wind blows in that direction, which it does around 50 days per year Management actions should prevent this happening	Nuisance: dust on surrounding vegetation, cars, clothing Smothering and direct damage to nearby vegetation Pigs/staff may get stressed and become unwell	Not significant if managed carefully

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Ammonia Source: Pig housing and manure/slurry/dirty water storage, removal and spreading	Neighbouring dwelling houses within 400m of the installation Pigs and staff: high levels can cause respiratory problems Also perceived as a nuisance as it contributes to odours Surrounding vegetation: direct toxic effect and changes to sensitive ecosystems Surrounding land: Nutrient enrichment and acidification of soils	Air	Measures as described in 'How to Comply – Intensive Farming' Mitigation measures as for odour Feed formulated to match pig requirements and to minimise amount of ammonia produced Rations under periodic review Reduced slatted area in housing Provision of sufficient straw in bedding to bind nitrogen, where appropriate Ventilation and heating control systems designed to provide optimal environment and regularly monitored and maintained Covered slurry store fitted with double gate valves Regular monitoring of tank and store contents and maintenance of facilities and equipment	The impact of ammonia on air emissions from the installation has been assessed using the H1 methodology and detailed air dispersion modelling The results demonstrate that there will be little likelihood of impact to nearby wildlife sites	Aerial deposition and direct toxic effect on trees Nutrient enrichment of soils and changes to sensitive ecosystems Respiratory problems in humans and mammals	Not significant

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			Frequency of slurry/manure removal to optimise pen cleanliness Dedicated purpose built facilities for slurry, dirty water and manure Manure/slurry spread at low level and in accordance with the Manure Management Plan and NVZ rules Fully trained operators Soils regularly analysed and applications made in response to crop requirement s to avoid spreading more slurry/manure than is needed			
Zoonoses and notifiable diseases	Human health and livestock health	Air/direct contact	Detailed biosecurity precautions in place, eg frequent stock inspection, use of disinfectants and appropriate clean overalls, boots, etc for staff, visitors and contractors, to prevent spread of disease Secure site visitor policy	Unlikely	Human and livestock health implications	Not significant if managed carefully

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			Livestock monitored for signs of disease and incidents reported quickly Use of a health plan, with specialist veterinary input in place.			
To water						
Nutrients such as N and P plus organic matter Source: Wash water run off to nearby water course, muck and slurry spreading	Adjacent Water Course: Mill Stream Nutrient leaching from soil to surface waters and groundwater, causing eutrophication and increased biochemical oxygen demand (BOD) of watercourses	Land	Wash water runoff is diverted to underground storage tanks Curbing prevents wash water entering the nearby water course Used bedding/feed spilt on yard/roadways during clean out is cleaned up Field manure heaps sited away from watercourses and boreholes Manure management plan followed including NVZ rules for spreading manure and slurry	Unlikely	Pollution of water course leading to eutrophication and poisoning of flora and fauna	Not significant if managed carefully

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Spillages from storage and use of pesticides and fuel/chemicals	Vulnerable groundwater beneath site	Land	Management techniques employed aimed at avoiding or minimising use where possible Use of approved chemicals only Operators fully trained and all equipment regularly maintained to avoid any in-field spillage or discharge All tanks bunded and compliant with legislation	Unlikely	Contamination of surface and groundwaters Killing of flora and fauna	Not significant
To land						
Ammonia from storage of dirty water, slurry, manure and housing	Sensitive nature and conservation sites identified in pre-application screening Is there a SSSI within 500m?	Air	As for odour and 'To water' above Feed selected to minimise excretion of nutrients Storage sites sited away from sensitive receptors Dirty water tank covered Proposals to cover slurry store in improvement plan	Likely	Direct toxic effect on trees, nutrient enrichment and acidification of soils Changes to sensitive ecosystems .	Not significant if managed carefully

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Waste materials, packaging, etc. Source: Non-organic waste storage and disposal	Neighbouring dwellings and surrounding habitats and countryside	Air	Policy to avoid production where possible Dedicated storage areas and facilities Collected by licensed contractors for re-cycling or disposal Regular checks made for rubbish dumped by third parties	Unlikely	Amenity value of countryside spoilt by rubbish Possibility of causing harm to wildlife	Not significant
Pests						
Flies on manure heap could move off-site and affect nearby residents Also, birds, rats, etc.	Neighbouring dwelling houses	Air	Pest management programme in place Manure heap is regularly inspected to check for maggots and flies Heap will be treated with pesticide and covered with sheeting if flies become an issue	Unlikely	Flies and rats are a vector of pollution that can harm human health Concerns about this pollution can cause offence and affect amenity	Not significant if managed carefully

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			Food sources covered and secure from pests Pest control programme in operation			

Accident Risk Assessment

Table 4 Assessment of Accident Risk

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence.**
Spillages from pesticide and biocide handling and storage areas escaping	Potentially polluting liquids flow over yard to clean drain inlet, ditch/stream/ pond/swale and surrounding land Also vulnerable groundwater beneath site	Flowing over yard or through cracks in poor impermeable surface and through the ground	Accident Management Plan in place Repair any infrastructure and design appropriate containment measures Maintenance and regular inspection procedure designed and implemented Foot dips on good concrete with drains to slurry store or dirty water system and located where overflowing gutters will not dilute Wheelwash constructed from reinforced concrete with sealed joints Regular inspection of facilities and records kept Dedicated container for storage with impermeable hard standing within bund Removed from site by licensed contractor	Very unlikely	Contamination of local groundwater and potential nearby abstractions	Not significant with measures indicated

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What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence.**
			Damaged or suspect packaging rejected at time of delivery			
Fuel oil in storage tank/vehicles escaping the containment	Land, local water course	The surface water drainage system	Regular inspection in accordance with the site maintenance and inspection procedure and complies with SSAFO regulations Barriers in place to prevent vehicles damaging tanks and equipment Concrete base and bund containing tank and fill point Double valves locked when not in use Site drains discharge to oil interceptors (sumps) prior to soak away If spills occur the oil spill equipment is located nearby	Very unlikely	Contamination of local water course	Not significant

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Spillage of slurry, manure, feed and fuel due to operator error when loading and unloading	Land, local water course	Land, the surface water drainage system	Standard operating procedures applied for loading and unloading Any spillage of feed around the bins and tanks is immediately cleaned up using materials which are stored nearby Area drains to slurry store so containment provided The condition of feed bins and tanks is checked frequently so that any damage or leaks can be identified in accordance with the site maintenance and inspection procedure Levels measured to prevent overfilling and sight gauge enclosed by guard Barriers are in place to prevent collision All suppliers are supervised while on site Overhead pipework routed through buildings with internal slurry storage or over yard draining to slurry store	Unlikely	Contamination of local water course	Not significant

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			Feed mixing area drains directly to slurry pit Fully trained operators			
Failure to contain firewater or off-site pollutants	Ditches, local water course		Accident Management Plan in place Emergency barrier boards to be inserted in ditch culvert north of mill/mix shed Sandbags kept by diesel tank Drain inlets to be covered by sandbags, drain bung inserted, diverter valve closed Stem flow of runoff from edge of yard using sandbags, use loader to push soil into a dam and excavate a sump	Unlikely	Contamination of local watercourse and surrounding land	Not significant
Incorrect disposal of wash water	Clean drain, ditches, local water course and soakaways	Drains, ditches, land	Staff trained in correct operation procedures All drains marked All drains shown on drainage plan	Unlikely	Contamination of ground and surface waters	Not significant

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Spillage when loading and emptying incinerator of non SRM material, eg ash containing trace elements, heavy metals, calcium, phosphate and dust	Neighbouring dwelling houses Surrounding land and water courses	Air, land and water	Accident Management Plan in place Regulation and regular inspection of facilities and records kept Impermeable hard standing with liquid collection APHA approved activity includes records and inspections	Unlikely	Contamination of local water course, groundwater, vegetation, soil, etc.	Not significant
Acts of vandalism which cause damage to structures and fittings	Surrounding land, surface and ground waters	Land, water	Site security	Low	Contamination of soil and or water	Low
Flooding and other storm damage	Surrounding land, surface and ground waters	Land, drains, water courses	Good site layout and design Maintenance of site infrastructure and local flood defences Observe weather forecasts and weather warnings	Low	Water and soil pollution	Low
Power outage causing failure of slurry pumping systems resulting in tank overflow Failure of automatic liquid level control sensors and devices	Surrounding land, surface and ground waters	Land, drains, water courses	Stand-by generator with automatic start-up and switch over	Low	Overflow of storage facilities	Low

Accident Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence.**
Fire	Livestock, staff, buildings, fuel and oils, chemicals, bedding, feed, local habitats and neighbouring dwellings	Air	Regular inspection and maintenance of equipment	Unlikely	Toxic smoke and other pollutants, surface run-off from firefighting water, surface run-off from failed storage tanks, pipes and stores Exploding gas and fuel canisters and containers Increased numbers of dead animals for disposal Dust and fibres from sheet building material which may contain asbestos	Low

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What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence.**
Below ground dirty water tank and pipe ruptures/overflows (including used disinfectant)	Dirty water flows over yard to clean drain inlet at the back of the office and into local water course	The surface water drainage system	Curbing to prevent water entering nearby water courses Use of Defra/NOAH approved disinfectants Block off drain inlet with sand bags kept by diesel tank If already entered drain, block off ditch with boards at point Y as indicated on Accident Management Plan Contact office or duty manager. If necessary contact Environment Agency	Unlikely	Contamination of local water course	Not significant

Table 5 Climate Change Adaptation Risk Assessment

Potential changing climate variable	**A Impact**	**B Likelihood**	**C Impact**	**D Risk** (B x C)	**E Mitigation** (what you'll do to mitigate this risk)	**F Likelihood** (after mitigation)	**G Impact** (after mitigation)	**H Residual risk** (F x G)
1. Summer daily maximum temperature This may be around 7°C higher compared to average summer temperatures now, with the potential to reach extreme temperatures as high as over 40°C with increasing frequency based on today's values.	Sheds are naturally ventilated. Pigs may experience heat stress. RSPCA Assured recommends temperature is kept between15°C and 18°C.	3	3	9	Keep a log of any hot days that occur each year Keep a log of temperature in pig sheds Ensure extra space is provided per pig, to allow pigs to lie away from each other Ensure all vents/windows are open to allow airflow Ensure drinking systems are maintained Consult with veterinarian on management	3	2	6

Climate Change Risk Assessment

Potential changing climate variable	A Impact	B Likelihood	C Impact	D Risk (B x C)	E Mitigation (what you'll do to mitigate this risk)	F Likelihood (after mitigation)	G Impact (after mitigation)	H Residual risk (F x G)
					strategies to prevent heat stress			
	Sheds are fully controlled ventilation. Ventilation system not being able to maintain optimum temperatures. Pigs may experience heat stress/ increased risk of animal mortality.	3	3	9	Keep a log of any hot days that occur each year Keep a log of temperature in pig sheds Ensure ventilation is optimally maintained and fans are in working order Ensure extra space is provided per pig, to allow pigs to lie away from each other. Reduce stocking denisty during these months if nessesary Install additional cooling such as misting systems	3	2	6

Climate Change Risk Assessment

Potential changing climate variable	A Impact	B Likelihood	C Impact	D Risk (B x C)	E Mitigation (what you'll do to mitigate this risk)	F Likelihood (after mitigation)	G Impact (after mitigation)	H Residual risk (F x G)
					Ensure drinking systems are maintained Adjust the lighting to encourage animals to rest during peak hours Consult with veterinarian on management strategies to prevent heat stress			
	There could be an increased risk of fire in biomass feedstock store, straw store and agrochemicals store.	2	3	5	Store less material on the farm where possible Regularly check stores	2	1	2
	There could there be an increased risk of flies and odour.	4	2	8	Ensure ventilation is optimally maintained and fans are in working order	3	2	5

Climate Change Risk Assessment

Potential changing climate variable	**A Impact**	**B Likelihood**	**C Impact**	**D Risk** (B x C)	**E Mitigation** (what you'll do to mitigate this risk)	**F Likelihood** (after mitigation)	**G Impact** (after mitigation)	**H Residual risk** (F x G)
					Apply chemical deterents where needed Utilise slurry management systems such as cooling, acidiforcation or slurry separation			
	There is a risk of feed ingredients heating and spoiling.	2	2	4	Upgrade to more suitable feed silos such as galvanised steel	1	2	2
2. Winter daily temperatures This could be 4°C more than the current average with the potential for more extreme temperatures, both warmer and colder than present.	Increased ventilation requirement. There could there be potential benefits such as: * less energy used to heat animal housing * less risk of water freezing and damaging pipes	2	1	2	Conduct a review of ventilation and energy requirements	2	1	2

Climate Change Risk Assessment

Potential changing climate variable	A Impact	B Likelihood	C Impact	D Risk (B x C)	E Mitigation (what you'll do to mitigate this risk)	F Likelihood (after mitigation)	G Impact (after mitigation)	H Residual risk (F x G)
	Risk of pipework freezing	2	3	5	Insulate pipework Provide a contingency water supply	2	2	4
3. Daily extreme rainfall Daily rainfall intensity could increase by up to 20% on today's values.	Surface water drainage system overloaded Slurry lagoon overloaded Potential for increased site surface water and flooding leading to: * power failure * animal welfare issues * infrastructure damage * restrictions on site access for staff and emergency services	2	3	6	Drains and lagoon managed thoughout year Install additional surface water drains	2	2	4
	Gutters may not be able to cope or could overflow	2	2	4	Clear gutters of debris	2	1	2

Climate Change Risk Assessment

Potential changing climate variable	A Impact	B Likelihood	C Impact	D Risk (B x C)	E Mitigation (what you'll do to mitigate this risk)	F Likelihood (after mitigation)	G Impact (after mitigation)	H Residual risk (F x G)
					Upgrade gutters for a larger capacity			
	Soakaways and swales could be overwhelmed	2	2	4	Install diverter valves to alternative areas	1	2	2
	Weather conditions not allowing spreading	3	4	12	Calculate the need for and install additional slurry storage	2	3	5
	Potential for contaminated floodwater and surface water run-off from the site to cause pollution	3	4	12	Store all chemicals securely Manage drainage systems, including any interceptors, to avoid uncontrolled release of pollutants	2	3	6
	Foot dips could be become diluted by additional rainwater and risk overflowing, becoming	4	4	16	Change foot dips for dips with a cover to keep out rainwater	2	2	4

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Potential changing climate variable	A Impact	B Likelihood	C Impact	D Risk (B x C)	E Mitigation (what you'll do to mitigate this risk)	F Likelihood (after mitigation)	G Impact (after mitigation)	H Residual risk (F x G)
	ineffective in the process							
4. Average winter rainfall Average winter rainfall may increase by over 40% on today's averages.	Surface water drainage system overloaded with liklihood of flooding	3	2	6	Increase surface water storage capacity Instal additional surface water drains	2	2	4
5. Sea level rise Sea level rise which could be as much as 0.6m higher compared to today's level.	Inland site. Low impact expected.	1	1	1	Follow guidance from a more at risk site if action is required			
	Site located near the coast or an estuary. Potential increased risk of flooding with inaccessible fields, or above field capacity, leading to reduced land availability for spreading manure or slurry.	3	4	16	Additional landbank for spreading Alternative or additional storage and disposal routes Alternative outlets such as anaerobic digestion	3	3	9
6. Drier summers	Increased dust – less water to suppress	4	1	4	Ensure a mains water supply is	2	1	2

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Summers could see potentially up to 40% less rain than now.					available as back-up Reduce high volume traffic			
	Stress on groundwater supply, which may become unavailable for use on-farm for drinking water	4	5	20	Calculate the need for and install additional supply	4	3	12
	Risk of disruption to the mains water supply for use on-farm for drinking water and cleaning out	3	5	15	Investige the feasibility of a borehole for groundwater abstraction Install winter storage reservoir and treatment system so water can be used on-farm	3	2	4
7. River flow The flow in the watercourses could be 50% more than now at its peak, and	Risk of on-farm flooding if the water level in the adjacent ditch rises above the discharge pipe,	3	3	9	Raise the level of the discharge pipe to the ditch	2	2	4

Climate Change Risk Assessment

Potential changing climate variable	A Impact	B Likelihood	C Impact	D Risk (B x C)	E Mitigation (what you'll do to mitigate this risk)	F Likelihood (after mitigation)	G Impact (after mitigation)	H Residual risk (F x G)
80% less than now at its lowest.	resulting in backflow to the farm				Install a non-return valve in the discharge pipe Continue drainage ditch maintenance			
8. Storms Storms could see a change in frequency and intensity. The unique combination of increased wind speeds, increased rainfall, and lightning during these events provides the potential for more extreme storm impacts.	Storms and high winds could damage building structures with increased potential for odour and dust emissions and loss of power	2	3	6	Review the design of vulnerable structures and buildings, reviewing wind loading calculations Provide reinforcement if necessary to maintain building integrity Ensure well maintained emergency backup power Keep the site tidy and secure any equipment or	2	2	4

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					objects that could blow around			
	Power cuts caused by extreme weather could affect ventiliation systems and on farm real time monitoring	3	4	12	Ensure well maintained emergency backup power	2	3	6

This document has been prepared by the applicant using the BPEX template.