Environmental Statement

in relation to

The proposed erection of a single poultry rearing building, two feed bins and associated development as part of a minor extension of the site

at

Pool House Farm
Acton Beauchamp
Worcestershire
WR6 5AJ

On Behalf Of
GP & JD Price & Sons

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1. INTRODUCTION

1.1 The Environmental Statement (ES) has been prepared for GP&JD Price & Sons by Moule & Co. It accompanies a planning application for the sustainable growth and expansion of the poultry business at Pool House Farm, Acton Beauchamp, Worcestershire, WR6 5AJ.

1.2 The expansion amounts to extending the site by one additional poultry building to the north of the existing farm. A site plan is illustrated in Appendix 1B. The farming business comprises two holdings, the Farm, Evesbatch at Bishops Frome and Pool House Farm, Acton Beauchamp, where an existing poultry enterprise is operated.

1.3 The proposal is sustainable economic development and supported by national, regional and local planning policy. On a global scale the development amounts to an expansion of the UK poultry meat production capacity and therefore a step closer to self-sufficiency in poultry meat, reducing the need to import meat, reducing greenhouse gasses from fossil fuel and transportation and other associated pollution – so call "food miles".

1.4 The ES is the principal written document relating to the EIA process. This provides the required information on the predicted environmental impact of the proposal. It has been prepared in accordance with the town and country planning (Environmental Impact Assessment) (England and Wales) regulations 2011 (as amended). The ES is intended to enable a recipients (such as the local planning authority) to understand the nature of the proposed development and evaluate the likely environmental impacts. In light of proposed litigation measures, the ES and therefore represents an essential component of the decision-making process and presents information in a readily accessible form.

1.5 The environmental permit (EPR/KP3439UV) has been varied (under variation application number EPR/KP3439UV/V004) to allow for the proposed increase in bird numbers at the expanded site from 79,400 to 105,000.

1.6 The application has been based on advice received from Herefordshire Council following the submission of a scoping opinion.

1.2 Site Location

1.2.1 The site is located at Pool House Farm, approximately 2.8 km east of the village of Bishops Frome and 7.3 km west of Malvern.

1.2.2 The proposed additional single poultry building will be situated to the north of the existing poultry buildings. The proposed development will enhance to the existing poultry site, which has two poultry houses and associated infrastructure.

1.2.3 The proposed development site occupies a pasture field of low ecological value and is well screened to the north and east by existing commercial orchards and mature trees. The natural topography does not allow intervisibility with neighbours in the vicinity. The closest residential property to the site is understood to be approximately 650m to the north-west. The Farm, at Evesbatch, is situated about 580m away from the site and is owned by Messrs Price. Pool House Farmhouse is Grade II listed.

1.2.4 The site is within a Nitrate Vulnerable Zone (NVZ) designated for surface water but is not located within any statutory designations for landscape or nature conservation.

1.2.5 The existing access will be utilised to serve the proposed additional poultry building. Access is taken off an unclassified road 1 km from the B4220 (Bromyard Road), a total of 3.5km from the A4103. This existing access is also used for the main farm yard, which is located adjacent to the existing poultry units.

1.2.6 There are no existing public rights of way within 650m of the site and therefore no effect will be had in these ways by the proposed development.

1.2.7 The proposed site can be seen identified on the Location Plan and Site Plan at Appendix 1a and 1b respectively.

1.3 The EIA Process and Regulatory Requirements

1.3.1 The Town & Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 (as amended) require that for certain developments an Environmental Impact Assessment (EIA) is required ("The EIA Regulations"). The Regulations set out the types of development where an EIA is mandatory (Schedule 1) and when the need for an EIA will be determined if the development is likely to have significant environmental impacts by reason of factors such as the size, scale, location or other likely impacts (Schedule 2). Regulation 17a provides for mandatory EIA with all proposals which exceed 85,000 birds.

1.3.2 This EIA has been based on scoping advice received from Herefordshire Council. The Council confirmed that the Environmental Statement should include:

- Landscape Statement
- Ecological Assessment
- Transport
- Flood Risk Assessment and Surface Water Drainage Proposals
- Odour Assessment
- Air Quality & Dust Assessment and Management
- Noise Impact Assessment

1.3.3 The EIA process aims to identify potential environmental impacts of a proposed development and identify measures to mitigate any adverse impacts. The Environmental Statement (ES) will report the finding of the EIA. Schedule 4 of The EIA Regulations sets out the required information to assess impacts on the natural environment to be included in an ES, specifically:

- A description of the development — including physical characteristics and the full land use requirements of the site during construction and operational phases.
- Expected residues and emissions (water, air and soil pollution, noise vibration, light, heat, etc.) resulting from the operation of the proposed development.
- An assessment of alternatives by the applicant and clear environmental reasoning as to why the preferred option has been chosen.
- A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including heritage, landscape and the interrelationship between the above factors.
- A description of the likely significant effects of the development on the environment — direct effects but also any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects. Effects should relate to the existence of the development, the use of natural resources and the emissions from pollutants. This should also include a description of the forecasting methods and where possible offset any significant adverse effects on the environment.
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
- A non-technical summary of the information
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

1.3.4 Any impact identified is assessed by looking at the degree of alteration from the baseline state which can be predicted (the magnitude of the effect) and the sensitivity of the receptors. Significance of the impact is evaluated using the following criteria:

- The value of the resource (international, national, regional and local importance)
- The magnitude of the impact
- The duration of the impact (long/short term, temporary/permanent)
- The reversibility of the impact
- The number and sensitivity of receptors
- The nature of the impact
- Whether the impact is direct or indirect

1.3.5 The significance of the impact (positive or negative) is generally considered to be one of the following:

- No significance/negligible — beneath the levels of perception, within the normal bounds of variation or within the margin or forecasting error; a non-detectable change to a location, environment or species
- Minor significance — a detectable but non-material and non-noteworthy change to a location, environment or species at a local level, relevant quality standards not approached
- Moderate significance — a material and noteworthy but non-fundamental change to a location, environment or species of local or district importance, relevant quality standards may be approached
- Major significance — a fundamental change to a location, environment or species of district to regional importance, relevant quality standards exceeded
- Extreme significance — a fundamental change (e.g. loss) to a location, environment or species of national/international importance, relevant quality standards exceeded by a substantial margin on a regular basis.

1.3.6 The assessment of impact considers residual impacts following any mitigation measures introduced to reduce, remedy or avoid any significant adverse impacts.

1.3.7 The ES aims to describe the project and the key issues that arise. A non-technical summary of the findings has been provided which is produced at Appendix 3. The main body of the ES will include the following:

- Introduction — background, site information and the EIA process and scope.
- Development Description — details of the construction, use and physical nature of the development and it's use.
- Alternatives — the alternative locations considered.
- Policy & Legislation — summary of planning and legislative content of the proposals.
- Environmental Assessment Chapters to cover; air quality, health and climate; landscape and visual assessment; highways; ecology; noise; odour and ammonia; flood and drainage; amenities and historic impact.
- Conclusion — an overview of the assessment.

1.3.8 The ES has been written by Moule & Co with the assistance of specialist consultants listed below:

Assessment	Consultant
Landscape & Visual Assessment	Moule & Co
Highways Assessment	Badingham Ltd
Ecological appraisal	Cotswold Wildlife Surveys

Noise Assessment	Matrix Acoustic Design Consultants
Odour Assessment	AS Modelling & Data Ltd
Flood Risk Assessment and Surface Water Management Plan	Hydro-Logic Services (International) Ltd
Historic Impact Assessment	Stoneycroft Planning & Development Ltd

2. PROPOSED DEVELOPMENT

2.1 Proposed Development Overview

2.1.1 The proposed development comprises of the erection of one additional poultry building, two feed bins and associated development. The new unit will house a maximum of 45,000 broiler birds per cycle. The proposed building will be located directly north of the existing two poultry buildings, which currently house 60,000 broiler birds per cycle. The combined number of birds per cycle would therefore be 105,000.

2.1.2 The birds are grown for approximately 38 days with thinning taking place at around 28-30 days of age and again 32-33 days of again depending on requirements. The remaining birds will be removed between days 38 and 40 after which an empty 10 day period follows for cleaning. The total cycle is approximately 45 days and therefore this provides for 7 cycles per annum with approx. 7 days empty per cycle.

2.1.3 The proposed poultry building will be 5.33m to the ridge with a floor area measuring 91.44m (300ft) x 20.42m (67ft). The control room and access bay will measure 7.80m (41.2ft) x 3.05m (10ft).

2.1.4 Feed bins will be located on the northern elevation of the proposed building as per the Site Plan at Appendix 1b.

2.1.5 The poultry building will be of a standard construction and consist of steel-framed, galvanised buildings clad externally with box profile polyester coated steel sheeting. The poultry building and feed bins will be coloured juniper green to assimilate the assimilation into the landscape.

2.1.6 The unit itself will have will have 15 high velocity ridge fans spaced evenly along the ridge with 3 gable fans which will disperse odour and keep internal temperatures acceptable to ensure the highest animal welfare standards are maintained.

2.2 Production Cycle

2.2.1 The cycle begins with day old chicks being delivered to the site and the birds being grown for 38 days. Thinning will take place at day 28 to 30 and again on days 32 to 33, before the remainder are removed between day 38 and 40. The cleaning of the units and tum around period before the new crop is delivered usual takes 7 to 10 days, meaning that each cycle is approximately 45 days and therefore this leads to 7.5 to 8 crops per year.

2.2.2 The production cycle of standard broilers begins with cleaned and disinfected buildings before bedding is added. The buildings are heated to the correct temperature with sufficient feed and water is made available via the automated systems. Once the chicks

are placed and established into the buildings the feeding input increases during this crop cycle, whilst heating requirements decrease.

2.2.3 At the end of each crop cycle the birds are collected at day 38 to 40 and the dry litter manure is removed as per the existing poultry buildings. All spent poultry litter is transferred from the poultry houses and stored in field heaps, later being spread on farmland belong to GP & JD Price & Sons in accordance with nitrate-vulnerable zone (NVZ) regulations and associated manure plans.

2.2.4 The buildings are then washed down and prepared ready for the next crop of birds. Each crop cycle will last approximately 45 days, which includes cleaning of the buildings and therefore equates to approx. 7.5 to 8 crops per year.

2.2.5 The law covering the welfare of broiler chickens is covered by The Welfare of Farmed Animals (England) (Amendment) Regulations 2010. This sets limits on stocking densities to include a maximum of 38kg/m2 where approved by the Secretary of State and the following conditions are met:

- That documents relating to the unit giving a detailed description of production systems and technical details of the house are maintained and available on request to the Secretary of State.
- The documents relating to the detailed description of production systems and technical details are kept up to date.
- Ensuring that each house is equipped with ventilation and, if necessary, heating and cooling systems designed, constructed and operated in such a way that: -

    i. The concentration of ammonia does not exceed 20 parts per million and the concentration of carbon dioxide does not exceed 3,000 parts per million, when measured at the level of the chickens heads;

    ii. When the outside temperature measured in the shade exceeds 30 degrees, the inside temperature does not exceed the outside temperature by more than 3 degrees; and

    iii. When the outside temperature is below 10 degrees, the average relative humidity measured inside the house during a continuous period of 48 hours does not exceed 70%.

2.2.6 The birds are grown for a food processing company which supply chicken to the retail trade. In order to supply the retail trade all farmers must, as a minimum, be members of the independently audited Red Tractor Farm Assured Chicken Scheme. The scheme requires farmers to comply with strict management and welfare requirements such as stocking at a maximum rate of 38kg/m^2. Some retailers now require the supply of 'Higher Welfare Chicken', which is endorsed by the RSPCA Freedom Foods Scheme stocked to a lower rate of 30kg/m^2. The higher stocking rate has been used to ensure a maximum stocking is considered as a worst-case scenario.

2.2.7 Before the birds arrive the bedding is distributed throughout the building, which consist of wood shavings to a depth of around 2cm. The poultry unit is heated to a temperature of around 32 degrees at the beginning of the crop and is decreased gradually to 21 degrees towards the end of the crop. The temperature is reduced as the birds grow older and larger. The ventilation rate therefore conversely increases. The feed is supplied by the processing company and mixed according to the birds requirements at each stage of growth. The protein and phosphorous levels are reduced as the birds get larger. The water will be supplied in nipple drinkers, which offer water on demand but minimise spillage and contamination.

2.2.8 The birds are checked regularly with any mortalities being removed on a daily basis. The dead birds will be stored in a vermin proof container to await collection by animal health approved contractors.

2.2.9 The birds are removed and transported to the processing site at the end of the production cycle. The buildings then go through a thorough clean-out phase which involves dry-cleaning to remove organic material, wash down and then disinfect. The normal turn around period is around 7 to 10 days before the buildings can be re-stocked with the next crop where the cycle starts again. The break between crops could be longer at certain times of the year such as Christmas or if clean-out is delayed for any reason.

2.3 The Built Development and Systems

2.3.1 The proposed poultry building will be of a portal framed construction with insulated box profile polyester coated steel sheeting to the walls with box metal profile roof sheets. The buildings will run in an east to west direction.

2.3.2 The internal flooring will be a smooth, easily washable concrete floor on a damp proof membrane. The walls will be on a poured concrete foundation.

2.3.3 The roof construction typically consists of an internal steel box profile 'ceiling' with a minimum of 140mm but potentially up to 280mm fibreglass insulation between timber purlins with steel box profile sheeting external roof covering. Walls will be timber framed panels/battens with 100mm fibreglass insulation with external steel box profile sheeting.

2.3.4 The buildings will be insulated with fibre glass insulation to the walls and roofs to a U vale of <0.4 W/m2 degrees. This will eliminate condensation on the inner lining of the buildings and minimise any solar heat gain. The buildings will be ventilated by a computer controlled mechanical system.

2.3.5 The ventilation will be of a 'conventional' design with 15 roof mounted variable high speed fans along with gable end fans for summer cooling. The fans will operate at a

variable rate dependent on the age of the birds. For the majority of the time (day-time and night-time) not all of the fans will be operating at the same time.

2.3.6 There will be a total of 2 feed bins situated on the northern elevation (eastern end) of the poultry unit which is accessible from the existing concrete yard. The feed bins will be 6.88m in height.

2.3.7 Lighting on the site will be kept to a minimum to ensure safe operation of the site but more importantly to reduce any light spill outside the unit. The shed will have low-wattage, low intensity light above the openings at the front of the unit at the eastern gable. This will allow safe working during normal working hours in the winter and when there is poor light. The eastern gable of the proposed unit will face the existing yard where all activities take place. It is this yard where lighting will be required and there will be no use of high intensity lighting.

2.3.8 During hours of darkness, the building will be lit internally to around 0.4 lux. This is to ensure bird welfare. The building will be clad with high density metal profile sheeting and therefore there will be no light spill outside the building. The doors will remain closed and windows shuttered at night to stop light escaping.

2.3.9 A simple landscaping scheme could be implemented to ensure the development assimilates into the landscape and mitigate any adverse visual impacts of the development. This can also provide biodiversity benefits through the planting of new trees.

2.4 Site Construction

2.4.1 The poultry buildings are specifically designed for broiler production and generally take around four months to construct on site.

2.4.2 The buildings will be erected using specialist contractors with materials such as concrete and structural steelwork being imported on to the site. Steelwork will be erected using low loaders. The buildings will be fitted out by qualified electricians and plumbers.

2.4.3 To avoid causing disruption to local resident's construction will be limited to the hours of 07.00 to 18.00 Monday to Friday and 07.00 to 13.00 on Saturdays. No construction will take place on Sundays or Bank Holidays unless absolutely necessary.

2.5 Site Management

2.5.1 The management of the site will be overseen by the existing poultry manager and supported by existing staff who are suitably trained and experienced. The site operates 24 hours a day, 7 days a week as continual management and husbandry is required for livestock.

2.5.2 The feed will be mixed to the appropriate requirement at each stage of the production cycle. The feed will be blown from bulk feed Heavy Goods Vehicles (HGVs) into the feed bins and fed directly into the buildings. Nipple drinkers will be used with drip cups as they provide water on demand but minimise wastage. They also have benefits in terms of management, hygiene and odour control (due to the low spillages keeping the bedding dry).

2.5.3 The bedding will be wood shavings to a depth of around 2cm. This complies with the Red Tractor' Assurance Scheme Standards and will allow the floor to 'breathe'.

2.5.4 As previously stated all the chicken litter / manure from both the proposed and existing poultry units will be removed at the end of each production cycle and transported to field heaps, in accordance with best agricultural practice and NVZ regulations.

2.5.5 In terms of drainage it is proposed to maintain the existing surface water run-off from the site in accordance with Technical Guidance relating to the NPPF and good practices. The surface water from the proposed unit will be discharged into a new attenuation pool on the site which has capacity to take the additional surface water and the existing surface water from the existing buildings therefore creating betterment in terms of surface water management.

2.5.6 Dirty water from the clean-out process will be collected through a dedicated sealed drainage system to underground dirty water tanks. These will be located underneath the yard central to the units and be sized to adequately accommodate the volumes of water used in each production cycle. The dirty water will be removed from the tanks and spread in appropriate locations and under appropriate conditions on the applicants holding, or taken to third party land. When the cleaning out is taking place the dirty water and any contaminated rain water will be directed via drains into the dirty water tank.

2.5.7 A dry clean-out will take place to remove organic material before the sheds are washed down so there will be very little solid matter taken away with the wash water. The dirty water tanks will be of a size to ensure that they can take the volume of washings from the clean-out and also have the capacity to allow for any heavy rain falling on the outside yard areas during this process. If the tank becomes full it can be emptied using the farm equipment. The wash water will be diluted and have a low nitrogen content and can be spread appropriately so does not need to be included in the calculation of nutrient loading for field applications. Dirty water will not enter the clean water drainage system, due to the effective use of an isolating valve.

2.6 Environmental Controls

2.6.1 The existing poultry unit already operates under an existing Environmental Permit (EPR/KP3439UV). An application to vary this permit has been approved for the

proposed (application number EPR/KP3439UV/V004). This permit has been approved and allows for the proposed increase in bird numbers at the expanded site to a maximum of 105,000 birds per cycle.

2.6.2 The Environmental Permitting Regulations are regulated by the Environment Agency. This process requires a detailed assessment of the controls on air pollutants / air quality and also considers the impacts of ammonia on any ecological sites. The Environmental Permit (EP) aims to achieve integrated prevention and control of pollution arising from activities listed in Annex 1 of the European Council Directive 96/61/ED, leading to a high level of protection of the environment as a whole. It requires operators and regulators to undertake an integrated view of the polluting and consuming potential of a poultry development. Operators should take all appropriate preventative measuring against pollution, in particular through the application of 'best available techniques' (BAT) enabling them to improve environmental performance. As well as the poultry units themselves, the EP will cover all potential pollution sources such as any back-up generators or oil storage facilities required.

2.6.3 Where a site operates under an EP it demonstrates that 'best available techniques' will be used to minimise emissions to the receiving environment. This is defined in Article 2(1 1) of the European Directive as "the most effective and advances stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing the basis for emission limit values designed to prevent and, where that is not practicable, generally reduce emissions and the impact on the environment as a whole". The 'best available techniques' to be applied to this poultry development are those set out in the European Commission's Reference Document on Best Available Techniques for Intensive Rearing of Poultry and Pigs known as the BREF document.

2.7 Energy Efficiency and Environmental Sustainability

2.7.1 The poultry houses will be constructed to high standards of energy and water efficiency with the house containing fibreglass insulation to reduce heat loss. It is proposed that the new house will use minimal energy through low-level lighting, lighting movement sensors and would operate with greater environmental efficiency through the use of modern quality control equipment such as the automated proposed ventilation system.

2.7.2 The ventilation fans are specifically controlled by a temperature-controlled automatic system to ensure that the number of fans operating at any one time depends on the monitored temperature. This therefore creates efficiencies because fans will not run when they are not needed. Heating and cooling would be specifically tailored to maintain animal welfare levels and operations are strictly monitored to avoid any excessive energy use.

2.7.3 The drinker system will be fitted with drip cups to minimise wastage preventing excess moisture in the litter.

2.7.4 Whilst natural resources are required for the new development the construction methods and systems briefly outlined above demonstrate that energy efficient and environmental sustainability can be achieve. The production of chickens from the site will for used in the UK, meaning that the requirement to import food will be reduced, therefore having sustainability benefits by reduced food miles and carbon foot-print.

2.8 Decommissioning

2.8.1 The site will be maintained during the lifetime of the development and materials not allowed to deteriorate so as to have the potential to cause contamination. The construction of the buildings will comply with all relevant legislation and standards and industry good practice. The impact of the decommissioning will be considered during the design and construction phase.

2.8.2 Before operations cease at the site, a Site Closure and Restoration Plan will be prepared. This will ensure that the site is decommissioned in an appropriate manner and restored to its former state. Much of the building material, particularly the concrete and metal, should be recyclable depending on market conditions and regulations at the time.

3. THE NEED FOR THE DEVELOPMENT

3.1 The combination of a growing population and increasingly affluent consumers, means that demand for food in the UK is increasing considerably.

3.2 The British Poultry Council's recent document, 'Economic Impact of the British Poultry Meat Industry 2015' states that "The UK poultry meat industry is estimated to support a E3.6 billion gross value-added contribution to GDP through its direct, supply chain and wage consumption impacts".

3.3 The industry continues to grow to meet the demand of home grown produce and suppliers require sites. In response to this, a number of poultry enterprises have been developed at different locations around the UK including Herefordshire during recent years.

3.4 The continued growth of the UK poultry sector has made an important contribution to the UK poultry meat production capacity and the proposed expansion of the existing poultry enterprise at Pool House Farm is part of this process. This is part of the development of the industry to bringing us closer to being self-sufficient in poultry meat in the UK and reducing the need to import meat, reducing greenhouse gasses from fossil fuel in transportation and other associated pollution.

3.5 The small scale development of this site will allow economies of scale in the process and therefore allow the enterprise itself to become more efficient and viable for future generations.

4. ASSESSMENT OF ALTERNATIVE SITES

4.1 There are already two existing poultry units on site, with infrastructure including access road and concrete yard. Due to the existing services and infrastructure it is considered that the proposed site is most acceptable in order to expand a poultry enterprise at Pool House Farm. Expanding the existing site is considered to be the best option instead of erecting a new poultry building on a completely new green field site on another holding. The proposed unit will benefit from the existing onsite infrastructure and will be erected directly adjacent to the existing concrete yard and the existing buildings. All facilities are in situ and poultry litter can be accommodated and managed in conjunction with the existing poultry buildings.

4.3 It is considered that additional poultry buildings should be located to the north to the existing units as this would occupy land which had already been identified as non-productive and also provides least impact in terms of visual impact.

4.4 If the proposed poultry building were built on a completely new site it would also be necessary to provide much of the infrastructure referred to above and additional planting to minimise any visual impact. The proposed site benefits from being approx. 580m away from the nearest residential dwelling and being naturally well screened by the existing natural topography.

4.5 In conclusion it is considered that expanding the existing poultry site, which will utilise the existing on-site infrastructure, is the most viable and appropriate option. It is understood that the existing site has not generated any complaints.

5. PLANNING POLICY

5.1 National Planning Policy

5.1.1 Overview

5.1.1.1 The National Planning Policy Framework (NPPF) was published on 27th March 2012. The NPPF replaces most former planning policy statements and guidance notes and is a key part of the Government reforms to make the planning less complex.

5.1.1.2 Paragraph 6 of the NPPF confirms that the purpose of the planning system is to contribute to the achievement of sustainable development.

5.1.1.3 Paragraph 7 continues by stating that there are three dimensions to sustainable development: economic, social and environmental. These roles should not be taken in isolation because they are mutually dependent. Therefore to achieve sustainable development, economical and social environmental gains should be jointly and simultaneously through the planning system, as stated in Paragraph 8 of the NPPF. The proposed poultry unit at Pool House Farm constitutes sustainable development. Proposals contribute to the three dimensions of sustainable development are addressed in turn below.

5.1.2 Economic Role

5.1.2.1 Paragraph 17 of the NPPF sets out a number of core planning principles which underpin both plan making and decision making. One of the main objectives is to "proactively drive and support sustainable economic development to deliver homes, business and industrial units, infrastructure and thriving local places that the country needs".

5.1.2.2 Chapter 3 of the NPPF relates to the support of a prosperous rural economy. It states that in order to promote a strong economy local plans should support the expansion of all types of business and enterprise in rural areas.

5.1.2.3 Paragraph 19 of the NPPF that "significant weight should be placed on the need to support economic growth through the planning system".

5.1.2.4 The applicant is a well-established and diverse farming business which is looking to expand their existing poultry enterprise. The proposed development will help preserve the viability of the business for future farming generations by increasing efficiencies of the enterprise, by adding a modern and state-of-the-art facility.

5.1.2.5 In terms of the economic objectives of the NPPF the proposal complies with the national planning policy and significant weight should be given to the need to support such as rural business, ensuring their longevity having the flexibility to react to farming markets in a sustained forward manner.

5.1.3 Social Role

5.1.3.1 Within Paragraph 7, it is acknowledged that "support is required for strong, vibrant and healthy communities and this will be achieved by creating high-quality built environment…with accessible local services that reflect the community needs and support its health, social and cultural well-being".

5.1.3.2 Agriculture is key in rural communities for across Herefordshire and contributes by providing a social function as well as an economic function. The vibrancy of local rural communities often rely on the farming community where cohesion in rural villages and towns is created. It is recognised that agriculture plays a key source of employment for local people and also provides indirect employment benefits through the utilisation of local services, contractors and suppliers.

5.1.3.3 The proposed new unit will ensure that the current farming business remains viable for future generations. The local economy will benefit from a successful and enterprising business by creating employment and wealth throughout the county and as such the proposal should be supported.

5.1.4 Environmental Role

5.1.4.1 Paragraph 7 of the NPPF also states that planning plays an environmental role "…contributing to protecting and enhancing our natural built and historic environment and, as part of this, helping to improve bio-diversity, use natural resources prudently, minimise waste completion, and mitigate and adapt climate change including moving to a low-carbon economy".

5.1.4.2 The proposed development is located out of an environmentally sensitive four designated areas including Areas of Outstanding Natural Beauty and Site of Special Scientific Interest, although it is recognised that there are various heritage assets within proximity of the proposal, and that the site is within a nitrate-vulnerable zone (surface water). There are also two SSSIs which are over 4km away from the site but with such consideration has been given to the potential impact the development on these sites. The existing natural landscape surrounding the site is capable of accommodating the proposal without significant mitigation works and the overall impact is negligible. Overall it is considered there will be no significant residual effects.

5.1.4.3 The proposed site is located on grade 2 agricultural land (land classification map) and whilst it is acknowledged that planning policy seeks to protect the best quality agricultural land, the site will remain in agricultural use and for the purposes of food production. The pasture land forming part of the site currently, is of no particular ecological value and therefore will have minimal impact. Therefore it is considered that the loss of this pastureland is considered acceptable in this instance.

5.2 Local Planning Policy

5.2.1 Herefordshire Core Strategy

5.2.1.1 The Herefordshire Core Strategy (HCS) was adopted on 16th October 2015. One of the main core strategy objectives (8A) is to "…support and to encourage the development and diversification of the counties historic strength in and based industries, including agriculture and food production, to provide for the maintenance of a thriving, productive, efficient, competitive and sustainable agricultural sector, recognising the high importance of the sector to the county's economy as a whole, and to the rural economy in particular."

5.2.2 Policy RA6 — Rural Economy

5.2.2.1 This policy offers a broad-brush approach to the rural economy, supporting farming and expansion in principle, subject to appropriate environmental protection and mitigation.

5.2.2.2 The proposal presents a means for the applicant to expand the existing established business, which will in turn support the local supply chain. Its setting is also considered to be acceptable, being well screened from views from the entire vista surrounding the site. Any perceived impact could be reduced through proposed mitigation measures of additional planting to the northern-west boundary of the site.

5.2.2.3 Having regard to residential amenity the submitted technical reports, particularly those in respect of noise and odour demonstrate that the proposed development would not cause unacceptable adverse impacts to nearby residents, the nearest of which are located approximately 580m away from the site.

5.2.2.4 Cumulative impacts of the other poultry buildings on site have been taken into account during the technical assessments. Under the Environmental Statement, the proposed development has been considered with respect to its impact and the submission of the relevant documents with this Statement demonstrate that the proposal would not cause unacceptable adverse impacts on the amenity of residential properties in respect of design, highways, noise, dust, lighting and odour.

5.2.3 Policy SS5 — Employment Provision

5.2.3.1 This policy recognises that "land-based industries are seen as a strength of the county since they foster other business enterprises" and therefore, the policy states specifically that the "continuing development of the more traditional employment sectors such as farming and food and drink manufacturing will be supported".

5.2.3.2 The proposal represents a positive direct contribution to rural and agricultural employment but more significantly represents a much larger means of supporting other local businesses and its employees. Implementation of the proposed development would mean a significant financial investment a large proportion of which is likely to support local suppliers and contractors. The continued operation of the units will also support other local suppliers. This support to the local economy helps support business and to safeguard and create jobs.

5.2.4 Policy SS6 — Environmental quality and local distinctiveness

5.2.4.1 This policy requires proposals to "conserve and enhance those environmental assets that contribute towards the county's distinctiveness" particularly where designated sites are affected and in terms of biodiversity improvements. It urges an "integrated approach". Based on information to assess potential impacts on a variety of environmental components, there are no designated sites affected by the proposals and mitigation measures are proposed that could help to protect and enhance the landscape and environmental quality of the site.

5.2.4.2 It is considered that the proposal is in compliance with this policy and the applicant is happy to provide such protection, mitigation and enhancement measures that are suggested in the Ecological Assessment.

5.2.5 Policies LD1 to LD4

5.2.5.1 These policies focus on the need to demonstrate that the landscape and biodiversity of the site and its surroundings have influenced matters such as site choice and design. They seek to protect and enhance geodiversity, biodiversity and habitats, with particular reference to designations and European Protected Species. Policies LD3 and LD4 are concerned with Green Infrastructure and Heritage Assets.

5.2.5.2 It is considered that the submitted Landscape and Visual Impact Statement, Heritage Impact Assessment and ecological mitigation measures demonstrate that the proposal is capable of meeting the relevant sections of these policies.

5.2.5.3 The proposed development will not physically impact on the public right of way which is located to the west of the proposed units. In addition, any noise, odour, ammonia or dust will not adversely affect the users of any local footpaths and because the emissions levels are low and any users of local footpaths will be passing past the site rather than being static for long periods.

5.2.6 Policies SD1 to SD4

These policies relate to;

- Policy SD1 - Sustainable design and energy efficiency
- Policy SD2 - Renewable and low carbon energy generation
- Policy SD3 - Sustainable management and water resources
- Policy SD4 - Wastewater treatment and river water quality

5.2.7 Policy SD1

5.2.7.1 The poultry house will be constructed to high standards of energy and water efficiency. The house will contain fibreglass insulation to reduce heat loss from the house.

5.2.7.2 The new house would use minimal energy through low level lighting, lighting movement sensors and would operate with greater environmental efficiency through

the use of modern quality controlled equipment such as the proposed ventilation system.

5.2.7.3 The ventilation fans would be controlled by a temperature-controlled automatic system so that the number of fans operating at any one time depends on the monitored temperature. Therefore heating and cooling would be as required to maintain animal welfare levels and operations would be strictly monitored to avoid excessive energy use.

5.2.7.4 The drinker system will be fitted with drip cups to minimise water wastage preventing excess moisture in the litter.

5.2.8 Policy SD2

5.2.8.1 The submissions made within the application, (including the Odour Modelling Assessment and Noise Assessment which form part of the Environmental Statement) confirm that the development would safeguard residential amenity and would not cause unacceptable adverse impacts from odour, noise, light or air contamination or cause ground water pollution.

5.2.8.2 Whilst natural resources are required for the new development the construction methods and computerised mechanical systems to be used demonstrate that energy efficient and environmental sustainability can be achieve. The production of chickens from the site will for used in the UK, meaning that the requirement to import food will be reduced, therefore having sustainability benefits by reduced food miles and carbon foot-print.

5.2.9 Policy SD3 relates to flood risk.

5.2.9.1 The proposed site within flood zone 1.

5.2.9.2 An appropriate means of dealing with water from the proposed development by utilising an attenuation pool.

5.2.9.3 There are no significant impacts associated with the development in relation to drainage or flood risk.

5.2.9.4 An Environmental Permit has been granted for the additional poultry unit. The Permit controls potential pollution sources including those referred to above.

5.2.10 Policy SD4

5.2.10.1 This policy concerns waste water treatment and river water quality. Dirty water from cleaning the poultry units will be collected in a sealed system and stored in an underground tank. This dirty water will be taken off-site to be spread on farmland on the applicant's farm holding or third-party farmland in appropriate conditions. The spreading of such dirty water on farmland is permitted under certain guidelines and regulations. DEFRA guidelines on spreading dirty water and manure is contained within

the Nitrate Pollution Prevention Regulations 2015 so must be adhered to. DEFRA and the Environment Agency can sanction and potentially prosecute those who do not comply with the regulations or pollute watercourses.

5.2.10.2 All poultry litter produced from both the existing and proposed buildings will be utilised in the existing farming business which will benefit current cropping across the holdings' land.

5.2.10.3 Clean surface water from the site will be discharged into the on-site attenuation pool which will throttle any flow to the existing water course to the north of the site. This sustainable system of reducing the surface water run-off rate and filtrating the clean water will ensure that the local watercourse is protected.

5.2.10.4 The proposed poultry unit does not require any foul water services as existing facilities are already available on-site.

5.3 Conclusion

5.3.1 It is considered that the proposed scheme complies with the relevant local planning policies of the Herefordshire Core Strategy and accords with the broader policy objectives of the NPPF. Because the site provides a suitable location and is acceptable in terms of size and scale of the proposal. The technical reports enclosed with the ES illustrate that proposed development is located a sufficient distance away from residential properties to prevent significant harm to residential amenity or heritage assets.

5.3.2 Dirty water and clean surface water can be collected and attenuated to ensure that there are no negative impacts on local water courses or rivers but the proposed provides betterment in terms of the current drainage situation by attenuating the entire site including the existing buildings. Landscape and visual impact will be minimal due to the natural topography of the site. The proposed ecological mitigation will ensure that no protected species are harmed and that the ecological value of the site and surrounding area is actually improved.

5.3.3 Significant weight should be attributed to the support that a proposed development such as this will give to the local rural agricultural economy and should be read in conjunction with Chapter 3 of the NPPF.

6. AIR QUALITY, HEALTH AND CLIMATE

6.1 Potential Air Quality, Health and Climate Effects of Poultry Buildings.

6.1.1 The main issue in relation to air quality, health and climate from poultry buildings is the operational ventilation fans.

6.1.2 There is also potential for the development to affect air quality in the following ways:

- Dust generated during site construction - this is covered in full in Chapter 14, Amenity
- Dust generated from feed delivery — this is covered in full in Chapter 14, Amenity
- Airborne pollutants from extraction fans
- Potential for odour generation from the production, storage and application for poultry manure- this is covered in full in Chapter 14, Amenity and Chapter 11, Odour Assessment
- Emissions of Carbon Dioxide from fossil fuel sources of carbon which can affect climate change

6.1.3 The existing poultry site operates under an existing Environmental Permit from the Environment Agency. This permit has been varied to include the proposed additional single poultry unit and as such the issued permit allows for the placing of up to 105,000 birds per cycle. The Environmental Permit acts to regulate all of the operations in association with the poultry enterprise and provides assurance and methods of recourse, so that the proposal could not pose an unacceptable risk to residential amenity. The Permit is enforceable by the regulator; the Environment Agency.

6.2 Consultation and Legislation

6.2.1 Habitat Regulation Assessment

6.2.1.1 The application will be considered under the Habitat Regulation Assessment process in order to satisfy the Local Authority duty to adhere to the Conservation of Species & Habitats Regulations 2010 (known as the Habitats Regulations).

6.2.1.2 Natural England in a non-departmental body. National England purpose is to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development. National England will be formally consulted on this planning application and the Local Planning Authority must have regard to their representations when making a planning decision. Planning permission can only legally be granted where it can be concluded that the application will not have any likely significant effects on the integrity of any European Designated site.

6.2.1.3 Dust generation and odour are covered in Chapter 14, and highways implications are fully considered in Chapter 8, Highways.

6.2.2 Ammonia Emissions

6.2.2.1 As part of the application to vary the Environmental Permit the Environment Agency assessed the ammonia impacts from the proposal to house a total of 105,000 broiler birds per cycle. The assessment confirmed that ammonia screened out and therefore detailed modelling would not be required.

6.2.2.2 The screening assessment has considered any Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites within 10km; any Sites of Special Scientific Interest (SSSI) within 5km and also any National Nature Reserves (NNR), Local Nature Reserves (LNR), ancient woodlands and local wildlife sites (LWS) within 2km of the farm.

6.2.2.3 A copy of the Environment Agency's ammonia screening assessment is attached at Appendix 4.

6.2.3 Carbon Dioxide

6.2.3.1 The proposed poultry development will result in very low emissions of carbon monoxide. Most carbon monoxide emissions associated with poultry houses are from the fuel used to heat the buildings. The buildings are well insulated and temperatures monitored so that the sheds are only heated when required, therefore preventing unnecessary heating.

6.2.3.2 Any carbon dioxide emitted from the poultry development would also be off-set due to the reduction in emissions from transporting poultry meat from elsewhere. Increasing the amount of home produced poultry meat will reduce the need for importing meat from abroad and hence help to reduce the level of transportation required.

6.2.4 Dust

6.2.4.1 The threshold criteria for PM10 in relation to poultry farms is where housing is in excess of 400,000 birds (if mechanically ventilated) and exposure within 100m from the poultry units.

6.2.4.2 The proposed development will result in a total of 105,000 bird places at the site. The nearest residential property is over 580m from the poultry units.

6.2.4.3 However, it is identified that a screening assessment is not required on the basis of the LAQM TG16 threshold, details of which are included in Chapter 14.

6.2.4.4 The proposal is below the threshold and as such no further assessment is required.

6.2.4.5 It should also be noted that an Environmental Permit has been issued by the Environment Agency for the proposed expansion of the poultry operation at the site.

6.3 Conclusion

6.3.1 The nature of the receptors, nature of the development and environmental controls built into the development mean that emissions to air will not have a significant effect on air quality or the health of local people or designated wildlife sites. No further mitigated measures are therefore considered necessary.

7. LANDSCAPE AND VISUAL IMPACT

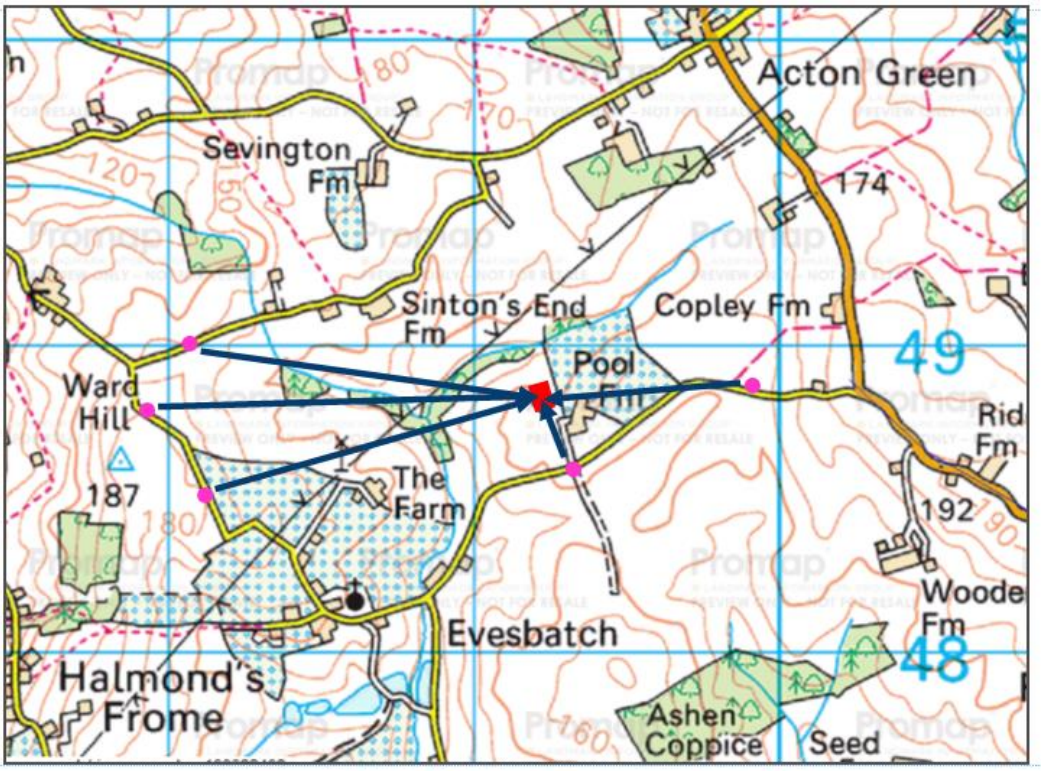
The full Landscape and Visual Impact Assessment is provided at Appendix 11.

7.1 Landscape Overview

7.1.1 The surrounding landscape is characterised as 'Timbered Plateau Farmlands', featuring a varied, mixed farming landscape of hedged fields, scattered farms and woods. In particular in this area, orchards both standard and commercial bush orchards are frequent. The area is typically a rolling topography, with some open long-distance vista's changing to more secluded parts surrounded by woodland and high hedges. There is a network of various size watercourses from frequent field ditches, to streams and small rivers in the immediate locality – these often identified by linear tree and scrub cover along the streamside banks. The farming type is varied including arable, orchards and grass with no predominant type. The built environment is a dispersed pattern of farmsteads, hamlets and individual larger houses and some smaller cottages.

7.1.2 The description above is highly applicable to this site. Pool farmhouse and buildings sits quite high on a plateau with far reaching views, however the existing and proposed poultry buildings have been built / proposed significantly lower in the farmstead to the west of the farmstead. Although very close to the house the topography is such that the poultry sheds are significantly lower to mitigate visual impact.

Plan showing location of site as referenced within this assessment.



7.2 Magnitude Of Impact

7.2.1 Because of this rolling topography, the site cannot be viewed from the south, east or north. The photographs below show views from the east (point A) and the south (point B).

Point A
Photograph 1

7.2.2 As can be seen from this view from the east looking at Pool Farm, Pool Farm itself stands on a ridge within the gently rolling landscape which makes the farmhouse and other agricultural buildings somewhat visible from this direction. The existing and proposed poultry buildings however are several metres lower on the far side of the farm and so cannot be seen from this vista at all.

7.2.3 The sensitivity from this aspect is considered to be **Low.**

Point B
Photograph 2

7.2.4 This photograph taken from point B serves to illustrate the topography to the south of the site, the lane from which this photograph is taken (on the lane looking up the drive) shows the rise in topography which means there is no visibility of the poultry sheds from anywhere along this lane towards Evesbatch.

7.2.5 It is not possible to ascertain whether there are longer reaching views from the south, the area hatched green on the plan is entirely privately owned, with no roads and no footpaths. Again a visual assessment from the 'Evesbatch lane' suggests the topography gently rises to the south – all of which is farmland, before going back down into another valley with no properties or roads in between.

7.2.6 The sensitivity from this aspect is considered to be **Low.**

7.2.7 The site can only be viewed from a longer range from the west and we provide several photographs showing the long ranging views across the valley to the proposed sites.

7.2.8 Points C, D & E show the locations where the sheds can be sighted from. The approximate distances are:

C – 1100m
D – 1300m
E – 1100m

Point C
Photograph 3

7.2.9 Whilst there is sight of the poultry sheds from point C, the orchard that is planted between the lane and 'The Farm' along with the topography means that the view is very diluted by the trees and other cover, along with quite substantial pylons along this viewpoint.

7.2.10 The sensitivity from this aspect is considered to be **Low.**

Point D
Photograph 4

7.2.11 At location D there is long raging visibility of the existing sheds across the valley. As can be seen from the photograph, the height of the sheds mean that it is principally only the roofs that can be viewed, the buildings themselves do not stand proud nor are on a skyline. Again, the landscape is characterised by a mixed field pattern, with many hedgerows. The large row of trees in 'front' of the buildings and to the left hand side of the buildings in this photo are linear patterns of trees following streams. This, in context of the field pattern behind the sheds means that whilst they are visible, they are 'mixed in' with a number of other typical patterns and are not glaringly obvious 'blots' as they would be in perhaps a flat or plain environment. The photograph is approximately 1300m from the site.

7.2.12 The sensitivity from this aspect is considered to be **Medium.**

Point E
Photograph 5

7.2.13 Very similar comments to location D, the vista is at least 1100m from the sheds and therefore whilst they are visible it is only the roofs and they should be viewed in context of the other larger buildings to the rear. Additionally these photographs have been taken in the middle of winter and therefore at the worst time for screening – for 9 months of the year the tree line and surrounding hedges will be in leaf and will add significant screening all round.

7.2.14 There are no footpaths or public rights of way that offer views to the site. There is no view on footpath to the north that runs between Sintons End Farm to the west of Sevington Farm due to the topography between Sintons End Farm and the site.

7.2.15 The sensitivity from this aspect is considered to be **Medium.**

7.3 Assessment

7.3.1 This section addresses the potential magnitude of change that the development may cause to the surrounding landscape, varying from very high adverse, through high, medium, low, very low to neutral, then low and medium beneficial. We then provide a measure against the landscape sensitivity to provide an overall visual and landscape impact assessment.

		Sensitivity		
Magnitude		**High**	**Medium**	**Low**
Adverse	**Very High**	Severe	Substantial	Notable
	High	Substantial	Notable	Moderate
	Medium	Notable	Moderate	Slight
	Low	Moderate	Slight	Negligible
	Very low	Slight	Negligible	Negligible
Neutral	**Neutral**	Neutral	Neutral	Neutral
Beneficial	**Very low**	Slight	Negligible	Negligible
	Low	Slight	Slight	Negligible
	Medium	Moderate	Slight	Slight

7.3.2 The application site is well sheltered within the natural topography of the land, and screened by tall well established groups and linear belts of trees.

7.3.3 It is not close to or visible to any major road, to any villages or hamlets nor along any rights of way.

7.3.4 The proposed building is low in height and will match the existing buildings. Its construction, style and materials are typical of modern farm buildings using colours and roof pitches which allow easily assimilation into the surrounding landscape and rural environment.

7.3.5 The natural topography, existing vegetation and other farm buildings prevent any visibility or open sight from the north, therefore the impact is **Neutral**

7.3.6 The natural topography, existing vegetation and other farm buildings prevent any visibility or open sight from the east, therefore the impact is **Neutral**

7.3.7 The natural topography, existing vegetation and other farm buildings prevent any visibility or open sight from the south, therefore the impact is **Neutral**

7.3.8 There is long distance visibility from the west on two minor lanes, with only a couple of properties that would have long reaching views of the site. The impact is mitigated

by the siting and screening that exists therefore the magnitude is considered **Adverse Low, medium to low sensitivity.**

7.3.9 The natural topography, existing vegetation and other farm buildings prevent any visibility or open sight from any surrounding public rights of way, therefore the impact is **Neutral**

7.4 Conclusion

7.4.1 In conclusion and taking all elements into consideration including the agricultural nature of the buildings, the natural topography, location, users of the public rights of way network, nearby residential occupiers; the overall sensitivity of the landscape is considered to be **Low**, balancing the magnitude on three sides being Neutral and to the west as Adverse Low, it is considered therefore overall there is a **slight / negligible adverse impact.**

8. HIGHWAYS

8.1 Introduction and Methodology

8.1.1 Badingham Transport and Infrastructure Consultants have produced a Transport Statement (TS) which is attached at Appendix 5. The TS assessed the impact of the proposed additional poultry unit at Pool House Farm, Acton Beauchamp, Worcestershire.

8.1.2 The TS has been prepared in accordance with the NPPF and the Guidance on Transport Assessments (GTA) issued by DfT. Although the GTA document has been withdrawn, the methodology and guidance it contains is still relevant. The NPPF states that all developments that generate significant amounts of movements should be supported by a Transport Statement or Transport Assessment.

8.1.3 The TS considers the potential transport and highways impact of the proposals including the impact of the development generated traffic on the capacity and safety of the surrounding road network. The report concludes that the proposals will have no adverse impact on the safety or capacity operation of the surrounding road network.

8.2 Existing Conditions

8.2.1 Site Description

8.2.1.1 The development site is located at Pool House Farm, approximately 8km to the north-west of Malvern. The site is surrounded by agricultural land.

8.2.2 Surrounding Road Network

8.2.2.1 The site is accessed off a rural highway known as Hook Lane, that connects to the B4220 highway approximately 1.0km to the east. The existing poultry units are served by a simple priority access arrangement with Hook Lane.

8.2.2.2 Hook Lane is a single carriageway rural highway flanked by verges and hedgerows, punctuated occasionally by field access. It joins the B4220 to the east in a simple priority junction arrangement. No footways or street lighting is provided. There is a single dwelling served by Hook Lane a short distance to the west of its junction with the B4220. Hook Lane continues west to Green Lane (and the village of Evesbatch) before turning south to link with the A4103.

8.2.2.3 The B4220 has a general northwest-southeast alignment linking the A44 in the north with the A4103 to the south and the wide strategic highway network. Existing traffic associated with the current operations travel to and from the B4220 to the east.

8.2.3 Existing Traffic Flows

8.2.3.1 Existing traffic flows on Hook Lane are low. Permanent (non-contract staff) live on site.

8.2.4 Collision Review

8.2.4.1 Reference to CrashMap shows there to be no recorded collisions within the last five-year period on Hook Lane, nor at its junction with the B4220, indicating that the adjacent highway has an excellent safety record.

8.3 Traffic Generation

8.3.1 Existing Development Traffic Generation

8.3.1.1 There are currently two poultry unit buildings to the north west of Pool House Farm with an environmental permit for up to 60,000 birds. Pool House Farm currently comprises of farm buildings and an associated dwelling.

8.3.1.2 Spent litter (poultry manure) is removed from the units and taken off-site for use as fertiliser by a third party. Trailer and tractor for dirty water removal is kept on site and not taken onto the public highway.

8.3.1.3 A breakdown of the existing vehicular movements from the site during the flock cycle is summarised in Table 5.1 of the Transport Statement (see appendix 5).

8.3.2 Proposed Development Traffic Generation

8.3.2.1 As a result of the proposed development the number of additional vehicles visiting the site will increase by 18 (one-way or 36 two-way trips).

8.3.2.2 Total vehicles associated with the operations will be 54 (one or 104 two-way trips)

8.3.2.3 A breakdown of proposed traffic generation can be found in table 5.1 of the Transport Statement in Appendix 5.

8.3.2.4 The main traffic movements associated with the proposed development will arise from feed delivery, bird collection and litter collection. No external staff are employed and therefore there will be no increase in staff traffic movements as all staff will live on site.

8.3.2.5 All vehicles associated with this development will utilise the existing site access junction with Hook Lane. All HGV traffic will be routed to and from the B4220 junction with Hook Lane to the East.

8.4 Conclusion

8.4.1 The Transport Statement states that the predicted increase of an additional 18 vehicles as a result of the proposals equates to an average of 0.37 (one-way or 0.73 two-way) movements per day, which is not considered significant and is well within daily

variations of flow on Hook Lane and the B4220 and can be suitably accommodated on the highway network.

8.4.2 Paragraph 32 of the NPPF makes clear that development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe. In this instance, the impact of development in traffic terms is considered low, therefore the cumulative impacts cannot be considered as severe.

9. ECOLOGY

9.1 Introduction

9.1.1 Cotswold Wildlife Services have conducted a survey and produced a Phase I Environmental Appraisal, which is attached at Appendix 6 to determine the presence of protected species and potential for the damage or destruction of habitats of ecological value as part of the planning application for the construction of one additional poultry unit at Pool House Farm.

9.1.2 In September 2016, Cotswold Wildlife Surveys was instructed by Moule & Co, on behalf of their clients GP & JD Price & Sons, to undertake a protected species and habitat survey of land at Pool House Farm, Acton Beauchamp in Worcestershire.

9.1.3 On 7th September 2016, a visit was made to the site to carry out the survey, with particular attention paid to the presence or absence of badgers, bats, birds, reptiles and amphibians.

9.1.4 The results of this survey are contained in this ES.

9.2 Methodology

9.2.1 Badgers

9.2.1.1 Badgers are generally nocturnal and evidence of their presence in an area often comes from field signs rather than sightings of the animals.

9.2.1.2 Daytime surveys looking for field signs can be carried out at any time of the year, and should be non-intrusive, but nocturnal surveys of setts (if required), are only likely to be effective from April to November, when Badgers are most active, and any cubs present will have emerged.

9.2.2 Bats

9.2.2.1 The diurnal walkover provides an opportunity to check for signs of occupancy, such as droppings, scratch marks, feeding remains, carcasses, or even animals in residence,

whilst nocturnal surveys (if required) allow numbers and species of bats to be confirmed. The latter are also used to determine the presence or absence of bats, where signs of bat activity are indeterminate or absent but the suitability for bat roosting is considered to be low, medium or high.

9.2.2.2 Roosting places vary depending on the species. Pipistrelles usually inhabit narrow cracks or cavities around the outside of buildings, but they will roost in similar niches inside larger barns. Typical sites include soffit spaces, gaps behind fascia boards and end rafters, crevices around the ends of projecting purlins, under warped or lifted roof and ridge tiles, or in gaps in stone and brickwork where mortar has dropped out.

9.2.2.3 Larger species such as Brown Long-eared Bats Plecotus auritus, Myotis bats (Natterer's Myotis nattereri and Whiskered/Brandt's M. mystacinus/M. brandtii), and Lesser Horseshoes Rhinolophus hipposideros, like to roost in the roof voids of buildings, and can often be found hanging singly or in small groups from ridge boards or roof timbers, especially where these butt up against gable walls or chimney breasts.

9.2.2.4 They especially favour older structures with timber frames. Here they squeeze into tight crevices making them difficult to observe.

9.2.2.5 Diurnal walkovers can be carried out at any time of the year, but nocturnal surveys should only be undertaken when bats are out of hibernation and in their summer roosts. The recommended period is from May to September inclusive, with May to August optimum and September sub-optimum. The season can be extended into October, although particularly cold weather will render this inadvisable. Indeed, the air temperature at the start of each survey must be at least 10°C or above.

9.2.2.6 On 7th September 2016, a thorough inspection of the site was made by Mollie Paxford (working under Natural England bat licence No. 2015-16489-CLS-CLS). However, there were no buildings or trees to provide potential roost sites.

9.2.3 Birds

9.2.3.1 Most resident and migrant birds breed in the spring and summer, although Woodpigeons Columba palumbus and Collared Doves Streptopelia decaocto nest throughout the year, and as a result could be on eggs in almost any month.

9.2.3.2 In season, signs of breeding include singing males, display and copulation, birds gathering nesting materials, adults carrying food, calling chicks, etc.

9.2.3.3 In winter none of these activities may be occurring, so a survey for old nests and/or nest holes is the most reliable method of determining the presence or absence of breeding birds.

9.2.4 Reptiles

9.2.4.1 Commoner reptiles which may be encountered in rural areas include Grass Snake, Slow-worm, and Common Lizard.

9.2.4.2 During the winter months, from mid-October to late February or early March, they are in hibernation, usually deep in underground hibernacula, such as holes and cracks in the ground, among rocks or the roots of large trees, down animal burrows, or in piles of rubble or stone.

9.2.4.3 In the spring and summer they live above ground in well-vegetated places, with Grass Snakes often near or in water. Being cold-blooded all reptiles like to bask, and can often be found in open places.

9.2.5 Great Crested Newts

9.2.5.1 A survey for Great Crested Newts may be indicated when background information on distribution suggests that they may be present. More detailed indicators are:

- Any historical records of Great Crested Newts on the site or in the general area
- A pond on or near the site (within around 500 m), even if it holds water only seasonally
- Sites with refuges (such as piles of logs or rubble), grassland, scrub, woodland or hedgerows within 500 m of a pond.

9.2.5.2 There are several field survey methods which can be employed depending on the time of year:

- Bottle or funnel trapping – adults ideally February to May, with June and July sub-optimal, and August to September for detection of larvae (i.e. young)
- Egg search – April to June ideally, with March and July sub-optimal
- Torch survey – March to May for adults, with February and June to July sub-optimal, and August to September for larvae
- Netting – March to May for adults, with February and June to July sub-optimal, and August to September for larvae
- Pitfall trapping – March to May and September for adults, with February, June to August and October sub-optimal
- Refuge search – April to September ideally, with March and October sub-optimal.

9.2.5.3 None of these methods were employed on the land at Pool House Farm, as there was nothing to suggest that Great Crested Newts would be present.

9.2.6 Habitat Survey

9.2.6.1 On land at Pool House Farm a general appraisal of the habitats present was carried out. This was conducted using standard JNCC (2003) techniques and methodologies, and included a walkover of the whole site.

9.4 Results

9.4.2 Site Description

9.4.2.1 The surrounding area was all of a similar composition, i.e. poor, semi-improved grassland, with hedgerows around the field boundaries. A small brook ran 50 metres to the north of the site which was lined with trees.

9.4.2.2 The layout of the site showing the survey area is shown in Appendix 2 of the ecology report and re-created below:

Appendix 2: Site plan showing survey area

9.4.3 Field Survey

9.4.3.1 The site survey was conducted on 7th September 2016, in warm and bright conditions with no rain and a light wind.

9.4.4 Phase 1 Habitat Survey

9.4.4.1 The survey area comprised a small part of a field of poor, semi-improved grassland.

9.4.4.2 A mound was present which had been formed when the existing broiler units were constructed. This had some tall ruderal vegetation along the banks, with the same species noted throughout the site.

9.5 Results - Species

9.5.1	Badgers	There were no signs of Badger Meles meles activity on the site.
9.5.2	Bats	There were no trees or buildings on the site to support features suitable for roosting bats. The site also had low potential for foraging bats, as there was little cover, and the grassland was not diverse in grasses or wildflowers, and as such prey items would be limited. However, it was thought likely that bats would forage 50 metres to the north where trees lined a small brook.
9.5.3	Birds	Due to the small size and nature of the site just four species of bird were seen, all of which were Species of Low Conservation Concern (RSPB Green list); Woodpigeon, Great Tit Parus major, Blackbird Turdus merula and Robin Erithacus rubecula No bird's nests were found, and there was no suitable habitat for breeding birds
9.5.4	Reptiles and amphibians	The survey site had no potential for reptiles or amphibians, as there were no wetland features, no refugia or hibernacula and limited foraging areas. Furthermore there were no ponds within 250 metres of the site. As such, the presence of finding Great Crested Newts or other amphibians was considered to be highly unlikely.
9.5.5	Other species	No other protected or important species were observed.

9.6 Conclusions and Recommendations

9.6.1 Taking everything into account from an ecological perspective, the proposed development is thought to have very little on wildlife and habitats.

9.6.2 As part of the development, surface area water attenuation pond is to be created within the corner of the same field which is likely to increase biodiversity within this area, especially planted native and emergent vegetation.

10. NOISE

10.1 Introduction

10.1.1 A Noise Impact Assessment has been undertaken by Paul Smith BSc MIOA of Matrix Acoustic Design Consultants, which is attached at Appendix 7.

10.1.2 The Noise Assessment has been conducted to determine the typical background noise levels of the nearest dwellings to the proposed broiler units at Pool House Farm, Acton Beauchamp, Worcester. The noise emissions of the extract fans, HGVs loading and feed deliveries have been assessed in accordance with BS4142:2014 at the nearest dwellings.

10.1.3 By calculation it has been demonstrated that at the relevant dwellings the noise impact has been assessed and noise sources during the operation of the site will be:

- Extract fans: low
- HGVs loading: low
- Feed delivery (day period only): marginal

10.1.4 The higher open "marginal noise impact" is likely to be considered acceptable in this case as:

- The absolute noise levels of the feed deliveries are not high;
- Essentially they will be 'noticeable and not intrusive' resulting in a "no observed adverse effect" according to DCLG, for which it is stated that no specific measures are required.
- Transport activities already occur as part of the existing farming operations; the transport noise emissions are therefore within context of the existing noise environment.
- The feed deliveries occur relatively infrequently for short duration only.

10.1.5 On the basis that the noise emissions of the proposed development will result in adverse noise impact, coupled with the option to reduce feed delivery noise emissions if required by using a noise barrier, we consider that the noise ground on proposed scheme is acceptable.

10.1.6 Construction noise has also been considered within the report.

10.2 Overview of the Development

10.2.1 The proposed scheme is for an additional broiler unit at Pool House Farm, Acton Beauchamp, Worcester, which will be located adjacent to two existing broiler units.

10.2.2 The closest dwellings not in the client's ownership, labelled A and B in Figure 1 within the Noise Assessment and re-created below, are approximately 635m and 570m respectively from the centre of the poultry development.

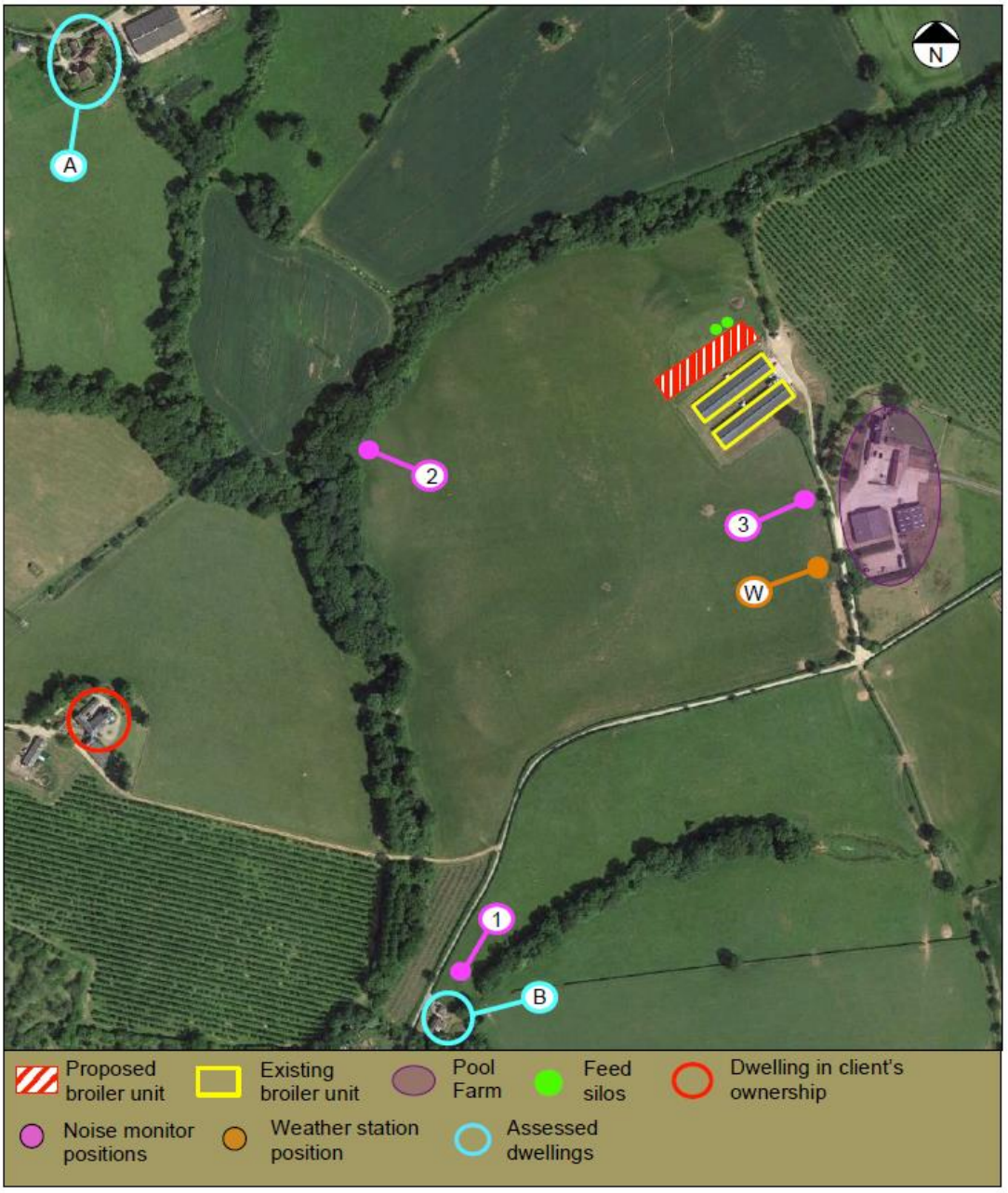


Figure 1. Aerial view (source: www.google.com) showing footprint of existing and proposed additional broiler unit, assessed dwellings and noise monitor and weather station positions

10.2.3 For the noise impact assessment the noise sources generated by the proposed broiler unit have been split into two categories, namely:

- Plant noise:
  - Extract fans: the proposed shed will have 15 x Ziehl-Abegg FC071-6E roof mounted extract fans and 3 x Gigola ES 140 1.5hp west gable end extract fans; see Appendix C of the Noise Impact Assessment for manufacturers' data sheet.
- Transport noise:

- HGVs loading/unloading: The HGVs will load/unload stock using a diesel forklift on the concrete apron to the north-east of the broiler units. Note that the forklifts will be fitted with white noise reversing alarms
- Feed deliveries: Tankers will fill the two feed silos to the north of the proposed shed
- HGVs movements on the access road: HGVs will access the development from the access road serving the existing broiler units

10.2.4 Dwelling A will have an unobstructed view of the duct terminations, gable end grilles and feed silos; the existing/proposed sheds and local topography however will provide fully acoustic shielding of activities on the concrete apron and access road. Dwelling B will be fully acoustically shielded from all the poultry development noise sources by local topography.

10.2.5 The proposed additional broiler unit is within context of the existing poultry development, with the existing broiler units having the same noise sources.

10.3 Assessment Methodology – BS4142:2014

10.3.1 BS4124:2014

10.3.1.1 The plant, feed delivery and HGV loading noise assessments detailed in this report have been conducted in accordance of BS4142:2014 'Methods for Rating and Assessing Industrial and Commercial Sound'.

10.3.1.2 BS4142:2014 provides a methodology to assess the impact of industrial and commercial noise affecting dwellings, whereby the 'typical' background noise level is deducted from the industrial noise Rating Level (industrial noise corrected to account for the 'on-time' and noise character of the noise source; see sections 3.2 and 3.3 below). The following guidance is given based on the established difference:

- A difference of around +10dB or more is likely to be an indication of significant adverse impact
- A difference of +5dB is likely to be an indication of an adverse impact
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact

10.3.1.3 Where background noise and Rating Levels are low, BS4142:2014 states that 'absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night'. Low background noise and rating levels

are not defined. However, in BS4142:1997 it states that 'background noise levels below 30dB and rating levels below about 35dB are considered to be very low'.

10.3.2 On-time correction

10.3.2.1 To take account of industrial/commercial noise sources that do not operate continually an 'ontime' correction is applied using:

$$- 10 \log (r/r_{ref})$$

Where:

$r_{ref.}$ = reference time (1hr between 07:00 – 23:00hrs and 15 minutes between 23:00 –07:00hrs)

r = total 'on-time' during the reference period

10.3.2.2 Note that the shorter reference time interval between 23:00 – 07:00hrs is designed to penalise industrial/commercial noise events that occur during the night.

10.3.3 Noise character correction

10.3.3.1 BS4142 provides four noise character correction categories with associated penalties that must be applied when determining the Rating Level, namely:

- Tonality:
  - Not perceptible = 0dB
  - Just perceptible = +2dB
  - Clearly perceptible = +4dB
  - Highly perceptible = +6dB
- Impulsivity:
  - Not perceptible = 0dB
  - Just perceptible = +3dB
  - Clearly perceptible = +6dB
  - Highly perceptible = +9dB
- Intermittency: +3dB if the intermittency of operation is readily distinctive against the residual noise environment
- Other: +3dB applied if the specific sound is neither tonal or impulsive but features noise characteristics that are readily distinctive against the residual noise environment

10.3.4 Background Noise Survey

10.3.4.1 Survey dates: 16th – 17th August 2016

10.3.4.2 Weather; Table A2, Appendix A of the Impact Noise Assessment:

o Precipitation: Dry

o Wind Speed: Highest recorded wind speed of 2.8m/sec

10.3.4.3 Noise monitor locations: With the microphones attached to tripods the noise monitors were located at Positions 1 - 3 as shown in Figure 1 (above)

10.3.4.4 Weather station location: Weather station, mounted on a tripod, located at position W; Figure 1 of the Noise Impact Assessment

10.3.4.5 Equipment:

- o Weather Station: Kestrel type 4500
- o Noise monitors: Brüel & Kjær Type 2238 (Positions 1 and 2) and Brüel & Kjær Type 2260 (Position 3)

10.3.4.6 Monitor configuration:

- o Weather station: Configured to measure the average wind speed and temperature over consecutive 10-minute periods
- o Noise Monitors: configured to measure consecutive 15-minute samples of noise.

10.3.4.7 Calibration: Noise monitors calibrated before and after the survey using a Brüel & Kjær Type 4231 calibrator with no deviations found

10.3.4.8 All noise measurements are free-field. Full tabulated results are given in Tables A1 and A2, Appendix A of the Noise Impact Assessment.

10.3.4.9 The weather conditions will not have adversely affected the noise measurements.

10.3.4.10 Typical background noise level, L_{A90}, at Dwellings A and B

10.3.4.11 Figures 3-5 contained within the Noise Impact Assessment show the variation of the measured maximum (L_{Amax}), ambient (L_{Aeq}) and background (L_{A90}) noise levels obtained at Positions 1 - 3 respectively.

10.3.4.12 As the report shows, the variation in the background noise levels recorded at all three measurement positions show the same variation over the survey period and return very similar values. This indicates that the measured background noise levels can be considered to be representative to the surround area and therefore the levels that will occur at Dwellings A and B.

10.3.4.13 The data obtained at Position 3 within the report, which will have included the operational noises of the existing broiler units, only shows slightly elevated background noise levels during the evening and night over those obtained at Positions 1 and 2. This indicates that the noise impact of the existing extract fans at the nearest dwellings is low to very low.

10.3.4.14 From the measurement data the typical day, evening and night background noise levels that will occur at Dwellings A and B have been established:

- Day (07:00 – 20:00hrs): L_{A90} 30dB

- Evening (20:00 – 23:00hrs): L_{A90} 24dB
- Night (23:00 – 07:00hrs): L_{A90} 20dB

10.3.5 Noise Impact Assessment

10.3.5.1 Calculation of aggregate extract fan and transport noise at Dwellings A and B

10.3.5.2 The full calculations of the extract fan and transport noise are provided in Tables B1 – B5 in Appendix B of the Noise Impact Assessment. The resultant aggregate BS4142 Rating and Assessment Level at Dwellings A and B for the extract fans and transport activities within the loading/unloading area are given in Table 2 of the Noise Impact Assessment. The determined noise emissions generated by HGVs on the access road are summarised in Section 5.9 of the Noise Impact Assessment.

10.3.5.3 Source noise data

- Extract fans:
  - Ridge fans
    - Type: Ziehl-Abegg FC071-6E
    - Duct terminations: ridge mounted ducts
    - Total number of fans: 15
    - Sound power level: 82dB(A); see Appendix C of the Assessment for manufacturers data sheet
  - Gable end fans
    - Type: Gigola ES 140 1.5hp
    - Grilles: west gable end
    - Total number of fans: 3
    - Sound power level: 73dB(A) at 2m; see Appendix C of the Assessment for manufacturers data sheet
- Transport noise:
  - Source levels derived by measurements made by Matrix Acoustics during poultry catching at Parton Poultry Farm, Herefordshire on 9/1/14;
    - HGV manoeuvring: L_{Aeq} 72dB, $L_{Amax,F}$ 80dB at 5m
    - HGV being loaded with crated poultry using a diesel forklift (the forklift was collecting the crates from within the poultry unit): L_{Aeq} 73dB, $L_{Amax,F}$ 84dB at 5m
- Tanker filing a feed silo: $L_{Aeq,15min}$ 85dB at 4m; source level derived by measurement made by Matrix Acoustics on the 12/2/15 at Andrew Hopkins Concrete, Evercreech, Somerset, of a cement silo being filled by a tanker. Note that the dominant noise emanated from the tanker engine and pump.

10.3.5.4 Extract fan operation

10.3.5.5 The ridge extract fans for the poultry units will be thermostatically controlled, with the total number of fans operating at any one time dependent on the bird's ventilation requirements; this is dictated by the stage in the flock cycle (the ideal internal temperature decreases as the birds age increases) and external temperature.

10.3.5.6 To maintain the ideal or 'set' temperature the fans are operated in Stages. Stage 1 will be triggered when the internal temperature rises 1°C above the set temperature; further Stages are activated with further 0.5°C increments.

10.3.5.7 The highest Stage (100% ridge extract fans operating) will typically only be triggered when the external temperature is above 23°; this therefore is only expected to occur during the day period (07:00 – 20:00hrs).

10.3.5.8 During the evening and night the external temperature will fall; the highest expected percentage of ridge extract fans required to maintain the set temperature are 50% and 20% respectively.

10.3.5.9 The gable end fans are only required during periods of very hot weather and typically for a short duration only. They are therefore only expected to be required during the day period.

10.3.5.10 The calculation has therefore been based on the scenario of:

- Day (07:00 – 20:00hrs): 100% ridge and gable end extract fans operating
- Evening (20:00 – 23:00hrs): 50% ridge extract fans operating
- Night (23:00 – 07:00hrs): 20% ridge extract fans operating

10.3.5.11 Transport vehicle operation

10.3.5.12 Loading/unloading of the HGVs will be undertaken by a diesel forklift truck on the concrete apron to the north-east of the poultry units.

10.3.5.13 The majority of transport movements will only occur during the working day (07:00 – 20:00hrs) Monday to Friday. However, in order to avoid stressing the birds, catching is generally undertaken at night.

10.3.5.14 Feed silos

10.3.5.15 The frequency of the delivery of feed depends on the stage of the flock cycle, ranging from one delivery per week at the start of the cycle to once a day at the end of the cycle. The feed deliveries will occur during the working day only Monday – Friday. It takes approximately 30 minutes to fill one silo.

10.3.5.16 Derivation of aggregate Specific Level

10.3.5.17 The individual noise level of each noise source has been calculated at Dwellings A and B, Figure 1.

10.3.5.18 The aggregate of the extract fan/transport/ feed silo noise at the dwellings is the specific Level.

10.3.5.19 Tables B1 – B4, Appendix B (as detailed in the Noise Impact Assessment) provide the full calculations with the resultant aggregate extract fan and transport Specific Levels at the Dwellings A and B.

10.3.5.20 Rating Level

10.3.5.21 To establish the Rating Level the BS4142 character corrections given in Table 1 have been applied to the Specific Level. The resultant Rating Levels are provided in Table 2. Note that in order to avoid a tonal element to the forklift operation a white noise reversing alarm will be used.

Table 1. BS4142 character corrections

Noise source		Tonality		Impulsivity		Intermittency		Other	
		Correction	Reason	Correction	Reason	Correction	Reason	Correction	Reason
Plant	Extract fans	0	the proposed units, like the majority of modern extract fans, are not expected to be tonal.	0	the proposed extract fans will not contain an impulsive noise element such as bangs or a very sudden jump in sound output due to quick start-up/change in fan speed.	0	it is possible on occasion that two or more extract fans will start/stop at the same time. However, the greatest expected increase/decrease in the aggregate fan noise is 3dB, which will only occur if the total number of fans operating doubles/halves. A 3dB increase/decrease is a just perceptible change in noise, which would not incur a BS4142 intermittency penalty (i.e. the change or 'intermittency' would not be 'readily distinctive against the residual noise environment').	3	allows for any potential 'other' noise characteristics of the fans.
Transport activities	HGV manoeuvring	2	engine noise may have a 'just perceptible' tonal content	0	movements are not expected to result in impulsive noise	3	intermittency of operation may on occasion be perceptible	0	no 'other' noise characteristics
	HGV loading/unloading	0	loading/unloading activities not expected to result in a perceptible tonal content.	6	loading using the forklift may result in 'clearly perceptible' impulsive noise	3	intermittency of operation may on occasion be perceptible	0	no 'other' noise characteristics
	Feed delivery	0	from 3rd octave band measurements the filling of a silo from a tanker has been found to be not tonal	0	the filling of the silos will not contain an impulsive noise element	0	the filling of the feed silos will not be intermittent	0	no 'other' noise characteristics

10.3.5.22 Assessment Level

10.3.5.23 We define Assessment Level = RL – min L_{A90} dB, where:

RL = Rating Level, dB(A)

L_{A90} dB = the typical background noise level, LA90, derived from the noise survey data

10.3.5.24 Table 2 provides the resultant Assessment Levels at Dwellings A and B.

Table 2. Typical background and calculated Rating and Assessment Levels at Dwellings A and B; Figure 1

Noise source	Dwelling	100% extract fans operating			50% ridge extract fans operating			20% ridge extract fans operating		
			Day: 07:00 - 20:00hrs			Evening : 20:00 -23:00hrs			Night : 20:00 -07:00hrs	
		[A] Rating Level, dB	[B] Typical L_{A90} dB	[A] - [B] Assessment Level, dB	[C] Rating Level, dB	[D] Typical L_{A90} dB	[C] - [D] Assessment Level, dB	[E] Rating Level, dB	[F] Typical L_{A90} dB	[E] - [F] Assessment Level, dB
Extract fans	A	31	30	1	22	24	-2	18	20	-2
	B	25	30	-5	16	24	-8	12	20	-8
Loading HGVs	A	27	30	-3	N/A			29	20	9
	B	28	30	-2	N/A			29	20	9
Feed delivery	A	33	30	3	N/A			N/A		
	B	27	30	-3	N/A			N/A		

10.3.5.25 As can be seen the highest calculated Assessment Levels during the day (07:00 – 20:00hrs) and evening (20:00 – 23:00hrs) are:

- Extract fans: 1dB day and -2dB evening
- HGVs loading (using an diesel forklift): -2dB working day
- Feed delivery: 3dB working day

10.3.5.26 Where the Rating Level is at parity with the typical background noise level BS4142 states that the Specific Level will have a low impact; an adverse impact is indicated where the Rating Level is 5dB above. On this basis we conclude that the BS4142 noise impact of the assessed noise sources during the day and evening will be:

- Extract fans: low (note that a 1dB change in noise level is not perceptible i.e. an Assessment Level of 1dB would be perceived as the same as 0dB)
- HGVs loading (using an diesel forklift): low
- Feed delivery: marginal

10.3.5.27 The higher 'marginal noise impact' is likely to be considered acceptable in this case as:

- The absolute noise levels of the feed deliveries are not high; perceptually they would be 'noticeable and not intrusive' resulting in a 'No Observed Adverse Effect' according to DCLG, for which it is stated that no specific measures are required; Table D1, Appendix D of the Noise Impact Assessment
- Transport activities already occur as part of the existing farm operations; the transport
- noise emissions are therefore within context of the existing noise environment
- The feed deliveries occur relatively infrequently for a short duration only

10.3.5.28 If however a reduction in feed delivery noise emissions is required, approximately 10dB shielding attenuation can be achieved by the provision of a 2m high noise barrier to the north of the feed silos i.e. blocking the line of sight between the noise source and Dwelling A. Suitable constructions would be close-boarded timber fence, masonry wall and an earth a bund.

10.3.5.29 During the night (23:00 – 07:00hrs) the typical background noise levels and established Rating Levels of the extract fans and transport activities are very low. We therefore consider, in accordance with BS4142, that the absolute noise levels at Dwellings A and B during the night are of more relevance in determining the noise impact than the Assessment Levels in these cases.

10.3.5.30 It is reasonable to assume that the occupiers of the nearest dwellings will be within their houses during the night period. A room with an open window will provide 10 – 15dB sound reduction. Using the lower 10dB reduction the highest extract fan and transport noise ingress would be:

- Extract fans: $L_{Aeq,15min}$ 5dB
- Transport activities within concrete apron: $L_{Aeq,15min}$ 10dB and $L_{Amax,F}$ 31dB

10.3.5.31 The above noise ingress levels are very low; the ambient noise levels are significantly below the existing environmental noise ingress levels and the maximum noise levels are substantially below the $L_{Amax,F}$ 45dB threshold related to sleep disturbance. We therefore conclude that during the night both the extract fans and transport activities will result in a low noise impact.

10.3.5.32 Transport movements on access road

10.3.5.33 The BS4142 assessment methodology is not valid for vehicle movements on access roads. The noise emissions from the HGVs on the access road have therefore been assessed using the BS5228-1:2009 road haulage calculation (calculation F.6), as illustrated under Section 5.9 of the Noise Impact Assessment in Appendix 7.

10.3.5.34 Shielding, ground absorption and atmosphere attenuation corrections have also been applied as detailed in section 5.5 of the Noise Impact Assessment report.

10.3.5.35 The resultant ambient noise levels are:

- Dwelling A: $L_{Aeq,1hr}$ 18dB
- Dwelling B: $L_{Aeq,1hr}$ 20dB

10.3.5.36 The above noise levels are low, being significantly below the existing ambient environmental noise levels during the day. We therefore conclude that their noise impact during the day and evening will be very low.

10.3.5.37 During the night the noise ingress via an open window will be 10 – 15dB below the above values. Using the lower 10dB attenuation, the highest ambient noise ingress at

any of the five assessed dwellings would be 10dB. This is a very low noise level, which will be masked by the existing environmental noise ingress. We therefore conclude that their noise impact during the night will be very low.

10.3.5.38 Calculation uncertainty

10.3.5.39 With all calculations there is a level of uncertainty, which in this case we do not expect to be greater than 3dB (3dB is a just perceptible change in noise level). This small level of uncertainty is not considered to have any significance to the outcome of the assessment.

10.3.6 Construction noise

10.3.6.1 Construction noise and vibration is usually a short-term effect, which may affect existing dwellings adjacent to the site.

10.3.6.2 The construction of the broiler unit itself will be a relatively quiet operation, but noisier operations will occur during the preparation of the site such as the use of excavators and dump trucks to level the site, dig foundations & dig trenches for services.

10.3.6.3 BS5228 lists a number of factors, which can influence the likelihood of complaints from construction noise. Specifically these are:

- Site location
- Existing ambient noise levels
- Duration of site operations
- Hours of work
- Attitude of the contractor
- Noise characteristics of the work being carried out.

10.3.6.4 To minimise complaints we recommend the following:

- Best practicable means to reduce noise as defined in the Control of Pollution Act 1974 Section 72 shall be used to reduce noise levels at all times and at all locations
- No construction work which is audible at residential properties shall be permitted outside of the following hours: 08.00 to 18.00 hours, Monday to Friday and 08.00 hours to 13.00 hours Saturday. Construction work should not take place on a Sunday
- Noise levels within the permitted work hours should be limited to 70 dB L_{Aeq} at 1 metre from the façade of the nearest dwellings
- Nearby residents should be kept informed of the construction activity taking place especially with regard to particularly noisy operations such as piling.

10.3.6.5 Note also that, irrespective of the advice above, The Control of Pollution Act (CoPA) 1974, Section 60, gives the local authority power to control construction noise by serving a notice on the contractor. The notice can specify acceptable noise limits, work

practices and hours of operation. Alternatively, Section 61 of the Act allows the developer to seek prior consent for construction work. The advantage (for the contractor) being that once consent is granted the contactor is immune from prosecution, provided that the consent conditions are complied with.

10.4 Conclusion

10.4.1 The Noise Impact Assessment has been conducted to determine the typical background noise levels at the nearest dwellings to the proposed broiler unit at Pool House Farm, Acton Beauchamp, Worcester.

10.4.2 It has been identified via calculation that the extra fans, HGV loading and feed deliveries are all likely to be of low or marginal impact and are considered acceptable within this case.

10.4.3 On the basis that the noise emissions from the proposed development will not result in an adverse noise impact, coupled with the option to reduce the feed delivery noise emissions if required by using a noise barrier, we consider that on noise ground the proposed scheme is acceptable.

11. ODOUR

11.1 Introduction

11.1.1 AS Modelling & Data Ltd. were instructed by Angela Cantrill of Moule & Co. on behalf of the applicant, to use computer modelling to assess the impact of odour emissions from the existing and proposed broiler rearing houses at Pool House Farm, near Bishops Frome in Herefordshire, WR6 5AJ.

11.1.2 Odour emission rates from the existing and proposed poultry houses have been assessed and quantified based upon an emissions model that takes into account the internal odour concentrations and ventilation rates of the poultry houses. The odour emission rates so obtained have then been used as inputs to an atmospheric dispersion model which calculates odour exposure levels in the surrounding area.

11.2 The Site and Existing Units

11.2.1 The site of the broiler chicken rearing houses at Pool House Farm is in an isolated rural area approximately 2.9 km to the east of the village of Bishops Frome in Herefordshire. The surrounding land is used primarily for arable and pastoral farming, although there are some orchards and isolated wooded areas. The site is at an altitude of around 150m with the ground rising towards hills to the east and falling towards the River Leadon to the west.

11.2.2 There are currently two broiler chicken rearing houses at Pool House Farm; these two houses are used to rear up to 60,000 broiler chickens. The chickens are reared from day old chicks to around 39 days old and there are seven or eight crops per year. In the past the houses were ventilated entirely using cowled side mounted fans; these fans are still used, but heat exchanger units have been fitted to the houses and these now provide much of the minimum ventilation requirements. Therefore, for much of the time, emissions from the houses only occur from the stacks serving the heat exchange units.

11.3 Proposal

11.3.1 It is proposed that a new broiler chicken rearing house be constructed to the north-west of the existing houses. The house would provide accommodation for up to 45,000 broiler chickens. The site overall would therefore, potentially house 105,000 birds per cycle. The new house would be ventilated primarily by uncapped high speed ridge mounted fans, each with a short chimney; however, there would be gable end fans to provide additional ventilation in hot weather.

11.3.2 The chickens would be reared from day old chicks to up to around 39 days old and there would be seven or eight crops per year. Under the proposal, the ventilation

systems of the existing houses would be upgraded, with four of the cowled side fans on each house being replaced by Climatech side chimneys. The Climatech side chimneys have integral high speed fans and, along with the heat exchanger units, would provide sufficient ventilation so that other older cowled side fans would not need to be used.

11.4 Receptors

11.4.1 The farm is rather isolated, but there are some residences and commercial properties in the surrounding area. Excluding Pool House, the closest residences are at: Evesbatch Farm, approximately 530 m to the west-south-west; Simons End Farm, approximately 550 m to the northwest and Pound Cottage, approximately 530 m to the south-west.

11.5 Odour concentration, averaging times, percentiles and FIDOR

11.5.1 Odour concentration is expressed in terms of European Odour Units per metre cubed of air (ou_E/m3). The following definitions and descriptions of how an odour might be perceived by a human with an average sense of smell may be useful. However, it should be noted that within a human population there is considerable variation in acuity of sense of smell.

- 1.0 ou_E/m^3 is defined as the limit of detection, in laboratory conditions.
- At 2.0 – 3.0 ou_E/m^3, a particular odour might be detected against background odours in an open environment.
- When the concentration reaches around 5.0 ou_E/m^3, a particular odour will usually be recognisable, if known, but would usually be described as faint.
- At 10.0 ou_E/m^3, most would describe the intensity of the odour as moderate or strong and if persistent, it is likely that the odour would become intrusive.

11.5.2 The character, or hedonic tone, of an odour is also important; typically, odours are grouped into three categories.

Most offensive:

- Processes involving decaying animal or fish remains.
- Processes involving septic effluent or sludge.
- Biological landfill odours.

Moderately offensive:

- Intensive livestock rearing.
- Fat frying (food processing).
- Sugar beet processing.
- Well aerated green waste composting.

Less offensive:

- Brewery.
- Confectionery.
- Coffee roasting.
- Bakery.

11.5.3 Dispersion models usually calculate hourly mean odour concentrations and the Environment Agency's guidelines and findings from UK Water Industry Research (UKWIR) are also framed in terms of hourly mean odour concentration.

11.5.4 The Environment Agency's guidelines and findings from UKWIR use the 98th percentile hourly mean; this is the hourly mean odour concentration that is equalled or exceeded for 2% of the time period considered, which is typically one year. The use of the 98th percentile statistic allows for some consideration of both frequency and intensity of the odours.

11.5.5 At some distance from a source it would be unusual if odour concentration remained constant for an hour and in reality, due to air turbulence and changes in wind direction, short term fluctuations in concentration are observed. Therefore, although average exposure levels may be below the detection threshold, or a particular guideline, a population may be exposed to short term concentrations which are higher than the hourly average. It should be noted that a fluctuating odour is often more noticeable than a steady background odour at a low concentration. It is implicit that within the models' hourly averaging time and the Environment Agency guidelines and findings from UKWIR that there would be variation in the odour concentration around this mean, i.e. there would be short periods when odour concentration would be higher than the mean and lower than the mean.

11.5.6 The FIDOR acronym is a useful reminder of the factors that will determine the degree of odour pollution:

- Frequency of detection.
- Intensity as perceived.
- Duration of exposure.
- Offensiveness.
- Receptor sensitivity.

11.6 Environment Agency guidelines

11.6.1 In April 2011, the Environment Agency published H4 Odour Management guidance (H4). In Appendix 8 – Modelling Odour Exposure, benchmark exposure levels are provided. The benchmarks are based on the 98th percentile of hourly mean concentrations of odour modelled over a year at the site/installation boundary. The benchmarks are:

- 1.5 ou_E/m^3 for most offensive odours.
- 3.0 ou_E/m^3 for moderately offensive odours.
- 6.0 ou_E/m^3 for less offensive odours.

11.6.2 Any modelled results that project exposures above these benchmark levels, after taking uncertainty into account, indicates the likelihood of unacceptable odour pollution.

11.7 UK Water Industry Research findings

11.7.1 The main source of research into odour impacts in the UK has been the wastewater industry. An in-depth study of the correlation between modelled odour impacts and human response was published by UKWIR in 2001. This was based on a review of the correlation between reported odour complaints and modelled odour impacts in relation to nine wastewater treatment works in the UK with ongoing odour complaints. The findings of this research and subsequent UKWIR research indicate the following. Based on the modelled 98th percentile of hourly mean concentrations of odour:

- At below 5.0 ou_E/m^3, complaints are relatively rare, at only 3% of the total registered.
- At between 5.0 ou_E/m^3 and 10.0 ou_E/m^3, a significant proportion of total registered complaints occur, 38% of the total.
- The majority of complaints occur in areas of modelled exposures of greater than 10.0 ou_E/m^3, 59% of the total.

11.8 Choice of Odour Benchmarks for this Study

11.8.1 Odours from poultry housing are usually placed in the moderately offensive category. Therefore, for this study, the Environment Agency's benchmark for moderately offensive odours, a 98th percentile hourly mean of 3.0 ou_E/m^3 over a one-year period, is used to assess the impact of odour emissions from the proposed poultry unit at potentially sensitive receptors in the surrounding area. The UKWIR research is also considered.

11.9 Quantification of Odour Emissions

11.9.1 Odour emission rates from broiler houses depend on many factors and are highly variable. At the beginning of a crop cycle, when chicks are small, litter is clean and only minimum ventilation is required, the odour emission rate may be small. Towards the end of the crop, odour production within the poultry housing increases rapidly and ventilation requirements are greater, particularly in hot weather, therefore emission rates are considerably greater than at the beginning of the crop.

11.9.2 Peak odour emission rates are likely to occur when the housing is cleared of spent litter at the end of each crop. There is little available information on the magnitude of this

peak emission, but it is likely to be greater than any emission that might occur when there are birds in the house. The time taken to perform the operation is usually around two hours per shed and it is normal to maintain ventilation during this time. There are measures that can be taken to minimise odour production whilst the housing is being cleared of spent litter and there is usually some discretion as to when the operation is carried out; therefore, to avoid high odour levels at nearby sensitive receptors, it may be possible to time the operation to coincide with winds blowing in a favourable direction.

11.9.3 To calculate an odour emission rate it is necessary to know the internal odour concentration and ventilation rate of the poultry house. For the calculation, the internal concentration is assumed to be a function of the age of the crop and the stocking density.

11.9.4 The internal concentrations used in the calculations increase exponentially from 300 ou_E/m^3 at day 1 of the crop, to approximately 700 ou_E/m^3 at day 16 of the crop, to approximately 1,800 ou_E/m^3 at day 30 of the crop and approximately 2,300 ou_E/m^3 at day 34 of the crop. These figures are obtained from a review of available literature and are based primarily on Robertson et al. (2002).

11.9.5 The ventilation rates used in the calculations are based on industry practices and standard bird growth factors. Minimum ventilation rates are as those of an operational poultry house and maximum ventilation rates are based on Defra guidelines. Target internal temperature is 33 Celsius at the beginning of the crop and is decreased to 22 Celsius by day 34 of the crop. If the external temperature is 7 Celsius, or more, lower than the target temperature, minimum ventilation only is assumed for the calculation. Above this, ventilation rates are increased in proportion to the difference between ambient temperature and target internal temperature. A maximum transitional ventilation rate (35% of the maximum possible ventilation rate) is reached when the ambient temperature is equal to the target temperature. A high ventilation rate (70% maximum possible ventilation rate) is reached when the temperature is 4 degrees above target and if external temperature is above 33 Celsius, the maximum ventilation rate is assumed.

11.9.6 At high ventilation rates, it is likely that internal odour concentrations fall because odour is extracted much faster than it is created. Therefore, if the calculated ventilation rate exceeds that required to replace the volume of air in the house every 5 minutes, internal concentrations are reduced (by a factor of the square root of 7.5 times the shed volume/divided by the ventilation rate as an hourly figure).

11.9.7 Based upon these principles, an emission rate for each hour of the period modelled is calculated by multiplying the concentration by the ventilation rate. Both the crop length and period the housing is empty can be varied. An estimation of the emission

during the cleaning out process can also be included. In this case it is assumed that the houses are cleared sequentially, and each house takes 2 hours to clear.

11.9.8 In this case it is assumed for the calculations that the crop length is 39 days, with 30% thinning of the crop around day 33 and that there is an empty period of 10 days after each crop. To provide robust statistics, three sets of calculations were performed; the first with the first day of the meteorological record coinciding with day 1 of the crop cycle, the second coinciding with day 16 of the crop and the third coinciding with day 33 of the crop. A summary of the emission rates used in this study is provided in Table 1. It should be noted that the figures in this table refer to the whole of the crop length whilst most figures quoted in literature are figures obtained from the latter stages of the crop cycle and therefore should not be compared directly to the AS Modelling & Data Ltd. figures in the table. The specific odour emission rate used for the clearing process is approximately 3.40 ou_E/bird/s and the 98th percentile emission rate is approximately 1.20 ou_E/bird/s. As an example, a graph of the specific emission rate over the first year of the meteorological record for each of the three crop cycles is shown in Figure 2.

11.10 The Atmospheric Dispersion Modelling System (ADMS) and model parameters

11.10.1 The Atmospheric Dispersion Modelling System (ADMS) ADMS 5 is a new generation Gaussian plume air dispersion model, which means that the atmospheric boundary layer properties are characterised by two parameters; the boundary layer depth, and the Monin-Obukhov length rather than in terms of the single parameter Pasquill-Gifford class. The Atmospheric Dispersion Modelling System (ADMS) ADMS 5 is a new generation Gaussian plume air dispersion model, which means that the atmospheric boundary layer properties are characterised by two parameters; the boundary layer depth and the Monin-Obukhov length rather than in terms of the single parameter Pasquill-Gifford class.

11.10.2 Dispersion under convective meteorological conditions uses a skewed Gaussian concentration distribution (shown by validation studies to be a better representation than a symmetrical Gaussian expression).

11.10.3 ADMS has a number of model options including: dry and wet deposition; NOx chemistry; impacts of hills, variable roughness, buildings and coastlines; puffs; fluctuations; odours; radioactivity decay (and γ-ray dose); condensed plume visibility; time varying sources and inclusion of background concentrations.

11.10.4 ADMS has an in-built meteorological pre-processor that allows flexible input of meteorological data both standard and more specialist. Hourly sequential and statistical data can be processed and all input and output meteorological variables are written to a file after processing.

11.10.5 The user defines the pollutant, the averaging time (which may be an annual average or a shorter period), which percentiles and exceedance values to calculate, whether a rolling average is required or not and the output units. The output options are designed to be flexible to cater for the variety of air quality limits, which can vary from country to country and are subject to revision.

11.11 Meteorological data

11.11.1 Computer modelling of dispersion requires hourly sequential meteorological data and to provide robust statistics, the record should be of a suitable length; preferably four years or longer.

11.11.2 The meteorological data used in this study is obtained from assimilation and short term forecast fields of the Numerical Weather Prediction (NWP) system known as the Global Forecast System (GFS).

11.11.3 The GFS is a spectral model and data are archived at a horizontal resolution of 0.25 degrees, which is approximately 25 km over the UK (formerly 0.5 degrees, or approximately 50 km). The GFS resolution adequately captures major topographical features and the broad-scale characteristics of the weather over the UK. Smaller scale topological features may be included in the dispersion modelling by using the flow field module of ADMS (FLOWSTAR). The use of NWP data has advantages over traditional meteorological records because:

- Calm periods in traditional observational records may be over represented, this is because the instrumentation used may not record wind speeds below approximately 0.5 m/s and start up wind speeds may be greater than 1.0 m/s. In NWP data, the wind speed is continuous down to 0.0 m/s, allowing the calms module of ADMS to function correctly.
- Traditional records may include very local deviations from the broad-scale wind flow that would not necessarily be representative of the site being modelled; these deviations are difficult to identify and remove from a meteorological record. Conversely, local effects at the site being modelled are relatively easy to impose on the broad-scale flow and provided horizontal resolution is not too great, the meteorological records from NWP data may be expected to represent well the broad-scale flow.
- Information on the state of the atmosphere above ground level which would otherwise be estimated by the meteorological pre-processor may be included explicitly.

11.11.4 The wind rose for the raw GFS data at the site of the poultry unit is shown in Figure 3a below.

11.11.5 Wind speeds are modified by the treatment of roughness lengths (see Section 4.7) and because terrain data is included in the modelling, the raw GFS wind speeds and directions will be modified. The terrain and roughness length modified wind rose for the site of the poultry unit is shown in Figure 3b. Note that although there is little modification in this case, elsewhere in the modelling domain, modified wind roses may differ more markedly and that the resolution of the wind field in terrain runs is 100 m.

Figure 3a. The wind rose. Raw GFS derived data for 52.136N, 2.449 W, 2012 – 2015

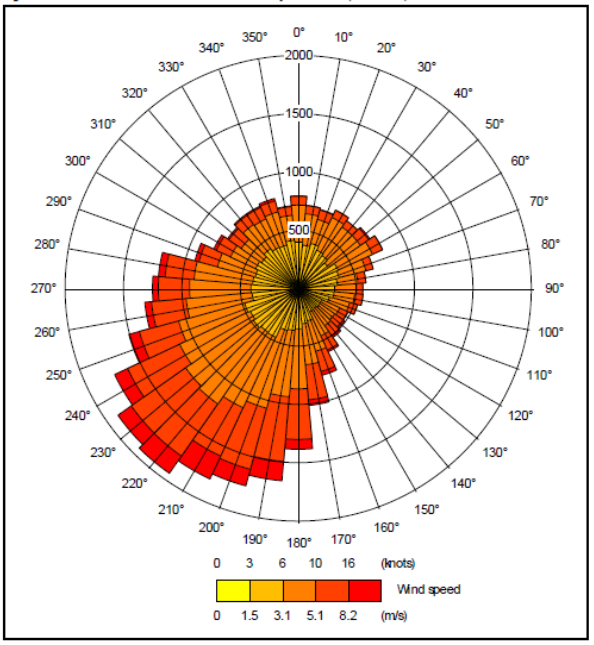
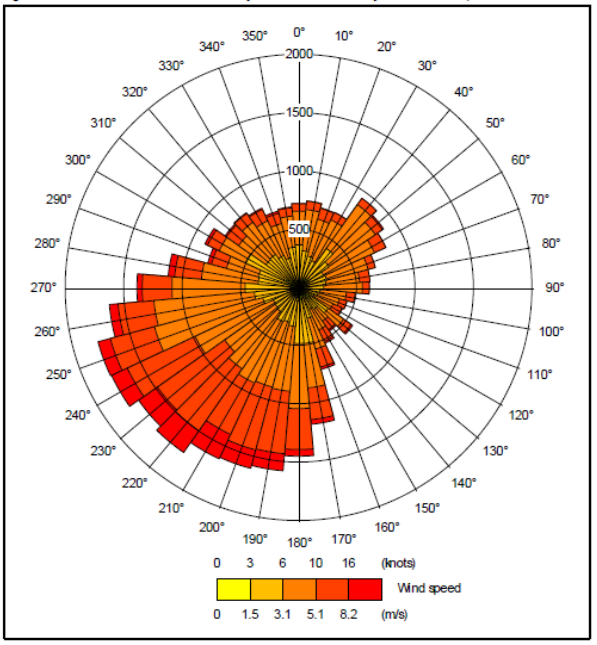


Figure 3b. The wind rose. FLOWSTAR modified GFS derived data for NGR 369250, 248800



11.12 Emission sources

11.12.1 Emissions from the chimneys of uncapped high-speed ridge fans on the proposed poultry house are represented by three point sources within ADMS (PR1 a, b & c). Emissions from the heat exchanger units and the four side mounted stacks on the each of existing houses are each represented by a single point source within ADMS (EX1_HEX, EX2_HEX, EX1 a, b, c & d and EX1 a, b, c & d).

11.12.2 Emissions from the side fans of the existing houses and the gable end fans of the proposed house are each represented by a single volume source within ADMS (PR1_GAB, EX1_SIDE and EX2_SIDE).

11.12.3 Details of the point and volume source parameters are shown in Tables 2a and 2b. The positions of the sources may be seen in Figure 4.

Table 2a. Point source parameters

Source ID (scenario)	Height (m)	Diameter (m)	Efflux velocity (m/s)	Emission temperature (°C)	Emission rate per source (ou_E/s)
PR1 a, b & c (proposed)	5.9	0.8	11.0	Variable [1]	Variable [1 & 2]
EX1 and EX2 a, b, c & d (proposed)	4.13	0.8	11.0	Variable [1]	Variable [1 & 5]
EX1_HEX and EX2_HEX (current and proposed)	4.0	0.8	7.0	Variable [1]	Variable [1 & 4]

Table 2b. Volume source parameters

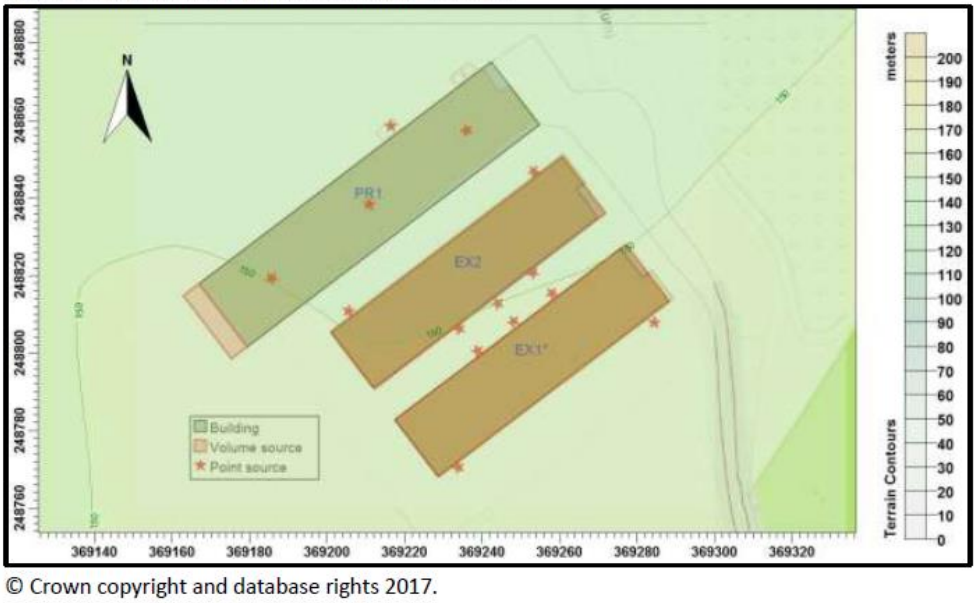
Source ID (scenario)	Length (m)	Width X (m)	Depth (m)	Base height (m)	Emission temperature (°C)	Emission rate (ou_E/s)
PR1_GAB (proposed)	20.42	5.00	3.0	0.0	Ambient	Variable [1 & 3]
EX1_SIDE and EX2_SIDE (current)	18.29	74.68	3.0	0.0	Ambient	Variable [1 & 5]
EX1_SIDE and EX2_SIDE (historical)	18.29	74.68	3.0	0.0	Ambient	Variable [1]

1. Dependent on crop stage and ambient temperature.
2. Reduced by 50% if ambient temperature >21 Celsius.
3. 50% of total, only emitted if ambient temperature >21 Celsius.
4. 100% of the total emission if ventilation rate =< $5m^3/s$; reduced proportionally with other sources, if ventilation rate is >5 m/s.
5. Nil if ventilation rate =< $5m^3/s$; increased proportionally with other heat exchanger emission, if ventilation rate is >5 m/s.

11.13 Modelled buildings

11.13.1 The structure of the existing and proposed poultry houses may affect the odour plumes from the point sources. Therefore, the buildings are modelled within ADMS. The position of the modelled buildings may be seen in Figure 4 where they are marked by grey rectangles.

Figure 4. The positions of modelled building & sources



11.14 Discrete receptors

11.14.1 Seventeen discrete receptors have been defined at a selection of nearby residences and commercial properties. The receptors are defined at 1.5 m above ground level within ADMS and their positions may be seen in Figure 5 where they are marked by enumerated pink rectangles.

11.15 Nested Cartesian grid

11.15.1 To produce the contour plots presented in Section 5 of this report, a nested Cartesian grid has been defined within ADMS. The grid receptors are defined at 1.5 m above ground level within ADMS. The positions of the receptors may be seen in Figure 5 where they are marked by green crosses.

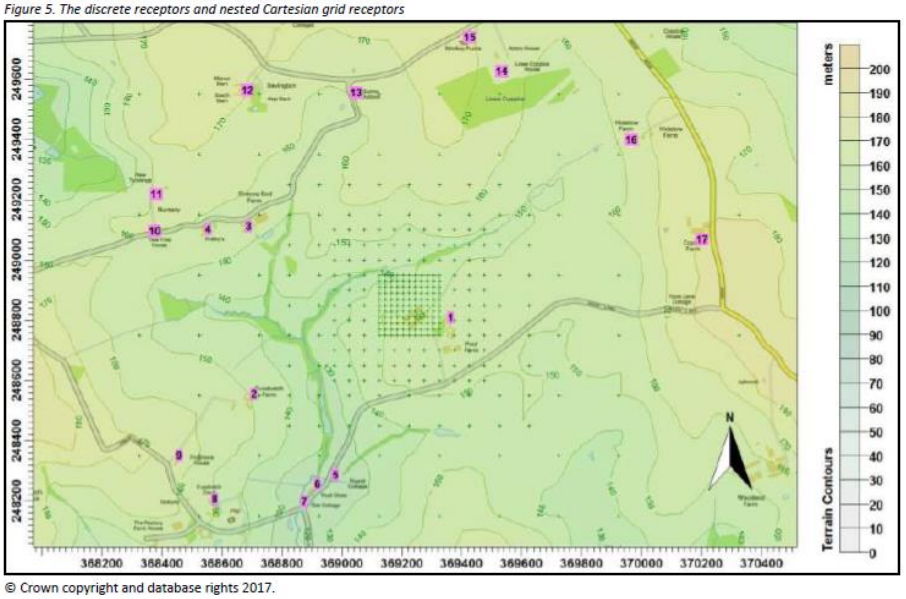
11.16 Terrain data

11.16.1 There are some slopes and hills that are likely to affect wind flow and dispersion of odour in the area; therefore, terrain has been considered in the modelling. The terrain data used are derived from the Ordnance Survey 50 m Digital Elevation Model. The terrain domain is 6.4 km by 6.4 km and FLOWSTAR is run at a resolution of 64 x 64 points; therefore, the effective model resolution is 100m.

11.17 Other model parameters

11.17.1 A fixed surface roughness length of 0.3 m has been applied over the entire modelling domain. As a precautionary measure, the GFS meteorological data is assumed to have a roughness length of 0.275m. The effect of the difference in roughness length is precautionary as it increases the frequency of low wind speeds and the stability and therefore increases predicted ground level concentrations.

Figure 5. The discrete receptors and nested Cartesian grid receptors



11.18 Details of the Model Runs and Results

11.18.1 For this study, ADMS was run with the terrain module of ADMS (FLOWSTAR) and with the calms module of ADMS.

11.18.2 ADMS was effectively run thirty-six times, once for each year of the four-year meteorological record and for each of the three crop cycles and for the following three scenarios:

- Historical Scenario – Existing houses only, all ventilation via side fans.
- Current Scenario – Existing houses only, all ventilation up to 5 m^3/s via the heat exchanger stacks, with any additional ventilation via side fans.
- Proposed Scenario - Existing houses, all ventilation up to 5 m^3/s via the heat exchanger stacks with any additional ventilation via new side mounted stacks plus emissions from the proposed house.

11.18.3 Statistics for the annual 98th percentile hourly mean odour concentration at each receptor were compiled for each of the twelve runs.

11.18.4 A summary of the results of these twelve runs at the discrete receptors is provided in Table 3a where the maximum annual 98th percentile hourly mean odour concentration is shown. A contour plot of the maximum annual 98th percentile hourly mean odour concentrations is shown in Figures 6a (Historical Scenario), 6b (Current Scenario) and 6c (Proposed Scenario).

11.18.5 In Table 3a, predicted odour exposures in excess of the Environment Agency's benchmark of 3.0 ou_E/m^3 as an annual 98th percentile hourly mean are coloured blue; those in the range that UKWIR research suggests gives rise to a significant proportion of complaints, 5.0 ou_E/m^3 to 10.0 ou_E/m^3 as an annual 98th percentile hourly mean, are coloured orange and predicted exposures likely to cause annoyance and complaint are coloured red.

11.18.6 Odours that arise at the end of the crops and during the clearing out process although short in duration can be quite intense. AS Modelling & Data Ltd. do include a peak in emissions when modelling broiler rearing (See Section 3.5); however, as the duration of the emission is short, this has little effect on the predicted 98th percentile statistics, on which guidance on the acceptability or not of odour is usually based.

11.18.7 To address this, 99.5th and 99.8th percentile statistics, which the cleaning out process and other peak emissions will have a more significant effect upon than it does on the 98th percentile statistics, have also been compiled. N.B. the 99.5th percentile is the value equalled or exceeded for 0.5% of the time and the 99.8th percentile is the value equalled or exceeded for 0.2% of the time. The results are presented in Tables 3b and 3c. No comment on the significance/acceptability is made as there is no guidance available; however, the descriptions in Section 3.1 of the Odour Assessment may be useful when interpreting the results.

Table 3a. Predicted maximum annual 98th percentile hourly mean odour concentrations at the discrete receptors

Receptor number	X(m)	Y(m)	Maximum annual 98th percentile hourly mean odour concentration (ou_E/m^3)		
			Historical (all side fans)	Current (heat exchanger stack and side fans)	Proposed (heat exchangers and side mounted stacks on existing + new house)
1	369362	248812	16.25	9.29	6.56
2	368708	248557	0.50	0.36	0.36
3	368689	249114	0.42	0.29	0.26
4	368553	249105	0.29	0.21	0.19
5	368978	248287	1.25	0.77	0.70
6	368919	248258	0.96	0.63	0.62
7	368876	248201	0.77	0.52	0.52
8	368575	248208	0.18	0.18	0.26
9	368457	248353	0.20	0.17	0.20
10	368374	249097	0.23	0.17	0.17
11	368380	249221	0.20	0.14	0.14
12	368684	249565	0.21	0.14	0.13
13	369047	249557	0.45	0.32	0.29
14	369531	249629	0.31	0.26	0.30
15	369425	249742	0.29	0.21	0.27
16	369965	249401	0.31	0.22	0.30
17	370200	249070	0.24	0.19	0.26

Table 3b. Predicted maximum annual 99.5th percentile hourly mean odour concentrations at the discrete receptors

Receptor number	X(m)	Y(m)	Maximum annual 99.5th percentile hourly mean odour concentration (ou_E/m^3)		
			Historical (all side fans)	Current (heat exchanger stack and side fans)	Proposed (heat exchangers and side mounted stacks on existing + new house)
1	369362	248812	67.20	31.65	10.44
2	368708	248557	4.43	2.06	1.13
3	368689	249114	1.85	1.03	0.81
4	368553	249105	1.36	0.70	0.59
5	368978	248287	3.72	2.20	1.48
6	368919	248258	2.99	1.92	1.47
7	368876	248201	2.45	1.56	1.29
8	368575	248208	1.74	1.04	0.62
9	368457	248353	1.50	0.92	0.58
10	368374	249097	1.20	0.58	0.46
11	368380	249221	0.81	0.51	0.42
12	368684	249565	0.78	0.43	0.34
13	369047	249557	1.40	0.69	0.66
14	369531	249629	1.21	0.66	0.57
15	369425	249742	0.94	0.53	0.53
16	369965	249401	1.52	0.66	0.58
17	370200	249070	0.96	0.55	0.66

Table 3c. Predicted maximum annual 99.8th percentile hourly mean odour concentrations at the discrete receptors

Receptor number	X(m)	Y(m)	Maximum annual 99.8th percentile hourly mean odour concentration (ou_E/m^3)		
			Historical (all side fans)	Current (heat exchanger stack and side fans)	Proposed (heat exchangers and side mounted stacks on existing + new house)
1	369362	248812	**137.33**	63.02	**13.77**
2	368708	248557	**9.37**	4.98	2.00
3	368689	249114	**7.68**	3.66	1.20
4	368553	249105	**7.14**	3.41	0.90
5	368978	248287	**12.25**	6.80	3.08
6	368919	248258	**10.47**	5.28	2.58
7	368876	248201	**8.31**	4.40	2.21
8	368575	248208	4.80	2.61	1.44
9	368457	248353	4.28	2.24	1.08
10	368374	249097	3.86	1.80	0.62
11	368380	249221	3.81	1.96	0.74
12	368684	249565	2.70	1.36	0.61
13	369047	249557	3.80	1.87	0.90
14	369531	249629	3.74	1.99	0.94
15	369425	249742	2.96	1.82	0.84
16	369965	249401	3.59	2.03	0.97
17	370200	249070	3.06	1.86	1.42

Figure 6a. Predicted maximum annual 98th percentile hourly mean odour concentration - Historical Scenario

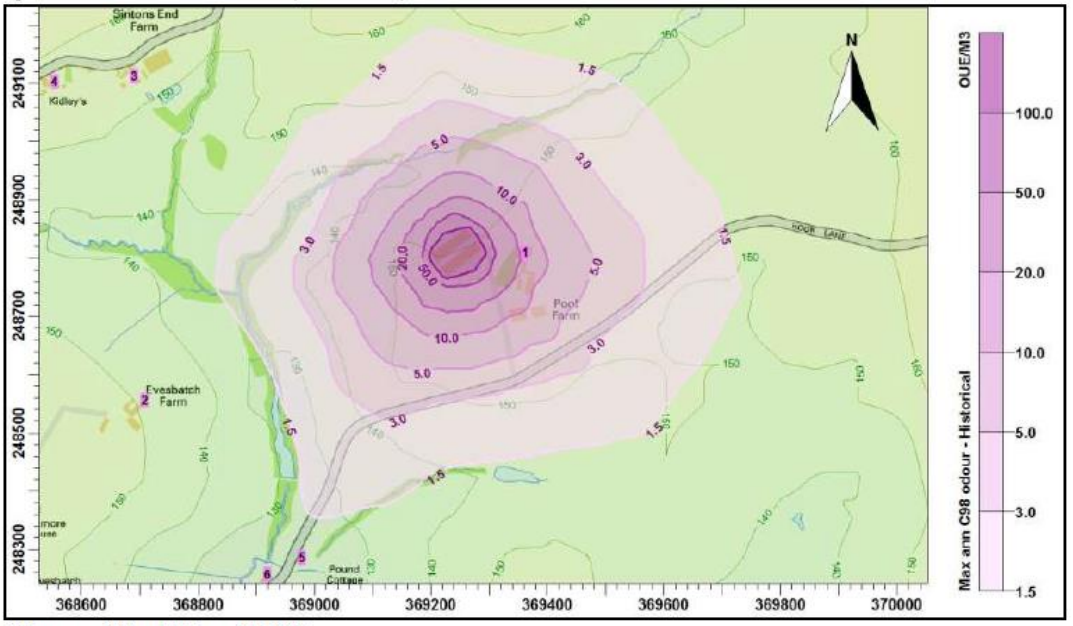


Figure 6b. Predicted maximum annual 98th percentile hourly mean odour concentration - Current Scenario

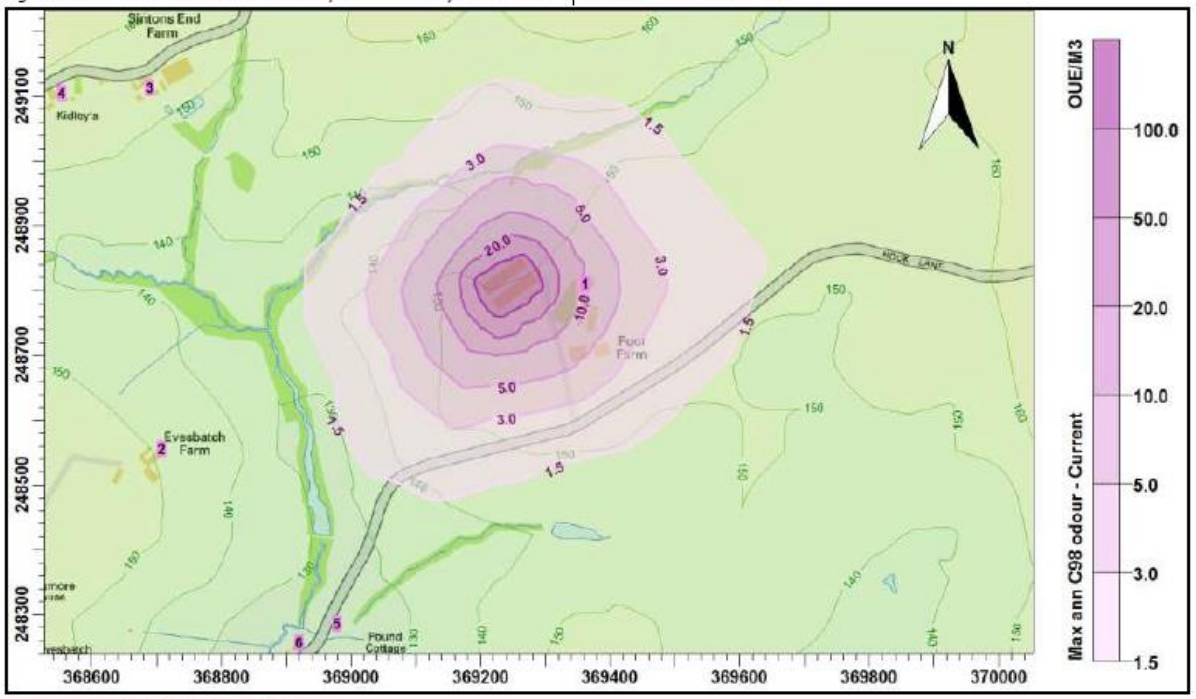
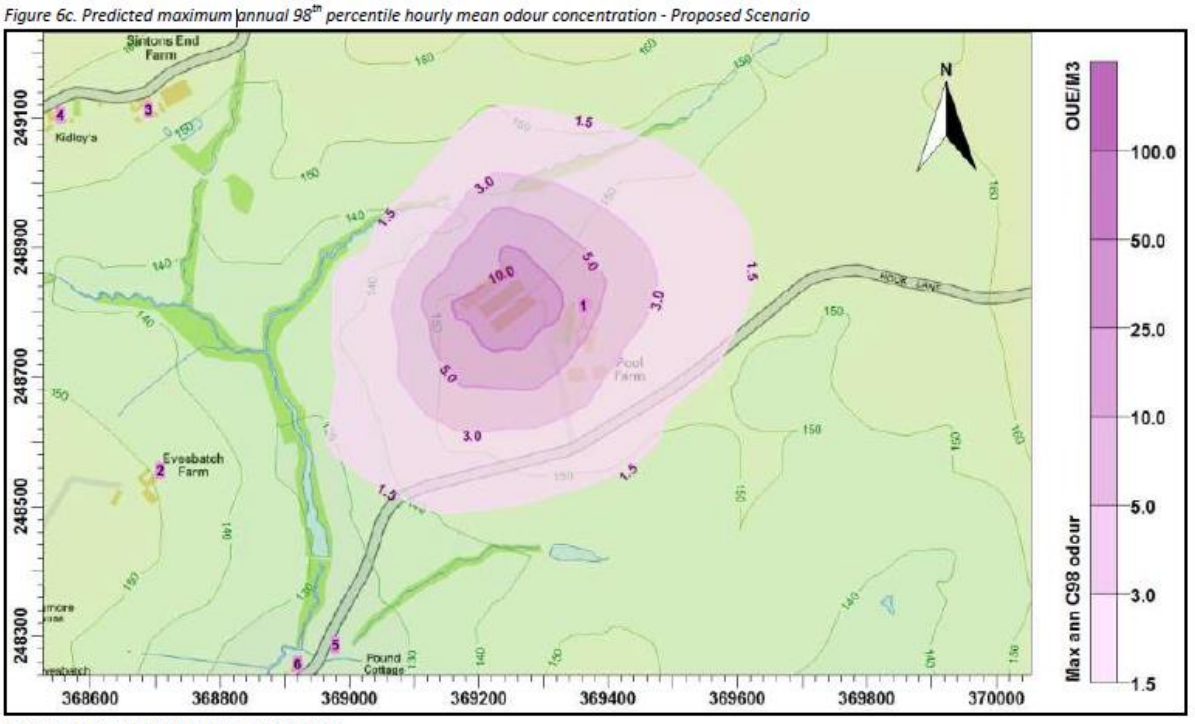


Figure 6c. Predicted maximum annual 98th percentile hourly mean odour concentration - Proposed Scenario



11.19 Summary and Conclusions – AS Modelling & Data Ltd

11.19.1 Odour emission rates from the existing and proposed poultry houses have been assessed and quantified based upon an emissions model that takes into account the internal odour concentrations and ventilation rates of the poultry houses. The odour emission rates so obtained have then been used as inputs to an atmospheric dispersion model which calculates odour exposure levels in the surrounding area.

11.19.2 The results of the modelling indicate that, should the proposed development of the poultry unit at Pool House Farm proceed, the 98th percentile hourly mean odour concentration at nearby residences would be below the Environment Agency's benchmark for moderately offensive odours, a 98th percentile hourly mean of 3.0 ou_E/m^3 over a one-year period and furthermore would be reduced from current and historical levels.

11.20 Odour Mitigation

11.20.1 The proposed poultry unit at Pool House Farm will operate under the Environmental Permit which has been approved by the Environment Agency.

11.20.2 The facility must be managed to ensure compliance with the EP which will include measures to reduce odour. The document 'how to comply with your environmental permit for intensive farming' (EPR 6.09) includes information on odour control.

11.20.3 EPR guidance 6.09 also provides some additional guidance in relation to house design and odour control. This guidance includes the following:

11.20.4 'The nature of intensive farming means that preventing odour generation at source is rarely possible as animals are inherently odorous. However, there are many things that can be done, often at low cost, to minimise odour or to prevent it reaching neighbours. Odour management is site specific - you will need to pick out those elements which most closely match your circumstances and add in any other sources or problems.

11.20.5 In most cases, attention to housekeeping and good operational practices should achieve a significant reduction in the level of exposure experienced at sensitive receptors.

11.20.6 In cases where all reasonable measures have been taken and have failed to reduce emissions to the point where the exposure of sensitive receptors is acceptable then 'end of pipe' abatement may need to be considered. This may require odour to be contained at source and extracted to an abatement system with minimum fugitive losses. Bio filters or absorption 'scrubber' systems (chemical or biological) are the favoured choice because of their effectiveness and ease of operation. This is obviously a more expensive option so all effort should be made to improve the housekeeping aspects of the operation. '

11.20.7 An Odour Management Plan has been submitted as part of the Permit application and will ensure that all measures are taken to reduce odour emissions. The EP guidance sets out guidance for minimising odour from poultry and their housing as follows:

11.20.8 Odour from litter and manure based systems may be minimised by increasing the dry matter content of the litter or manure, by both preventing spillages of water and providing a drying mechanism. If the dry matter content is 60% or above, ammonia emissions are minimal. New buildings should be able to meet this.

11.20.9 As part of the Odour Management Plan the below table lists odour minimisation by source:

Potential Source	Minimisation Technique	Review
Broiler Production Housing	Full inspection of the buildings will be undertaken. Litter to be kept as dry as possible. Ventilation appropriate for bird welfare and to prevent a build-up in humidity. Staged protein reduction in diets based on age. Leak proof drinking system, this will be inspected twice daily as a minimum in order to prevent wet litter. Additional bedding material will be applied during each cycle in order to maintain dry litter. Early disease detection as sick birds can cause poor or wet litter conditions. The bird's consumption will be monitored daily along with humidity within the building. Correct temperature will be maintained dependent on the stage in the production cycle. The buildings integrity will be maintained in order to prevent water ingress. Routine end of cycle maintenance. Maintain site cleanliness, any spillages will be dealt with promptly and correctly. Site clean and foul drainage systems will be properly maintained and kept clean in order to reduce odour. Adequate building insulation will be installed during construction.	June
Carcases	Mortalities will be collected daily and stored in sealed vermin proof containers until collected by a licensed agent. Regular collection by a licensed agent, the frequency of which will be increased during the summer months in order to minimise odour issues.	Annually — June

	Containers stored in a cool, safe place, out of direct sunlight.	
Litter Removal	Doors to be closed during initial clear out and only opened when trailers are being loaded. Trailers parked as close as possible to the buildings doors in order to reduce the amount of dust being blown away. Trailers will not be overfilled to avoid spillage. Trailers carrying the litter will be sheeted to avoid dust and odour. Litter removal not to take place during inappropriate weather conditions	Annually — June
Washing Operations	All wash water will be adequately contained. Terminal hygiene plan to be followed at all times. Suitable chemical products will be selected and the correct dilution rates will be adhered to. Limit washing operations at weekends and bank holidays where possible. Washing operations not to take place during inappropriate weather conditions	Annually — June
Stored Litter	Temporary field heaps sited away from sensitive receptors There will be no litter stored on the site on or near poultry site.	Annually — June
Litter/Waste Water Spreading	Limit spreading at weekends and bank holidays Limit spreading in still and humid conditions Limit spreading close to neighbours Compliance with manure management plan Incorporate litter as soon as possible	Annually — June

11.20.10 In addition the Odour Management Plan contains the below table which list odour minimisation by activity in relation to the proposed development at Pool House Farm;

Odour Related Issue	**Potential Risks and Problems**	**Actions taken to minimise odour and odour risks**
Manufacture and selection of feed	Milling and mixing of compound feeds. The use of poor quality and odorous ingredients. Feeds which are unbalanced in nutrients, leading to increased	No on-site milling. Feed specifications prepared by feed compounders nutrients specialist.

	excretion, litter moisture and emission of ammonia and other odour compounds to air.	Feed supplied from UKASTA accredited feed mills so approved raw material used.
Feed storage and delivery	Spillage of feed during delivery and storage. Creation of dust during feed delivery.	Feed delivery systems sealed to minimise atmospheric dust Any spillage of feed around the bin is immediately swept up. The condition of feed bins checked frequently so any damage or leaks can be identified.
Ventilation system	Inadequate air movement in the house leading to high humidity, wet litter and ammonia build up. Inadequate system design causing poor dispersal of odours.	Ventilation systems regularly adjusted according to the age and requirements of the tock Ventilation system designed to efficiently remove moisture from the house. Ventilation system routinely checked to ensure efficient functioning to specification.
Litter management	Odours arising from wet litter (see above). The use of insufficient or poor-quality litter. Spillage of water from drinking systems. Disease outbreaks leading to wet litter.	Controls on feed and ventilation (see above) help to maintain litter quality. Additional controls include: Use of nipple drinking systems which minimise spillage. Insulated walls and ceilings to prevent condensation Concrete floors to prevent overcrowding. Use of a health plan with specialist veterinary input used as necessary.
Carcass disposal	Inadequate storage of carcasses on site. Carcasses left on site too long.	Carcasses are placed in sealed containers immediately after they are removed. Regular collection as detailed above.
House clean-out	Creation of dust associated with litter removal from houses. Use of odour products to clean the houses.	Doors are kept closed during clean out when possible. Litter is carefully placed into trailers positioned at the entrance to each house.

		The trailer is covered/sheeted and not overfilled. Only approved and suitable products are used. Clean-out not to take place in inappropriate weather conditions.
Used litter	Storage of used litter. Transport of litter and applications to land.	There is no storage of used litter outside the houses at any one time. Yards are cleaned down at clear out. Litter spread on land is done strictly in accordance with approved Manure Management Plan.
Dirty water management	Standing dirty water during the production cycle or at clean out. Applications of dirty water to land.	Areas around the house are concreted and remain clean during the production cycle. All clean-out dirty water is directed to sealed underground tanks for storage. It is then spread onto land as weather conditions permit.

12 WATER RESOURCES

12.1 Introduction

12.1.1 A Flood Risk Assessment (FRA) has been prepared by Hydro-Logic Services, which is attached at Appendix 9. This FRA includes an assessment of the existing and proposed surface water drainage of the site.

12.1.2 The FRA has been carried out in accordance with guidance contained within the NPPF and associated Planning Policy Guidance 2. The FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout its lifetime, taking into account climate change.

12.1.3 The FRA has been undertaken using a template in accordance with the NPPF practice guide.

12.2 Development Description and Location

12.2.1 The site of proposed development is located approximately 3km from the village of Bishops Frome, at Pool House Farm, Acton Beauchamp, Worcestershire, WR6 5AJ (Figure 1). It is proposed that an additional poultry unit will be constructed on the field to the north west of the two existing chicken sheds (Figure 2, Figure 3, Figure 4). The proposed development would include: an extension of the existing access road, one poultry unit, concrete apron and other associated features (Figure 3). The impermeable area of the proposed development would be 2,620 m2 (0.262 ha).

Figure 1 Location of the site of proposed development at Northgate Farm

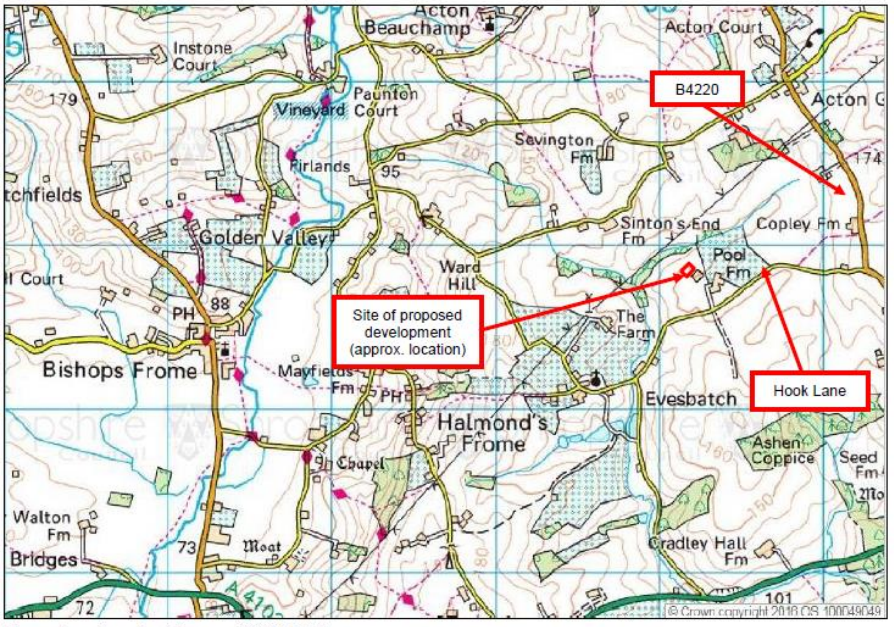


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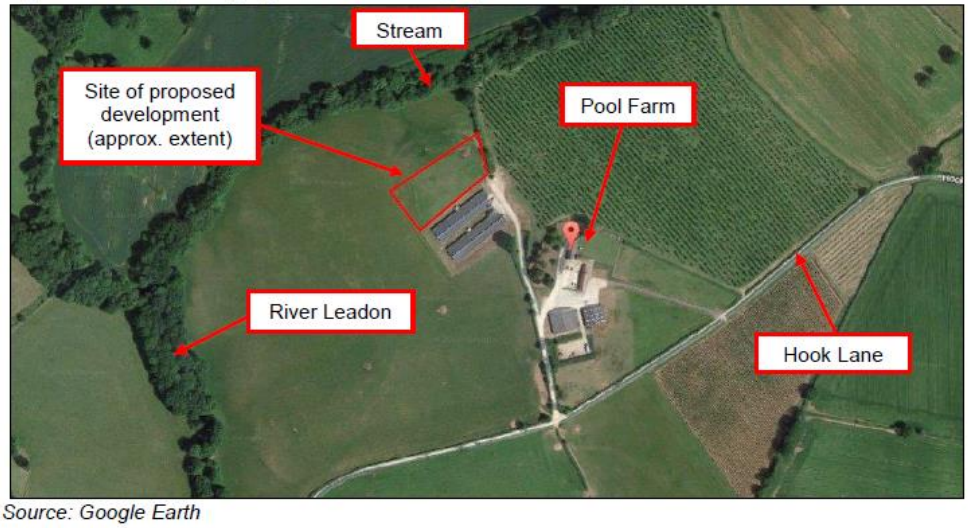
Figure 2 Aerial photograph of the site of proposed development site at Pool Farm



Source: Google Earth

Figure 3 Proposed site plan, including impermeable areas

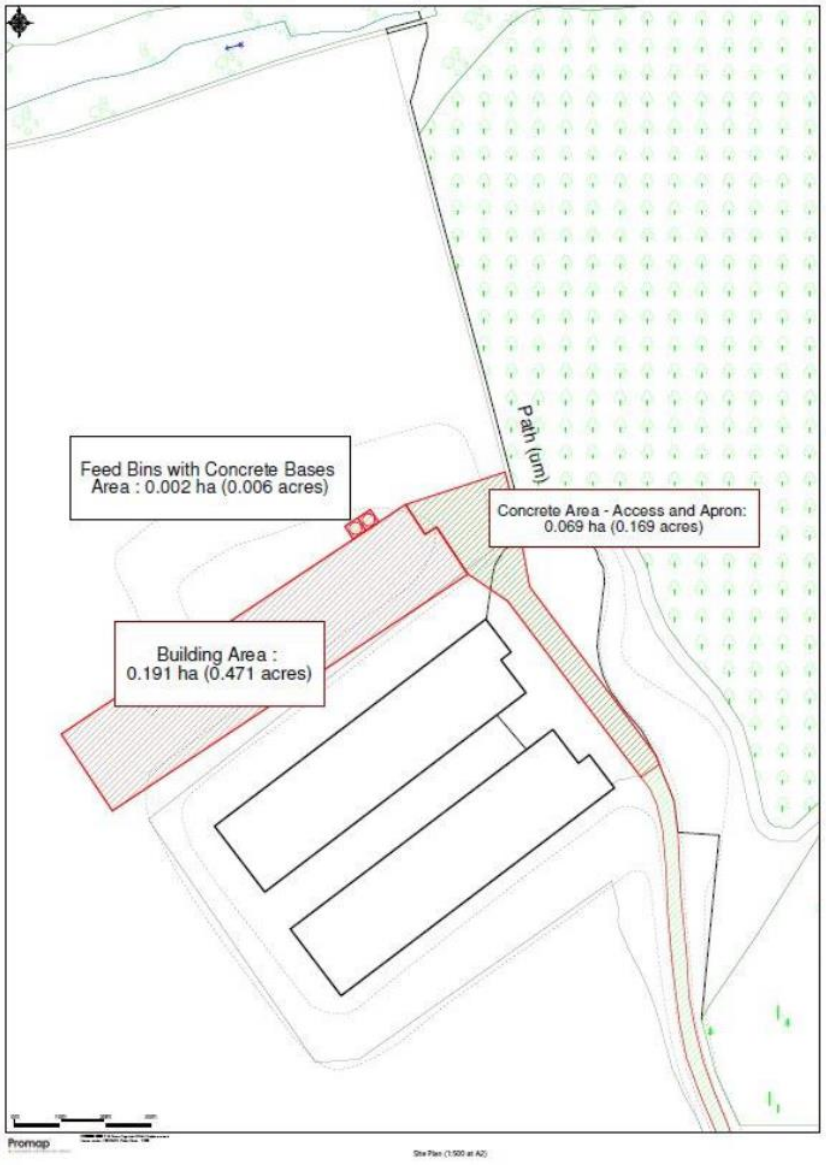


Figure 4 Existing chicken sheds and entrance to proposed development site

12.2.2 In terms of the National Planning Policy Framework (NPPF), land and buildings used for agriculture are classified as "Less Vulnerable".

12.3 Local Planning Policy and Development Documents

12.3.1 The site of proposed development is covered by the Herefordshire Local Plan Core Strategy 2011 - 2031 (Herefordshire Council, 2015). Within the local plan, the following policies are relevant to the proposed development:

Policy RA6 – RURAL ECONOMY

Employment generating proposals which help diversify the rural economy such as knowledge based creative industries, environmental technologies, business diversification projects and home working will be supported. A range of economic actives will be supported, including proposals which:

- support and strengthen local food and drink production;
- involve the small scale extension of existing businesses;
- support the retention and/ or diversification of existing agricultural businesses;

12.3.2 The proposed development appears to be consistent with the Local Development Documents; policy on the rural economy.

12.4 Sequential Test or Exception Test

12.4.1 The proposed development is located within Flood Zone 1 (Figure 5), so neither the Sequential Test nor the Exception Test is required for this assessment.

12.5 Occupation of the Site

12.5.1 The number of people living at this site will not increase as a result of these proposals. All the proposed building works are within Flood Zone 1 and there will be at no additional risk from flooding as a result of the development at the site.

12.6 Definition of the flood hazard

12.6.1 The possible sources of flood risk which could affect the site are listed in (Table 2). The proposed development is located entirely within Flood Zone 1 (Figure 5), with an annual probability of fluvial flooding less than 1:1,000, further discussed in Section 3a. The site is approximately 2.2 km east of the nearest Flood Zone 2 and 3, which are associated with the River Frome. The site is bounded on its northern margin by a small stream, a tributary of the River Frome (Figure 2). No flood zone is shown on the Environment Agency mapping (Figure 5), but this could be because the catchment is too small to be independently mapped (0.89 km2 upstream catchment area, Figure 8).

12.6.2 The proposed location for the additional poultry unit is classified as being at 'very low risk' of surface water flooding (Figure 6), with less than 1:1,000 annual probability of surface water flooding. It should be noted that the land adjacent to the proposed poultry unit site, which currently is occupied by two chicken sheds, is surrounded by surface water flood zones classified as 'medium' (1:30 to 1:100 annual probability of flooding) and 'high' (greater than 1:30 annual probability of flooding). Access to the development site may be inhibited during surface water floods of these magnitudes, and further consideration to emergency access and egress is discussed in Section 6. Land surrounding the River Leadon (located on the western field boundary) and the stream (located on the northern field boundary, Figure 7) also exhibit zones at risk to surface water flooding (high, medium and low risk zones). Surface water flooding in these areas will not affect the proposed poultry unit, however the flood extent in these areas must be considered when designing and locating the flood attenuation pond.

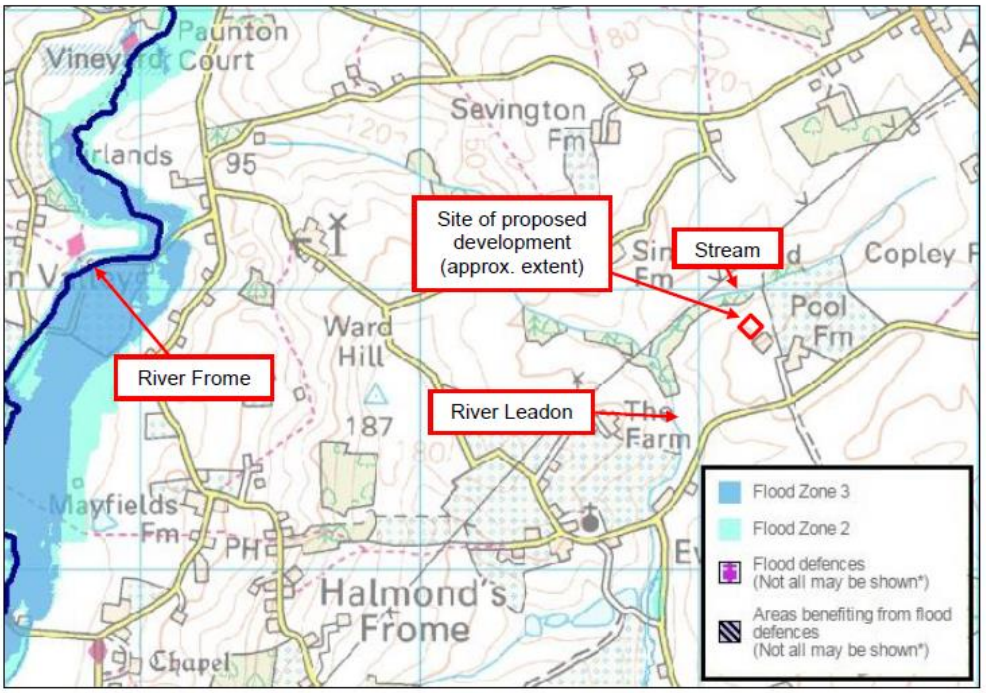
12.6.3 No records of groundwater or sewer flooding at or close to the site were found. There is also no known flood risk associated with infrastructure failure either at or upstream of the site.

Table 2 Sources of flooding which could affect the site

Key Sources of Flooding	*Possibility at Site*
Fluvial	*Very Low – Flood Zone 1 (Figure 5)*
Tidal	*N/A*
Groundwater	*No records found*
Sewers	*No records found*
Surface water	*Very low risk of flooding (Figure 6)*
Infrastructure failure	*None known whose failure could cause flooding*

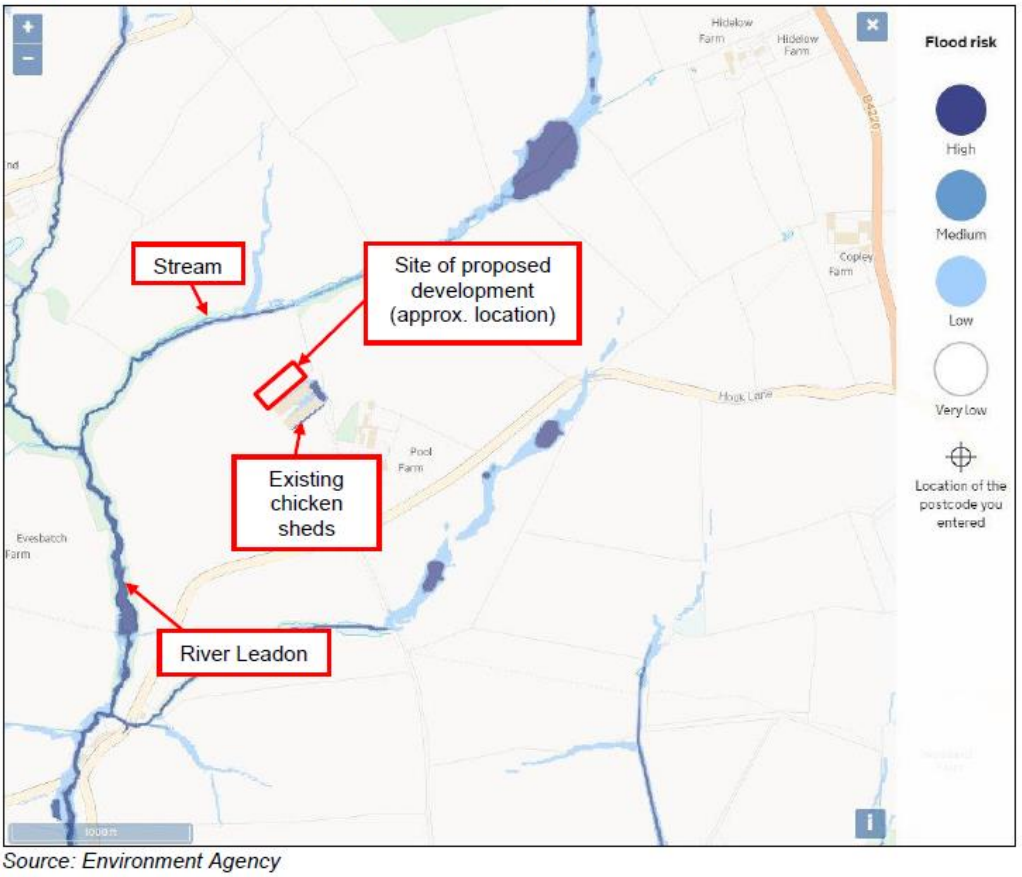
List taken from NPPF Practice Guide, Paragraph 2[2]

Figure 5 Fluvial Flood Risk Map - Pool Farm



Source: Environment Agency

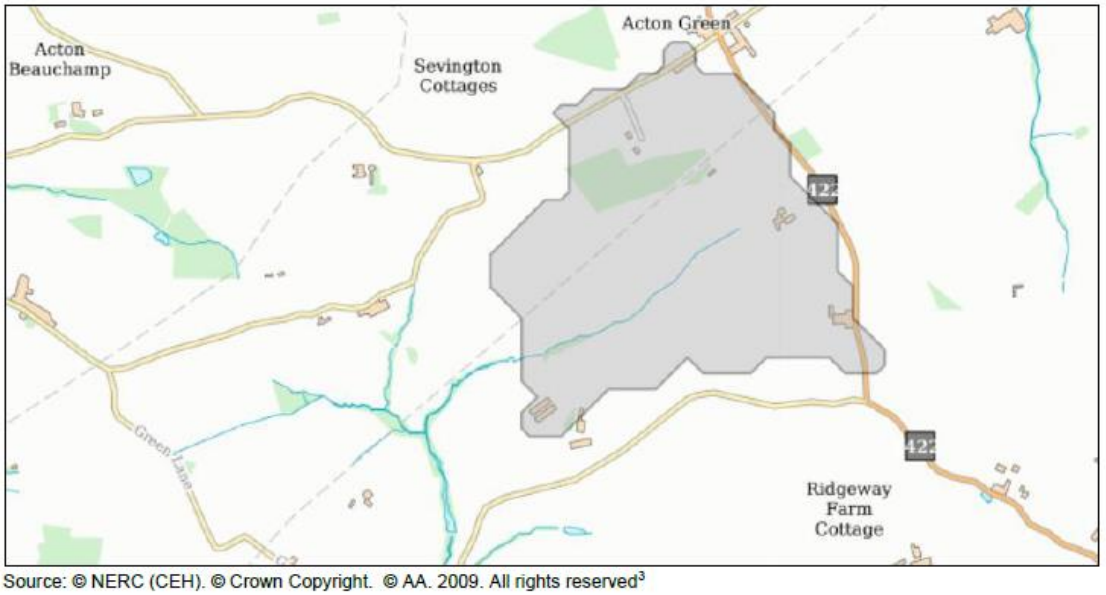
Figure 6 Surface Water Flood Risk Map - Pool Farm



Source: Environment Agency

Figure 7 Stream located on northern field boundary

Figure 8 Upstream catchment area of stream



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12.7 Sources of flooding

12.7.1 As summarised in Table 2, flood risk from all sources is very low. The site is within Flood Zone 1 and is therefore beyond the limits of the 1:1,000 year fluvial event. The area around the existing poultry sheds is however shown to have areas at 'Low' to 'High' risk of surface water flooding, with an annual probability of surface water flooding greater than 1:1,000.

12.7.2 The distribution of surface water flooding shown in Figure 6, strongly suggests that it is a consequence of the sheds themselves, with flood waters derived from local runoff. During periods of flooding it is likely that sections of the access track/ concrete apron

may become impassable. An emergency access and egress route is further discussed in Section 7.

12.8 Existing Surface Water Drainage

12.8.1 The proposed development site is currently used for agriculture (grazing sheep) and therefore no formal drainage arrangements are in existence apart from those associated with the existing sheds. Due to the low permeability of the soils (Figure 11), it is expected that runoff will flow as surface water, flowing across the field and into the stream on the northern field boundary (Figure 9).

12.8.2 Runoff from the two existing chicken sheds is currently directed into French drains, via guttering (Figure 10), which outflows into the stream on the northern field boundary.

Figure 9 View from proposed development site, looking north towards the stream

Figure 10 Existing chicken sheds drainage scheme

12.9 Probability of Flooding

12.9.1 The Environment Agency Fluvial Flood Risk Map is reproduced in Figure 5. The map indicates that the site is located within Flood Zone 1, beyond the limits of the 1:1,000 year fluvial flood event.

12.10 Herefordshire Strategic Flood Risk Assessment

12.10.1 The site of proposed development is covered by the Strategic Flood Risk Assessment for Herefordshire (Herefordshire Council, 2009). There is no specific mention of flooding or flood risk at the site of proposed development or nearby.

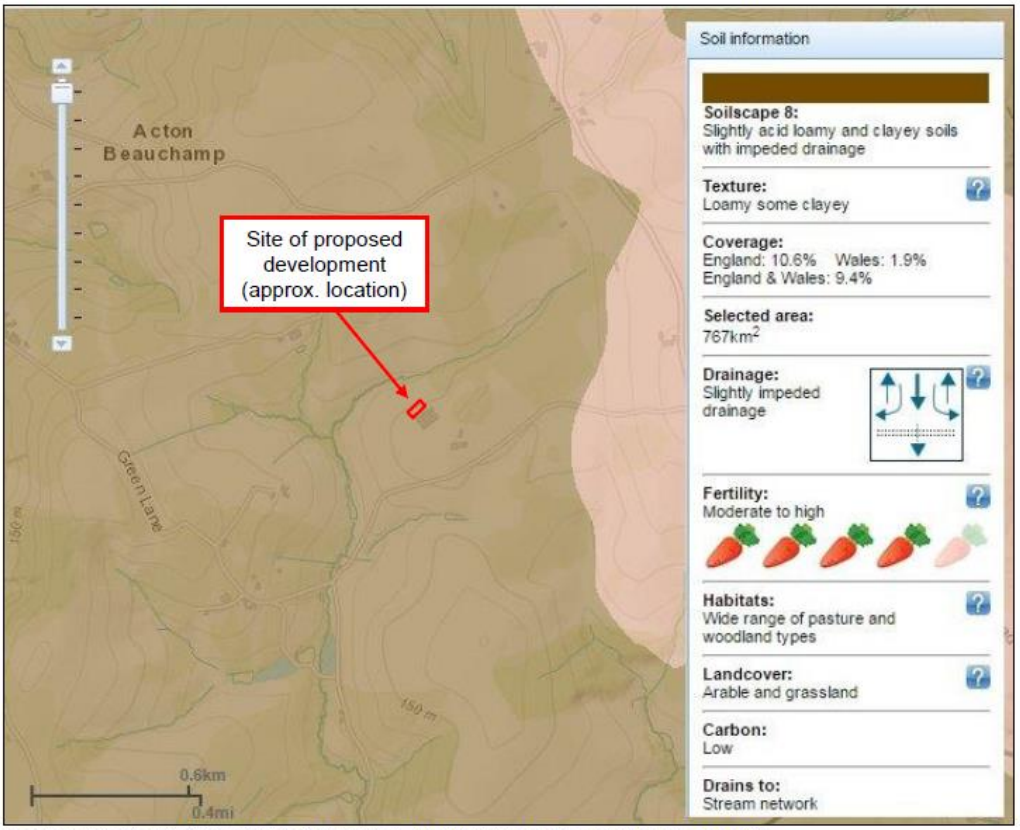
12.10.2 As described in Section 2, Table 2, flood risk from all sources on site is very low. Herefordshire SFRA does not outline any reported incidences of flooding or flood risk relevant to the proposed development site. It is proposed that the poultry unit would be located on the higher elevation land within the site (Figure 9), therefore reducing the already 'Very Low' fluvial flood risk further.

12.11 Runoff Rates and Volumes

12.11.1 Soils at the site are described on the Cranfield University website as, 'slightly acidic loamy and clayey soils with impeded drainage' (Figure 11), indicating that it is unlikely that soils will be sufficiently permeable to manage runoff using infiltration.

12.11.2 Greenfield runoff rates were calculated within MicroDrainage, using the ICP SuDS method for the 1:2, 1:30 and 1:100 year rainfall events (Appendix A –Table 6 of the FRA). Greenfield runoff rates ranged from 0.4 l/s for the 1:2 year+20%CC, to 1.2 l/s for the 1:100 year+20%CC, over the 2,650 m^2 impermeable area of the site (impermeable surface area rounded up from 2,620 m^2, to be conservative). The greenfield runoff rate represents the runoff generated from the site, under un-developed conditions.

Figure 11 Soil map of the area around the site of proposed development



Source: Cranfield University Soil Mapping http://www.landis.org.uk/soilscapes2/

12.12 Climate Change

12.12.1 The Environment Agency and NPPF require a consideration of the impacts of climate change on the flood risk for any proposed development. In February 2016, the Environment Agency updated the climate change allowances required in Flood Risk Assessments (Environment Agency, 2016); this advice updates previous climate change allowances to support the NPPF (DCLG, 2012). The Environment Agency (2016) state,

"Making an allowance for climate change in your flood risk assessment will help to minimise vulnerability and provide resilience to flooding and coastal change in the future. The climate change allowances are predictions of anticipated change for:

- peak river flow by river basin district
- peak rainfall intensity
- sea level rise
- offshore wind speed and extreme wave height."

12.12.2 For precipitation, Table 3 shows anticipated changes in small catchments, recommending a progressive increase, reaching 20% for the 'Central' allowance by 2115; this allowance would be recommended for this proposed development based on the developments classification as a 'Less Vulnerable' development within Flood Zone 1, with a design life of 60 years, where the consequences of exceedance are relatively low. This value is based on the 50% percentile, meaning that there is a 50% chance that rainfall will not increase by more than the 20% increment.

Table 3 Peak rainfall intensity allowance in small and urban catchments

Applies across all of England	*Total potential change anticipated for 2010 to 2039*	*Total potential change anticipated for 2040 to 2059*	*Total potential change anticipated for 2060 to 2115*
Upper end	*10%*	*20%*	*40%*
Central	*5%*	*10%*	*20%*

Source: Environment Agency (2016)

12.13 Development Proposals and Land Uses

12.13.1 It is proposed that an additional poultry unit and associated feed bins, concrete apron and access track could be built on land within Pool House Farm, Acton Beauchamp (Figure 3). The additional poultry unit would be located north of the two existing poultry units, and would be accessed by the existing farm track. It is proposed that the area of existing farm track to the east of the current poultry units (Figure 12), and the proposed additional poultry unit, would be upgraded and made of an impermeable surface. It is proposed that the site would have a total impermeable surface area of 2,620 m2, as detailed in Table 4. This value has been rounded up to 2,650 m2 to be conservative.

Table 4 Proposed impermeable surface areas

Impermeable surface	Area (ha)	Area (m^2)
Poultry Unit – building area	0.191	1,910
Feed bins with concrete bases	0.002	20
Concrete apron & access track	0.069	690
TOTAL:	**0.262**	**2,620**

Figure 12 Existing poultry units and access track

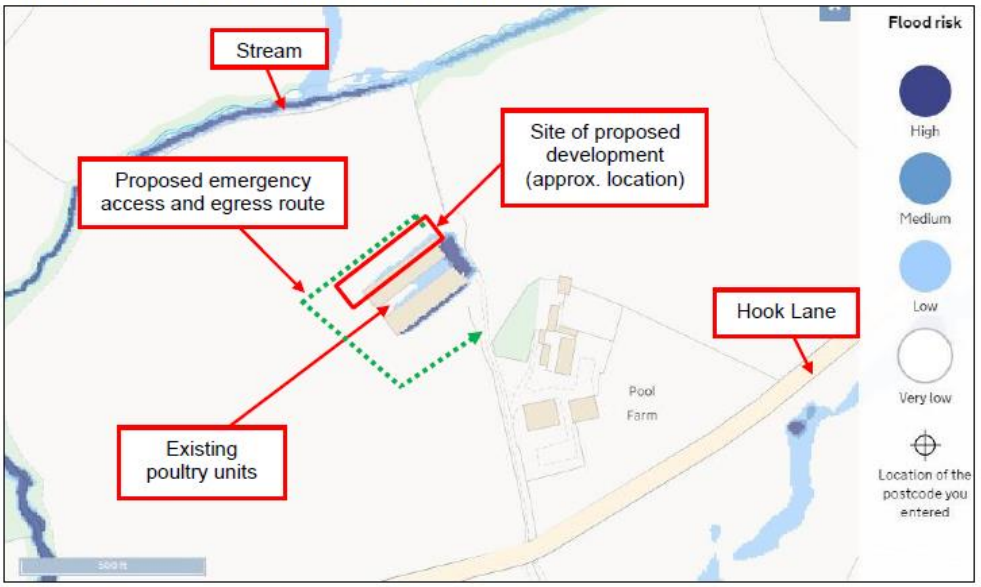
12.14 Flood Risk Management

12.14.1 The proposed location of the poultry unit and associated infrastructure (Figure 3), places the development at low risk from all sources of flooding (Section 2a, Table 2). It is expected that the proposed development will not be at risk from a fluvial flood of magnitudes up to the 1:1,000 year event, as the site is located entirely within Flood Zone 1 (Figure 5).

12.14.2 During periods of flooding it is possible that the proposed access track and concrete apron area, may become impassable as it passes through areas currently highlighted as being at 'High' risk of surface water flooding (Figure 6). Water depth at these locations cannot become great, since floodwater would be able to spill northward, down the local slope towards the stream at the site's northern margin. It is anticipated that the normal access and egress route will still be passable by goods vehicles and 4WD farm vehicles during periods of moderate flooding.

12.14.3 As a precaution, an alternative emergency access and egress route has been proposed, and is shown in Figure 13. It is proposed that people would be able to gain safe access and egress to the proposed poultry unit by utilising the land around the poultry units. This route would provide access to the existing farm track, which is shown to have a 'Very Low' risk of surface water flooding (less than 1:1,000 annual probability), and leads on to Pool House Farm farmhouse and Hook Lane.

Figure 13 Proposed emergency access and egress route



Background map- Source: Environment Agency (2016)

12.15 External Impacts

12.15.1 As shown in Figure 5, the site is located within fluvial Flood Zone 1, and is therefore beyond the limits of the 1:1,000 year fluvial event. Hence, with the exception of runoff from the proposed impermeable surfaces (12.14 and 12.15), flood risk elsewhere will not be affected.

12.15.2 In order to not increase flood risk elsewhere in the catchment due to increased runoff, a surface water management plan is recommended for the site. The preferred option is to route runoff from impermeable surfaces on site into the soils, emulating the natural process of infiltration. However, soils at the site are shown to have 'impeded drainage' (Figure 11). It is unlikely that these soils will be sufficiently permeable to manage runoff using infiltration. Infiltration testing to the BRE365 standard should be undertaken to confirm this. Based on the published soil classification, a surface water management plan has been designed, based around runoff attenuation.

12.15.3 MicroDrainage has been used to design a suitable attenuation basin (Figure 14), to manage runoff from the 2,650 m^2 of impermeable surfaces proposed on the development (Conservative value, Table 4). Details of the assumptions and calculations used in this process are contained within Appendix A of the FRA.

12.15.4 Based on MicroDrainage outputs, it is recommended that an attenuation basin with a basal area of 300 m^2 (e.g. 30 m x 10 m) should be constructed to a 1.0 m depth (Figure 14). It is suggested that the attenuation basin should be located to the north of the proposed poultry unit, on the lower elevation land adjacent to the stream (Figure 15). Outflow from the attenuation basin should be controlled by a custom-designed Hydro-brake Optimum (Unit reference: MD-SHE-0031-4000-0700-4000), installed at the 0 m invert level of the attenuation basin (Figure 14). The hydro-brake optimum would ensure that greenfield runoff rates are achieved at all return periods (Table 5). It should

be protected from partial blockage, by a suitable filtration system, such as a perforated riser (CIRIA C753, Pg. 619). Note that if the basal area, design head of water (0.7 m), or design outflow requirements are changed, the hydro-brake would need re-designing. It is proposed that runoff from the impermeable areas on site would be conveyed to the attenuation basin by a suitable channel, such as a French Drain (Figure 15). A French Drain would provide additional attenuation, and some infiltration benefits.

12.15.5 To mitigate against the residual risk that the attenuation basin could surcharge from a rainfall event greater than the 1:100 year+20%CC, it is recommended that a 2 m wide, concrete topped, emergency overflow weir should be constructed 0.7 m above the invert level of the attenuation basin. The weir should have a suitable surface downslope, e.g. concrete or grasscrete, to prevent erosion. Flows from the attenuation basin should be directed, into the stream on the northern field boundary of the site. The attenuation basin should be grassed over to improve structural stability.

12.15.6 Appendix A, in the FRA, demonstrates that outflow from the designed attenuation basin would remain below greenfield runoff rates for all return periods (Table 5). The attenuation basin was shown to reach a maximum depth of 0.676 m during the 1:100 year rainfall event plus 20% 'central' climate change allowance.

Table 5 Greenfield Runoff rates compared against MicroDrainage Outputs

Return period +20% Climate Change allowance	*Greenfield runoff rate (l/s)*	*Maximum Outflow from attenuation basin (l/s)*
1:2 year	*0.4*	*0.3*
1:30 year	*0.9*	*0.4*
1:100 year	*1.21*	*0.4*

Figure 14 Proposed attenuation basin design

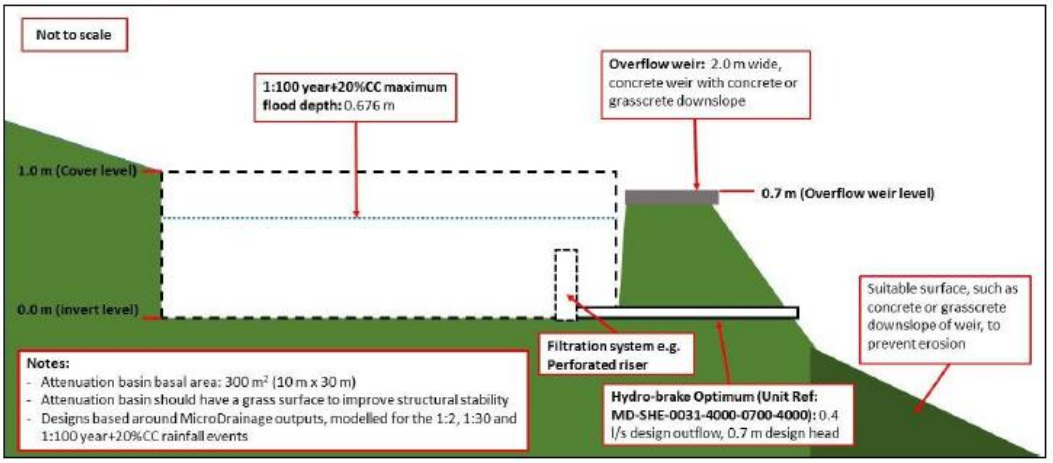
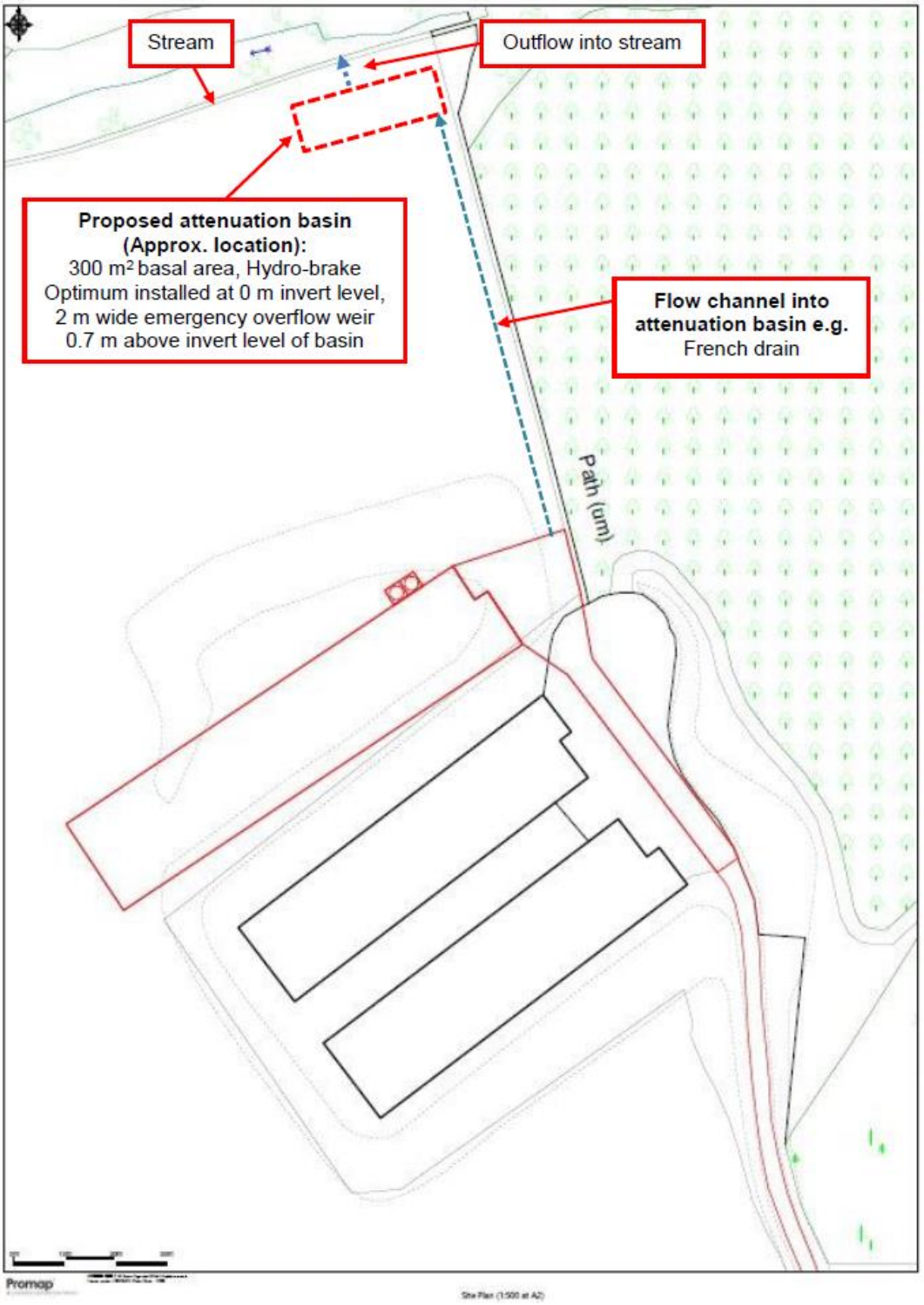


Figure 15 Summary of proposed Surface Water Management Plan



12.16 Residual Risks

12.16.1 Residual risks include the need to manage storms of a significantly greater magnitude than those considered in this report. It is possible that the attenuation basin could surcharge during a rainstorm of greater magnitude than 1:100 year+CC allowances. The emergency overflow weir proposed, has been designed to mitigate this risk.

Provision should be made to route any surcharged flow away from the development, routing the runoff in a northerly direction into the stream.

12.16.2 Several features within the development proposals are at risk of partial blockage; roof guttering on the poultry shed, the French Drain and the Hydro-brake Optimum. To mitigate this risk, it is recommended that a suitable filtration system, such as a perforated riser (CIRIA C753, Pg.619), should be installed to protect the Hydro-brake Optimum. It is possible that leaves could partially block the poultry shed guttering or French Drain. To address this, regular inspections of the guttering and French Drain should be made, and leaves should be removed at the earliest opportunity.

12.16.3 Structures which manage surface water runoff require little maintenance, however a regular maintenance schedule, on a monthly basis and after heavy rainfall, should be established by the property owners to reduce the risk of blockage within the drainage system and ensure the systems remain in good working order.

12.16.4 It has been assumed that it will be possible to dispose of polluted water from the poultry buildings into a temporary storage tank, pending removal from the site and this has not been included within the scope of our report.

12.16.5 The responsibility of maintaining any surface water management features, including the attenuation basin and associated structures, would be with the property owner.

12.17 Conclusion

12.17.1 The Hydro-Logic Services findings are as follows:

1) In terms of the NPPF, land and buildings used for agriculture are classified as "Less Vulnerable";

2) The proposed development is located entirely within Flood Zone 1, beyond the limits of the 1:1,000 year flood, so the Sequential and Exception Tests are not required;

3) The risk of flooding on site is regarded as very low for all sources, so no person on the site would be put at additional risk as a result of the development;

4) One additional poultry unit, and associated access track and features are proposed on land north of the existing two poultry units, at Pool House Farm. The impermeable area of the proposed development would be 2,620 m^2 (0.262 ha), which has been rounded up to 2,650 m^2 within this report, to be conservative;

5) Published soil mapping shows that the site is located on 'slightly acidic loamy and clayey soils with impeded drainage'. It is unlikely that these soils will be sufficiently permeable to manage runoff from the proposed impermeable surfaces using infiltration;

6) A surface water management plan has been designed for the site, so as to not increase the risk of flooding elsewhere. It is shown that runoff from all impermeable surfaces on site could be managed using an attenuation basin on site;

7) Allowance is made for climate change by increasing the design rainfall by 20%, the NPPF and Environment Agency recommended allowance;

8) Runoff from the impermeable areas on site (2,650 m^2), can be managed by an attenuation basin with a basal area of 300 m^2 (e.g. 10 m x 30 m). Outflow from the attenuation basin should be controlled by a custom-designed Hydro-brake Optimum, installed at the 0 m invert level and protected from partial blockage by a suitable filtration system, such as a perforated riser (CIRIA C753, Pg. 619). It is recommended that outflow should be directed into the stream on the northern field boundary;

9) The Hydro-brake Optimum has been designed on the assumption that the attenuation basin has a basal area of 300 m^2, the design head is 0.7 m (a result of the emergency overflow weir being constructed at 0.7 m above the invert level), and the design outflow is 0.4 l/s. Any variations in these assumptions would require a re-calculation of the appropriate Hydro-brake Optimum;

10) Runoff generated from the proposed impermeable surfaces on site, would be conveyed to the attenuation basin using a suitable channel, such as a French Drain;

11) To mitigate the residual risk of the attenuation basin surcharging from a rainfall event greater than the 1:100 year+20%CC, a 2 m wide, concrete topped emergency overflow weir should be constructed 0.7 m above the invert level;

12) It is recommended that surfaces downslope of the attenuation basin outfall and weir should be constructed from a suitable surface, such as concrete or grasscrete, to prevent erosion;

13) An attenuation basin of this design, was shown by MicroDrainage modelling to manage runoff from the proposed 2,650 m^2 of impermeable surfaces. Showing that the outflow from the attenuation basin was below greenfield runoff rates at all return periods.

14) The maximum modelled flood depth for the attenuation basin was 0.697 m, associated with the 1:100 year+20%CC rainfall event ;

15) It is recommended that the attenuation system should be checked on a monthly basis and after heavy rains, all such costs should be borne by the site owner.

12.17.2 In summary, flood risks at the site are very low for all sources and if the measures recommended within this report are implemented, runoff from the site would be managed to comply with the flood risk provisions of the NPPF.

13. HISTORIC IMPACT ASSESSMENT

13.1 Introduction

13.1.1 Stonycroft Planning & Development Ltd Consultants have prepared a Heritage Impact Assessment on behalf of the applicants, to cover the designated heritage assets within the area, an assessment of the setting, assed impact on heritage impact and conclusions.

13.1.2 This Heritage Impact Assessment has been produced in support of an application for consent for the erection of a single poultry unit at Pool House Farm, adjacent to existing poultry units. As the unit may be visible from nearby listed buildings, Scheduled Ancient Monuments or other heritage assets, the potential impact of the proposals on heritage values must be considered.

13.1.3 *The National Planning Policy Framework (2012) (NPPF)* provides the Government's national planning policies on the conservation of the historic environment, outlining the information required to support planning applications affecting heritage assets.

13.1.4 Herefordshire Council as Local Planning Authority has in a Scoping Opinion (18th May 2017) determined that the proposals will require a mandatory Environmental Statement to be submitted to accompany a Planning Application. This should include a description of the aspects of the environment likely to be affected by the development (as outlined in schedule 4 Part 1(3) of the regulations), including architectural and archaeological heritage matters.

13.1.5 Section 66(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 maintains that in considering whether to grant planning permission for development which affects a listed building or its setting, the decision-maker shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

13.1.6 This information has been prepared to meet these requirements as appropriate. In particular, this Assessment provides some of the heritage policy context informing the proposals contained in the Planning application.

Heritage Assets – NPPF Considerations

13.1.7 The NPPF is the full statement of Government planning policies covering all aspects of the planning process. Chapter 12 outlines the Government's policy regarding conserving and enhancing the historic environment. The policies in the NPPF are a material consideration which must be taken into account in development management decisions.

13.1.8 Thus NPPF **Paragraph 128** states local authorities should require an applicant to '*describe the significance of any heritage assets affected, including any contribution made by their setting*'. The level of detail should be proportionate to the asset's importance

and no more than is sufficient to understand the potential impact of the proposal on their significance. This Heritage Impact Statement meets those requirements. It should also be read in conjunction with the accompanying drawings and supporting information.

13.1.9 **Paragraph 129** outlines that local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal, including the setting of a heritage asset. It then requires the LPA to take this assessment into account when considering the impact of a development on a heritage asset, in order to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

13.1.10 **Paragraph 131** requires LPA's to take account of the following in determining planning applications;

- the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;
- the positive contribution that conservation of heritage assets can make to sustainable communities including their economic viability; and
- the desirability of new development making a positive contribution to local character and distinctiveness.

Local Policy Considerations

13.1.11 Chief policy consideration is contained in Herefordshire Local Plan Core Strategy 2011-2031 ***Policy LD4 – Historic environment and heritage assets***, where heritage assets will be protected**,** conserved, sympathetically restored and enhanced through the following five processes:

1. Protect, conserve, and where possible enhance heritage assets and their settings in a manner appropriate to their significance through appropriate management, uses and sympathetic design;
2. Contribute to the character and local distinctiveness of the townscape or wider environment, especially within conservation areas;
3. Use the retention, repair and sustainable use of heritage assets to provide a focus for wider regeneration schemes;
4. Record and advance the understanding of the significance of any heritage assets to be lost (wholly or in part) and to make this evidence or archive generated publicly accessible and
5. Where appropriate, improve the understanding of and public access to the heritage asset.

13.1.12 From these five points, these proposals provide the following responses:

- The position, design and external materials of the proposed unit entails consideration of the impact on the setting of the relevant listed buildings and the wider area;
- Point 2 is not wholly relevant;
- The unit underpins the economic viability of this listed farm;
- Producing this Statement to assess the proposals;
- The new poultry unit's design and location will continue to preserve the local historic 'sense of place'.

Proposals

13.1.13 The proposed poultry unit will be similar in size and massing to the two existing units located to the west of Pool House.

13.1.14 The current units have been set into the slope below Pool House, where the spoil from levelling the site has created a bund to the northwest. This bank will be moved further out to create the site of the proposed poultry unit. There is a considerable difference in levels between the poultry units and the historic core of the farm.

13.2 The Designated Heritage Assets

13.2.1 A heritage asset is defined in the NPPF as:

> *A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage asset includes designated heritage assets and assets identified by the local planning authority (including local listing).*

Designated Heritage Assets

13.2.2 A designated heritage asset is further defined as a World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck, Registered Park and Garden, Registered Battlefield or Conservation Area, variously designated under the relevant legislation.

Conservation Area

13.2.3 Neither the site itself nor the relevant listed buildings are located within a Conservation Area, so the proposal has no impact on the setting of any Conservation Area.

Listed Buildings

13.2.4 The application site is within a kilometre of five listed building entries. They are as follows (full descriptions in Appendix 1 of the Heritage Impact Assessment in Appendix 10):

a) ***Pool House –*** *18th century farmhouse of stone rubble with two storeys. Two windows, casements with segmental heads. Slate roof with gable ends. Later brick wing with brick dentil eaves and large stack and gable ends with coping.*

b) ***The Pound*** *– 17th century timber-frame single storey house with plaster and brick infilling, with later additions and alterations, tiled roof. One storey and attic with stone gable ends.*

c) ***St. Andrew's Church –*** *Grade II* Parish church of medieval origin, restored in 1877 by Nicholson of Hereford, possibly with a 17th century phase. Coursed red sandstone rubble with freestone dressings and quoins, with slate roof. Listed for the extent of its early fabric and its intactness, form, materials and its careful restoration, which are highly characteristic of the area. Also for its monuments and fixtures as features of special interest.*

d) ***Sinton's End Farmhouse*** *– Two storey timber frame Farmhouse of 1633, with painted brick nogging and hipped tile roof. 4 casement windows. Interior said to contain early 18th century staircase. Projecting wing also with hipped roof. Forms a group with the outbuildings*

e) ***Barn at Sinton's End Farm –*** *17th – 18th century weatherboarded barn on stone plinth. Machine tile roof with gable ends. Included for group value.*

f) ***Outbuilding at Sinton's End Farm*** *– 17th century timber frame with painted brick nogging. Brick ground floor and stone rubble gable ends. Tile roof. Casement windows. Included for group value.*

Significance of the Identified Heritage Assets

13.2.5 The NPPF defines the significance of a heritage asset as:

> *"the value to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting."*

13.2.6 Historic England has also published guidance in respect of the setting of heritage assets, which assists in assessing those elements of setting which may make a positive or negative contribution to the significance of a heritage asset, in this case the list entries summarised above.

13.2.7 'Significance' is the means by which the cultural importance of a place and its component parts can be measured and compared, both absolutely and relatively. Understanding the significance of the area makes it possible to develop proposals that will protect or enhance the character and cultural values of the wider site.

Assessment of Values

13.2.8 Four different types of value which can contribute to significance of these particular listed properties are identified as follows:

a) **Evidential value**: where a building, structure or place provides primary evidence about the past. This can be natural or man-made and applies

particularly to archaeological deposits, but also to other situations where there is no written record.

b) **Historical value**: where it illustrates some aspect of the past, and this helps to interpret the past, or that it is associated with an important person, event or movement.

c) **Aesthetic value**: where this may derive from conscious design, including the work of an artist or craftsman; or it may be the fortuitous outcome of the way a building or place has evolved.

d) **Communal value**: where regardless of their historical or aesthetic value, many buildings or places are valued for their symbolic or social value or the local identity which they provide.

13.2.8.1 Pool House (SMR Number 30778)

a) *Evidential value:* There is good potential for archaeological deposits from earlier periods to survive associated with the farm and the wider agricultural complex. All the historic buildings possess features indicating the process of farming from the 18th to the 20th century.

b) *Historical value:* This important domestic heritage asset provides a good example of farmhouses in the Welsh Marches and evolution over some 300 years. Despite later alterations, it still retains earlier features in a readily legible form. On the tithe map it was surrounded by fields called meadow, orchard and leys. The fields are large but irregular, suggesting they have formed from amalgamation of strips and smaller fields. This may therefore be an old farm, possibly dating from the medieval period.

c) *Aesthetic value:* The historic buildings, through the retention of vernacular and functional features and use of specific materials, make a positive contribution to the sense of place within the wider locality. The importance of the houses to the landscape has been acknowledged by the designation as a Listed Building.

d) *Communal value:* The ability to interpret the contribution of the heritage assets for the community/public is well understood through the listing process, which give a reasonably deep appreciation of the historical development, considerably enhancing the understanding that the contribution the heritage assets make to the history of the local rural community, and the impacts of the area's social evolution upon the landscape and society. Access to the house is unavailable to the public.

13.2.8.2 Buildings at Sinton's End Farm (SMR Number: 38776)

a) *Evidential value:* an early 17th century group of farm buildings of modest origins, reflected in the simple vernacular style of each of the structures. Despite later alterations, the original form of each is still clearly legible.

There is good potential for archaeological deposits from earlier periods to survive associated with the farm and the wider agricultural complex. All the historic buildings possess features indicating the process of farming from the 17th to the 20th century.

b) *Historical value:* It appeared in documents as *Suthington* in 1280 and *Sodington* in 1315, indicating an early farmstead.
c) *Aesthetic value:* The vernacular approach to the architecture presents a very good example of the smaller farmsteads in the County. The integrity of the historic character is particularly well-preserved in the form of the extant historic building group. The historic environment presented here contributes strongly to the aesthetics of the countryside.
d) *Communal value:* The ability to interpret the contribution of the heritage assets for the community/public is well understood through the scheduling process, which gives a reasonably deep appreciation of the historical development of society, considerably enhancing the understanding that the contribution the heritage asset makes to the history of this border region, and the impacts of the area's social evolution upon the wider landscape and community.

13.2.8.3 St. Andrew's Church

a) *Evidential value:* The extant building and fittings retain the ability to clearly inform the development of the church as it appears in the present landscape. The operation of patronage by local personages of various provincial craftsmen is demonstrable in the fittings and memorials. The font demonstrates the Norman origin of the church, although the earliest architectural features are the roof and the south-east window of the nave, which have been interpreted as medieval but might be 17th century.
b) *Historical value:* The historic integrity of the church is particularly high. The monuments, memorials, surrounding open spaces and maturity of the churchyard and trees are also recognised as being important heritage assets.
c) *Aesthetic value:* It demonstrates good quality in architectural style and craftsmanship both internally and externally. The building has been altered since its completion, but in an extremely competent fashion. It has several good-quality windows, including one by the renowned stained glass artist, Charles Eamer Kempe.
d) *Communal value:* The church has significant community values for its spiritual as well as its historic and tourist interest. Its visual impact on the locality is high.

13.2.8.4 The Pound

a) *Evidential value:* Extant historic buildings also have the potential to retain earlier fabric relating to their origins and function and so may further inform an understanding of the development of domestic vernacular architecture in the County.
b) *Historical value:* The existing is characteristic of mid-17th century domestic architecture in the region; its form is largely unaltered in layout over this period, excepting the accretions to make it suitable for subsequent 20th century accommodation. It is a valuable survivor in not having been demolished in the 20th century to make way for more adaptable accommodation, and is a reminder of the historic character of the Parish. The listed property represents the archetypal laneside accommodation being erected in the 1600's. It is a typical example of the dwellings found in rural locations

from this time. As such it reflects the social and economic evolution of Herefordshire over 400 years.

c) *Aesthetic value:* The integrity of the historic character is particularly well-preserved in the form of the extant historic building. The historic environment presented here contributes strongly to the aesthetics of the countryside.

d) *Communal* value: as a private house public access is unavailable, but can be seen from passing pedestrians and cars, a reminder of the changing character of the countryside. The ability to interpret the contribution of the heritage assets for the community/public is well understood through the listing process, which give a reasonably deep appreciation of the historical development, considerably enhancing the understanding that the contribution the heritage asset makes to the wider history of the Parish, and the impacts of the area's social evolution upon the wider landscape and community. Access to the lane is available to the public.

13.2.9 In respect of the domestic accommodation then, their overall significance lies in the varied use of particular materials and vernacular design from a relatively broad period, representative examples of the range and variety of extant rural buildings and their reflection of the architectural and social evolutionary process in Herefordshire from at least the early 17th century onwards.

13.3 Assessment of Setting

> '*The significance of a heritage asset derives not only from its physical presence and historic fabric but also from its setting - the surroundings in which it is experienced*.' (English Heritage, 2012).

13.3.1 Setting is not a heritage asset, nor a heritage designation, though land within a setting may itself be designated. Its importance lies in what it contributes to the significance of the heritage asset. This depends on a wide range of physical elements within, as well as perceptual and associational attributes pertaining to, the heritage asset's surroundings. While setting can be mapped in the context of an individual application or proposal, it does not have a fixed boundary and cannot be defined as lying within a set distance of a heritage asset, as what comprises a heritage asset's setting may change over time. Setting is therefore an integral element of the significance of a heritage asset as the context (eg. land, landscape, skyline, structures, activities and important views) in which it is experienced.

13.3.2 Elements of a setting may make a positive or negative contribution to the significance of an asset, and may affect the asset's overall significance, or may just be neutral. Whilst visual elements of setting are important, the setting is also affected by other environmental factors, such as noise and activity.

13.3.3 The indirect visual impacts of the proposed development on the setting of any designated heritage assets within the locality have been assessed as required under

paragraph 128 of the NPPF. These are mainly related to views from, to and across the designated heritage assets. Potential views of the poultry unit are relatively wide-ranging due to its position amid open countryside.

Historic Environment Good Practice Advice in Planning Note 3: *The Setting of Heritage Assets (Historic England) 2015*

13.3.4 The purpose of this Advice Note is to provide further information on the concept of 'setting'. Here, the setting of a heritage asset may reflect the character of the wider townscape or landscape in which it is situated, or be quite distinct from it. The contribution of setting to the significance of a heritage asset is often expressed by reference to 'views', a purely visual impression of an asset or place which can be static or dynamic, including a variety of views of, across, or including that asset, and views of the surroundings from or through the asset, and may intersect with, and incorporate the settings of numerous heritage assets (Advice Note para 5).

13.3.5 **Paragraph 10** of the Advice Note reconfirms that all heritage assets have significance, and the contribution made by the setting to their significance can vary. Furthermore, although many settings may be enhanced by development, not all settings have the same capacity to accommodate change without harm to the significance of the heritage asset. However, as **Paragraph 11** states:

> *Protection of the setting of heritage assets need not prevent change; indeed change may be positive, for instance where the setting has been compromised by poor development.'*

Visual Relationships

13.3.6 A 'Zone of Visual Influence' defines the areas from which a development may potentially be totally or partially visible by reference to surrounding topography. The analysis does not take into account any landscape artefacts such as trees, woodland, or buildings, and for this reason is increasingly referred to as a 'Zone of Theoretical Visibility' (ZTV). Proximity renders much of the visual relationship between the proposed poultry unit, the listed buildings and their surroundings such a zone, as views are potentially possible across the intervening hills, valleys and open landscape.

13.3.7 The assessment of the potential visual impact was undertaken by examining views to and from each of the relevant heritage assets.

Assessment of the Setting

13.3.8 The range of circumstances in which setting may be affected and the range of heritage assets that may be involved precludes a single approach for assessing effects. Different approaches will be required for different circumstances. In general, however, this assessment illustrated above addresses the key attributes of the proposed development in terms of its:

Location and siting – *the additional poultry unit will not greatly alter the visual situation of the poultry unit complex in the immediate or wider landscape; the relatively similar insertion, the topography, treelines and distances largely preserve the appearance of their settings and allows the designated heritage assets to maintain their prominence in the landscape. From the listed buildings the unit is (at most, partly) viewed within the context of a heavily-treed landscape. The insertion of an additional unit in this context will not effectively exacerbate this situation to any great degree. This context preserves the existing relationship between heritage assets and landscape; the impact on the area therefore remains largely unchanged. The shed will be visible from Pool House, but the additional impact is minimal.*

Form and appearance – *the proposed unit sits low in the excavated slope, minimising its visual impact on the landscape and so again preserving the historic properties' existing prominence in the landscape.*

Additional effects – *the additional poultry unit will support and enhance the economic viability of the poultry operation.*

Permanence – *as a new unit on the site, the proposals are a permanent but readily reversible insertion into the landscape; if operations no longer require such a unit, it can be readily dismantled and the site restored, but at this point the proposals can be assessed as causing a new but acceptable degree of visual impact within the locality.*

13.3.9 In order to further assess this impact on the setting, Historic England recommends the following broad approach, undertaken as a series of steps applying proportionately to complex or more straightforward cases as appropriate:

Step 1: identify which heritage assets and their settings are affected:

- *Pool House*
- *The Pound*
- *St. Andrew's Church*
- *Sinton's End Farmhouse*
- *Barn at Sinton's End Farm*
- *Outbuilding at Sinton's End Farm*

Step 2: assess whether, how and to what degree the settings make a contribution to the significance of the heritage asset(s):

The heritage assets are all set within a relatively remote area. The consequent visual setting of the listed properties is a fundamental part of their significance in the consideration of a natural or man-made setting, which will largely continue, notwithstanding the proposed development dug into the rising ground at Pool Farm. The farm complex atop the prominent ridge line inevitably features in a

wide variety of settings; however, given the significant difference in levels, the poultry units themselves do not present a visual impact to anything like the same degree. The significance of the farm does not wholly depend on its wider setting to remain completely unchanged in order to maintain its integrity when viewed from several directions.

The five listed buildings are further away and even less visually impacted.

Step 3: assess the effects of the proposed development, whether beneficial or harmful, on that significance:

The new unit as described above has a partial intervisibility relationship with the identified heritage assets and surrounding landscape. For the off-site listed buildings this is a largely neutral relationship given the location of the proposal, intervening higher ground and treelines and consequent lack of proximity. From the Pool Farm House, the shed is certainly noticeable, but not to any significantly negative degree in the context of the existing poultry units.

Step 4: explore the way to maximise enhancement and avoid or minimise harm:

The requirements in the positioning and size of the unit are relatively fixed within narrow parameters – to connect with the other two units and exploit the advantages of being located in the excavated site levelled for the other units, thus minimising the visual impact across a wide area.

Step 5: make and document the decision and monitor outcomes:

Proposals to be controlled by an application for Planning Consent and the imposition of appropriate Conditions

13.3.10 From the assessment of the site from the various vantage points, this development will not devalue the significance of the designated heritage assets or their settings, nor their tangible values, such as historic fabric, or associational values, such as social status or placing within the landscape The setting of the Pool House will be impacted inasmuchas it will be partially visible from various points.

13.3.11 Any perceived harm, however, will be outweighed by the significant benefit of delivering a greater production capacity.

13.4 Assessed Impact on Heritage Assets

13.4.1 The assessment now turns to the proposal's potential impact upon the identified built heritage, taking into account the significance of the designated heritage assets as described above, in order to arrive at an appropriate judgement as to the likely degree of impact. The value of each element is judged upon statutory and non-statutory designations, architectural and historic significance and contribution to local character.

Guidance on Assessing Impact

13.4.2 This application has been submitted in the spirit of the legal requirements and Government guidance. Section 66(1) of the Listed Buildings Act provides:

> *"In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses."*

13.4.3 Guidance about this is given in **paragraphs 131-135** of the NPPF as follows:

> *'131. in determining planning applications, local planning authorities should take account of:*
>
> - *the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;*
> - *the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality;.....*
>
> *132. When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification.....*
>
> *133. Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss,....*
>
> *134. Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.*
>
> *135. The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'*

Conservation Principles: Policy and Guidance for the Sustainable Management of the Historic Environment (2008)

13.4.4 The English Heritage document defines conservation as managing change in ways that will sustain the significance of places, as change in the historic environment is

inevitable, whether caused by natural processes, through use or by people responding to social, economic and technological advances.

13.4.5 The *Principles* concede that retaining the authenticity of a place is not always achieved by retaining as much of the existing fabric as is technically possible (paragraph 93). Where deliberate changes are made, however, the alteration should in some way be discernible. Integrity likewise depends on an understanding of the values of the heritage asset.

13.4.6 The *Principles* allow that new work or alteration to a significant place should normally be acceptable if:

- There is sufficient information comprehensively to understand the impact of the proposals on the significance of the place;
- The proposal would not materially harm the values of the place, which, where appropriate, would be reinforced or further revealed;
- The proposals aspire to a quality of design and execution which may be valued now and in the future;
- The long-term consequences of the proposals can, from experience, be demonstrated to be benign, or the proposals are designed not to prejudice alternative solutions in the future.

13.4.7 The Principles conclude that there are no simple rules for achieving design quality in new work, which could involve working in a traditional or a contemporary manner. The important factor is to respect the values established through an assessment of the significance of the building and its setting. It is also suggested that features of lesser significance offer opportunities to create heritage values of tomorrow, which can be achieved if the quality of the new work is of a high standard of design, materials, detailing and execution.

13.4.8 Thus it is clear that understanding both the *nature of the significance* and the *level of importance* are fundamental to decision making, and that the above analysis assessing significance of the various relevant factors indicates the identified heritage assets have acknowledged historic and architectural interest, and has an appreciable impact on visible heritage associated with the area.

13.4.9 Although this proposal to provide an additional rearing facility will have some impact on the various assets' setting, it will have a limited albeit variable impact on the historic character of the area; from a historic perspective it continues the process of managed and, in this case reversible, alterations to the landscape.

Conclusions on Impact

13.4.10 There are two relevant issues against which these proposals are measured:

- Whether the proposals, described in this application, conserve the special interest and architectural significance of the designated heritage assets; and

- Whether the proposals harm that special character when viewed from the wider area.

Level of impact	Definition
Total Loss	Total loss of the Historic Asset and its elements of significance
Substantial Harm	Major alterations of the Heritage Asset removing most areas of significance but leaving some reduced areas of special interest.
Moderate harm – less than substantial harm	Loss of one or more high level areas of special interest of the heritage asset.
Slight adverse impact	Slight alteration resulting in some small loss of special interest.
Negligible	Very slight or negligible loss of significance to the heritage asset
None	The proposed development has no discernible impact on the significance of the heritage asset
Slight beneficial	Slight enhancement of one aspect of special interest of the heritage asset
Moderate beneficial	Moderate enhancement of more than one special interest of a heritage asset
Highly beneficial	Major alterations resulting in wholesale enhancement of the significance of a heritage asset

Table 1. Definitions of level of impact on heritage significance

A. *The Pound, St. Andrew's Church and Sinton's End Farm*

Having undertaken the ZTV exercise for these buildings, it is clear the additional poultry unit will not be entirely visible above the intervening treelines, and it is some distance from the listed buildings, so the impact on their special architectural or historic significance may be classed as **none** (as defined above).

Its location and principally its position dug into the rising ground, decreases to a significant degree the site's visual impact on the wider landscape. However, as the proposed is designed to have a limited visibility from the surrounding lanes, the external visual impact on the listed buildings' setting will be **none** (as defined above).

B. Pool House Farm

The additional poultry unit is visible to the immediate west of the farm, and the group of sheds is a prominent feature within the setting of the listed building. However, the cumulative impact of three sheds rather than the existing two is slight, and so the impact on the historic significance may be classed as **negligible** (as defined above).

Its location on lower ground decreases to a significant degree the shed's visual impact on the wider landscape. The historic farm complex is a prominent feature in that landscape. Given that there are already two units, the additional external visual impact on the setting will be **negligible** (as defined above).

13.4.11 The proposed development is therefore within acceptable specifications and utilises as sensitive an approach as feasible to protecting the existing character of the area and landscape and so limiting its visual impact when viewed from surrounding vantage points. The proposed development is respectful of the character of the designated heritage assets and the wider area and so is considered to be of an appropriate design and scale, in accordance with the aims and objectives of Core Strategy Policies.

13.5 Conclusions

13.5.1 As stated elsewhere, the significance of the designated heritage assets lies in their history, the fabric and landscape, demonstrating in a readable form a history of change and adaptation, some reflecting usage and some the changing fashions and fortunes of the area. The proposals are a sufficient distance from the listed buildings in nearly all identified cases to avoid an adverse direct impact on their architectural or historic significance, and only marginally on their settings.

13.5.2 Whilst the ZTV [i.e. zone of theoretical visibility] exercise associated with the proposal highlights that the Church may be afforded views of the farm, potential impacts are so minimal that they are likely to be negligible at most. It should be noted that ZTV maps tend to over-estimate the extent of visibility and do not effectively take account of natural or built features.

13.5.3 Due to the level of partial natural screening, the topography, the distance that the other identified heritage assets are located from the proposed poultry unit's position and in light of the limited scale of the structure itself**,** the effect on views and setting of the listed structures are considered to be slight. No further mitigation is therefore considered to be necessary.

13.5.4 A key driver of these proposals is a further shift in economic circumstances. NPPF guidance at Paragraph 134 requires the identified harm to the setting of designated heritage assets be balanced against the benefits that the proposal would provide. Application of the development plan as a whole would also require that harm, and the harm to the landscape, to be weighed against those benefits.

13.5.5 Although "harm" is not the test in Section 66(1), one of the meanings of "preservation" is to keep safe from harm and so the concepts are closely linked. The proposal would harm the setting of a limited number of designated heritage assets, in this case Pool Farm. However, the harm would in all cases be limited and ultimately reduced by its temporary nature and reversibility.

13.5.6 Consequently, the overall impact on the wider historic interest is acceptably minimal.

13.5.7 In light of the relevant local plan policies, the national planning policy guidance and the findings of this HIA, it is suggested that any visual impact resulting from the proposals would be balanced by the benefits accrued in greatly enhancing the economic viability of the locality.

14 AMENITY

14.1 Introduction

14.1.1 The development proposal at Pool House Farm does have the potential to affect amenity in the surrounding area. The following issues have been assessed in relation to the development; dust, odour, flies and vermin.

14.1.2 Noise and odour issues have been covered in separate chapters. The potential for nuisance caused by these factors impact on the local receptors.

14.1.3 The existing poultry units already operate under an Environmental Permit (EPR/WP3334VWN002). An application to vary this permit has been approved for the proposed additional single poultry unit. This allows for the proposed increase in bird numbers at the expanded site to a maximum of 105,000 broiler birds per cycle.

14.1.4 Paragraph 122 of the NPPF states the following:

"local planning authorities should focus on whether the development itself is an acceptable use of the land, and the impact of the use, rather than the control of processes or emissions themselves where these are subject to approval under pollution control regimes. Local planning authorities should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

14.1.5 The Environmental Permit (EP) relating to the site aims to achieve integrated prevention and control of pollution from activities listed in Annex 1 of the European Council Directive 96/61/ED, leading to a high level of protection of the environment and amenity as a whole. The regulation requires operators and regulators to undertake an integrated, overall view of any polluting and consuming potential of a poultry development. In order to comply with the regulations, operators need to take all appropriate preventative measures against pollution, in particular through the application of best practice and best available techniques enabling them to improve environmental performance and efficiencies. The Environmental Permit covers all potential sources of emissions including, air quality, dust, noise, odour, ammonia, drainage, vermin etc. as well as the poultry unit itself.

14.1.6 A site, successfully operating under an Environmental Permit, confirms that the operator has demonstrated 'best available techniques' are being used to minimise emissions to the receiving environment. This is defined within the regulations under Article 2(11) of the European Directive as "the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing the basis for emission limit values designed to prevent and, where that is not practicable, generally reduce emissions and the impact on the environment as a whole". These best available techniques are those

set out in the European Commission's Reference Document on Techniques for Intensive Rearing of Poultry and Pigs known as the BREF document.

14.1.7 Part III of the Environmental Protection Act (EPA) 1990 regulate any statutory nuisances. The powers for action to be taken by local authorities or individuals against a statutory nuisance that exists or is likely to occur or are readily available. Statutory Nuisance includes:

- smoke, fumes or gases, dust, steam, smell, other effluvia
- arising as a result of trade or business, which are prejudicial to health or cause a nuisance.

14.1.8 There is a defence of using Best Available Techniques to prevent the nuisance or counteract its effects together with reasonable excuse. The granting of planning permission is not a defence.

14.1.9 In Chapter 11 of the NPPF - Conserving and enhancing the natural environment; the effects (including cumulative) of pollution on health, the natural environment or general amenity and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account.

14.1.10 The types and sources of nuisances are identified and assessed against potential sensitivity of individual receptors. This is naturally based on the proximity of the activity and also the general wind direction in relation to the receptor. Risk assessment tables are used to identify sources, receptors and pathways in relation to potential amenity issues. The Environment Agency's "Simple assessment of environmental risk for accidents, odour, noise and fugitive emissions (March 2008)" guidance relating to intensive livestock farming includes comprehensive management plan and guidance based on best practice.

14.2 Baseline Environment and Sensitive Receptors

14.2.1 The application site lies directly to the north of two existing poultry units. This forms part of the agricultural holding. The site is situated on land which is currently in poor quality permanent pasture at Pool House Farm.

14.2.2 It is generally accepted that a 400m exclusion zone around intensive livestock development is a suitable threshold for nuisance complaints, relating to airborne emissions. There are no residential premises within 580m of the application site. There are other potentially receptive sensors within 400m of the site and are listed as follows (based on site area not emission points which may be further away);

- Unclassified road known as Hook Lane – public road approximately 290m from the site

14.2.3 The prevailing wind direction is from the southwest as indicated in the Odour Impact Assessment produced by AS Modelling & Data Ltd.

14.3 Mitigation Measures

14.3.1 Standard noise, odour, dust, vermin and fly management controls have been put in place under the existing Environmental Permit. These are integral to the design of the poultry buildings and management operations will be as the 'best available techniques'.

14.3.2 Mitigation measures have been taken into account when considering potential amenity issues.

14.4 Flies

14.4.1 Sites should not experience fly problems where they are well managed and efficient. Primarily most flies and larvae are eaten by the birds within the unit. Flies can however be a problem outside of the building when the site is not managed efficiently as set out below;

- Food storage – if food is stored in a suitable building or storage bin, flies can be attracted to animal feed if the storage is not sealed effectively. The proposal at Pool House Farm will include the installation of modern feed storage systems to meet the requirements of the Food Hygiene Regulations and the 'Red Tractor' Farm Assurance Standards.
- Litter and poultry manure - the litter will be removed at the end of each production cycle and stored in field heaps in accordance with environmental best practice. This is already controlled by the Environmental Permit.

14.4.2 In conclusion, there should not be a risk of fly problems from the development itself. The operation of the existing poultry buildings is not known to have resulted in any incidents of fly nuisance or infestations.

14.5 Vermin

14.5.1 The storage of feed onsite can potentially create issues for vermin to be present on site. In order to mitigate this the installation and modern feed storage systems will be implemented. This also meets the requirements of the Food Hygiene Regulations and the 'Red Tractor' Farm Assurance Standards. Vermin have not been a problem at Pool House Farm in the past and daily inspections are made by staff to ensure that no signs of vermin are in or around the buildings.

14.5.2 If vermin are present on holding there is the potential impact for general annoyance. There is a need to control the spread of disease and therefore mitigation will include the storage of feed in sealed containers, maintenance of the feed containers to prevent deterioration, and fast removal of any spillages.

14.5.3 In summary, vermin are only a potential risk in close proximity to the source and site and therefore it is anticipated that no significant vermin issues will result from the proposed poultry development. Close monitoring of the site will ensure this. The large separation distance from the site to potential receptors means that it is highly unlikely

that this potential issue will cause any loss of amenity and the development will therefore not have a significant impact.

14.6 Dust

14.6.1 The main sources of dust from poultry buildings are the birds themselves, the food and the litter. Dust levels have found to vary depending on the number of birds, their age and the activity levels within the building.

14.6.2 In previous rounds of review and assessment local authorities have identified potential exceedances of the PM_{10} objectives due to possible matter emissions from poultry farms (chickens [laying hens and broilers], ducks and guinea fowl, and turkeys).

14.6.3 Poultry farms that meet the criteria provided in extract table 7.3 (below) should be identified. For any farms that meet the criteria, the screening methodology should then be followed to screen PM_{10} emissions from the sources. Where screening results show that there is a risk of relevant PM_{10} air quality objectives being exceeded, a suitable monitoring survey and/or dispersion modelling exercise should be undertaken.

Table 7.3: Screening Assessment of Industrial Sources

Source Category	Pollutant of Concern	Objectives of Concern	Criteria	What to report	Action if Screening Confirms Potential Issue	Notes
Poultry Farms	PM_{10}	Long and Short-Term	Poultry farms housing in excess of 400,000 birds (if mechanically ventilated) / 200,000 birds (if naturally ventilated) / 100,000 birds (if turkey unit) - Exposure within 100m from the poultry units	Poultry farms matching criteria and results of the Poultry Screening Calculation (see Box 7.2)	Carry out monitoring survey/dispersion modelling	

Extract from LAQM TG16 April 2016

13.6.4 Pool House Farm does not have an excess of 400,000 birds on site and there are no sensitive receptors within 100m of the poultry unit. Therefore, there is no requirement to carry out monitoring survey or dispersion modelling in respect of dust.

13.7 Conclusion

13.7.1 The assessment suggests that there are limited adverse effects on the local amenity as result of the proposed development.

13.7.2 With regard to potential cumulative impact from other poultry sites and other uses in the locality it is understood that these operate under separate environmental permits which will control potential pollution sources and require the best available techniques.

15 SUMMARY & CONCLUSIONS

15.1 The following table summarises and concludes the previous technical assessment chapters with regards to the proposed poultry development at Pool House Farm.

Key Issue	Potential Impact	Principal Mitigation	Residual Impact Significance
Air quality, health and climate	Effects on designated habitats and ammonia emissions and deposition	EA Ammonia Assessment impact screened out.	Not significant
Landscape and visual impact	Direct impacts on landscape features	Appropriate choice of site, levels and landscape work, sensitive building design.	Not significant
	Landscape character	Appropriate choice of site, levels and landscape work, sensitive building design.	Minor Significance
	Visual amenity	Appropriate choice of site, levels and landscape work, sensitive building design.	Minor significance
	Lighting	Minimising light spill and timing of lighting.	Not significant
Highways	Increase in HGV traffic	Existing access utilised.	Not significant
Ecology	Grassland Habitats	Choice of site and good design.	Not significant
	Trees and Hedgerows	Avoid direct disturbance to retained features and control of lighting. Gap up hedgerows.	Not significance
	Protected Species	No evidence found.	Not significant
Noise and vibration	Operation of unit and plant and machinery	Design and siting of building to minimise operational noise.	Not significance
	Traffic noise and vibration	Operational system limits effect. Managing timings of vehicle deliveries.	Not significant

	Construction noise	Short-term and appropriate siting.	Not significant
Amenity	Odour	Management practices and built in controls. Best available technique to reduce odour from manure.	Minor Significance
	Flies	Follow best practice guidance and ensure control measures in place.	Not significant
	Vermin	Management practices and maintenance to prevent breach of stores etc.	Not significant
	Dust	Management practices and use of best available technique to reduce dust.	Not significant
Water Resources	Construction and decommissioning — water quality (surface runoff infiltration)	Use of appropriate bunding and storage, monitoring of operations and training staff in emergency procedures.	Not significant
	Operations — pollution by oils, hydrocarbons and dirty water (runoff, direct infiltration)	Adequate dirty water storage and operations to take place in buildings and hard standing Compliance with EA guidance and EP, use of bunded areas, storage of chemicals, oils etc. in appropriate bunded areas and tanks etc.	Insignificant impacts — low risk
	Flood risk	Sustainable Drainage Systems SuDS.	Not significant
	Surface and groundwater pollution	Adherence to Nitrate Pollution Prevention regulations if applicable or Code of Good Agricultural and Environmental practices.	Not significant
Historic Impact	Conservation area	Appropriae siting away from Conservation Areas.	Not significant

	Listed buildings	Appropriate siting and natural screening from listed buildings within 1km.	Not significant
	Historic setting	Appropriate siting and natural screening.	Not significant

- END –

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