

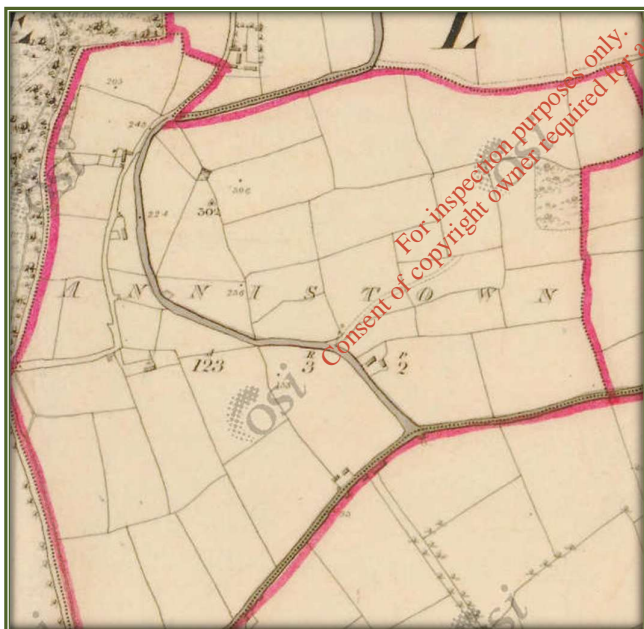
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NATURA IMPACT STATEMENT OF AN APPLICATION FOR A LICENCE AT ANNISTOWN, KILLEAGH, CO CORK (EPA LICENSE REVIEW NO. P0790-03)

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 to accompany an EPA License Review for a pig farm at Annistown, Killeagh, Co. Cork. It followed on from a Request for Further Information from the EPA regarding this proposed License application.

Having regard to the location of the License application site and its location within the potential Zone of Influence of certain designated sites, 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 and effects of a pig farm at Annistown, Killeagh, Co. Cork on certain 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 potential impacts and effects of this application on designated sites was carried out in June 2018 (revised 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 LEGALISATION

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 & RSSP 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 PERSONNEL

This report was carried out by Noreen McLoughlin. Noreen is the owner and main ecologist at Whitehill Environmental. Noreen holds a BA (Hons) in Natural Science (Mod) Zoology and an MSc in freshwater ecology (TCD, Dublin). She has been a full member of the CIEEM (Chartered Institute of Ecology and Environmental Management) for over 12 years.

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 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 – Ammonia Impact Assessment Report
- Cork 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 April 2017, Mr Eoin O'Brien applied to the Environmental Protection Agency for a License Review (Po790-03) in respect of an existing pig farm at Annistown, Killeagh, Co. Cork. The main activity on the site is Class 6.2., i.e., the "rearing of pigs in an installation where the capacity exceeds (a) 750 places for sows or (b) 2,000 places for production pigs which are each over 30kg".

The pig farm currently has full planning permission to operate as a 1,500 sow integrated pig farm, permitted under Planning Reference 12/6635. Prior to this, it operated as a 600 place sow integrated unit. The review of this License is being requested in order to allow for the increase to a 1500 unit.

The main activity that will be carried out at the site is the breeding and rearing of pigs for meat production. The farm will be managed as a high health, minimal disease unit with a focus on delivering high standards of animal welfare. The herd will be managed as a closed herd, i.e., no animals will be moved on to the site from other farms, all animals at the installation will be home bred and the only movement of pigs from the installation will be the transport of pigs for sale to the pork factory.

Storm water emissions from the site will be directed to two existing soakaways. Storm water monitoring points (SW1 and SW2) will be provided and the storm water system will be regularly inspected and observations will be recorded at the site register. Water samples from the monitoring chambers will be taken quarterly and will be analysed for Chemical Oxygen Demand.

The operation of the farm will be done in accordance with S.I. 605 of 2017. In addition, in order to minimise any potential emissions, the operation and management of the farm will be operating within the guidelines outlined in the *Integrated Pollution Prevention and Control (IPPC) Reference Document on Best Available Techniques for Intensive Rearing of Poultry and Pigs* (July 2003) and *Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry and Pigs* (Draft 2, August 2013). Pig manure will be removed from tanks using a vacuum pump and it will be transported in leak proof containers to prevent odours. All pig manure will be applied to the lands of customer farmers in compliance with S.I. 605 of 2017 (as amended).

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 flow	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 (as amended) 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 (as amended) 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 Annistown. Access to the site is via an access road that is just off a local third class road. The area of the site is approximately 6.35 hectares. It is 3.5km west of Killeagh and 1.5km east of Mogeely. The land use surrounding the site is predominantly agricultural and the dominant habitats include improved agricultural grassland and tillage land. Other habitats represented include broadleaved woodlands, hedgerows, treelines and watercourses. Site location maps can be seen in Figure 1 and 2, whilst an aerial photograph of the site and its surrounding habitats can be seen in Figure 3.

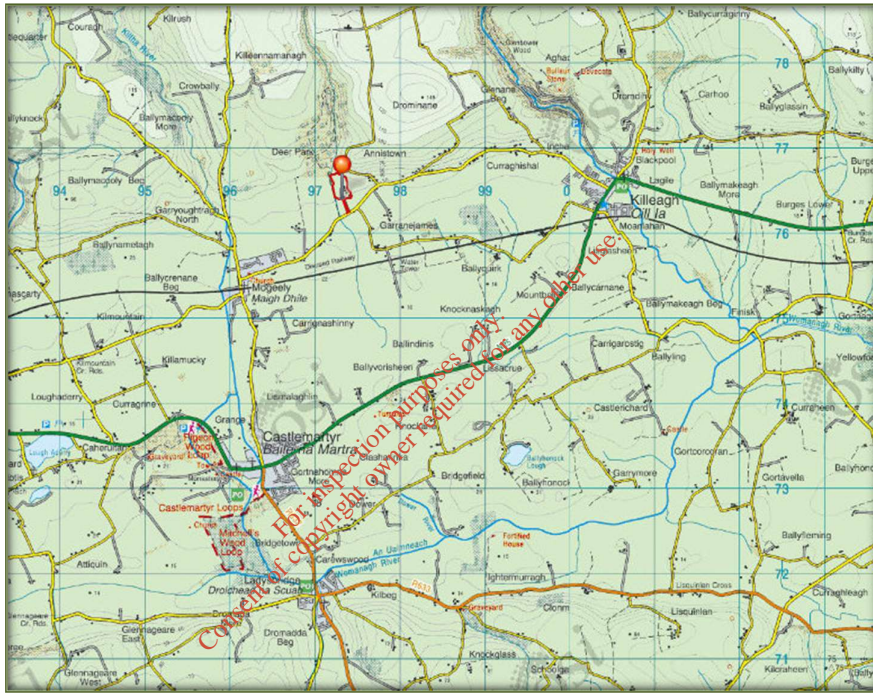


Figure 1 – Map showing the Location of the Proposed Development Site (Site Outlined in Red)

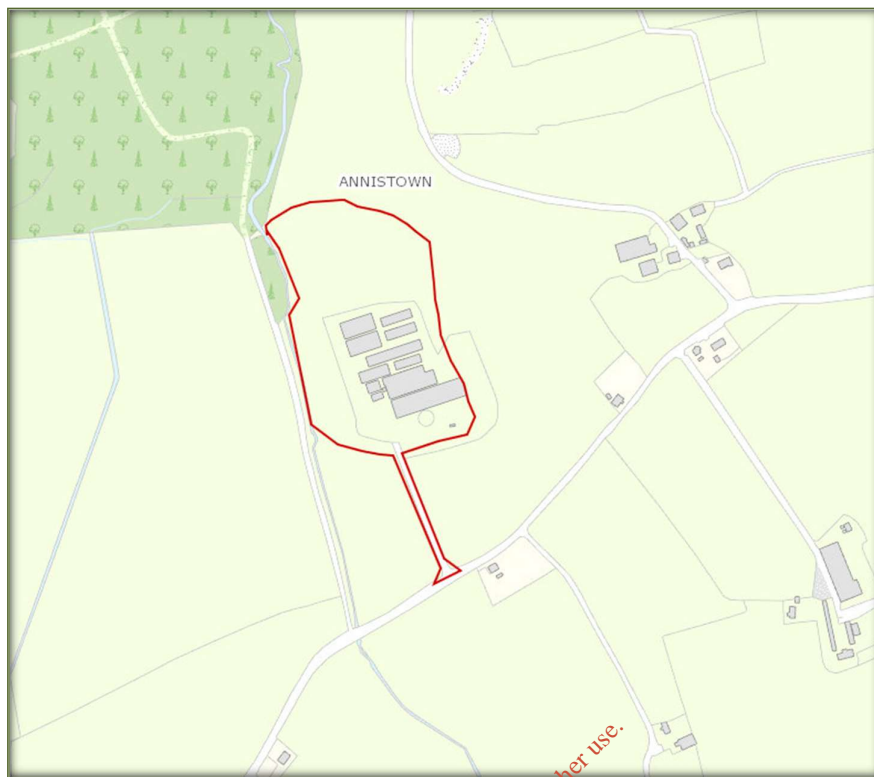


Figure 2 – Map showing the Location of the Proposed Development Site (Site Outlined in Red)

HABITATS AND SPECIES

The application site itself currently consists buildings and artificial surfaces (the existing farm structures and hard surfaces) and improved agricultural grassland habitats, where the dominant species consist of rye grasses *Lilium perenne* and white clover *Trifolium repens*. These are habitats of low ecological value.

The western site boundary consists of a section of well established hedgerow/treeline containing species such as hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus*, willow *Salix sp.*, holly *Ilex aquifolium*, hazel *Corylus avellana* and beech *Fagus sylvatica*. The remaining site perimeters are unbounded.

An examination of the website of the National Biodiversity Data Centre, revealed that there are records for the presence of one protected mammal species from the relevant 1km square (W9776) of this proposed development. This species is the otter *Lutra lutra* and it is protected under the Irish Wildlife Acts. It is also listed in Annex II of the EU Habitats Directive and it is afforded the full protection of this directive. The closest record for the otter to the application site was obtained in 1982 as part of the Otter Survey of Ireland. This was from the bridge over the stream 114m south-west of the application site entrance. There are other more modern records for areas further from the application site.



Figure 3 – Aerial Photograph of the Site (Outlined in Red) and its Surrounding Habitats. Local Watercourses are Outlined in Blue.

WATER FEATURES AND QUALITY

The application site lies within the Lee, Cork Harbour and Youghal Bay Hydrometric Area and Catchment and the Womanagh Sub-Catchment. The site is split into two Sub-Basins, i.e., the Moanlahan Sub-Basin to the east and the Womanagh Sub-Basin in the west. The Annistown Stream is adjacent to the application site and approximately 56m west of the farm buildings and yard. This stream flows in a southerly direction until its confluence with the Womanagh River, at a point approximately 4.4km downstream of the application site. The Womanagh River flows into Youghal Bay near Ballymacoda.

The EPA have classified the ecological status of the Annistown Stream as being of good ecological status. Under the requirements of the Water Framework Directive, this is satisfactory and this status must be maintained.

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 10km of the proposed development have been identified and described according to their site synopses, qualifying interests and conservation objectives.

There are seven Natura 2000 designated sites within 10km 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 website of the National Parks and Wildlife Service (npws.ie).

Site Name & Code	Distance	Qualifying Interests	Potential Effects
Ballymacoda (Clonpriest and Pillmore) SAC 000077	7.9km south-east	<ul style="list-style-type: none"> • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Salicornia and other annuals colonising mud and sand • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Mediterranean salt meadows (<i>Juncetalia 16etanus16</i>) 	<i>Potential significant effects arising from aquatic and atmospheric emissions will be considered further</i>
Ballymacdoea Bay SPA 004023	7.9km south-east	<ul style="list-style-type: none"> • Wigeon (<i>Anas 16etanus16</i>) • Teal (<i>Anas crecca</i>) • Ringed Plover (<i>Charadrius hiaticula</i>) • Golden Plover (<i>Pluvialis apricaria</i>) • Grey Plover (<i>Pluvialis squatarola</i>) • Lapwing (<i>Vanellus vanellus</i>) • Sanderling (<i>Calidris alba</i>) • Dunlin (<i>Calidris 16etanus</i>) • Black-tailed Godwit (<i>Limosa limosa</i>) • Bar-tailed Godwit (<i>Limosa lapponica</i>) • Curlew (<i>Numenius arquata</i>) • Redshank (<i>Tringa 16etanus</i>) • Turnstone (<i>Arenaria interpres</i>) • Black-headed Gull (<i>Chroicocephalus ridibundus</i>) 	<i>Potential significant effects arising from aquatic and atmospheric emissions will be considered further</i>

		<ul style="list-style-type: none"> • Common Gull (<i>Larus canus</i>) • Lesser Black-backed Gull (<i>Larus fuscus</i>) • Wetland and Waterbirds 	
Ballycotton Bay SPA 004022	9.3km south	<ul style="list-style-type: none"> • Teal (<i>Anas crecca</i>) • Ringed Plover (<i>Charadrius hiaticula</i>) • Golden Plover (<i>Pluvialis apricaria</i>) • Grey Plover (<i>Pluvialis squatarola</i>) • Lapwing (<i>Vanellus vanellus</i>) • Black-tailed Godwit (<i>Limosa limosa</i>) • Bar-tailed Godwit (<i>Limosa lapponica</i>) • Curlew (<i>Numenius arquata</i>) • Turnstone (<i>Arenaria interpres</i>) • Common Gull (<i>Larus canus</i>) • Lesser Black-backed Gull (<i>Larus fuscus</i>) • Wetland and Waterbirds 	Potential significant effects arising from aquatic and atmospheric emissions will be considered further
Great Island Channel SAC 001058	9.8km south-west	<ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide • Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) 	Potential significant effects arising from aquatic and atmospheric emissions will be considered further
Cork Harbour SPA 004030	9.8km south-west	<ul style="list-style-type: none"> • Little Grebe (<i>Tachybaptus ruficollis</i>) • Great Crested Grebe (<i>Podiceps cristatus</i>) • Cormorant (<i>Phalacrocorax carbo</i>) • Grey Heron (<i>Ardea cinerea</i>) • Shelduck (<i>Tadorna tadorna</i>) • Wigeon (<i>Anas penelope</i>) • Teal (<i>Anas crecca</i>) • Pintail (<i>Anas acuta</i>) • Shoveler (<i>Anas clypeata</i>) • Red-breasted Merganser (<i>Mergus serrator</i>) • Oystercatcher (<i>Haematopus ostralegus</i>) • Golden Plover (<i>Pluvialis apricaria</i>) • Grey Plover (<i>Pluvialis squatarola</i>) • Lapwing (<i>Vanellus vanellus</i>) • Dunlin (<i>Calidris alpina</i>) • Black-tailed Godwit (<i>Limosa limosa</i>) • Bar-tailed Godwit (<i>Limosa lapponica</i>) • Curlew (<i>Numenius arquata</i>) • Redshank (<i>Tringa totanus</i>) • Black-headed Gull (<i>Chroicocephalus ridibundus</i>) 	Potential significant effects arising from aquatic and atmospheric emissions will be considered further

		<ul style="list-style-type: none"> • Common Gull (<i>Larus canus</i>) • Lesser Black-backed Gull (<i>Larus fuscus</i>) • Common Tern (<i>Sterna hirundo</i>) • Wetland and Waterbirds 	
Blackwater River (Cork/Waterford) SAC 002170	10.8km east	<ul style="list-style-type: none"> • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Perennial vegetation of stony banks • Salicornia and other annuals colonising mud and sand • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) • Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) • <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) • <i>Austropotamobius pallipes</i> (White-clawed Crayfish) • <i>Petromyzon marinus</i> (Sea Lamprey) • <i>Lampetra planeri</i> (Brook Lamprey) • <i>Lampetra fluviatilis</i> (River Lamprey) • <i>Alosa fallax fallax</i> (Twaite Shad) • <i>Salmo salar</i> (Salmon) • <i>Lutra lutra</i> (Otter) • <i>Trichomanes speciosum</i> (Killarney Fern) 	Potential significant effects arising from aquatic and atmospheric emissions will be considered further
Blackwater Estuary SPA	10.8km east	<ul style="list-style-type: none"> • Wigeon (<i>Anas penelope</i>) • Golden Plover (<i>Pluvialis apricaria</i>) • Lapwing (<i>Vanellus vanellus</i>) • Dunlin (<i>Calidris alpina</i>) • Black-tailed Godwit (<i>Limosa limosa</i>) • Bar-tailed Godwit (<i>Limosa lapponica</i>) • Curlew (<i>Numenius arquata</i>) • Redshank (<i>Tringa totanus</i>) 	

		<ul style="list-style-type: none"> • Wetland and Waterbirds 	
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Table 2 – Natura 2000 Sites Within 10km of the Proposed Site

The generic conservation objectives of these sites are:

To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC /SPA has been selected.

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.

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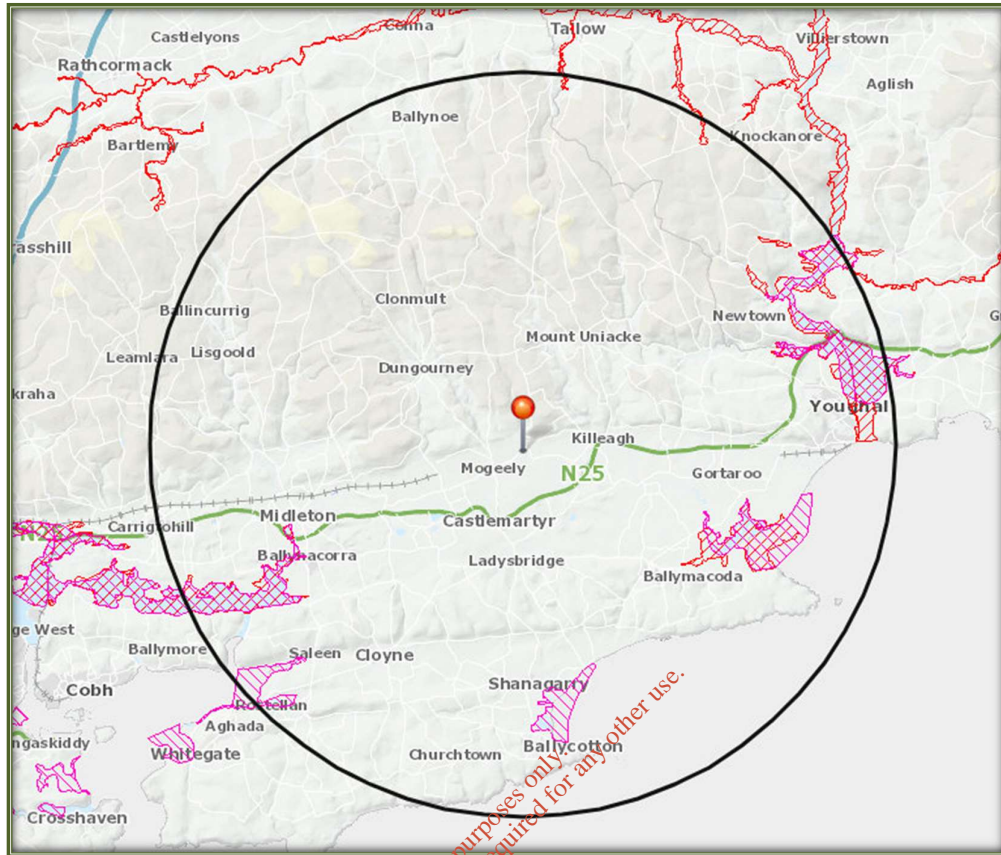


Figure 4 – The Application Site in relation to the Designated Sites within 15km (Pinned)

5 IDENTIFICATION AND ASSESSMENT OF POTENTIAL IMPACTS

5.1 INTRODUCTION

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 Annistown are likely to occur and whether or not they are significant.

An Appropriate Assessment Screening undertaken by the EPA (12/10/2017) identified the following impacts:

- *Possible elevated nitrogen deposition rates at the Blackwater River (Cork/Waterford) SAC*

This potential impact and its significance is discussed below. All sites within 15km have been assessed for potential significant effects arising from atmospheric emissions.

EFFECTS DUE TO ATMOSPHERIC EMISSIONS

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 March 2021. 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 Killeagh 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, storage of manure (assuming full storage) and digital terrain data.

The report provided the annual average ammonia concentrations at ecologically sensitive sites, i.e., the seven Natura 2000 sites within 15km of the proposed site. The results are presented in Table 3, whilst Table 4 provides an assessment of the process contribution for ammonia on the Natura 2000 sites arising from the proposed development.

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 considered as part of this assessment. 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.

Natura 2000 Site	Distance to Sheds	2015	2016	2017	2018	2019	Average
Ballymacdoa Bay SPA	7.89km	0.012	0.015	0.013	0.013	0.014	0.013
Ballymacoda (Clonpriest and Pillmore) SAC	8.02km	0.013	0.013	0.014	0.011	0.013	0.013
Ballycotton Bay SPA	9.44km	0.010	0.012	0.011	0.011	0.011	0.011
Great Island Channel SAC	9.94km	0.010	0.006	0.009	0.008	0.009	0.009
Cork Harbour SPA	9.96km	0.010	0.006	0.009	0.008	0.009	0.009
Blackwater River (Cork/Waterford) SAC	10.72km	0.011	0.014	0.011	0.007	0.011	0.011
Blackwater Estuary SPA	10.79km	0.011	0.013	0.011	0.007	0.010	0.010

Table 3 – Ammonia Concentrations (µg/m³) at Natura 2000 Sites (Taken from Table 1 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.

Natura 2000 Site	Critical Load Guideline	Background	Highest PC	PEC	PC / Guideline Level (%)	PEC / Guideline Level (%)
Ballymacdoa Bay SPA	3	1.01	0.015	1.025	0.5	34
Ballymacoda (Clonpriest and Pillmore) SAC	3	1.00	0.014	1.014	0.5	34
Ballycotton Bay SPA	3	1.00	0.012	1.012	0.4	34
Great Island Channel SAC	1	0.76	0.010	0.770	0.3	26
Cork Harbour SPA	3	0.76	0.010	0.770	0.3	26
Blackwater River (Cork/Waterford) SAC	1	1.17	0.014	10184	1.4	118
Blackwater Estuary SPA	1	1.17	0.013	1.183	0.4	39

Table 4 – Ammonia Concentrations ($\mu\text{g}/\text{m}^3$) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 15 Of Ammonia Impact Assessment Report)

The ammonia concentrations at the sites are dominated by the background concentrations, which are approximately 34– 118% of the air quality guideline for ammonia. At all locations the deposition of ammonia is $\leq 4\%$ and therefore considered to be insignificant. It can also be seen from the Table above that the guideline level (critical level) of ammonia is not exceeded at 6 of the 7 sites (Locations 1– 5 and 7). At the one site where the Critical Level of ammonia is exceeded (Location 4), the PC of the proposed site is 1.4% of the Guideline level, 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 pig 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.

Natura 2000 Site	Guideline	Background	Highest PC	PEC	PC / Guideline Level (%)	PEC / Guideline Level (%)
Ballymacdoa Bay SPA	20	16.2	0.08	16.28	0.38	81
Ballymacoda (Clonpriest and Pillmore) SAC	20	16.2	0.07	16.27	0.35	81
Ballycotton Bay SPA	20	15.85	0.06	15.91	0.30	80
Great Island Channel SAC	20	16.55	0.05	16.60	0.27	83
Cork Harbour SPA	20	16.55	0.05	16.60	0.27	83
Blackwater River (Cork/Waterford) SAC	5	27.43	0.07	27.20	1.41	544
Blackwater Estuary SPA	20	16.53	0.07	16.60	0.34	83

Table 5 – Nitrogen Concentrations (kg N/ha/yr) at Natura 2000 Sites – Predicted Impacts from the Proposed Development (Taken from Table 18 Of Ammonia Impact Assessment Report)

It can be seen from Table 5 that the nitrogen concentrations at the sites are dominated by the background concentrations. The PC at all Locations is less than 0.1kg.N/ha/yr, and as a result would be considered de minimus for the purposes of the Nitrogen assessment.

AERMOD Conclusions

It can be concluded that the predicted results of the ammonia modelling process show that the limits for the protection of vegetation are not exceeded at the designated habitats within the vicinity of the pig farm. Thus, any areas of ecological interest will not be adversely affected from the ammonia emissions during the operation of the proposed farm. The Ammonia Impact Assessment report also illustrated the annual average ground level of ammonia concentration around the farm and this was displayed as a contour map. This contour map showed no significant plume of ammonia at any Natura 2000 site boundary.

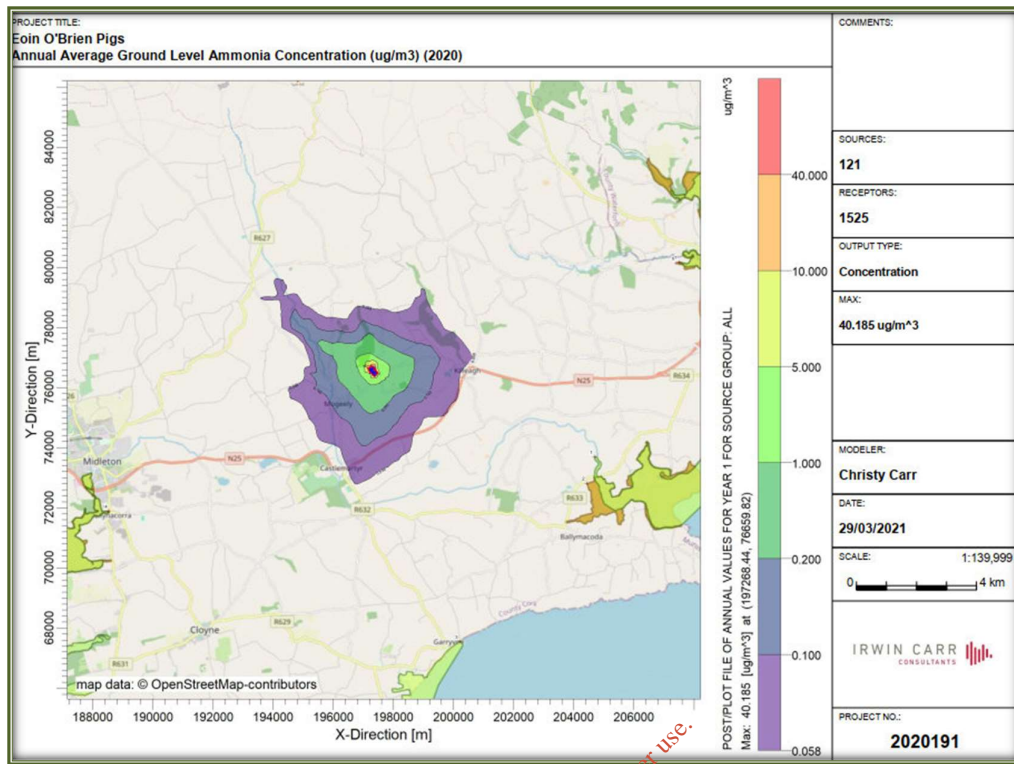


Figure 7 – Ammonia Contour Map

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 Annistown will be negligible.

Cumulative impacts arising from predicted emissions from the facility when considered in combination with other farms in the locality have also been considered. There are no other Licensed farms within 3km of the proposed site.

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':

"Significance', in an Irish context, for any pollutant may be defined as an impact leading to a 5% increase in the applicable ambient air quality standard (AQS)".

In their recent consultation response, the EPA confirmed that for the assessment of impacts of intensive agriculture installations on Natura sites is typically 4% of the critical load limit for ammonia and 5% of the critical load limit for nitrogen.

The following points detail whether or not a cumulative assessment is necessary as part of this assessment. These points are based on a flowchart as presented in Figure 2 of the Ammonia Impact Assessment (*based on the EPA, Office of Environmental Enforcement. Air Dispersion Modelling from Industrial Installations Guidance Note AG4*).

It is noted that Option 3 of the flowchart states "Is the impact from the proposed installation above the 'significance' level (5% of AQS) for the same pollutant?" It can be seen from Table 15 of the Ammonia Impact Report above that the maximum process contribution at the closest designated sites (Location 6- Blackwater River Cork/Waterford) is 1.4%. As a result, a cumulative assessment is not required for this site.

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 Killeagh and in order to protect certain designated sites and species, as well as local, undesignated habitats, a number of mitigation measures should be considered. 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.

- 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 25% of the ammonia emissions, as every 1% reduction in crude protein in the diet will result in approximately 10% reduction in N excretion.
- 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_published.pdf)
- The applicant must follow the guidelines set out in the Department of Agriculture's *Explanatory Handbook for Good Agricultural Practice Regulations*.

MANAGEMENT AND LAND-SPREADING OF ORGANIC FERTILISER

In order to avoid any reductions in water quality within the Blackwater (Cork) catchment as a whole, all organic fertiliser should be used in accordance with S.I. 605 of 2017 (as amended) European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2015). The following measures may be considered:

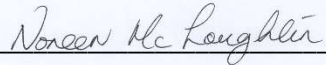
- The storage and handling of all fertilisers on site must be in accordance with S.I. 605 of 2017.
- In order to avoid any reductions in water quality within local river catchments, all organic fertiliser should be allocated for use in accordance with S.I. 605 of 2017 (as amended) European Communities.
- Slurry should only be applied to fields with an N and P requirement.
- Fields *within* any area that has been designated as an SAC, SPA or NHA should be excluded from land-spreading.
- A minimum buffer zone of 20m should be put in place and adhered to for areas which are *adjacent* to any area that has been designated as an SAC, SPA or NHA. These buffer zones should be increased depending on the gradient of the land.

- To avoid contamination of the local watercourses in areas identified for land-spreading, a minimum buffer zone of 10m for any main river channels and 5m for smaller watercourses should be adhered to at all times during the application of effluent. Buffer zones should be increased depending on the gradient of the land. In addition, when the waterbody is with 1km upstream of a water dependent designated site the buffer for a river should be increased to 20m while a stream should be increased to 10m.
- Effluent should not be applied within 3m of open field drains or ditches in accordance with Good Agricultural Practice for Protection of Water 2014 SI 31 of 2014.
- Land spreading should only take place when suitable climatic and environmental conditions exist. Spreading must be avoided on:
 - wet or waterlogged soils
 - land sloping steeply towards water courses
 - frozen or snow covered soils
- Effluent should not be applied in proximity of hedgerows and field margins. This will maintain the biodiversity of these areas and allow for a more natural ecological corridor.
- New technologies for spreading slurry that improve efficiency and minimize emissions should be considered, e.g., bandspreader, trailing shoe and the shallow injection technique.

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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 Ammonia Impact Report, that the proposed operation of the pig farm at Annistown will not lead to any significant impacts upon the designated sites identified, specifically the Blackwater River SAC.



Noreen McLoughlin, MSc, MCIEEM.
Ecologist.

(PI Insurance details available on request)

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8 FINDING OF NO SIGNIFICANT EFFECTS

Finding of No Significant Effects Report Matrix	
Name of project	EPA License Application (Review) for Eoin O'Brien
Name and location of Natura 2000 site	The closest Natura 2000 sites to the application site is the Ballymacoda (Clonpriest and Pillmore SAC) and Ballymacoda Bay SPA and these are 7.9km south-east of the application site. The Blackwater River SAC is 10.8km east of the application site.
Description of project	An EPA License (Review) 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 Ammonia Impact Assessment Report has concluded that there will be no atmospheric emissions from the site that will lead to significant effects upon the Natura sites identified.
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, Cork 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