Natura Impact Statement

Industrial Emissions Licence for an existing Poultry Unit and the construction of an additional adjacent modern design Poultry House

at

Templeglantine

Co. Limerick

Doherty Environmental

November 2017

Industrial Emissions Licence Application

Poultry Unit

Templeglantine, Co. Limerick

Document Stage	Document Version	Prepared by
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1.0 INTRODUCTION

Doherty Environmental Consultants (DEC) Ltd. has been commissioned by NRGE Ltd. to prepare a Natura Impact Statement in respect of an Industrial Emissions Licence Application (Ref No. P1042-01) for an existing Poultry Unit and the construction of an additional adjacent modern design Poultry House at Michael Noel O'Connors Poultry Farm at Templeglantine, Co. Limerick.

The project is located in close proximity to the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (see Figure 1.1 for location). It is not directly connected with or necessary to the management of this or any other European site and hence the requirements of Article 6(3) of the Habitats Directive and Part XAB of the Planning and Development Act 2000, apply. Section 177U(1) of the Planning and Development Act 2000 requires that a screening for an appropriate assessment of, inter alia, an application for consent for a proposed development be carried out by a competent authority to assess, in light of best scientific knowledge, whether the proposed development, individually or in combination with another plan or project is likely to have a significant effect on a European site. A Screening for Appropriate Assessment was completed by the EPA in August 2016 and it was determined that an Appropriate Assessment was required. The EPA Screening concluded that the project will have the potential to contribute to elevated ammonia levels at the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

Accordingly, this NIS has been prepared to inform the Appropriate Assessment of the project's potential to result in likely significant effects to the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA as a result of elevated ammonia emissions. Surface water emissions from the project site to the Lower River Shannon SAC catchment are also considered and assessed as part of this NIS.

1.1 GUIDANCE

This NIS has been undertaken in accordance with National and European guidance documents: Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities (DEHLG 2010) and *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats directive 92/43/EEC.* The following guidance documents were also of relevance during this the preparation of this NIS:

- A guide for competent authorities. Environment and Heritage Service, Sept 2002. Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (2010). DEHLG.
- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats Directive 92/42/EED. European Commission (2001).
- Managing Natura 2000 Sites – The provisions of Article 6 of the Habitats directive 92/43/EEC. European commission (2000). (To be referred to as MN 2000).
- Guidance on Article 6(4) of the Habitats Directive 92/43/EEC – Clarification of the Concepts of: Alternative Solutions, Imperative reasons of Overriding Public Interest, Compensatory Measures, Overall coherence, Opinion of the Commission. European Commission (2007).

1.1.1 Background to Habitats Directive Article 6 Assessments

The EC (2001) guidelines outline the stages involved in undertaking an assessment of a project under Article 6(3) and 6(4) of the Habitats Directive. The assessment process comprises the four stages outlined below. Stage 1 to 3 form part of the Article 6(3) process, while Stage 4 forms part of the Article 6(4) process. This NIS presents the findings of an assessment for Stage 2 of this assessment process.

- Stage 1 – Screening: This stage defines the proposed plan, establishes whether the proposed plan is necessary for the conservation management of the Natura 2000 site and assesses the likelihood of the plan to have a significant effect, alone or in combination with other plans or projects, upon a Natura 2000 site.

- Stage 2 – Appropriate Assessment: If a plan or project is likely to have a significant affect, an Appropriate Assessment must be undertaken. In this stage the impact of the plan or project to the Conservation Objectives of the Natura 2000 site is assessed. The outcome of this assessment will establish whether the plan will have an adverse effect upon the integrity of the Natura 2000 site.

- Stage 3 – Assessment of Alternative Solutions: If it is concluded that, subsequent to the implementation of mitigation measures, a plan has an adverse impact upon the integrity of a Natura 2000 site it must be objectively concluded that no alternative solutions exist before the plan can proceed.

- Stage 4 – Where no alternative solutions exist and where adverse impacts remain but imperative reasons of overriding public interest (IROPI) exist for the implementation of a plan or project an assessment of compensatory measures that will effectively offset the damage to the Natura site 2000 will be necessary.

1.1.1.1 Stage 2: Appropriate Assessment

The EC Guidance Assessment Criteria for a Stage Two Appropriate Assessment seeks the following information:

1. A description of the elements of the project that are likely to give rise to significant effects to European Sites;

2. The Setting out the Conservation Objectives of the Site;

3. A description of how the project will affect key species and key habitats;

4. A description of how the integrity of the site (determined by structure and function and conservation objectives) is likely to be affected by the project (e.g. loss of habitat, disturbance, disruption, chemical changes, hydrological changes etc.);

5. A description of the mitigation measures that are to be introduced to avoid, reduce or remedy the adverse effects on the integrity of European Sites.

2.0 PROJECT DESCRIPTION

The site of the Poultry Unit is located approximately 9km South West of Newcastle West and 1km from the village of Templeglantine, which is to the North East of the Unit (see Figure 2.1 for location.

An indicative site layout is shown on Figure 2.2 (see Planning Drawing for precise Site Layout). The total area of the site is 1.5 Hectares. The poultry unit as per Planning Ref 13366/12283 is approximately 50m North from the existing 2no poultry houses (20,000 birds each). The current capacity of the existing farm is 40,000. The new house has a capacity for 34,000 birds; amounting to a total of 74,000 birds.

2.1.1 Facilities

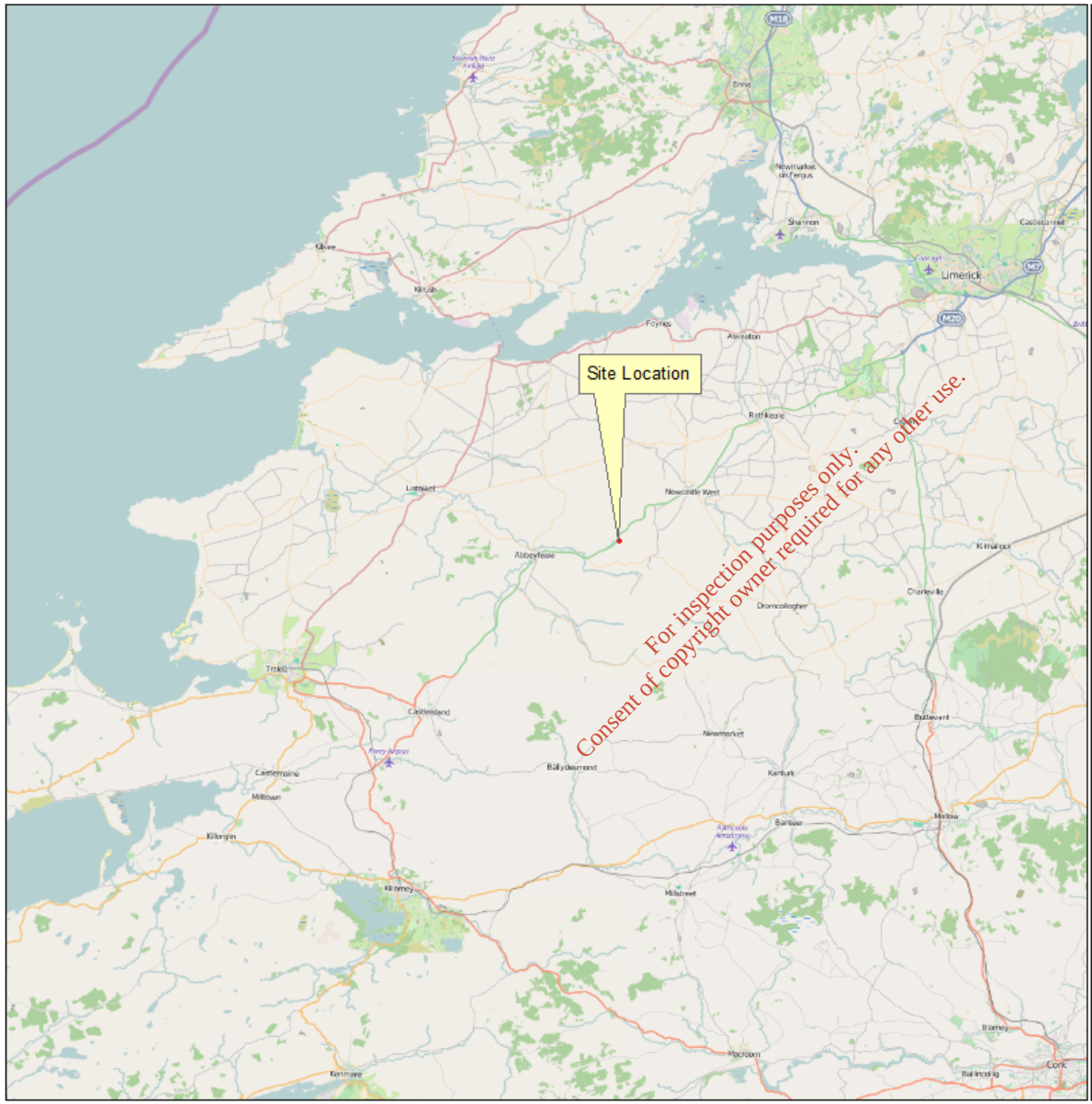
The buildings and its layout will be state of the art for the industry. A thorough review was undertaken of the best available techniques to minimise emissions from the unit and to maximise welfare conditions for animals and staff alike on-site. All facilities on-site are compliant with Best Available Techniques.

2.1.2 Drainage

All storm water from the yard will be diverted via a clean water drainage system to a single storm water monitoring point indicated as SW1 on the Site Layout Plan, which discharges to a small drainage ditch. This monitoring point will be inspected weekly and sampled quarterly for COD at an Independent Laboratory.

2.1.3 Soiled Water

Soiled water arising from the washing down of the accommodation houses is utilised on the applicant's land adjacent to the unit and amounts to approximately 5 vacuum tanks a year. The application of the soiled water is regulated under the EU (Good Agricultural Practice for the Protection of Waters) 2014 S.I. 31 of 2014.



MN O'Conner Poultry

Figure 2.1

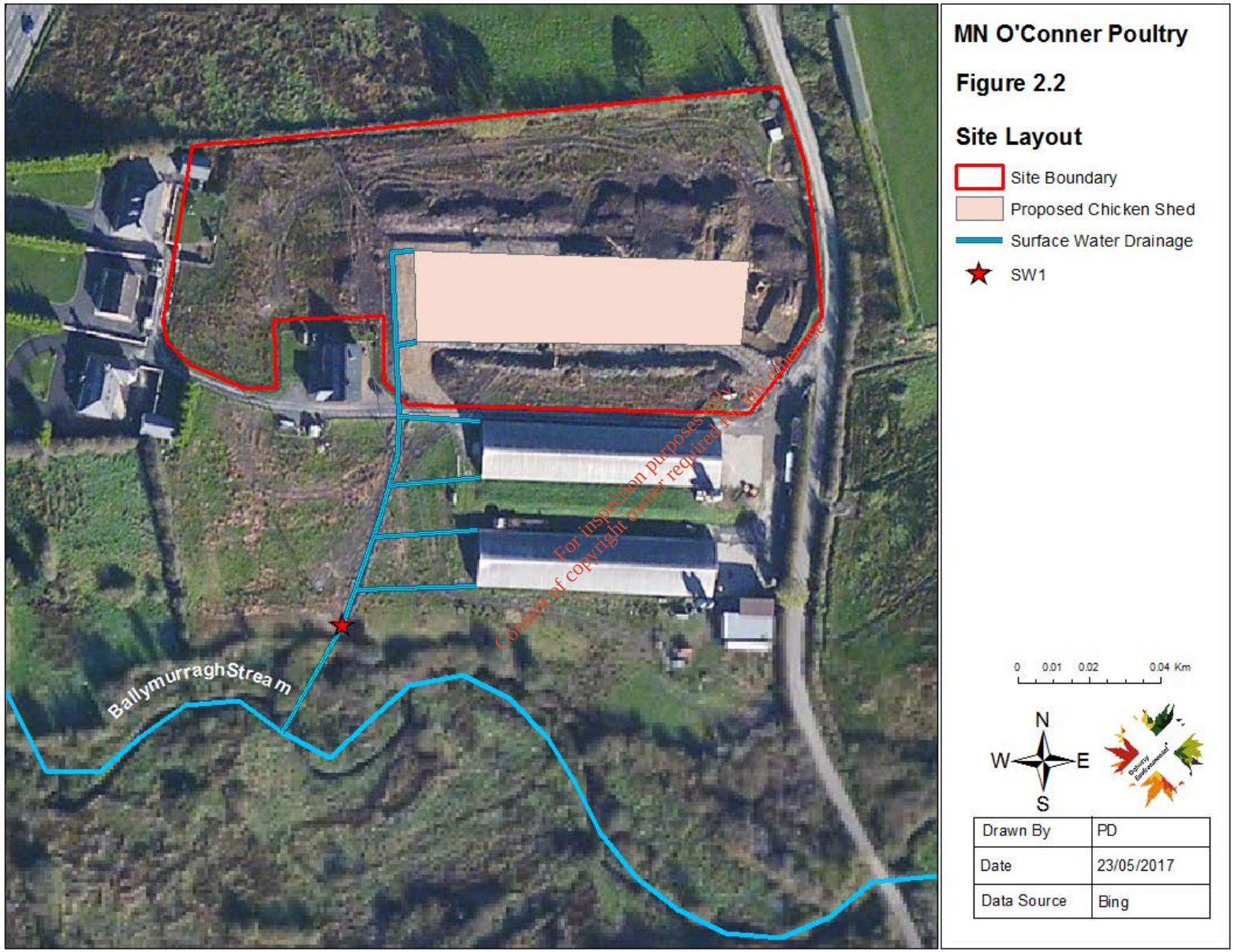
Site Location

Site Boundary

0 4.5 9 18 Km

N
W E
S

Drawn By	PD
Date	23/05/2017
Data Source	Bing



2.1.4 Storm/clean surface water

All clean surface water collected will be discharged to an adjacent drainage ditch. Roof water is collected via galvanised gutters and downpipes and diverted to this drainage ditch also.

2.1.5 Storage Tanks

On site there are currently 2 no 37.6m^3 precise underground effluent tanks, which hold all washings from the poultry houses and soiled water from the yards. This tank's construction conforms to the Department of Agriculture, Food and the Marine's specification S123 Minimum Specification for Bovine Units and Reinforced Tanks – March 2006.

2.1.6 Poultry Litter

The poultry litter from this unit is supplied to Custom Compost of Ballyminaun Hill, Gorey, Co. Wexford for use in the production of mushroom compost. The litter is removed off site on the same day as the shed cleaning is carried out.

2.1.7 Feed Silo

Feed silos, approximately 7.6 m high, 3.0 m diameter are installed adjacent to the accommodation houses.

2.1.8 Heating

Gas heating is installed in all poultry houses.

2.1.9 Feeding/Drinking Apparatus

An auger style feeding system is installed in each unit which has a low pan for easy access and low flow nipple-type drinkers with a drip cup to reduce spillages to the floor.

2.1.10 Traffic

The poultry unit is serviced by a local unnamed road, 1km from the village of Templeglantine. The Unit's entrance joins this road on a straight stretch giving maximum visibility for traffic. The increase in the use of raw materials associated with the increase in poultry growing operation will not lead to a significant increase in traffic movements. Therefore, there will be no impact on the existing road network.

2.1.11 Noise & Odour

This Poultry operation has no significant effect on noise or odour. To date there has been no direct noise or odour related complaints made to the existing Poultry Unit.

2.1.12 Waste Management

Michael Noel O' Connor has existing procedures in place with regards to waste management, in accordance with Part III of the Waste Management Acts 1996, as amended. These are outlined in the Waste Management Plan prepared by NRGE ltd.

2.1.13 Monitoring and Register

Proposals for monitoring storm water emissions at the site and noise monitoring locations carried out during the baseline survey are set down in the Environmental Report. There are no proposed monitoring measures for dust or odour at the unit. However, if any complaints are received, a follow up investigation will be initiated.

An Annual Environmental Report will be submitted annually to the Environmental Protection Agency, in accordance with the requirements of an Industrial Emissions Licence.

3.0 DESCRIPTION OF THE PROJECT SITE SETTING

The project site lies immediately to the north of an existing poultry unit. The project site and the existing poultry unit are located in an area that is relatively flat with existing poultry units well screened by hedgerows from the N21.

Rural, agricultural land with little topographic relief occurs on-site. Much of the landscape surrounding the site is flat where levels are commonly 127m to 136m. Throughout the area the land is farmed with fields enclosed with a varied mix of hawthorn and blackthorn hedges, stonewalls and fences. Improved agricultural grassland dominates the surrounding land cover.

Improved agricultural grassland dominates the development footprint with surrounding hedgerows and treelines.

4.0 EUROPEAN SITES OCCURRING WITHIN THE SPHERE OF INFLUENCE OF THE PROJECT

The Screening for Appropriate Assessment completed by the EPA identified the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA as the only European Sites occurring within the sphere of influence of the project.

Two other European Sites, the Lower River Shannon SAC and the Blackwater Valley SAC, occur within the wider area surrounding the project site. The Blackwater Valley SAC is located over 14km from the project site and is located within a separate surface water catchment. In light of the absence of any hydrological pathways linking the project site to this SAC and the distance between both locations, it is considered that the project will not have the potential to result in likely significant effects to the Conservation Objectives of this SAC.

However the project site is located within the same surface water catchment as the Lower River Shannon SAC. Surface waters emanating from the project site drain to the Ballymurragh East Stream, which is an upstream feeder stream of the Eeghaun River. The Eeghaun River in turn drains to the River Feale which forms part of the Lower River Shannon SAC. The confluence of the Eeghaun River and the River Feale is the nearest point of this SAC to the project site and is located approximately 5km downstream from the project site. In light of this hydrological pathway and the presence of freshwater lotic qualifying habitats and species of the SAC, occurring along the River Feale downstream of the project site, this SAC is considered to occur within the sphere of influence of the project and could be negatively affected by the project in the event of aqueous pollution emissions from the project site. As such the potential for the project to result in likely significant effects to the Lower River Shannon SAC is also assessed in this NIS.

4.1 FEATURES OF EUROPEAN SITES OCCURRING WITHIN THE SPHERE OF INFLUENCE OF THE PROJECT

4.1.1 Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA

The Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is designated for its role in supporting a population of breeding Hen Harrier. This species ranges widely over the area surrounding the project site. The following sections of this NIS assess the potential for the project to result in likely significant effects to the conservation status of Hen Harrier.

The preferred breeding habitat of Hen Harrier in Ireland is within pre-thicket forest habitats (Wilson *et al.*, 2005; Barton *et al.*, 2006; Ruddock *et al.*, 2008; Irwin *et al.*, 2008; Wilson *et* al., 2009). This species is known to prefer heather dominated upland moorland in Britain (Redpath et al., 1998, Sim et al., 2007) and a number of nest sites in Ireland have also been recorded in this habitat. It is noted that no examples of suitable breeding habitat in the form of pre-thicket forestry or heather dominated upland moorland occur in the immediate vicinity of the project site. Small patches of closed canopy mature conifer plantation occur to the east of the project site, but this forestry does not offer suitable breeding habitat for Hen Harrier. A confined area of upland moorland is located approximately 1km to the south of the site, in the townland of Tournafulla. There is no record of this area being utilised as a breeding site by Hen Harriers. Furthermore the 2015 National Hen Harrier Survey (Ruddock, 2016) did not result in the confirmation or the identification of probable Hen Harrier nesting within the hectad R12 in which the project site is located. It is noted that the 2010 National Hen Harrier Survey (Ruddock, 2012) did confirm the presence of breeding Hen Harrier within this hectad.

The foraging habitat preferences of hen harriers are generally biased towards moorland/grassland mosaic habitats (see Amar *et al.*, 2008, Amar *et al.*, 2011), which support larger numbers of hen harrier preferred prey species, such as meadow pipit (*Anthus pratensis*) and skylark (*Alauda arvensis*). The Hen Harrier habitats of the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA have been mapped (Moran & Wilson-Parr, 2014) and a review of this map shows that no example of moorland and grassland mosaic habitats occur within close proximity to the project site. Figure 4.1 shows the results of this mapping exercise with respect to the habitats mapped in the vicinity of the project site. Moran & Wilson-Parr (2014) mapped an area of wet and dry heath, approximately 133m to

the northwest of the project site (i.e. the nearest point of the SPA to the project site). However following field visits this polygon is more representative of marsh rather than heath due to the dominance of hydrophilous vegetation such as Filipendula ulmaria, Iris pseudacorus and *Juncus* species and the absence of dwarf shrub vegetation. This change in habitat classification is noted in Figure 4.1.

Figure 4.1 shows that the habitats of the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA occurring within 1km of the project site comprise grassland habitats with varying levels of *Juncus* dominance as well as improved agricultural grassland. These grassland habitats range from intensively managed short sward grassland to extensively or unmanaged rough grassland. For Hen Harrier's the importance of these grassland habitats relates to the shelter they provide for prey species such as grassland nesting birds and small mammals. Sward height rather than sward composition is the principal attribute of these grassland habitats that provide support for foraging Hen Harriers.

No example of peatland habitat occur within a 1km radius of the project site. As noted above the nearest example of a peatland habitat is located just over 1km to the south of the project site in the townland of Tournafulla.

During the 2015 National Hen Harrier survey rough grazing was the second most utilised open habitat for foraging Hen Harrier, with 12.4% of foraging observations recorded in this habitat. Improved grassland, the other open habitat dominating the area surrounding the project site, was not relied on for foraging with only 1.9% of hunting observations recorded in this habitat. However it is noted that heather moorland is the most important foraging habitat for this species with 30% of all foraging observation made in this habitat. Hen Harrier foraging habitat is biased towards open moorland and the diet is predominantly comprised of open moorland passerines and small mammals. As can be seen in Figure 4.1 no examples of heather moorland habitat occurs within the immediate vicinity of the project site.

4.1.2 Lower River Shannon SAC

The qualifying features of interest of the Lower River Shannon SAC are listed in Table 4.1 and an assessment is provided for the features likely to occur within the sphere of influence of theproject.

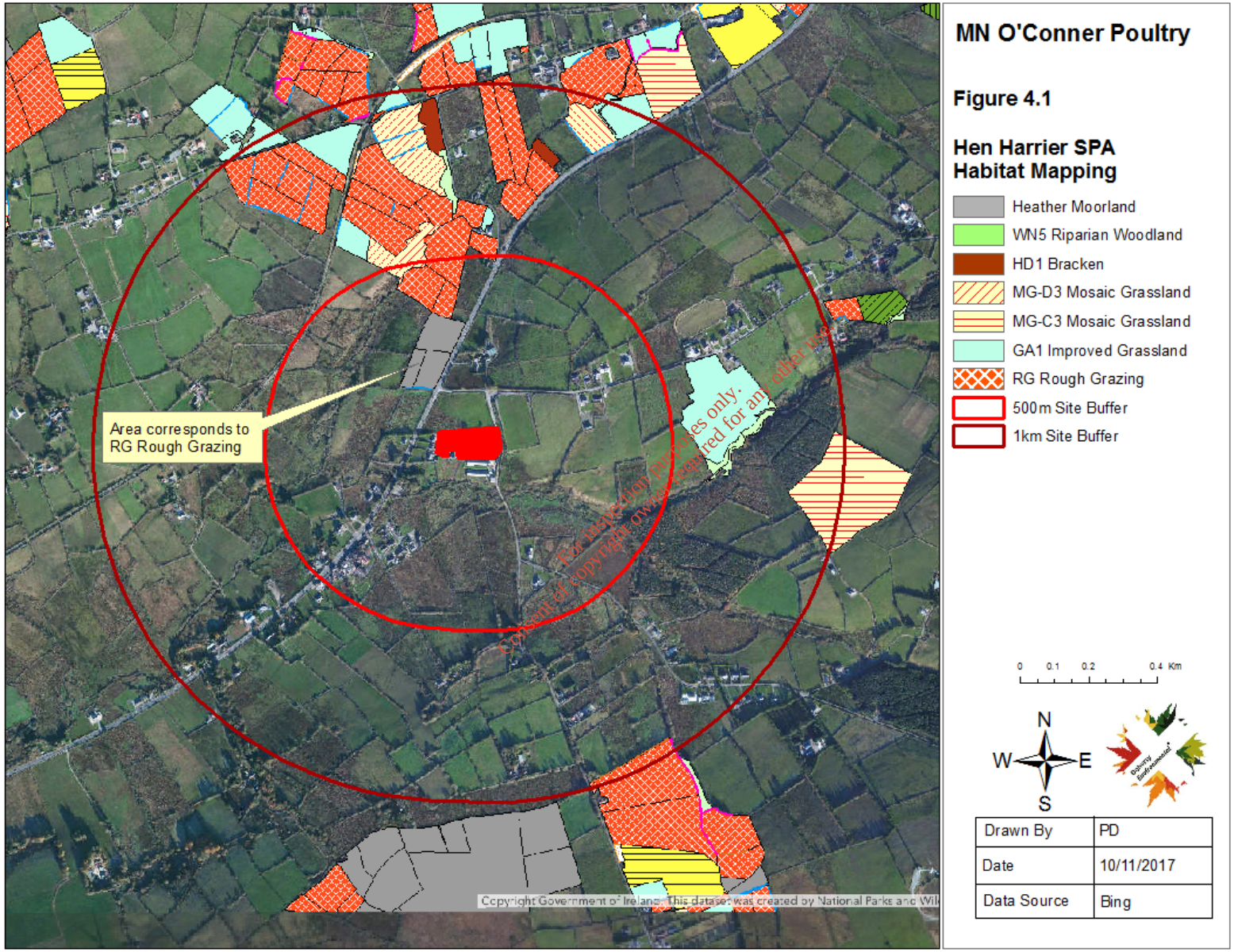


Table 4.1: Identification of Qualifying Features Interest occurring within the Sphere of Influence of the Project

European Sites	Qualifying Interests	Does the qualifying feature of interest/special conservation interest occur within the Sphere of Influence of the Project
2165 – Lower River Shannon	Estuaries	No. The nearest example of this habitat is located at remote distances downstream. The distance between this project site and this feature will be sufficient to ensure that it is located outside the sphere of influence of the project.
	Mudflats and sandflats not covered by seawater at low tide	No, see reasons for estuaries above.
	Coastal Lagoons	No, see reasons for estuaries above.
	Vegetated sea cliffs of the Atlantic and Baltic coasts	No, see reasons for estuaries above.
	Salicornia and other annuals colonizing mud and sand	No, see reasons for estuaries above.
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	No, see reasons for estuaries above.
	Mediterranean salt meadows (Juncetalia maritimi)	No, see reasons for estuaries above.
	Watercourses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation (to be referred to as "floating river vegetation"	Yes. Examples of this qualifying habitats are likely to be supported by the River Feale.
	Sandbanks which are slightly covered by sea water all the time	No, see reasons for estuaries above.
	Large shallow inlets and bays	No, see reasons for estuaries above.
	Reefs	No, see reasons for estuaries above.
	Perennial vegetation of stony banks;	No, see reasons for estuaries above.

	Spartina swards (Spartinion maritimae);	No, see reasons for estuaries above.
	Molinia meadows on calcareous, peaty or clay-silt-laden soils (Molinion caerulecae);	No, see reasons for estuaries above.
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*;	No. No example of this riparian habitat occurs downstream of the project site.
	River Lamprey;	Yes. This species is likely to occur along the Black River at and in the vicinity of the project works.
	Brook Lamprey;	Yes. This species is likely to occur along the Black River at and in the vicinity of the project works.
	Sea Lamprey	Yes. This species is likely to occur along the Black River at and in the vicinity of the project works.
	Atlantic Salmon	Yes. This species is likely to occur along the Black River at and in the vicinity of the project works.
	Bottle-nosed Dolphin	No. This species occurs at the outer and middle Shannon Estuary.
	Freshwater Pearl Mussel	No. This feature does not occur within the sphere of influence of the project.
	Otter	Yes. This species is likely to occur along the Black River at and in the vicinity of the project works.

From Table 4.1 above the qualifying features of interest of the SAC that occur within the sphere of influence of the project are:

- Floating river vegetation
- Atlantic salmon;
- Freshwater pearl mussels
- Brook lamprey;
- River lamprey;
- Sea lamprey; and
- Otter.

These features represent the key features/species occurring within the sphere of influence of the project.

5.0 CONSERVATION OBJECTIVES

The overall Conservation Objectives for the special conservation interest bird species of the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is to maintain the favourable conservation status of bird species for which the SPA is designated (i.e. Hen Harrier). The favourable conservation status of breeding Hen Harrier will be achieved when:

- 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; and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The overall Conservation Objectives for the Lower River Shannon SAC's floating river vegetation and Annex 2 species occurring in the sphere of influence of the project is to maintain the favourable conservation status of the Annex 1 Habitats and Annex 2 Species for which the SPA is designated.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and;
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- 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, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Site-specific Conservation Objectives for European Sites provide further details on the attributes and targets that define favourable conservation status. No Site-specific Conservation Objectives for the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA have been published by the NPWS. Furthermore there are no Site-specific Conservation Objectives published by the NPWS for any other SPA's designated for Hen Harriers or other raptor species that could be used as a guide to this assessment. However the Northern Ireland Environment Agency (NIEA) have published draft Conservation Objectives for the breeding Hen Harrier population of the Antrim Hills SPA. Annex 1 of these draft Conservation Objectives outline the attributes and targets that are used to define the favourable conservation status of breeding Hen Harrier. These attributes and targets are outlined in Table 7.1 below and are used as the basis for assessing the potential for the project to result in likely significant effects to the breeding Hen Harrier population of Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

Site-specific Conservation Objectives have been published for the Lower River Shannon SAC and the qualifying features of interest that occur within the sphere of influence of the project. The Site-specific Conservation Objectives for these qualifying habitats species are outlined in Section 7 below.

6.0 DESCRIPTION OF ELEMENTS OF THE PROJECT LIKELY TO GIVE RISE TO IMPACTS TO FEATURES OF INTEREST

The elements of the project that require assessment for their potential to result in likely significant effects are:

1. Adverse effects to the status of breeding Hen Harrier as a result of ammonia emissions during the operation phase of the project; and
2. Adverse effects to the status of the selected qualifying features of interest of the Lower River Shannon SAC as a result of potentially polluting aqueous emissions from the project site to the Lower River Shannon SAC catchment.

7.0 ASSESSMENT OF IMPACTS

An NIS is required to assess the potential for impacts to the integrity of a European Site, with respect to the site's structure and function and its Conservation Objectives. The structural and functional elements of a European Site to maintain the favourable conservation status of qualifying feature of interest are embedded into the list of detailed site-specific Conservation Objectives for each of the site's interest features. As such the detailed Conservation Objectives of a European Site represent the parameters against which an assessment of a project's potential to adversely affect the integrity of a European Sites should be undertaken.

Table 7.1 and 7.2 lists the Conservation Objectives attributes and targets for each of the features of the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA and the Lower River Shannon SAC occurring within the sphere of influence of the project and provides an assessment of the potential for the project to undermine each of these targets.

Table 7.1: Assessment of Potential Impact to the Site-Specific Conservation Objectives for Breeding Hen Harriers

Attribute No.	Attribute	Measure	Target	Assessment
1	Hen Harrier breeding population	No. Breeding Pairs	No significant decrease in breeding population against national trends.	The project site is not located within the vicinity of any known breeding site for Hen Harriers. No breeding Hen Harrier were recorded within the hectad in which the project site is located during the 2015 National Hen Harrier Survey. The habitats occurring in the wider area surrounding the project site are not representative of optimum breeding habitat for Hen Harrier. The nearest area of upland moorland habitat to the project site is over 1km to the south in the townland of Tournafulla. A confined area of peatland habitat, comprising approximately 45 ha occurs here. This area is surrounded by intensively managed improved agricultural grassland and its perimeter area is likely to be subject to routine disturbance from agricultural activities. As such it is considered that the project will not have the potential to result in a decrease in the population of breeding Hen Harrier as a consequence of disturbance to their nest sites. No high value foraging habitat, in the form of open upland moorland occurs within 1km of the project site. Hen Harrier foraging habitat surrounding the project site is dominated by rough

				grazing, marsh and improved grassland. The potential for ammonia emissions from the project site to result in significant changes to these habitats and by extension result in a deterioration of the potential for these habitats to support foraging Hen Harrier will be low and insignificant. The rough grazing, marsh and improved agricultural grassland consist of vegetation communities dominated by higher plants. For ammonia concentration in air the Critical Level for higher plants is 3.0 µg-NH^3/m^3 as an annual mean. A lower Critical Level of 1.0 µg-NH^3/m^3 is used where vegetation communities are dominated by lichens and bryophytes. Such vegetation communities do not form an important component of the surrounding rough grazing, marsh and improved agricultural grassland habitats and furthermore, as noted in Section 4 above it is the sward height of these habitats that represents the principal attribute of these habitats to function as foraging habitat for Hen Harrier. A SCAIL Model of the additional adjacent modern design Poultry House has been prepared (see Appendix 1) and this has shown that at the nearest point of the SPA to the project site (i.e. within marsh habitat approximately 175m from the site) there will be no exceedance of the 3.0 µg-NH^3/m^3 Critical Level, while there will be a minor exceedance of the1.0 µg-NH^3/m^3 Critical Level (i.e. a Critical Level of 1.59 µg-NH^3/m^3 at the marsh habitat is predicted).

				A SCAIL Model was also completed for the nearest area of peatland habitat to the project site, approximately 1km to the south in the townland of Tournafulla (see Appendix 1). As noted above the principal component of this habitat for supporting foraging Hen Harriers is the tall dwarf shrub community, the ammonia concentration Critical Level for which is 3.0 µg-NH^3/m^3. The SCAIL model for this habitat receptor results in an exceedance of 0.13 µg-NH^3/m^3 of the Lower Critical Level, while there will be no exceedance of the Higher Critical Level. The results of the SCAIL Models for surrounding habitat receptors within the SPA show no exceedance of the Higher Critical Level for these habitats, above which there could be a change in the vegetation community. The low levels of ammonia concentrations generated by the project during the operation phase will not have the potential to alter the community of vascular plants dominating surrounding habitats within the SPA and will not undermine their potential to function as potential foraging habitats for Hen Harrier. As the project is not predicted to have the potential to result in changes to the structure of surrounding habitats, it will not have the potential to result in a decrease in the breeding population of Hen Harrier as a result of deterioration in foraging habitats.
2	Hen Harrier	No. Fledgling	On average >1 fledgling per pair	In the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA the main threats to nest sites have been

	fledgling success	Success	successfully raised.	identified as unsuitable forest cover and turbary activity in the vicinity of the nest site. Predation has also been cited as a threat to nest sites. Of these the most relevant threats to fledgling success at established nest sites are turbary activity and predation. The project will not have the potential during the operation phase to result in disturbance to Hen Harrier nest sites and fledgling success as a result of turbary activity or predation. Fledgling success is also reliant on an adequate foraging resource for adults and fledglings during the breeding season. In light of the reasons outlined for Attribute No. 1 above the project will not have the potential to undermine the foraging potential of habitats occurring within and surrounding Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA and the project site.
3	Habitat Extent	Area of natural and semi-natural habitat	Maintain the area of natural and semi-natural habitats used or potentially usable by notified species, within the SPA, subject to natural processes.	The assessment of Attribute No. 1 above concluded that the project and the ammonia emission generated by it during the operation will not have the potential to result in changes to the extent of foraging habitat for Hen Harrier surrounding the project site and within the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. The emissions of ammonia will be below the Critical Level for the vascular plant species that make up these habitats and upon which Hen Harrier prey species rely for shelter.

4	Habitat Quality	To be assessed as part of SPA monitoring.	*No target outlined.*	In line with the assessment outlined for Attribute No. 1 and 3 above the operation phase of the project and the emission of ammonia to air from the project activities will not have the potential to undermine the quality of potential Hen Harrier foraging habitat surrounding the project site.

7.1 ASSESSMENT OF POTENTIAL EFFECTS TO THE LOWER RIVER SHANNON SAC

Table 7.2: Site-Specific Conservation Objectives for Rogerstown Estuary SPA Special Conservation Interest Species

Attribute. No.	Attribute	Target	Assessment
Lamprey Species			
1	Distribution (extent of anadromy for sea lamprey)	Access to all watercourses downs to first order streams for brook and river lamprey. Greater than 75% of main stem length of rivers	There will be no reduction in species distribution given that alteration to river morphology and structures which could limit habitat accessibility will not occur as a result of the project.

		accessible from the estuary.	
2	Population structure of juveniles	At least three age/size groups present	There will be no impact on the population structure of juveniles occurring within the SAC. The pathways that could conceivably affect population structure are the discharge of surface runoff from construction areas or wastewater during the operation phase. As outlined in Section 2 above the project will include the implementation of a range of measures that will avoid pollution to the River Feale downstream of the project site. During normal working conditions surface water generated at construction footprints is predicted to drain to ground in surrounding permeable hard core areas. It is expected that there will be excess surface water from the construction footprint and hard core areas only during times of excessive rainfall. Precautionary measures, such as those outlined in Section 2 above, will be put in place to ensure that any surface water runoff during such rainfall events is effectively treated prior to discharge to surrounding drainage ditches and downstream to the surface water network. All wastewater generated during the operation phase will be in the form of wash water from the broiler houses. All wash water is contained and recovered on site in bunded tanks. The volume of wash water generated at the project site will be low. All wash water is transported from the site and used as fertiliser on surrounding

			farm land in accordance with the requirements of European Union (Good Agricultural Practice for Protection of Waters) of S.I. No. 31 of 2014. The regulations aim to ensure that the application of such fertiliser does not result in adverse effects to water quality in surrounding surface water bodies. The implementation of the prescribed measures for land spreading of fertiliser under these regulations will ensure that the wash water generated at the project site and used for fertiliser will not have the potential to result in perturbation to surrounding surface water quality.
3	Juvenile density in fine sediment	Mean catchment juvenile density of at least 2/m2 for river and brook lamprey and 1/m2 for sea lamprey	For the reasons outlined for Attribute No. 2 above the project will not result in any decrease in the density of juveniles in fine sediments along the River Feale.
4	Extent and distribution of spawning habitat	No decline in distribution and extent of spawning beds	For the reasons outlined for Attribute No. 2 above the project will not result in any decline in distribution and extent of spawning beds.
5	Availability of juvenile habitat	More than 50% of sample sites positive	For the reasons outlined for Attribute No. 2 above the project will not result in any change to the availability of juvenile habitat.
Atlantic Salmon			
6	Distribution: extent of anadromy	100% of river channels down to second order from the estuary.	There will be no reduction in species distribution given that alteration to river morphology and structures which could limit

			habitat accessibility are not proposed.
7	Adult spawning fish	Conservation Limit consistently exceeded	For the reasons outlined for Attribute No. 2 above, the project will not result in any decline in the numbers of adult spawning fish supported by the River Feale and the Lower River Shannon SAC.
8	Salmon fry abundance	Maintain or exceed 0+ fry mean catchment wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling.	For the reasons outlined for Attribute No. 2 above, the project will not have the potential to result in any decline in the mean catchment wide abundance value of 17 salmon fry/5 min sampling supported by the River Feale and Lower River Shannon SAC.
9	Out-migrating smolt abundance	No significant decline	For the reasons outlined for Attribute No. 2 above, the project will not have the potential to result in any decline in the numbers of out-migrating smolt.
10	Number and distribution of redds	No decline in numbers or distribution	For the reasons outlined for Attribute No. 2 above, the project will not have the potential to result in any decline in the number and distribution of redds.
11	Water quality	At least Q4	For the reasons outlined for Attribute No. 2 above, the project will not have the potential to result in any decline in water quality along the River Feale that would depress the q-value of this watercourse.
Otters			
12	Distribution	No significant decline	The project does not occur within the buffer zone of foraging otters and is located approximately 100m from the nearest watercourses with potential to support foraging otters. The nearest point of the

			Lower River Shannon SAC is approximately 5km downstream. As such there will be no potential for the project to adversely effect the distribution of otters within the Lower River Shannon SAC.
13	Extent of terrestrial habitat	No significant decline	The extent of terrestrial habitat for otter within SACs is based upon a 10m buffer zone along river banks. The project site does not occur within this buffer zone of river banks and is located at a remote distance from the nearest point of the Lower River Shannon SAC.
14	Extent of marine habitat	No significant decline	The project will not have any potential to interfere with this attribute and target due to the remote location of marine otter habitat from the project site.
15	Extent of freshwater habitat (river)	No significant decline	For the reasons outlined for Attribute No. 2 above, the project will not have the potential to undermine this target.
16	Extent of freshwater habitat (lakes)	No significant decline	This attribute and target are not relevant to the project as no lakes occur within the catchment area.
17	Couching sites and holts	No significant decline	No couching sites or holts occur within close proximity to the project site.
18	Fish biomass	No significant decline	For the reasons outlined for Attribute No. 2 above, the project will not have the potential to undermine this target.
19	Barriers to connectivity	No significant increase	For the reasons outlined for Attribute No. 2, 12 and 13 above, the project will not have the potential to undermine this target
Floating River Vegetation			
20	Habitat area	Area stable or increasing, subject	For reasons outlined for Attribute No. 2 above and in light of the

		to natural processes	remote distance between the project site and examples of this habitat within the Lower River Shannon SAC there will be no potential for the project to result in the area of this habitat.
21	Habitat distribution	No decline, subject to natural processes. See map 13	For reasons outlined for Attribute No. 2 and 20 above there will be no potential for the project to result in a decrease in the distribution of this habitat.
22	Hydrological regime: river flow	Maintain appropriate hydrological regimes	For reasons outlined for Attribute No. 2 there will be no potential for the project to affect hydrological regimes of watercourses upon which this habitat relies.
23	Hydrological regime: tidal influence	Maintain natural tidal regime	The project site is located at a remote distance from the sea and will not have the potential to undermine this habitat as a result of changes to marine influences.
24	Hydrological regime: freshwater seepages	Maintain appropriate freshwater seepage regimes	For reasons outlined for Attribute No. 2 there will be no potential for the project to affect hydrological regimes in terms of freshwater seepage for examples of this habitat relies.
25	Substratum composition: particle size range	The substratum should be dominated by the particle size ranges, appropriate to the habitat sub-type (frequently sands, gravels and cobbles)	For reasons outlined for Attribute No. 2 there will be no potential for the project to affect hydrological regimes in terms of freshwater seepage for examples of this habitat relies.
26	Water quality: nutrients	The concentration of nutrients in the water column should be sufficiently low to prevent	For reasons outlined for Attribute No. 2 there will be no potential for the project to affect water quality within surrounding surface watercourses downstream of the project site.

		changes in species composition or habitat condition	
27	Vegetation composition: typical species	Typical species of the relevant habitat sub-type should be present and in good condition	For reasons outlined for Attribute No. 2 and 20 there will be no potential for the project to affect vegetation composition of examples of this habitat occurring within the Lower River Shannon SAC.
28	Floodplain connectivity	The area of active floodplain at and upstream of the habitat should be maintained	The project will not result in any effects to floodplains upon which this habitat relies.
29	Riparian habitat	The area of riparian woodland at and upstream of the bryophyte-rich sub-type should be maintained	The project will not result in any changes to riparian woodlands upstream of examples of the bryophyte-rich sub-type of this habitat.

The assessments outlined in Tables 7.1 and 7.2 above show that the project will not have the potential to undermine the achievement of the targets set out for each of the interest features of the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA and the Lower River Shannon SAC occurring within the sphere of influence of the project.

There will be no potential for the project to result in direct or indirect impacts to these interest features as a result of ammonia emissions during the operation phase or hydrological emissions during the construction and operation phase.

7.2 IN-COMBINATION EFFECTS

A review of the Limerick County Council Online Planning Enquiry System and the EPA IPCC register was completed on the 10th November 2017 to identify other planning applications or recently granted project adjacent to or downstream of the project site or other existing or recently approved projects that result in airborne emissions.

No such facilities were identified during this review. In light of the absence of other projects resulting in the release of ammonia to air there will be no potential for cumulative air pollution effects.

7.3 A DESCRIPTION OF HOW THE INTEGRITY OF THE SITE IS LIKELY TO BE AFFECTED BY THE PROJECT

EU Guidelines (2001) recommend as part of a Stage 2 Appropriate Assessment that a checklist of site integrity is carried out. This aids in establishing the nature of potential adverse effects to the integrity of the Rogerstown Estuary SPA as defined by the conservation objectives of special conservation interests occurring within the sphere of influence of the project.

Conservation Objectives	
Does the Project have the potential to:	
Cause delays in progress towards achieving the conservation objectives of the site	No
Interrupt progress towards achieving the conservation objectives of the site	No
Disrupt those factors that help to maintain the favourable conditions of the site	No
Interfere with the balance, distribution and density of	No

key species that are the indicators of the favourable condition of the site.	
cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?	No
change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?	No
interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?	No
reduce the area of key habitats?	No
reduce the population of key species?	No
change the balance between key species?	No
reduce diversity of the site?	No
result in fragmentation?	No
result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?	No

7.4 A DESCRIPTION AND EVALUATION OF MITIGATION MEASURE

7.4.1 Best Practice Construction & Design Measures

The following design measures will be implemented during the construction phase of all works:

- A floating hydrocarbon boom and spill kit will be retained on site during all construction works.
- All plant, machinery and site operative will be restricted to a construction working area for all new structures.
- Any excess construction material shall be stored in the construction working area only and will be used for either landscaping within the project.

- Machinery will be checked and cleaned before going on site to see that there is no introduction of alien invasive plant species (e.g. Japanese knotweed) to the site.

- All construction workers will be given a tool box talk addressing the environmental topics prior to commencement of construction.

- Temporary Stockpiles will be restricted to less than 2m in height. Stockpiles will be located as far as possible from drainage ditches, mature trees, hedgerows, surface water drains and water courses.

- No re-fuelling of machinery will take place within 50m of any watercourse.

- Re-fuelling of construction equipment and the addition of hydraulic oil or lubricants to vehicles/ equipment will take place in designated bunded areas a minimum distance of 50m from surface watercourses.

- If it is not possible to bring machinery to the refuelling point, fuel will be delivered in a double-skinned mobile fuel bowser.

- A drip tray will be used beneath the fill point during refuelling operations to contain any spillages that may occur.

The following environmental protection guidelines and associated measures will be implemented during the construction phase:

- Inland Fisheries Ireland's *Requirements for the Protection of Fisheries Habitat during Construction and Development Works.*
- CIRIA (Construction Industry Research and Information Association) Guidance Documents
  - Control of water pollution from construction sites (C532)
  - Control of water pollution from linear construction projects: Technical Guidance (C648)
  - Control of water pollution from linear construction projects: Site Guide (C649)
  - Environmental Good Practice on Site (C692)

- NRA Guidance Documents
  - Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes
  - Guidelines for the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads
  - Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, during and Post Construction of National Road Schemes.

The following measures will be implemented during the operation phase to reduce the potential for the project to generate ammonia:

- There will be no outdoor storage of poultry litter at the project site, and all litter will be transported directly off the farm, at batch clear out, and transported to Custom Compost.
- Maintenance of High health status maximises animal production.
- Litter management and amendments will be implemented.
- Good flock management will be undertaken at all times.
- During winter periods when ventilation is controlled to manage heat within the broilers, the diet will be supplemented by *Yucca schiddigera* extracts to reduce aerial ammonia concentrations.
- All wash water generated during the operation phase will be contained within bunded tanks and recovered as fertilizer. It will be used as land spreading fertilizer on surrounding farmland in accordance with the requirements of European Union (Good Agricultural Practice for Protection of Waters) of S.I. No. 31 of 2014.

7.4.2 Likelihood of mitigation measures and environmental safeguards succeeding

The mitigation measures and environmental safeguards outlined above for the construction phase of the project are taken from established best practice guidelines that have been successfully implemented for a wide range of project-level infrastructural developments. These measures have undergone extensive and rigorous monitoring for their effectiveness at development sites where they have previously been applied to ensure adverse environmental impacts are avoided.

The results of this monitoring and the recommendation of these measures as standard best practice guidelines is based upon their high degree of success in ensuring negative environmental impacts are avoided.

The best practice guidance that have informed the mitigation measures and environmental safeguards proposed in this assessment and that will be adhered to throughout the construction and operation of the existing Poultry Unit and the construction of an additional adjacent modern design Poultry House include:

- The Good Practice Guidance notes proposed by EA/SEPA/EHS:
- PPG1: General Guide to the Prevention of Water Pollution
- PPG4: The disposal of sewage where no Main Drainage is Available
- PPG5: Works In, Near or Liable to Affect Watercourses
- PPG10: Working at Construction and Demolition Sites.
- PPG21: Pollution Incident Response Planning
- PPG26: Dealing with Spillages on Highways
- CIRIA Environmental Good Practice on Site.
- CIRIA Control of Water Pollution from Construction Sites. Technical Guidance C648.
- CIRIA SuDS Manual Technical Guidance C697.
- Development on Unstable Land. Department of Environment (DOE), UK.

The management approach to the approach to the operation phase will ensure that no wastewater generated at the project site will be emitted to surface water courses and the Lower River Shannon SAC downstream from the project site. Dietary management will also be undertaken at the project site to reduce the levels of nutrients emitted in gaseous phases to air.

8.0 CONCLUSION

Based upon the assessment outlined above and the implementation of all environmental safeguards and mitigation measures, it is concluded that the project will not have the potential to result in likely significant effects to the integrity and conservation status of European Sites occurring within the sphere of influence of the project, namely the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA and the Lower River Shannon SAC.

As such the project will not have the potential to result in likely significant effects to the:

Special conservation interest species of the Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA; and

Qualifying features of interest of the Lower River Shannon SAC.

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APPENDIX 1: SCAIL RESULTS

Results of SCAIL Model for Nearest Point of Stacks to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA to the NW of

Results

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Content Specific Help Text

Site Information STACK`S TO MULLAGHAREIRK MOUNTAINS| WEST LIMERICK HILLS AND MOUNT EAGLE SPA

Region:	Republic of Ireland
Site Name:	STACK`S TO MULLAGHAREIRK MOUNTAINS| WEST LIMERICK HILLS AND MOUNT EAGLE SPA
Site Code:	N/A
Designation Status:	User defined
Distance from Installation (m):	213
Receptor Type:	Fen, Marsh and Swamp
Grid Reference:	120344,128371
Met Site:	SHAN
Run Mode:	Conservative
PM_{10} Percentile:	Average

Installation Information

No.	Name	No. of sources	No. of new sources	PM_{10} (t/a)	NH_3 (t/a)	Odour (kOu/a)	Conc NH_3 (µg/m3)	Dep N (kg/ha/yr)	Dep Acid (kEq H+/ha/yr)	Conc PM_{10} (µg/m3)	Conc Odour (Ou/m3)
1	Michael Noel	1	1	-	2.5	-	1.68	8.73	0.589	-	-

Total Depositions/Concentrations and Exceedances

Concentrations/Depositions and Critical Loads/Levels	NH_3 (µg/m3)	N Dep. (kg N/ha/yr)	Acid Dep. (kEq H+/ha/yr)	PM_{10} (µg/m3)	Odour (Ou/m3)
Process Contribution (PC) at receptor edge	1.68	8.70	0.590	-	-
Background concentration at receptor edge	0.91	13.95	2.03 (N:1.00|S:1.03)	-	-
Predicted Environmental Concentration/Deposition (PEC)	2.59	22.65	2.62	-	-
Environmental Assessment Level or Critical Load / Level	Lower: 1 Upper: 3	10.0 Fen, Marsh and Swamp	Fen, Marsh and Swamp	-	-
		ALTERNATIVE CRITICAL LOAD INFO			
USE OWN THRESHOLDS?					
% of relevant standard PC	Lower: 168% Upper: 56%	87%	n/a	-	-
% of relevant standard PEC	Lower: 259% Upper: 86%	226%	n/a	-	-
EXCEEDANCE	Lower: 1.59 Upper: No exceedance	12.65	n/a	-	-

Project Notes

Results of SCAIL Model at nearest example of Upland Heather Moorland in the townland of Tournafulla, over 1km to the south of the project site

Results

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Content Specific Help Text

Site Information STACK`S TO MULLAGHAREIRK MOUNTAINS| WEST LIMERICK HILLS AND MOUNT EAGLE SPA

Region:	Republic of Ireland
Site Name:	STACK`S TO MULLAGHAREIRK MOUNTAINS| WEST LIMERICK HILLS AND MOUNT EAGLE SPA
Site Code:	N/A
Designation Status:	User defined
Distance from Installation (m):	1089
Receptor Type:	Bogs
Grid Reference:	120545,127126
Met Site:	SHAN
Run Mode:	Conservative
PM_{10} Percentile:	Average

Installation Information

No.	Name	No. of sources	No. of new sources	PM_{10} (t/a)	NH_3 (t/a)	Odour (kOu/a)	Conc NH_3 (µg/m3)	Dep N (kg/ha/yr)	Dep Acid (kEq H+/ha/yr)	Conc PM_{10} (µg/m3)	Conc Odour (Ou/m3)
1	Michael Noel	1	1	-	2.5	-	0.23	1.19	0.08	-	-

Total Depositions/Concentrations and Exceedances

Concentrations/Depositions and Critical Loads/Levels	NH_3 (µg/m3)	N Dep. (kg N/ha/yr)	Acid Dep. (kEq H+/ha/yr)	PM_{10} (µg/m3)	Odour (Ou/m3)
Process Contribution (PC) at receptor edge	0.23	1.20	0.081	-	-
Background concentration at receptor edge	0.90	13.95	2.03 (N:1.00|S:1.03)	-	-
Predicted Environmental Concentration/Deposition (PEC)	1.13	15.15	2.11	-	-
Environmental Assessment Level or Critical Load / Level	Lower: 1 Upper: 3	5.0 Bogs ALTERNATIVE CRITICAL LOAD INFO	Bogs	-	-
USE OWN THRESHOLDS?					
% of relevant standard PC	Lower: 23% Upper: 8%	24%	n/a	-	-
% of relevant standard PEC	Lower: 113% Upper: 38%	303%	n/a	-	-
EXCEEDANCE	Lower: 0.13 Upper: No exceedance	10.15	n/a	-	-

Project Notes