

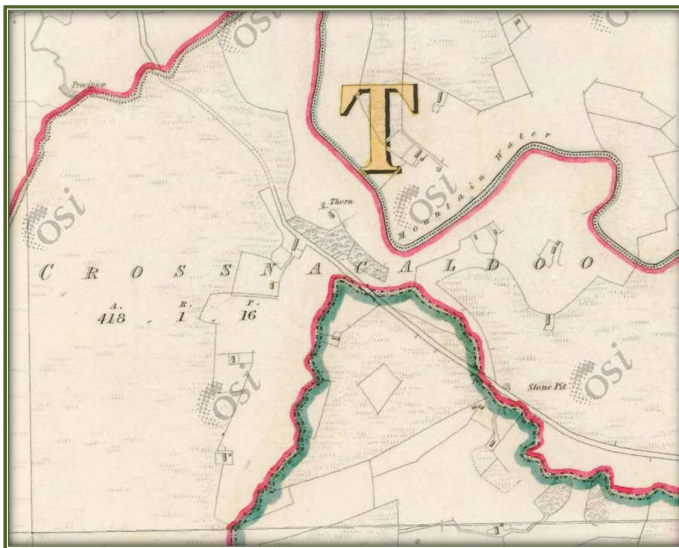
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NATURA IMPACT STATEMENT OF AN APPLICATION FOR A LICENCE AT JORISTOWN UPPER, KILLUCAN, CO WESTMEATH (EPA LICENSE APPLICATION NO. P0975-02)

IN LINE WITH THE REQUIREMENTS OF ARTICLE 6(3) OF THE
EU HABITATS DIRECTIVE



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1 INTRODUCTION

1.1 REQUIREMENT FOR AN APPROPRIATE ASSESSMENT

This Natura Impact Assessment was prepared as part of an EPA License application for a pig farm at Joristown Upper, Killucan, Co. Westmeath. It followed on from a Request for Further Information made by the EPA in December 2018 with regards to this License application.

Having regard to the location of the License application site and its proximity 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 ecological 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 proposed pig farm development at Joristown Upper, Killucan, Co. Westmeath 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 ecological impacts of this application was carried out in December 2019 (updated March 2021) by Noreen McLoughlin, MSc, MCIEEM of Whitehill Environmental. This assessment allowed areas of potential ecological value and potential ecological constraints associated with this proposed development to be identified and it also enabled potential ecological impacts associated with the proposed development to be assessed and mitigated for.

1.3 REGULATORY CONTEXT

RELEVANT LEGISLATION

The Birds Directive (Council Directive 79/409/EEC) implies that particular protection is given to sites (Special Protection Areas) which support certain bird species listed in Annex I of the Directive and that surveys of development sites should consider the status of such species.

The EU Habitats Directive (92/43/EEC) gives protection to sites (Special Areas of Conservation) which support particular habitats and species listed in annexes to this directive. Articles 6(3) and 6(4) of this Directive call for the undertaking of an Appropriate Assessment for plans and projects likely to have an effect on designated sites. This is explained in greater detail in the following section.

The Wildlife Act 1976 (and its amendment of 2000) provides protection to most wild birds and animals. Interference with such species can only occur under licence. Under the act it is an offence to “wilfully interfere with or destroy the breeding place or resting place of any protected wild animal”. The basic designation for wildlife is the Natural Heritage Area (NHA). This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. Under the Wildlife Amendment Act (2000) NHAs are legally protected from damage. NHAs are not part of the Natura 2000 network and so the Appropriate Assessment process does not apply to them.

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 doesn’t 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 site's conservation objectives.

Appropriate Assessment is an assessment of the potential effects of a proposed plan - 'in combination' with other plans and projects - on one or more European sites. The 'Appropriate Assessment' itself is a statement which must be made by the competent authority which says whether the plan affects the integrity of a European site. The actual process of determining whether or not the plan will affect the site is also commonly referred to as 'Appropriate Assessment'.

If adverse impacts on the 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 (European Commission, 2000, 2001).

The conclusions of the appropriate assessment report should enable the competent authority to ascertain whether the proposal would adversely affect the integrity of the site (European Commission, 2000, 2001).

Under the terms of the directive (European Commission, 2000, 2001), 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 the site will not be adversely affected, or (b) where an adverse effect is anticipated, 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.

2 METHODOLOGY

2.1 APPROPRIATE ASSESSMENT

This Natura Impact Statement (Stage 2) 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.
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPW 1/10 & PSSP 2/10.

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 Natura Impact 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;
- Screening statement with conclusions.

2.2 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 all 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 the AA screening determination and license application documents;
- Myplan.ie – Mapped based information;
- National Biodiversity Data Centre (NBDC) – Information pertaining to protected plant and animal species within the study area;
- C.L.W. Environmental Planners Ltd – Plans and information pertaining to the development;
- Irwin Carr Consulting – An Ammonia Impact Assessment (May 2022) for the Proposed Development;
- Westmeath County Council – Information on planning history in the area in order to ascertain potential cumulative impacts.

3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 PROJECT DESCRIPTION

OVERVIEW

In 2018 Clondrisse Pig Farm Ltd, with an address at Gillardstown House, Castlepollard, Co. Westmeath, applied to the EPA for a License review in respect of their pig farm at Jorristown Upper, Killucan, Co. Westmeath. The enterprise involved is classed as Activity Class 6.2., i.e.,

"The rearing of pigs in an installation where capacity exceeds (b) 2,000 places for production pigs which are over 30kg"

This pig farm will operate as a 500 sow (excl. Served gilts) integrated unit. This is defined as approximately 625 places for sows in line with the Danish ECJ Judgement C-585-10, as detailed in Schedule 1 of the existing licence.

The main activities carried out on-site revolve around the care and management of the pigs, and they include:

- Breeding and rearing of pigs;
- Feeding of the pigs on-site;
- General animal husbandry practices
- Pig movement on site;
- Washing of houses between each batch, for pig health and performance reasons;
- Transport of feed to the farm;
- Transport of weaners to the farm and pigs from site to factory
- Transport of pig manure off site.

Normal working hours on this site are from 6.00hrs to 18.00hrs.

The main secondary product produced on this farm is pig manure/organic fertiliser. All manure produced will be incorporated into a fertiliser management system by allocation to a number of customer farmers for use as organic fertiliser on their lands, in line with the requirements of S.I. 605 of 2017. Additional customers may be supplied as and when they

arise. There will be an average of 8,112m³ of pig manure available upon completion of all proposed developments.

The main sources of emissions from this farm include:

- Clean surface water – Directed to local watercourses;
- Dirty surface water – Directed to manure storage tanks;
- Waste (Veterinary, canteen, animal tissue) – Disposed of by specialist contractors;
- Odour and noise, as well as atmospheric emissions (Ammonia, nitrogen).

An extract from the planning drawings as submitted for this application can be seen in Figure 1.

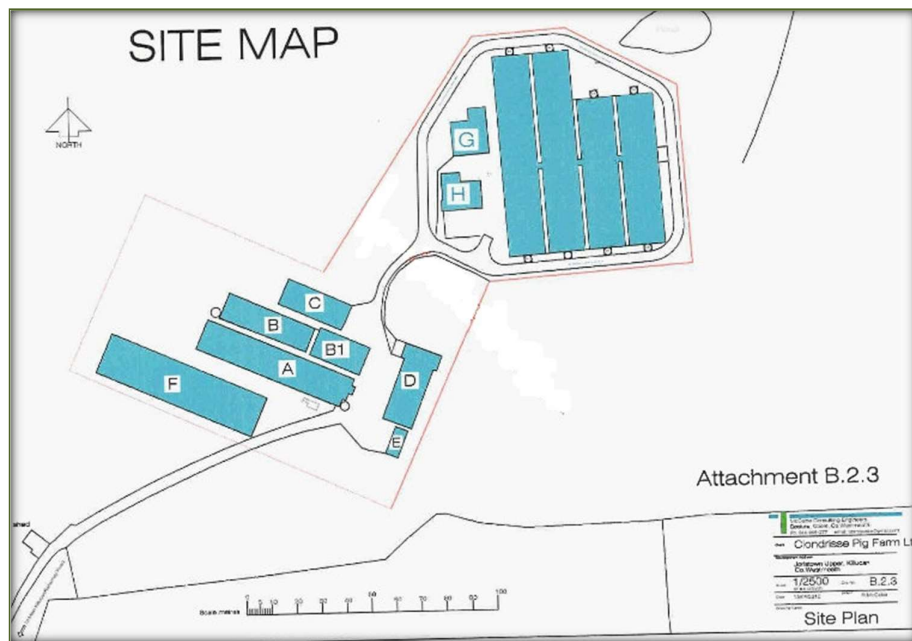


Figure 1 – Extract from Planning Drawing showing Farm Layout

S.I. 605 OF 2017 (AS AMENDED)

The European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017 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. 605 of 2017.

Prior to its implementation, S.I. 605 of 2017 was subjected to Appropriate Assessment (AA) and a Strategic Environmental Assessment (SEA) Screening at draft stage (March 2017). At this stage, it was referred to as Ireland's Fourth Nitrates Action Programme (NAP). This draft NAP was assessed in terms of the likely significant effects of the programme and where it would adversely affect the integrity of European sites. The NIS identified that the existing and proposed measures would be predominantly positive for European sites. The measures of the NAP were influenced to avoid, as appropriate, measures that would have an adverse effect upon the integrity of the European sites. Any project falling under the requirements of the NAP will be required to conform to the mitigation measures contained within the NIS prepared and to any further regulatory provisions aimed at preventing pollution or other environmental effects. The applicant is fully aware of his obligations under S.I. 605 of 2017 and they 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 townland of Joristown Upper. Access to the site is via an existing, private access road. The site is 1.9km north-east of Killucan and 1.2km west of Raharney.

The land-use surrounding the site is predominantly agricultural and improved agricultural grassland is the dominant habitat. Other habitats represented locally include arable lands, hedgerows and treelines. There are also a number of surface water features close to the site, including the River Deel, which is 1.2km east of the site.

Site location maps can be seen in Figures 2 and 3, whilst an aerial photograph of the site and its surrounding habitats can be seen in Figure 4.

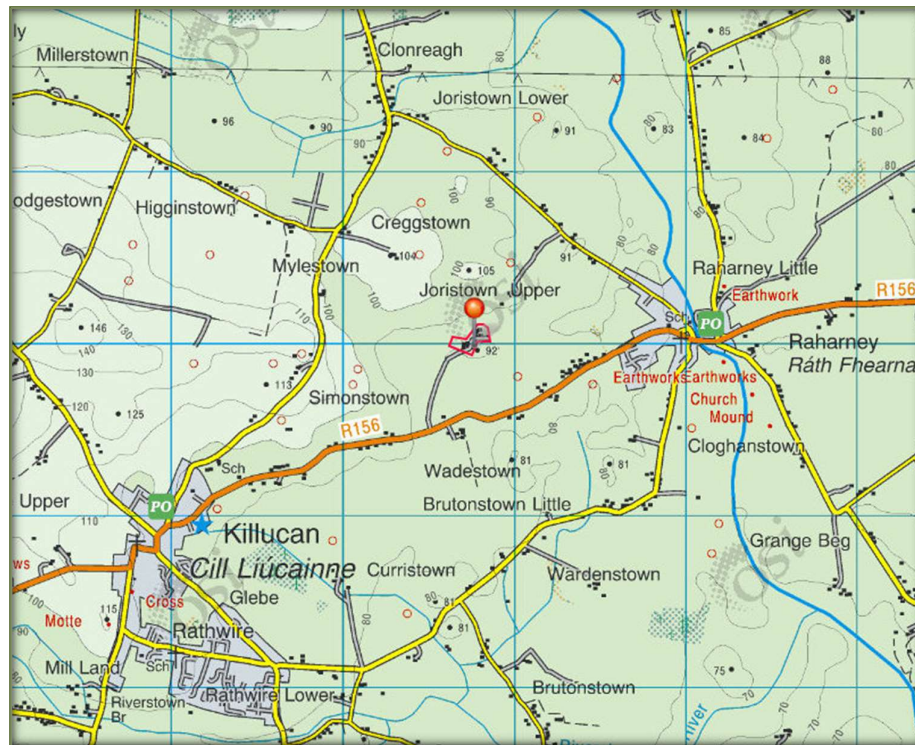


Figure 2 – Map showing the Location of the Farm (Pinned)

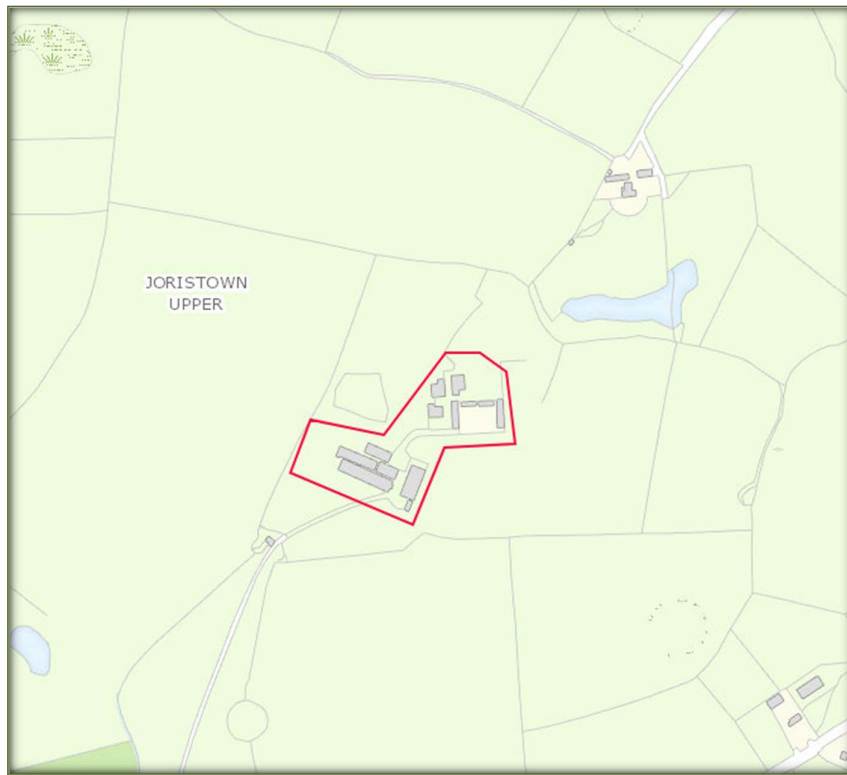


Figure 3 – Map showing the Location of the Pig Farm (Outlined in Red)



Figure 4 – Aerial Photograph of the Pig Farm (Outlined in Red)

WATER FEATURES AND QUALITY

The application site lies within the Boyne Hydrometric Area and Catchment, and the Deel Sub-Catchment and Sub-Basin. There are no surface water features within or adjacent to the application site. There is a pond close to the farm site and this is 88m north-east of farm. The River Deel is 1.2km east of the farm. The River Deel is a tributary of the River Boyne and the confluence of these two waterbodies is 11.5km south-east of the application site.

The EPA have classified the ecological status of the River Deel as being of good ecological status at points upstream of Raharney, whilst it deteriorates to moderate ecological status downstream of Raharney. Under the obligations of the Water Framework Directive, it is required that all water bodies achieve good ecological status.

4 NATURA 2000 SITES IDENTIFIED

4.1 DESIGNATED SITES

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 four Natura 2000 designated sites within 15km of the application site. These designated areas and their closest points to the proposed development site are summarised in Table 2 and a map showing their locations relative to the application site is shown in Figure 4. A full description of these sites can be read on the websites of the National Parks and Wildlife Service (npws.ie) and the Joint Nature Conservation Committee (jncc.defra.gov.uk)

Site Name & Code	Distance from Proposed Development	Special Conservation Interests (SCI)	Possible Impacts?
The River Boyne and River Blackwater SAC 002299	1.2km east	<ul style="list-style-type: none"> River lamprey (<i>Lampetra fluviatilis</i>) Salmon (<i>Salmo salar</i>) Otter (<i>Lutra lutra</i>) Alkaline fens Alluvial forests with alder <i>Alnus glutinosa</i> and ash <i>Fraxinus excelsior</i> 	Yes – Potential Impacts upon this SPA and its SCI arising from atmospheric emissions will be considered further.
The River Boyne and River Blackwater SPA 004232	1.2km east	<ul style="list-style-type: none"> Common Kingfisher <i>Alcedo atthis</i> 	Yes – Potential Impacts upon this SPA and its SCI arising from atmospheric emissions will be considered further.
Mount Hevey Bog SAC 002342	4.1km south	<ul style="list-style-type: none"> Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion 	Yes – Potential Impacts upon this SAC and its SCIs arising from atmospheric emissions will be considered further.

<p>Wooddown Bog SAC 002205</p>	<p>9.1km west</p>	<ul style="list-style-type: none"> Degraded raised bogs still capable of natural regeneration 	<p>No - The SAC is outside of the zone of influence of the proposed development. This SAC is not assessed further.</p>
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Table 2 – Natura 2000 Sites Within 15km of the Proposed Site

The generic conservation objectives of all these sites are:

1. To maintain the favourable conservation status of the qualifying interests (outlined above) of this SAC and SPA.
2. To maintain the extent, species richness and biodiversity of the entire site.
3. To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

The favourable conservation status of a habitat is achieved when:

- Its natural range and area it covers within that range is stable or increasing and 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 conservation status of its typical species is favourable.

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.

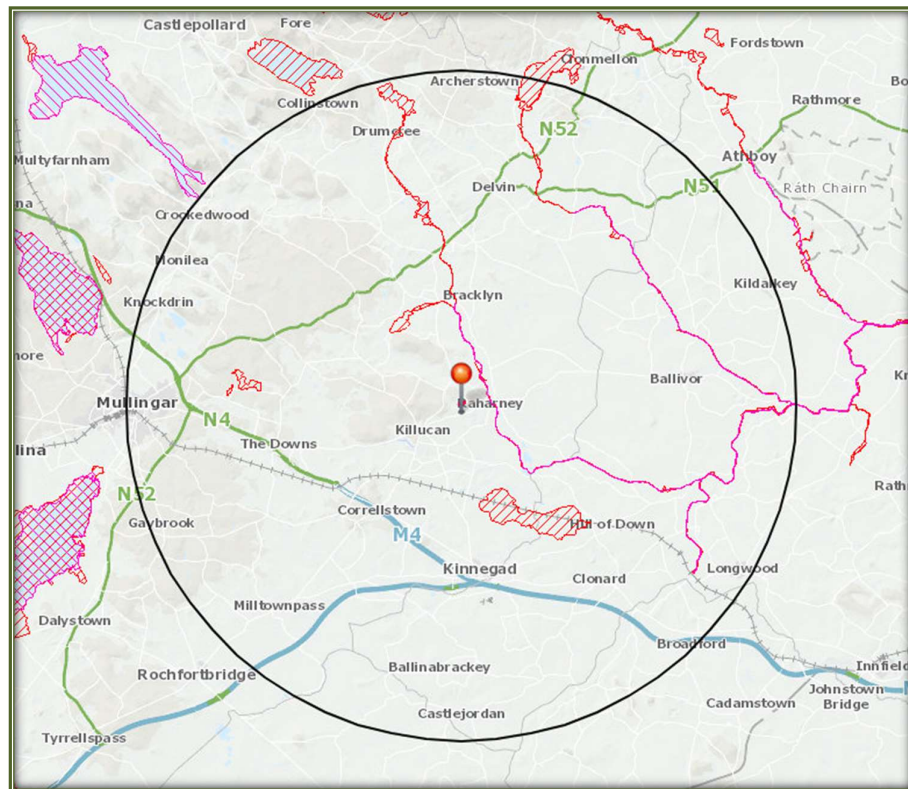


Figure 5– The Application Site (Outlined in Red) in relation to the Natura 2000 Sites within 15km.
SACs – Red Hatching, SPAs – Pink Hatching

5 IDENTIFICATION AND ASSESSMENT OF POTENTIAL IMPACTS

5.1 INTRODUCTION

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. This section will establish whether the impacts of the proposed development at Joristown Upper that were identified by the EPA in their screening report are likely to occur and whether or not they are significant. These potential impacts will be examined with respect to the conservation objectives of the Natura 2000 site identified.

The location of the pig farm in proximity to three designated sites means that it cannot be excluded at this stage, that the proposed activity, individually or in combination with other plans or projects, will not have a significant effect on any European site by virtue of the atmospheric emissions that are produced at the site.

EPA Guidance

The EPA have recently 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 recommended steps contained within these guidelines are summarised in Figure 6. Following Step 1 of the flowchart, as the background levels for ammonia and nitrogen at the designated sites are already exceeded, Step 4, i.e., detailed atmospheric modelling on the farm was carried out by Irwin Carr and the results are presented below.

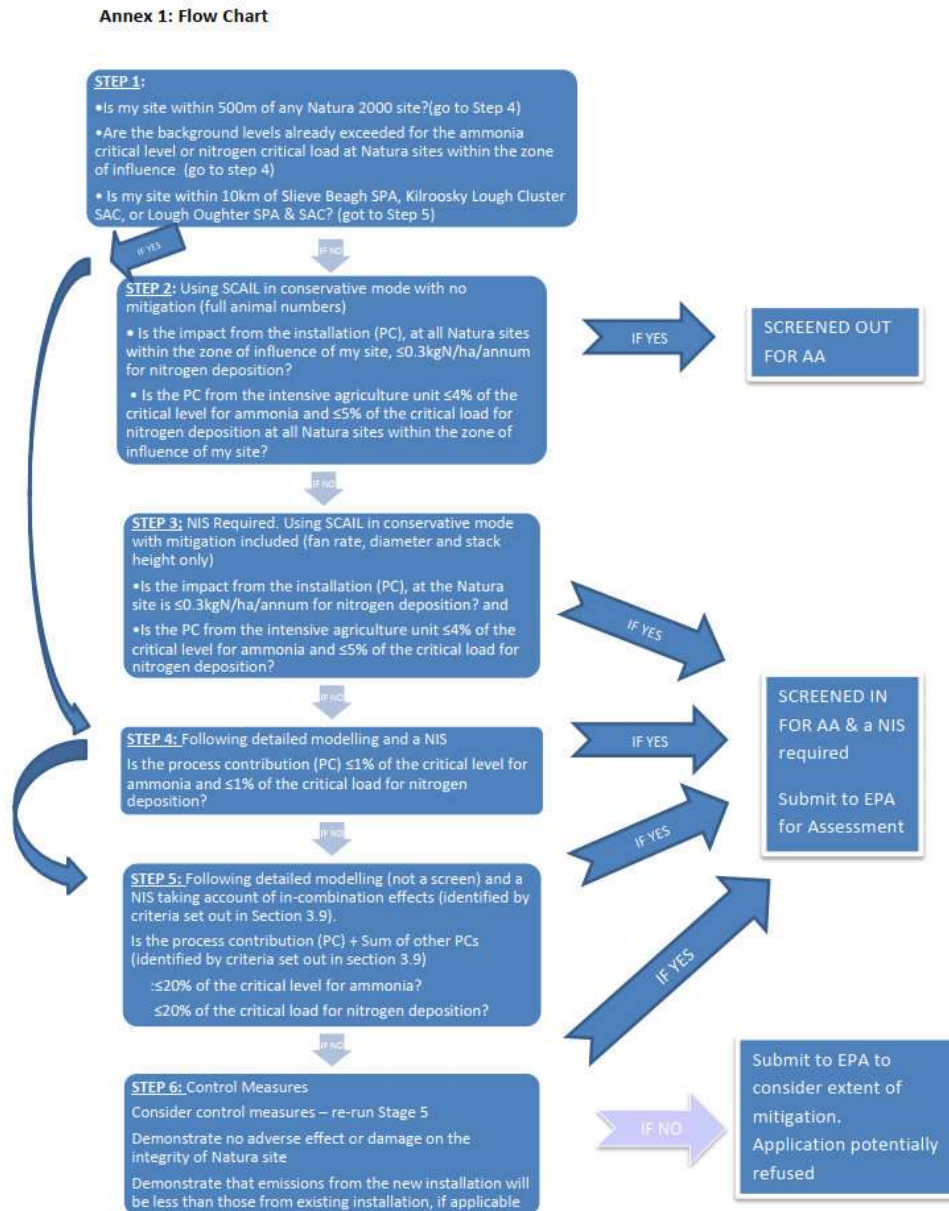


Figure 6 – EPA Flow Chart, Taken from Annex I of the Assessment of the Impact of Ammonia and Nitrogen on Natura 2000 sites from Intensive Agriculture Installations, EPA 2021

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. On foot of comments from the EPA, this report was updated in May 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.

Using an AERMOD Dispersion Modelling Package, the projected ammonia and nitrogen emissions from the proposed development at Joristown Upper 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 the fact that the animals will be fed on a low protein diet, meteorological data, building downwash and digital terrain data.

The report provided the annual average ammonia concentrations at ecologically sensitive sites, including the Natura 2000 sites considered as part of this assessment. For the purpose of modelling, the River Boyne and Blackwater was split into two areas. This was done as in most locations, this SAC does not contain habitats that are sensitive to ammonia and the site boundary is confined to the river itself and the riparian edges that serve as a buffer zone for the otter and other species that have been designated as Qualifying Interests (QI) of this site. The only QI that is sensitive to ammonia deposition in this SAC is alkaline fen, and therefore for the purpose of this modelling exercise, its location in relation to the proposed development was considered separately. The results are presented in Table 2, whilst Table 3 provides an assessment of the process contribution for ammonia on the Natura 2000 sites arising from the proposed development.

Natura 2000 Site	2015	2016	2017	2018	2019	Average
River Boyne and Blackwater SAC (at closest point, no sensitive habitats) – 1.13km	0.123	0.109	0.168	0.109	0.142	0.130
River Boyne and Blackwater SPA (kingfisher only, no sensitive habitats) – 1.16km	0.117	0.104	0.160	0.104	0.135	0.124
Mount Hevey Bog SAC – sensitive peatland habitats – 4.19km	0.011	0.013	0.009	0.010	0.012	0.011
River Boyne and Blackwater SAC (closest possible sensitive habitat, i.e., alkaline fen) – 4.34km	0.010	0.010	0.007	0.009	0.010	0.009

Table 2 – Ammonia Concentrations (µg/m³) at Natura 2000 Sites (Taken from Table 16 Of Ammonia Impact Assessment Report)

Natura 2000 Site	Critical Load Guideline	Background	Highest PC	PEC	PC / Guideline Level (%)	PEC / Guideline Level (%)
River Boyne and Blackwater SAC	3	3.11	0.168	3.278	5.6*	109
River Boyne and Blackwater SPA	3	3.11	0.160	3.270	5.3*	109
Mount Hevey Bog SAC	1	2.89	0.013	2.903	1.3	290
River Boyne and Blackwater SAC – alkaline fen	1	2.99	0.010	3.00	1	300

Table 3 – Ammonia Concentrations ($\mu\text{g}/\text{m}^3$) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 17 Of Ammonia Impact Assessment Report)

*At Locations 1 & 2, which are the closest areas of the River Boyne & Blackwater to the site, the predicted impacts are 5.6% and 5.3% respectively. However, it should be noted that these areas are likely to only host the QI species of the SAC / SPA, none of which will be significantly affected by ammonia from the site. The closest part of the designated site that is considered sensitive to ammonia is Location 4-the alkaline fen habitat. At this location the deposition of ammonia is <4% and therefore considered to be insignificant.

At the other sites included in the assessment, the maximum PC of the proposed site is 1.3% of the Guideline level, and as a result the impacts at all locations are considered insignificant for the purposes of this assessment. The ammonia concentrations at the sites are dominated by the background concentrations, which are approximately 101– 300% of the air quality guideline for ammonia.

The AERMOD modelling report also provided an estimate of nitrogen arising from the proposed pig farm. Again, for the purpose of modelling the effects of the farm accurately on the SAC, the River Boyne and Blackwater SAC was divided into two areas. A summary is provided in Table 4.

Natura 2000 Site	Guideline	Background	Highest PC	PEC	PC / Guideline Level (%)	PEC / Guideline Level (%)
River Boyne and Blackwater SAC	15	7.74	0.87*	8.61	5.8	57
River Boyne and Blackwater SPA	15	7.74	0.83*	8.57	5.5	57

Mount Hevey Bog SAC	5	7.3	0.07	7.37	1.4	147
River Boyne and Blackwater SAC – alkaline fen	15	7.56	0.05	7.61	0.4	51

Table 4 – Nitrogen Concentrations (kg/N/ha/yr) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 20 Of Ammonia Impact Assessment Report)

At Locations 1 & 2, which are the closest areas of the River Boyne & Blackwater to the site, the predicted impacts are 0.87 and 0.83kg.N/ha/yr respectively. However, it should be noted that these areas are likely to only host the otter and kingfisher, neither of which will be significantly affected by nitrogen from the site. The closest part of the designated site that is considered sensitive to nitrogen is Location 5-Alkaline fen habitat. At this location the deposition of nitrogen is <0.3kg.N/ha/yr and therefore considered to be insignificant.

It can be seen from Table 20 that the nitrogen concentrations at the sites are dominated by the background concentrations.

The PC at Locations 3 - 5 is less than 0.1kg.N/ha/yr, and as a result would be considered deminimus for the purposes of the Nitrogen assessment.

The critical load for the River Boyne and Blackwater SAC / SPA has been cited as 15kg/N/ha/yr and this is based on the fact that alkaline fen is a Qualifying Interest of this site. This habitat is relatively sensitive to nitrogen deposition. Taking this CL, it can be seen that the contribution of nitrogen from the proposed development at the River Boyne and Blackwater SAC and SPA is 5.8% and 5.5% respectively. For the purpose of AA, this can be considered significant.

However, this contribution is assuming that alkaline fens occur in the SAC / SPA at the closest point to the proposed development site, which is 1.2km east. There are no alkaline fen habitats 1.2km east of the application site and the closest possible location of this habitat within the SAC is 4.1km north-west of the site. The deposition of ammonia and nitrogen here is likely to be insignificant.

The SAC / SPA where it is closest to the development site, and therefore where it is likely to be most impacted by atmospheric emissions is likely to only host the QI species of the SAC / SPA. Neither of these interests will be significantly affected by the deposition of ammonia or nitrogen from the site.

5.2 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 legislation defined in S.I. 605 of 2017 regarding manure storage, minimisation of soiled water and general good agricultural practice, etc. Therefore, cumulative impacts arising from the combined operation of these activities with the proposed operation of the pig farm at Joristown Upper will be negligible.

The Ammonia Impact Assessment report has also considered potential cumulative impacts. It is the purpose of a cumulative assessment to determine whether there is a significant impact at a designated site. The EPA have defined in their Guidance what is considered 'significant':

The following points detail whether or not a cumulative assessment is necessary as part of this ammonia impact assessment. These points are based on the flowchart presented in Figure 6 above. Dispersion modelling was carried out as per Step 4 of this flow chart. Step 5 of this flow chart states: *'Following detailed modelling and a NIS, is the process contribution (PC) $\leq 1\%$ of the critical level for ammonia and $\leq 1\%$ of the critical load for nitrogen deposition?'*

This threshold is exceeded at the River Boyne and Blackwater SAC / SPA for both ammonia and nitrogen, as well as the Mount Hevey Bog SAC for nitrogen, which will therefore require a cumulative/ in-combination assessment, taking into account IAI (intensive agricultural installations) which meet the following criteria:

- All below threshold installations within 5km of the Natura site.
- All licensed installations within 10km of the Natura site.

In order to carry out a cumulative assessment it was necessary to identify any nearby installations that also have the potential to contribute a significant ammonia impact. There were 3 such sites in the vicinity of the proposed installation:

- P0713-03: Granted in 2012 and operating prior to 2018.
- P0874: Granted in 2010 and operating prior to 2018.

- P0984-01: Granted in 2016 and operating prior to 2018. An appropriate assessment was also submitted in support of the application which concluded that an adverse effect from the pig rearing facility was highly unlikely at the designated sites in the vicinity.
- Approved Planning Application Ref 186221: Granted a new pig house at Hogestown, Killucan. This application was only for improved welfare standards and didn't result in an increase in animal numbers. Existing site was operating prior to 2018.

Given that all sites in the vicinity were operational prior to 2018, their impact will be included in the background level of nitrogen and ammonia, and the approval of the associated licences will not impact on the existing ammonia levels or nitrogen critical load in the vicinity.

In addition, there are no known newly constructed intensive agricultural sites completed within the last 10 years that are in proximity to the current site, or any section of the Natura 2000 site where the impact from the development is >4%.

As the nearby installations do not have the potential to contribute a significant impact at the River Boyne & Blackwater SAC/ SPA or Mount Hevey Bog SAC, no further assessment is required, in line with Step 5 of the flowchart shown in Figure 5 above.

The land-spreading of the pig 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 2017 (S.I. 605 of 2017). 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

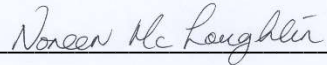
6 MITIGATION MEASURES

In order to minimise emissions from the pig facility at Joristown Upper 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.

- Techniques for the reduction of emissions from the pig 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 Pigs* (http://eippcb.jrc.ec.europa.eu/reference/BREF/IRPP/JRC107189_IRPP_Bref_2017_publiched.pdf).
- The pigs should be fed on low protein diets, which will minimise the levels of N and ammonia in the manure. A low protein diet will result in a reduction of 30% of the ammonia emissions, as every 1% reduction in crude protein in the diet will result in approximately 10% reduction in N excretion.

7 CONCLUSIONS

This Natura Impact Statement has concluded that with the mitigation measures outlined in this document and with the operation of the facility in line with the figures used in the SCAIL model, the proposed operation of the pigs farm at Joristown Upper will not lead to any significant impacts upon the designated sites identified, i.e., the River Boyne and River Blackwater SAC and SPA.



Noreen McLoughlin

Noreen McLoughlin, MSc, MCIEEM.
Ecologist.

(PI Insurance details available on request)

8 FINDING OF NO SIGNIFICANT EFFECTS

Finding of No Significant Effects Report Matrix	
Name of project	EPA License Application for Clondrisse Pig Farm Ltd
Name and location of Natura 2000 site	The closest Natura 2000 sites to the application site include the River Boyne and Blackwater SAC and SPA and these are 1.2km east of the site.
Description of project	An EPA License for Intensive Agriculture
Is the project directly connected with or necessary to the management of the site?	No
Are there other projects or plans that together with project being assessed could affect the site?	No
The Assessment of Significance of Effects	
Describe how the project is likely to affect the Natura 2000 site	Possible air emissions and impacts upon designated sites from NH ₃ and N emissions.
Explain why these effects are not considered significant	The Aermol model has shown that there will be no impacts upon the vegetation of any designated site.
Describe how the project is likely to affect species designated under Annex II of the Habitats Directive.	There will be no impacts upon any listed species arising from the operation of this development.
Data Collected to Carry out the Assessment	
Who carried out the assessment	Noreen McLoughlin, MSC, MIEEM. Consultant Ecologist
Sources of data	NPWS, EPA, National Biodiversity Data Centre, Westmeath County Council.
Level of assessment completed	Stage II Appropriate Assessment (NIS)
Where can the full results of the assessment be accessed and viewed	Full results included