

CLIMATE CHANGE RISK ASSESSMENT

Chequerhouse Farm, Ranby, Retford, DN22 8JA

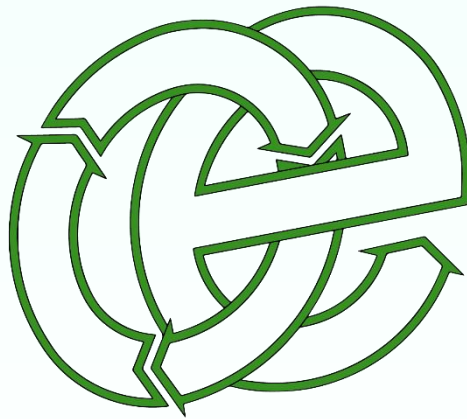
Chequerhouse Farm Limited

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Oaktree Environmental Ltd, Lime House, 2 Road Two, Winsford, Cheshire, CW7 3QZ
Tel: 01606 558833 | E-Mail: sales@oaktree-environmental.co.uk | Web: www.oaktree-environmental.co.uk

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Oaktree Environmental

Waste, Planning & Environmental Consultants



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1 Introduction

1.1 Background and Context of Assessment

- 1.1.1 A Climate Change Risk Assessment (CCRA) has been undertaken for a proposed poultry farm to be located at Chequerhouse Farm, Ranby, Retford, DN22 8JA.
- 1.1.2 The site will be regulated in accordance with an Environmental Permit (EP), in place under The Environmental Permitting (England and Wales) Regulations 2016 ("the permitting regulations), in accordance with Permit No. EPR/HP3031JS.
- 1.1.3 All sites regulated under the permitting regulations are required to embed a CCRA within existing management systems.
- 1.1.4 This CCRA will be embedded into the existing management system in place at Chequerhouse Farm.

1.2 Climate Change Risk Assessment Methodology

- 1.2.1 There are no set formats for a CCRA. However, the government website provides sector specific examples for undertaking CCRA. The following are relevant issues associated with climate change, which should be considered within a CCRA:

- Rise in summer maximum daily temperatures, which 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;
- Winter temperatures could be 4°C more than the current average with the potential for more extreme temperatures, both warmer and colder than present;
- Daily rainfall intensity could increase by up to 20% on today's values;
- Average winter rainfall may increase by over 40% on today's averages;
- Sea level rise which could be as much as 0.6m higher compared to today's level;
- Summers could see potentially up to 40% less rain than now;

- The flow in the watercourses could be 50% more than now at its peak, and 80% less than now at its lowest; and,
- 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.

1.2.2 There are various impacts which may be associated with the above aspects which have been considered within this CCRA.

1.2.3 In order to assess climate related risk associated with the operation and required mitigation, the likelihood and impact scores are evaluated and then multiplied together to identify the level of risk for each aspect. The criteria used to assess likelihood and severity of impact score are outlined within the tables below.

Table 1.1 – Likelihood of Impact Scoring

Likelihood of Impact	Score
Rare	1
Unlikely	2
Moderate	3
Likely	4
Almost Certain	5

Table 1.2 – Severity of Impact Scoring

Impact Severity	Score
Insignificant	1
Minor	2
Moderate	3
Major	4
Severe	5

2 Risk Assessment

2.1 The table overleaf presents the CCRA

Table 2.1 – Climate Change Risk Assessment Table

Potential changing climate variable	A Impacts	B Likelihood	C Severity	D Risk (B x C)	E Mitigation	F Likelihood (after mitigation)	G Severity (after mitigation)	H Residual risk (F x G)
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.	Ventilation system unable to maintain optimum temperature within livestock housing. Poultry may experience heat stress	3	4	12	The site has gable end ventilation on poultry houses for the extraction of heat. Adjust ventilation programme to maximise air flow if needed and consult with specialist advisor if needed. Evaporative cooling systems to be installed in all houses. Regularly review and check system to ensure it is meeting required level of cooling. Regularly review ventilation requirements. Plan any activities such as catching, transport or vaccinating to avoid the hottest part of the day. Consult with poultry vet on additional measures to consider for reducing heat stress in poultry. Keep a log of any hot days which occur each year. Low stocking densities considered.	3	2	6
	Increased risk of flies and odour	3	3	9	Regularly review ventilation requirements and adjust as necessary. Regularly review Odour Management Plan and make amendments as necessary to prevent issues. Keep surfaces as clean as possible.	2	2	4
	Increased risk of fire in biomass store	3	4	12	Regularly check biomass fuel store. Review temperature controls in biomass store. Ensure that temperature and humidity is adequately controlled. Ensure biomass store is adequately ventilated. Review and consider use of additional fire detection systems. Accident Prevention measures for biomass fuel store to be regularly reviewed.	3	2	6
	Risk of feed ingredients heating and spoiling	3	3	9	Silos are galvanised steel and light in colour. Review feed storage arrangements. Consider changing steel silos to fibreglass if necessary. Manage feed deliveries and storage to ensure feed is moved through silos as quickly as possible.	2	1	2

Potential changing climate variable	A Impacts	B Likelihood	C Severity	D Risk (B x C)	E Mitigation	F Likelihood (after mitigation)	G Severity (after mitigation)	H Residual risk (F x G)
	Increase in occurrence and severity of animal diseases	3	4	12	Keep up to date with animal disease warnings. The operator will be signed up to alerts. Consider revisions to biosecurity. Identify alternative carcass disposal routes if existing method becomes unavailable.	3	2	6
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 risk of snow and ice, affecting site access, affecting feed and fuel delivery	2	2	4	Site will have adequate fuel and feed storage for several days use. Deliveries of fuel and feed will be planned in advance, the operator will assess weather forecasts to ensure knowledge of any extreme weather conditions that might hamper such deliveries. The operator will have equipment available to clear snow and ice from the site.	2	1	2
	Less energy required to heat housing Less risk of water freezing and damaging pipes	3	2	6	Review and adjust ventilation requirements, as applicable. Review and adjust energy and fuel use, as applicable.	2	1	2
Daily extreme rainfall Daily rainfall intensity could increase by up to 20% on today's values.	Surface water drainage system overloaded. Gutters may not be able to cope Water ingress into poultry houses Increased risk of water-borne pathogens such as avian influenza circulating in the environment	3	3	9	Assess existing attenuation capacity and consider increasing if additional capacity is deemed necessary. Ensure poultry houses are well maintained, gutters cleared and moss removed from roofs to prevent water ingress. Seal cracks and gaps, use weather stripping to seal any gaps water could penetrate to prevent any leaks. Review biosecurity standards and ensure a robust biosecure boundary around the site perimeter and each individual poultry houses.	2	1	2
Average winter rainfall Average winter rainfall may increase by over 40% on today's averages.	Surface water drainage system overloaded. Water ingress into poultry houses Increased risk of water-borne pathogens such as avian influenza circulating in the environment	3	3	9	Assess existing attenuation capacity and consider increasing if additional capacity is deemed necessary. Ensure poultry houses are well maintained, gutters cleared and moss removed from roofs to prevent water ingress. Seal cracks and gaps, use weather stripping to seal any gaps water could penetrate to prevent any leaks. Review biosecurity standards and ensure a robust biosecure boundary around the site perimeter and each individual poultry house.	2	2	4

Potential changing climate variable	A Impacts	B Likelihood	C Severity	D Risk (B x C)	E Mitigation	F Likelihood (after mitigation)	G Severity (after mitigation)	H Residual risk (F x G)
Sea level rise Sea level rise which could be as much as 0.6m higher compared to today's level.	Site is not within a coastal location, no impacts anticipated as a result of sea level rise	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drier summers Summers could see potentially up to 40% less rain than now.	Increased dust – less water to suppress. Water supply shortage	4	2	8	Assess existing attenuation capacity and consider increasing if additional capacity is deemed necessary. Optimise house cleaning techniques to ensure the minimum quantity of water necessary is used for house cleanout. Investigate feasibility of alternative water supply sources. Water is supplied to the site via mains and on-site attenuation, therefore meaning options are available to mitigate water shortages.	4	1	4
River flow The flow in the watercourses could be 50% more than now at its peak, and 80% less than now at its lowest.	Risk of farm flooding if river level rises above the discharge point	3	3	9	Manage the discharge flow rate to avoid impacts. Review height of discharge points to ensure at an appropriate height.	2	1	2
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	3	3	9	Identify and reinforce any vulnerable structures. Keep site tidy to avoid damage from objects being blown around. Well maintained emergency back-up power source.	2	2	4