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NATURA IMPACT STATEMENT OF AN APPLICATION FOR A LICENCE FOR A POULTRY FARM AT KILLYCRONE, STRADONE, CO CAVAN



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1 INTRODUCTION

1.1 REQUIREMENT FOR AN APPROPRIATE ASSESSMENT

This Natura Impact Assessment was prepared for an EPA License application for a poultry farm at Killycrone, Stradone, Co. Cavan.

Having regard to the location of the proposed development site and its proximity and connectivity to certain sites designated under the Natura 2000 network, an Appropriate Assessment of the proposed development was prepared in accordance with Article 6 of the Habitats Directive.

The purpose of the assessment is to determine the appropriateness of the proposed project, in the context of the conservation status of the site or sites. In Ireland, an Appropriate Assessment takes the form of a Natura Impact Statement (NIS), which is a statement of the likely impacts of the plan or project on a Natura 2000 site. The NIS comprises a comprehensive impact assessment of the plan or project and it examines the direct and indirect impacts that the plan or project might have on its own or in combination with other plans or projects on one or more Natura 2000 sites in view of the sites' conservation objectives.

1.2 THE AIM OF THIS REPORT

This Natura Impact Statement (NIS) has been prepared in accordance with the current guidance (DoEHLG, 2009, Revised February 2010), and it provides an assessment of the potential impacts of a poultry farm at Killycrone, Stradone, Co. Cavan on designated European sites.

An NIS should provide the information required in order to establish whether or not a proposed development is likely to have a significant impact on certain Natura sites in the context of their conservation objectives and specifically on the habitats and species for which the Natura 2000 conservation sites have been designated.

Accordingly, a comprehensive assessment of the impacts of this application on designated Natura 2000 sites was carried out in March 2022 by Noreen McLoughlin, MSc, MCIEEM of Whitehill Environmental.

1.3 REGULATORY CONTEXT

The Birds Directive (Council Directive 2009/147/EC) recognises that certain species of birds should be subject to special conservation measures concerning their habitats. The Directive requires that Member States take measures to classify the most suitable areas as Special Protection Areas (SPAs) for the conservation of bird species listed in Annex 1 of the Directive. SPAs are selected for bird species (listed in Annex I of the Birds Directive), that are regularly occurring populations of migratory bird species and the SPA areas are of international importance for these migratory birds.

The EU Habitats Directive (92/43/EEC) requires that Member States designate and ensure that particular protection is given to sites (Special Areas of Conservation) which are made up of or support particular habitats and species listed in annexes to this Directive.

Articles 6(3) and 6(4) of this Directive also call for the undertaking of an Appropriate Assessment for plans and projects not directly connected with or necessary to the management of, but which are likely to have a significant effect on any European designated sites (i.e. SACs and SPAs).

The Water Framework Directive (WFD) (2000/60/EC), which came into force in December 2000, establishes a framework for community action in the field of water policy. The WFD was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003). The WFD rationalises and updates existing legislation and provides for water management on the basis of River Basin Districts (RBDs). RBDs are essentially administrative areas for coordinated water management and are comprised of multiple river basins (or catchments), with cross-border basins (i.e. those covering the territory of more than one Member State) assigned to an international RBD. The aim of the WFD is to ensure that waters achieve at least good status by 2021 and that status does not deteriorate in any waters.

Appropriate Assessment and the Habitats Directive

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora – the ‘Habitats Directive’ - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as *Natura 2000*. Natura 2000 sites are Special Areas of Conservation (SACs) designated under the Habitats

Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC).

Articles 6(3) and 6(4) of the Habitats Directive sets out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment:

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

Article 6(4) deals with the steps that should be taken when it is determined, as a result of appropriate assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case.

Article 6(4) states:

“If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.”

The Appropriate Assessment Process

The aim of Appropriate Assessment is to assess the implications of a proposal in respect of a designated site's conservation objectives.

The 'Appropriate Assessment' itself is an assessment which must be carried out by the competent authority which confirms whether the plan or project in combination with other plans and projects will have an adverse impact on the integrity of a European site.

Screening for Appropriate Assessment shall be carried out by the competent authority as set out in Section 177U (1) and (2) of the Planning and Development Act 2000 (as amended) as follows:

(1) A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.

(2) A competent authority shall carry out a screening for appropriate assessment under subsection (1) before—

(a) a Land use plan is made including, where appropriate, before a decision on appeal in relation to a draft strategic development zone is made, or

(b) consent for a proposed development is given.'

The competent authority shall determine that an Appropriate Assessment is not required if it can be excluded, that the proposed development, individually or in combination with other plans or project will have a significant effect on a European site.

Where the competent authority cannot exclude the potential for a significant effect on a European site, an Appropriate Assessment shall be deemed required.

Where an Appropriate Assessment is required, the conclusions of the Appropriate Assessment Report (Natura Impact Statement (NIS)) should enable the competent authority to ascertain whether the plan or proposed development would adversely affect the integrity of the European site. If adverse impacts on the integrity of a European site cannot be avoided, then mitigation measures should be applied during the appropriate assessment process to the point where no adverse impacts on the site remain. Under the terms of the Habitats Directive consent can only be granted for a project if, as a result of the appropriate assessment either (a) it is concluded that the integrity of any European sites will not be adversely affected, or (b) after mitigation, where adverse impacts cannot be excluded, there is shown to be an absence

of alternative solutions, and there exists imperative reasons of overriding public interest for the project should go ahead.

Section 177(V) of the Planning and Development Act 2000 (as amended) outlines that the competent authority shall carry out the Appropriate Assessment, taking into account the Natura Impact Statement (amongst any other additional or supplemental information). A determination shall then be made by the competent authority in line with the requirements of Article 6(3) of the Habitats Directive as to whether the plan or proposed development would adversely affect the integrity of a European site, prior to consent being given.

2 METHODOLOGY

2.1 APPROPRIATE ASSESSMENT

This NIS has been prepared with reference to the following:

- European Commission (2000). Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- European Commission (2002). Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission (2006). Nature and Biodiversity Cases: Ruling of the European Court of Justice.
- European Commission (2007). Clarification of the Concepts of: Alternative Solution, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.
- Department of Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.

The EC Guidance sets out a number of principles as to how to approach decision making during the process. The primary one is 'the precautionary principle' which requires that the conservation objectives of Natura 2000 should prevail where there is uncertainty.

When considering the precautionary principle, the emphasis for assessment should be on objectively demonstrating with supporting evidence that:

- There will be no significant effects on a Natura 2000 site;
- There will be no adverse effects on the integrity of a Natura 2000 site;
- There is an absence of alternatives to the project or plan that is likely to have an adverse effect to the integrity of a Natura 2000 site; and
- There are compensation measures that maintain or enhance the overall coherence of Natura 2000.

This translates into a four stage process to assess the impacts, on a designated site or species, of a policy or proposal.

The EC Guidance states that "each stage determines whether a further stage in the process is required". Consequently, the Council may not need to proceed through all four stages in undertaking the Appropriate Assessment.

The four-stage process is:

Stage 1: Screening – The process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether or not these impacts are likely to be significant;

Stage 2: Appropriate Assessment – The consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

Stage 3: Assessment of Alternative Solutions – The process which examines alternative ways of achieving objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site;

Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain – An assessment of the compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

In complying with the obligations set out in Articles 6(3) and following the guidelines described above, this screening statement has been structured as a stage by stage approach as follows:

- Description of the proposed project;
- Identification of the Natura 2000 sites close to the proposed development;
- Identification and description of any individual and cumulative impacts on the Natura 2000 sites likely to result from the project;
- Assessment of the significance of the impacts identified above on-site integrity. Exclusion of sites where it can be objectively concluded that there will be no significant effects;
- Description of proven mitigation measures.

2.2 STATEMENT OF COMPETENCY

This AA Screening report was carried out by Noreen McLoughlin, BA, MSc, MCIEEM. Noreen has an honours degree in Zoology and an MSc in Freshwater Ecology from Trinity College, Dublin and she has been a full member of the Chartered Institute of Ecology and Environmental Management for over thirteen years. Noreen has over 15 years' experience as a professional ecologist in Ireland.

2.3 DESK STUDIES & CONSULTATION

Information on the site and the area of the proposed development was studied prior to the completion of this statement. The following data sources were accessed in order to complete a thorough examination of potential impacts:

- National Parks and Wildlife Service - Aerial photographs and maps of designated sites, information on habitats and species within these sites and information on protected plant or animal species, conservation objectives, site synopses and standard data forms for relevant designated sites.
- Environmental Protection Agency (EPA)- Information pertaining to water quality, geology and licensed facilities within the area, AA screening determination.
- Myplan.ie – Mapped based information;
- National Biodiversity Data Centre (NBDC) – Information pertaining to protected plant and animal species within the study area;
- Bing maps & Google Street View – High quality aerials and street images;
- CLW Environmental Planners – Plans and Information Pertaining to the Development, including Information on emissions.
- Cavan County Council – Information on planning history in the area for the assessment of cumulative impacts.

2.4 ASSESSMENT METHODOLOGY

The proposed development was assessed to identify its potential ecological impacts and from this, the Zone of Influence (ZoI) of the proposed development was defined. Based on the potential impacts and their ZoI, the Natura 2000 sites potentially at risk from direct, indirect or in-combination impacts were identified. The assessment considered all potential impact sources and pathways connecting the proposed development to Natura 2000 sites, in view of the conservation objectives supporting the favourable conservation condition of the site's Qualifying Interests (QIs) or Special Conservation Interests (SCIs).

The conservation objectives relating to each Natura 2000 site and its QIs/SCIs are cited generally for SACs as “to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or Annex II species for which the SAC has been selected”, and for SPAs “to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA”.

As defined in the Habitat’s Directive, the favourable conservation status of a habitat is achieved when:

- Its natural range and area it covers within that range is stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future;

The favourable conservation status of a species is achieved when:

- The population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future;
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Where site-specific conservation objectives (SSCOs) have been prepared for a European site, these include a series of specific attributes and targets against which effects on conservation condition, or integrity, can be measured. Where potential significant effects are identified, then these SSCO should be considered in detail.

3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 PROJECT DESCRIPTION

Laragh House Farms Ltd have applied to the EPA for a new License for a poultry farm at Killycrone, Stradone, Co. Cavan (License Ref Number P1142-01). In 2018 and 2019, planning permission was granted separately to the applicant (Hugh Brady) by Cavan County Council for the construction of two new poultry houses with all associated site works. The houses permitted can accommodate approximately 50,000 birds. The applicant also has a poultry farm consisting of three poultry houses on the site adjacent to the site to which planning pertained. Following completion of the new poultry house, the total bird numbers on the farm will be 143,000, which is a total increase of 103,000. An extract from the planning drawings can be seen in Figure 1.

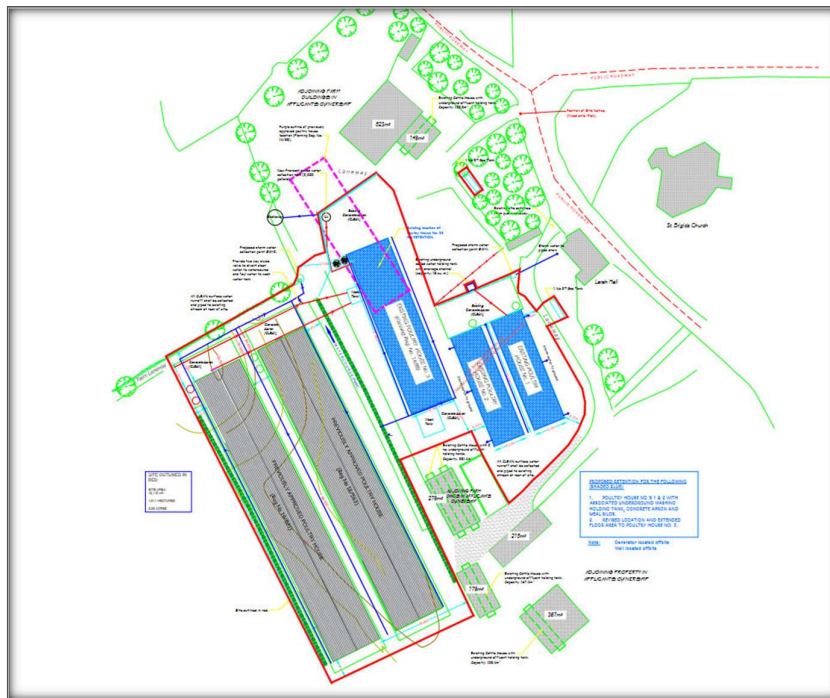


Figure 1 – Extract from Planning Drawing (Prepared by Horizon Group)

All structures are or will be compliant with the recommendations of the Department of Agriculture, Food and the Marine. The operation of the farm and all its associated activities will be done in accordance with S.I. 113 of 2022. Soiled water from the site will be directed to a soiled water storage tank and clean water will infiltrate to the local surface water network.

The operation of the farm will involve the rearing of the chickens from day olds over a period of approximately 30 – 45 days. There will be approximately 7 cycles of per annum, with a break

between batches during which time the cleaning of the houses and yards is carried out. The spent poultry litter and manure will be removed from the farm by specialised contractors where it will be composted and used in the mushroom industry or used as an organic fertiliser in accordance with S.I. 113 of 2022. All records for the movement of fertiliser will be kept on site and presented to the Department of Agriculture, Food and Marine as requested.

S.I. 113 OF 2022

The European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022 provides a basic set of measures to ensure the protection of waters, including drinking water sources, against pollution caused by nitrogen and phosphorus from agricultural sources, with the primary emphasis being on the management of livestock manures and other fertilisers. The purpose of these Regulations is to give effect to Ireland's Nitrates Action Programme. This directive outlines measures that must be followed during the land-spreading of manure. These measures are summarised in the points below.

- The amount of livestock manure applied in any year to land on a holding, together with that deposited to land by livestock, shall not exceed an amount containing 170 kg nitrogen per hectare.
- The spreading of any organic fertiliser during certain times of the year is prohibited (The prohibited spreading period, generally between Mid-October and Mid-January).
- Farmers must keep within the overall maximum fertilisation rates for nitrogen and phosphorus.
- Farmers must have sufficient storage capacity to meet the minimum requirements of the regulations.
- All storage facilities must be kept leak proof and structurally sound.
- Records for the movement of fertilisers must be kept.
- Chemical fertilisers, livestock manure and other organic fertilisers, effluents and soiled water must be spread as accurately and as evenly as possible.
- An upward-facing splash plate or sludge irrigator on a tanker or umbilical system must not be used for the spreading of organic fertiliser or soiled water.
- Chemical fertilisers, livestock manure, soiled water or other organic fertilisers must not be spread when:
 - The land is waterlogged;
 - The land is flooded, or it is likely to flood;
 - The land is frozen, or covered with snow;
 - Heavy rain is forecast within 48 hours;

- The ground slopes steeply and there is a risk of water pollution, when factors such as surface run-off pathways, the presence of land drains, the absence of hedgerows to mitigate surface flow, soil condition and ground cover are taken into account.
- Chemical fertilisers must not be spread on land within 2 metres of a surface watercourse.

Table 1 shows the buffer zones for various water bodies (lakes, rivers, wells etc.). Soiled water, effluents, farmyard manures or other organic fertilisers must not be spread inside these buffer zones.

Water Feature	Buffer Zone
Any water supply source providing 100m ³ or more of water per day, or serving 500 or more people	200m (or as little as 30m where a local authority allow)
Any water supply source providing 10m ³ or more of water per day, or serving 50 people or more	100m (or as little as 30m where a local authority allows)
Any other water supply for human consumption	25m (or as little as 15m where a local authority allows)
Lake shoreline or a turlough likely to flood	20m
Exposed cavernous or karstified limestones features	15m
Any surface watercourse where the slope towards the watercourse exceeds 10%	10m
Any other surface waters	5m

Table 1 – Requirements for the Application of Fertilisers and Soiled Water as set out in S.I. 113 of 2022

Prior to its approval, a Natura Impact Statement was prepared for the Nitrates Action Programme (NAP) by RPS (2022). This Natura Impact Statement considered the potential of the measures proposed within the NAP to give rise to adverse effects on the integrity of European Sites, with regard to their qualifying interests, associated conservation status and the overall site integrity, alone and in combination with other relevant plans and programmes. The NIS concluded that the adoption of the NAP will not adversely affect the integrity of any European Site either alone or in combination with other relevant plans or programmes and subject to securing the mitigation measures prescribed in the NIS.

The applicant is fully aware of his obligations under S.I. 113 of 2022 and he will meet all the requirements under this Directive with the proposed application.

3.2 SITE LOCATION AND SURROUNDING ENVIRONMENT

The site in question is located in a rural area within the townlands of Killycrone. It is 1.5km north-east of Stradone and 9.5km east of Cavan town. Access to the site will be via an access road that is just off a local third class road. The area of the site is 0.64 hectares, including the access road. The land-use surrounding the site is predominantly agricultural. The main habitat surrounding the site is improved agricultural grassland. Other habitats represented include small areas of scrub and woodland, hedgerows, treelines, wet grassland and surface water features. Site location maps can be seen in Figures 3 and 4, whilst an aerial photograph of the site and its surrounding habitats can be seen in Figure 5.

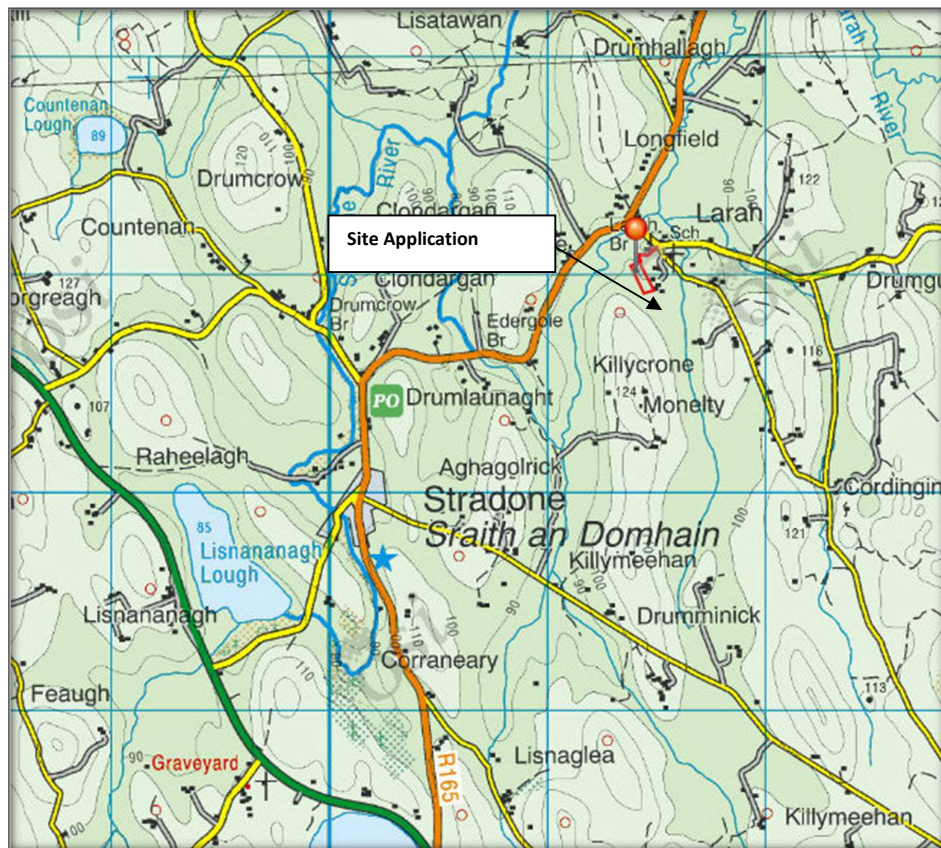


Figure 2 – Map showing the Location of the Proposed Development Site (Pinned)

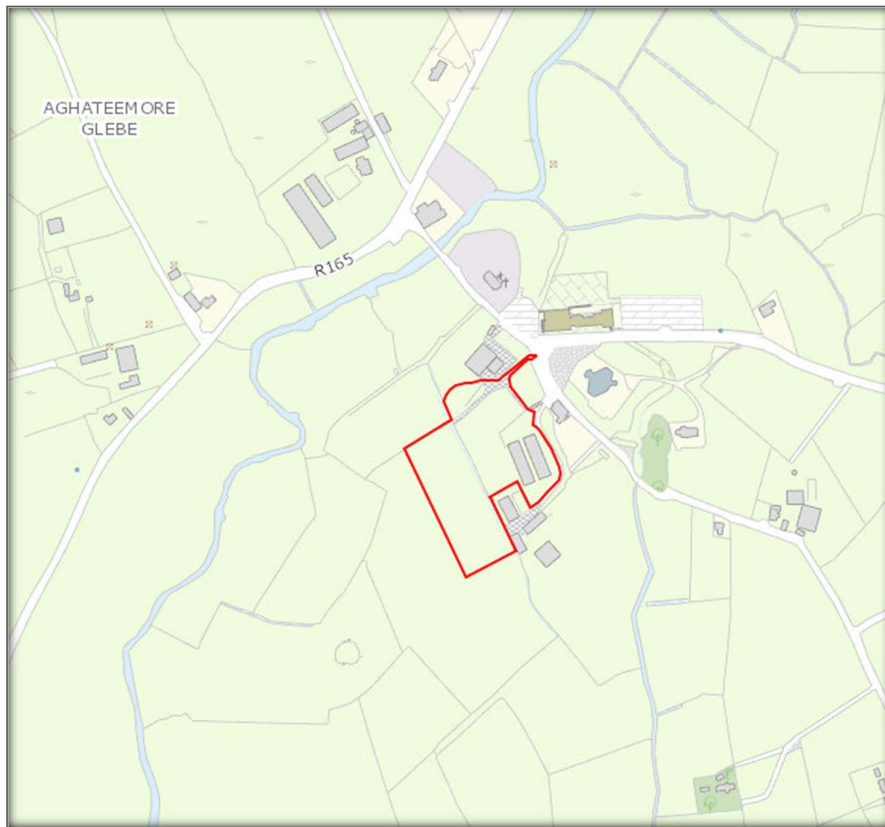


Figure 3 – Map showing the Location of the Proposed Development Site (Outlined in Red)

HABITATS AND NOTABLE SPECIES

Within the application site itself, the main habitat is improved agricultural grassland along with an unimproved / wet grassland habitats in the western section of the site. Where they exist, the site boundaries consist of hedgerows (north-western and north-eastern). The remainder are currently unbounded. There are also some drains within the site and clean water from the site will be directed into these drains.

An examination of the website of the National Biodiversity Data Centre revealed that there are no records for the presence of any notable species from within the relevant one km grid squares (H5105 and H5104) of this proposed application site.

WATER FEATURES AND QUALITY

The application site lies within the Erne Hydrometric Area and Catchment and the Laragh Sub-Catchment and Sub-Basin. There are open drains within the site and clean surface water from the application site will be directed into these drains. Water from here flows in a northerly direction towards the main channel of the Laragh River, which is 149m north of the application site. The Laragh River is a tributary of the Stradone River and the confluence of these two watercourses is 6.8km north of the application site.

The EPA have defined the ecological status of the Laragh River and its tributaries at points close to the application site as good. Under the requirements of the Water Framework Directive, this is satisfactory and this status must be maintained.



Figure 4 – Aerial Photograph of the Site (Outlined in Red) and its Surrounding Habitats. Local Watercourses (Laragh River) are Highlighted in Blue.

3.3 NATURA 2000 SITES IDENTIFIED

In accordance with the guidelines issued by the Department of the Environment and Local Government, a list of Natura 2000 sites within 15km of the proposed development have been identified and described according to their site synopsis, qualifying interests and conservation objectives. In addition, any other sites further than this, but potentially within its zone of interest were also considered. The zone of impact may be determined by an assessment of the connectivity between the application site and the designated areas by virtue of hydrological connectivity, atmospheric emissions, flight paths, ecological corridors etc.

There are two Natura 2000 designated sites within 15km of the application site. These sites are summarised in Table 2 and a map showing their locations relative to the application site is shown in Figure 5. A full description of the sites can be read on the website of the National Parks and Wildlife Service (www.npws.ie).

Site Name & Code	Distance	Qualifying Interests	Potential Impacts
Lough Oughter and Associated Loughs SAC 000007	10.1km north-west	<ul style="list-style-type: none"> Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i>-type vegetation Bog woodland Otter <i>Lutra lutra</i> 	<i>Potential impacts arising from atmospheric emissions will be considered further.</i>
Lough Oughter Complex SPA 004049	12.2km north-west	<ul style="list-style-type: none"> Great Crested Grebe (<i>Podiceps cristatus</i>) Whooper Swan (<i>Cygnus cygnus</i>) Wigeon (<i>Anas penelope</i>) Wetlands & Waterbirds 	<p><i>No potential hydrological impacts due to the significant downstream distance.</i></p> <p><i>Potential impacts arising from atmospheric emissions will be considered further.</i></p>

Table 2 – Natura 2000 Sites within 15km of Application Site

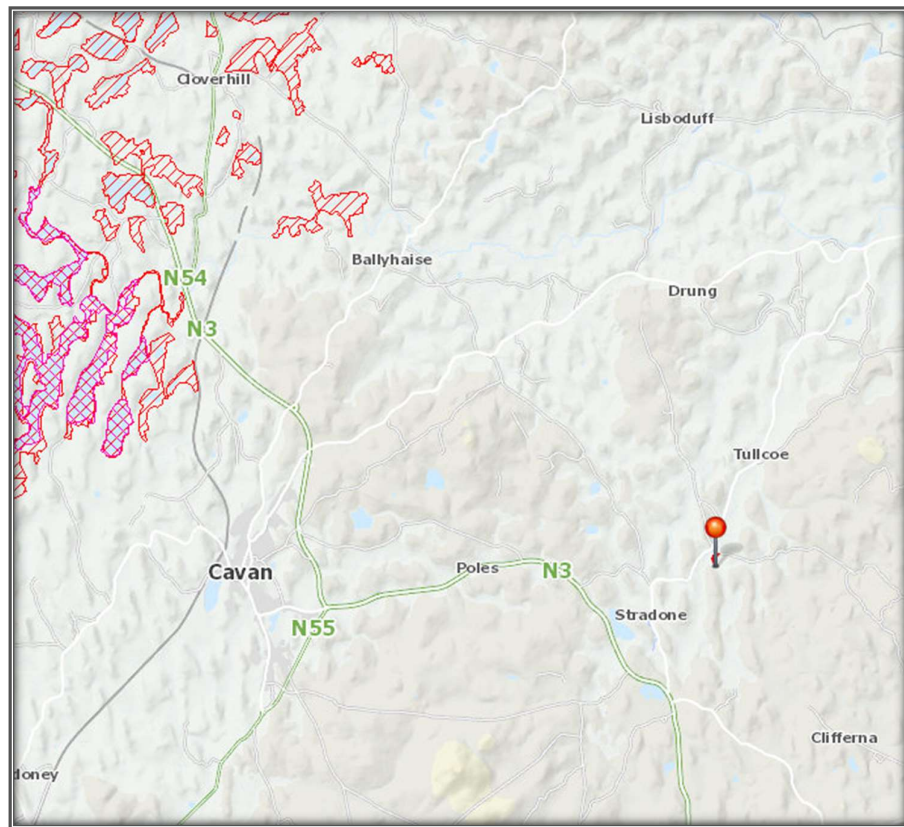


Figure 5 – The Application Site (Pinned) in relation to the Lough Oughter Natura 2000 site (SACs - Red Hatching, SPAs – Pink Hatching)

4 IDENTIFICATION AND ASSESSMENT OF POTENTIAL IMPACTS

4.1 INTRODUCTION

An Appropriate Assessment Screening undertaken by the EPA (10/2/2022) identified the following impacts:

Air emissions from the installation have the potential for adverse impact on sensitive receptors due to elevated ammonia levels and / or nitrogen deposition at European sites.

In general, the identification of potential impacts and the assessment of their significance typically requires the identification of the type and magnitude of the impacts. For example, will the impacts be short term or long term, direct, indirect or cumulative and will they occur during construction or operation.

In their screening report, the EPA identified the following sites as having the potential to be impacted upon from emissions arising from the proposed development:

- Lough Oughter And Associated Lough SAC - 10.1km north-west
- Lough Oughter SPA (Site Code: 004049) – 12.2km north-west
- Upper Lough Erne SPA (Site Code: UK9020071) – 15.4km north
- Upper Lough Erne SAC (Site Code: UK0016614) – 17km north-west
- Lough Sheelin SPA (Site Code: 004065) – 19km south

Having regards to the sites beyond 15km of the application site, it is considered that significant effects upon these sites and their protected habitats and species will not arise due to atmospheric emissions. Therefore, significant effects upon the sites within 15km have only been considered in this instance.

4.2 SIGNIFICANT EFFECTS ON NATURA 2000 SITES ARISING FROM ATMOSPHERIC EMISSIONS

Significant atmospheric emissions arising from agricultural developments can have negative impacts upon designated sites and their sensitive vegetation communities. Some vegetation communities are most sensitive to the effects of ammonia and nitrogen deposition than others. In general, communities containing notable bryophyte communities are the most sensitive and have a lower critical load for ammonia of $1 \mu\text{g}/\text{m}^3$. Less sensitive habitats have a critical load of $3 \mu\text{g}/\text{m}^3$.

The EPA have produced guidance documents for the assessment of impacts of emissions on Natura 2000 sites (*Assessment of the Impact of Ammonia and Nitrogen on Natura 2000 sites from Intensive Agriculture Installations*, EPA 2021). This document contains a step-by-step assessment process which allows the applicant to ascertain the level of assessment and information needed when determining potential effects from emissions on Natura 2000 sites. The sites within the Zone of Influence of the application site include the Lough Oughter and Associated Loughs SAC and the Lough Oughter Complex SPA. Following a SCAIL model that was initially prepared for this installation and which indicated that ammonia levels at these sites would increase by $>1\mu\text{m}$ and as the guideline ammonia levels were already exceeded at both these sites, it was necessary to proceed directly to step 4 of the above guidance and complete detailed atmospheric modelling.

Irwin Carr Dispersion Modelling

In order to correctly assess the potential impacts of the operation of the farm on the Natura 2000 sites, detailed atmospheric modelling of the proposed development was undertaken by Irwin Carr Consulting in August 2022. The overall purpose of this report was to quantify the ammonia and nitrogen levels at the ecologically sensitive areas in the vicinity of the proposed pig farm. The predicted impacts can then be compared to an appropriate criterion and graphically illustrated in the form of “contours of equal concentration” or isopleths which are superimposed on base maps.

Annex 1: Flow Chart

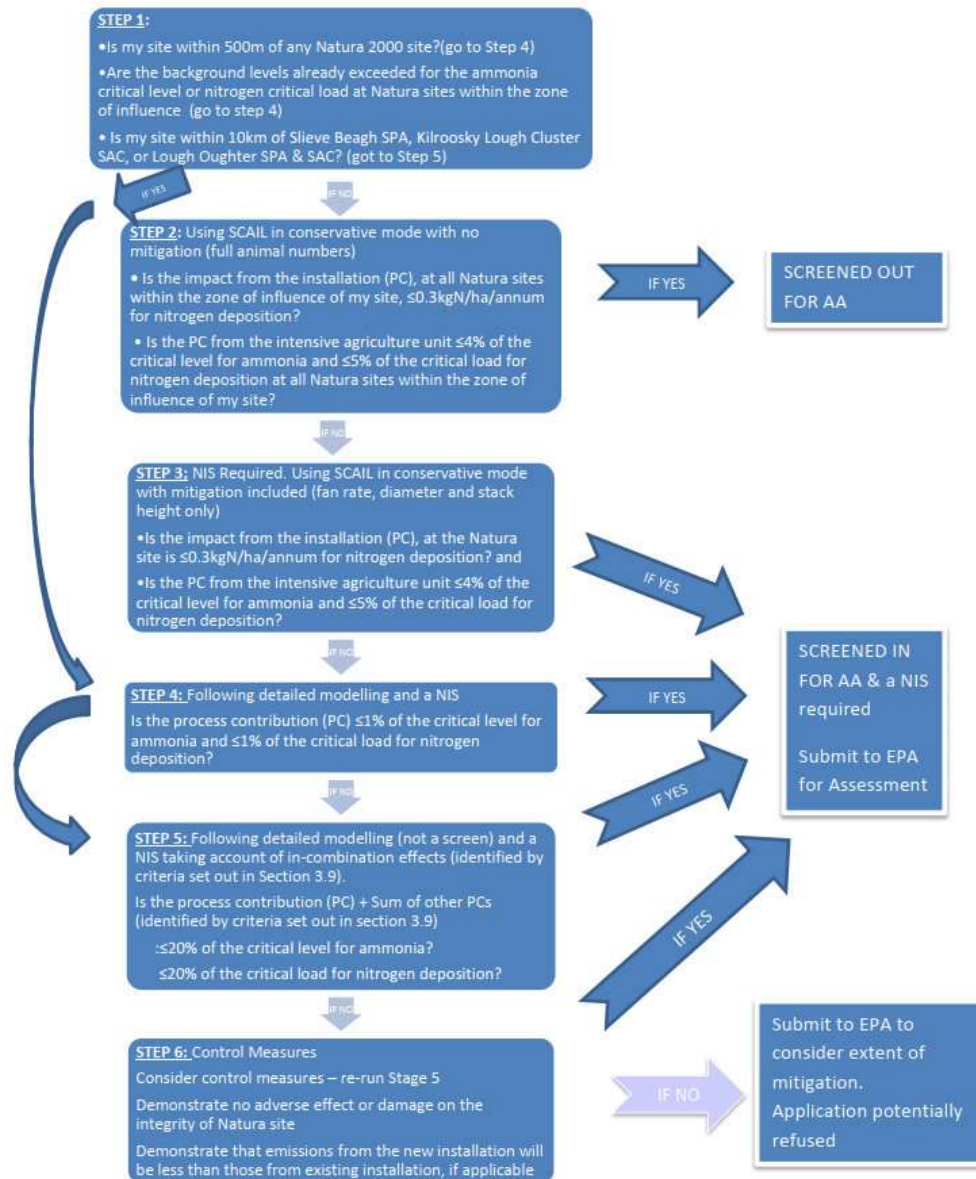


Figure 6 – EPA Flow Chart, Taken from Annex I of the Assessment of the Impact of Ammonia and Nitrogen on Natura 2000 sites from Intensive Agriculture Installations, EPA 2021

Using an AERMOD Dispersion Modelling Package, the projected ammonia and nitrogen emissions from the proposed development at Killycrone were modelled using details such as animals per house and the ventilation currently used in the house. Other factors taken into consideration as part of the model included meteorological data, building downwash, diet, storage of manure (assuming full storage) and digital terrain data.

The report provided the annual average ammonia concentrations at ecologically sensitive sites within 15km of the application site, as beyond this distance ammonia and nitrogen emissions from any installation would be imperceptible. The results obtained by Irwin Carr are presented below. It should be noted that for the purposes of this model that Lough Oughter and Associated Loughs was split into two separate areas depending on its ammonia sensitivity and cited critical loads. Within this SAC, bog woodland is the only ammonia and nitrogen sensitive habitat. Map 4 of the SSCO document (NPWS, 2021) highlights the location of this habitat within the SAC at a point 14.2km west of the application site. Aerial and soil maps were also used to determine the potential presence of other unmapped areas of bog woodlands within the SAC at points closer to the application site, and none were noted. The woodland habitat that is within the SAC at Ballyhaise is not on peat soils.

Ammonia

The emission report provides the annual average ammonia concentrations (worst case scenario) arising from the farm at ecologically sensitive sites, including the Natura 2000 sites within 15km of the application site (emission source). Ammonia modelling was carried out for the years 2015 – 2019 and an average figure was presented. The results are presented in Table 3, whilst Table 4 takes the highest predicted process concentration from the sheds and it uses this figure to determine the percentage contribution of the farm to the critical load of the designated site. These results are based on the worst case scenario, i.e., the worst case process contribution over the 5-year period.

Location	Designated Site and Distance	2015	2016	2017	2018	2019	Average
1	Lough Oughter and Associated Loughs SAC – 10.1km	0.006	0.005	0.003	0.005	0.007	0.005
2	Lough Oughter Complex SPA – 12.2km	0.004	0.005	0.004	0.004	0.004	0.004
3	Lough Oughter SAC (Bog Woodland) – 14.2km	0.004	0.003	0.002	0.004	0.004	0.003

Table 12 – Ammonia Concentrations ($\mu\text{g}/\text{m}^3$) at Natura 2000 Sites (Taken from Table 7 Of Ammonia Impact Assessment Report)

All of the predicted ground level concentrations of ammonia detailed above are significantly below the limit values in relation to the protection of vegetation. The predicted emissions from the site in relation to the background levels and the critical levels of each habitat within the Natura 2000 sites are summarised below in Table 4.

Location	Critical Load Guideline ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Highest PC ($\mu\text{g}/\text{m}^3$)	PEC ($\mu\text{g}/\text{m}^3$)	PC / Guideline Level (%)	PEC / Guideline Level (%)
1	3	3.13	0.007	3.137	0.2	105
2	3	3.17	0.005	3.135	0.2	106
3	1	2.78	0.004	2.784	0.4	278

Table 4 – Ammonia Concentrations ($\mu\text{g}/\text{m}^3$) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 8 Of Ammonia Impact Assessment Report)

The ammonia concentrations at the sites are dominated by the background concentrations, which are approximately 105-278% of the air quality guideline for ammonia. It can be seen from the Table above that while the guideline level (critical level) of ammonia is exceeded at each Location, the PC from the sheds is <1% at each designated site, and as a result considered insignificant for the purposes of this assessment.

Nitrogen

The AERMOD modelling also report provides an estimate of nitrogen arising from the proposed farm. A summary is provided in Table 5. This is based on a worst case scenario and the figure generated for the Highest PC for N at these sites was generated using a conversion factor of 260.

Location	Guideline (kg N/ha/yr)	Background (kg N/ha/yr)	Highest PC (kg N/ha/yr)	PEC (kg N/ha/yr)	PC / Guideline Level (%)	PEC / Guideline Level (%)
1	15	2.72	0.04	2.76	0.24	18
2	15	7.6	0.03	7.63	0.17	51
3	5	7.29	0.02	7.31	0.42	146

Table 14– Nitrogen Concentrations (kg/N/ha/yr) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 11 Of Ammonia Impact Assessment Report)

It can be seen from Table 11 that the nitrogen concentrations at the sites are dominated by the

background concentrations, which are approximately 18 – 146% of the guideline for each site. The PC at all Locations is less than 1% and 0.3kg.N/ha/yr, and as a result would be considered de minimus for the purposes of the Nitrogen assessment.

4.3 CUMULATIVE IMPACTS

There are other agricultural activities ongoing close to the current application site. Therefore, cumulative impacts arising from the operation of these farms together were considered. All farms, regardless of whether licensed by the EPA or not, are required to operate within the legalisation defined in S.I. 113 of 2022 regarding manure storage, minimisation of soiled water and general good agricultural practice, etc.

The land-spreading of the poultry manure produced at the proposed facility has also been considered as part of this process. Records for the distribution and movement of all the manure produced will be kept on site and presented to the Department of Agriculture, Food and Marine if necessary. All organic fertiliser will replace the use of chemical fertiliser; therefore, there will be no overall increase in the amount of nutrients spread.

All farmers that receive the manure from the proposed farm will do so under the European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2022 (S.I. 113 of 2022). Upon the receipt of the manure, they will be informed of their obligation under this legalisation. Compliance with these regulations will minimise cumulative impacts as well as any impacts

Cumulative impacts arising from predicted emissions from the facility when considered in combination with other farms in the locality have also been considered as per the recent EPA guidelines (2021). The Ammonia Impact Assessment report has also considered potential cumulative impacts.

The following points detail whether or not a cumulative assessment is necessary as part of this assessment.

- It is noted that option 4 of the flowchart states “Following detailed modelling and a NIS, is the process contribution (PC) <1% of the critical level for ammonia and <1% of the critical load for nitrogen deposition?”.

It can be seen from Table 4 above that the maximum process contribution at the closest designated sites is <1% of the critical load, which is less than the significance level of 1%, at all of the designated sites.

As the proposed site does not have the potential to contribute more than 1% of the Critical Load for Ammonia or Nitrogen, no further assessment is required for this application.

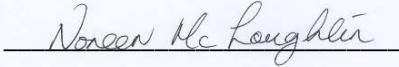
5 MITIGATION MEASURES

In order to further minimise emissions from the poultry facility at Killycrone and in order to protect certain designated sites and species, a number of mitigation measures must be implemented and followed. Measures have also been suggested that will help to protect the local biodiversity of the surrounding area and to ensure the protection of local wildlife and water quality.

- Techniques for the reduction of emissions from the poultry houses must be employed on the farm. These are outlined in the document *Best Available Techniques Reference Document for the Intensive Rearing of Poultry or Poultry* (http://eippcb.jrc.ec.europa.eu/reference/BREF/IRPP/JRC107189_IRPP_Bref_2017_published.pdf).
- Post construction surface water run-off from hardcore / concreted / tarmac areas should be directed into a soak-pit. If soak-pit disposal is not viable or practical, then surface water run-off from these areas should be treated via serviced sediment and/or oil interceptor traps, prior to discharge into the local watercourse.
- The applicant must follow the guidelines set out in the Department of Agriculture's *Explanatory Handbook for Good Agricultural Practice Regulations*.

6 NIS CONCLUSION

This Natura Impact Statement has concluded that with the mitigation measures outlined in this document, the proposed operation of the poultry farm at Killycrone will not lead to any significant impacts upon the designated sites identified. Although the stock numbers on the farm will increase, the proposed development complies with E.P.A. guidance re: atmospheric emissions from the farm.

A handwritten signature in cursive script, reading "Noreen McLoughlin", is written over a horizontal line. The signature is in black ink and is centered within a light blue rectangular background.

Noreen McLoughlin, MSc, MCIEEM.
Ecologist.

(PI Insurance details available on request)