ENVIRONMENTAL IMPACT ASSESSMENT REPORT

RECEIVED: 05/06/2024

TULLEKA TRADING ULC
GRAIGUE
BALLINAKILL
CO. LAOIS

2024

Panther Environmental Solutions Ltd
Units 3 & 4, Innovation Centre, SETU Carlow Campus
Green Road, Carlow, Rep. of Ireland, R93 W248

Telephone: 059-9134222
Email: info@pantherwms.com
Website: www.pantherwms.com

Declaration

RECEIVED: 05/06/2024

Job Details		
Job Title:	Environmental Impact Assessment Report	
Job Number:	21691	
Issue Date:	29th May 2024	
Revision:	0	
Client Details		
Client:	Tulleka Trading Unlimited	
Site Address:	Graigue, Ballinakill, Co. Laois	
Site Contact:	Paul Tully	
Position of Contact:	Applicant	
Record of Approval		
Details:	Prepared By:	Prepared By:
Name:	Luis Soares	Nial Ryan
Title/Position:	Environmental Consultant	Environmental Consultant
Date:	29th May 2024	29th May 2024
Signature:		
Details:	Checked By:	Checked By:
Name:	Martin O'Looney	Mike Fraher BSc
Title/Position:	Environmental Consultant	Director of PES Ltd
Date:	29th May 2024	29th May 2024
Signature:		

Copyright © Panther Environmental Solutions Ltd
This report or its contents must not be reproduced for any purpose without written permission. It is to be used only for the purpose for which it is supplied.

TABLE OF CONTENTS

RECEIVED: 05/06/2024

TABLE OF CONTENTS

RECEIVED: 05/06/2024

TABLE OF CONTENTS

RECEIVED: 05/06/2024

TABLE OF CONTENTS

RECEIVED: 05/06/2024

LIST OF TABLES

RECEIVED: 05/06/2024

LIST OF TABLES

RECEIVED: 05/06/2024

LIST OF TABLES

RECEIVED: 05/06/2024

LIST OF FIGURES

RECEIVED: 05/06/2024

LIST OF FIGURES

RECEIVED: 05/06/2024

LIST OF ATTACHMENTS

RECEIVED: 05/06/2024

NON-TECHNICAL SUMMARY

RECEIVED: 05/06/2024

GENERAL

This Environmental Impact Assessment Report (EIAR) document has been prepared on behalf of and for the exclusive use of Tulleka Trading Company by Panther Environmental Solutions Ltd., with respect to an application for planning permission to Laois County Council.

The existing farm and proposed works are located in the townland of Graigue, Co Laois. The piggery location is c. 3.1 km north-east of Ballinakill town, c. 4.9 km south-east of Abbeyleix town and c. 15.0 km south of Portlaoise.

The site is accessed by local road L7794, which connects to the L7797 410m to the east and to the L3777 1.54km to the west. Both of these local roads link to the R430, which connects to the N77 road that passes through Abbeyleix and the N78 road 13.6km to the east of Ballinakill.

The existing pig farm has been established at this location since 1973, and has developed over the decades. The integrated pig farm currently comprises thirteen pig houses with a total capacity for 4,800 production pigs, 4,300 weaners, 650 sows and 120 maiden gilts.

The farm operates under the conditions of an Industrial Emissions License (Reg. No. P0710-03) issued by the Environmental Protection Agency on 22nd December 2011, and amended on 18th December 2013. The farm is licenced under activity 6.2(b) of the First Schedule of the EPA Act 1992, as amended.

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

The license holder is registered as Mr Paul Tully and is operated by the applicant as director of Tulleka Trading Unlimited. The EPA licenced activity comprises the integrated unit at Graigue.

The proposed development is to carry out an extension to an existing piggery and all ancillary site works and services. The extension consists of the construction of 5 no. new pig houses. The proposed extension of the farm would allow for an increase in the live weight of pigs at sale, improvements to animal welfare and production efficiency to sustain the financial viability of this pig rearing enterprise. The design of the proposed houses and the revision in the management of the existing houses would allow for the implementation of best available technique (BAT) shallow pit slurry storage and reductions in emissions to atmosphere from the farm. It is not proposed to increase the number of pig accommodation as permitted by the granted Industrial Emissions (IE) Licence (P0710-03) from the EPA.

The area of the current farm hub measures approximately 1.69 hectares, within a total area of 3.2 hectares of agricultural lands owned by the applicant. The site is comprised mainly of concreted yards (approximately 4,700 m^2) with pig houses and welfare facilities for staff (total 7,664m^2). The development would occur within c. 1.1 ha of agricultural green-field, resulting in a total farm hub area of 2.7 ha. The extension would add 6,288m^2 to the pig house accommodation area, resulting in a total pig accommodation of 13,952 m^2.

The site is located in a rural farming area. Residential development in the area is predominantly aligned along the existing road network. The closest third-party dwelling to the pig farm is adjacent to the site and is occupied by the former owner of the farm, who is made aware of all future developments at the site. There is an understanding between the former proprietor and

Tulleka Trading ULC. that this property will be offered to Tulleka Trading ULC if it is ever to be sold. In such an instance, this property will be utilised by Tulleka Trading ULC for its farm manager and staff at the pig farm. The activity on the site would be farming activities appropriate to the rural area.

RECEIVED: 05/06/2024

The main activities on the site are summarised as follows:

- Breeding and rearing of pigs;
- Delivery of feed to farm;
- Feeding and watering of pigs;
- Removal of pig slurry from slurry tanks periodically;
- Removal of fallen animals when required;
- Cleaning/disinfecting of pig pens between batches.

The principal inputs would be pig feed, water, veterinary medicines and a modest amount of energy (electricity) for lighting and heating. The main outputs at the site are finished pigs for sale and animal slurry (by-product). The primary wastes produced at the site include domestic refuse, recyclable packaging waste and fallen animal carcasses.

The construction phase of the proposed project would take an estimated 6 months.

The proposed development would improve the environmental and welfare performance of the existing facility, to decrease stocking density to sustain viability and to comply with the EU Animal Welfare regulations (S.I. No. 311 of 2010). Following the completion of the project, Tulleka Trading ULC. would remain fully compliant with the EC Regulations on Animal Welfare, Nitrate Directives, and Water Framework Directive.

POPULATION & HUMAN HEALTH

The farm is located within a rural agricultural landscape, sparsely populated, with residential development primarily linearly aligned along the existing road network. A number of large farmsteads and agricultural facilities are located in the surrounding area of the site. There is also a sand and gravel quarry and concrete block maker to the south of the site.

The proposal would have a positive impact upon the local economy. The proposal would maintain the existing permanent full-time employment for 6 operators and would provide temporary employment for people for the duration of the construction phase. The provision of employment during the construction phase would further contribute to the economy of the area through direct spending of goods and services in the area

There would be no effects upon local/regional population levels or community/social infrastructure.

Potential effects upon human health, amenity and resource use have been addressed within this report under the headings Air Quality, Odour, Noise, Land (Hydrology), Utilities & Traffic etc. It is not considered that the proposed development would pose any significant risk to human health or amenity.

RECEIVED: 05/06/2024

SLURRY MANAGEMENT

Slurry storage capacity at the site would be compliant with the minimum 26 weeks' slurry storage capacity specified in S.I. 113 of 2022 if the development went ahead.

Slurry from the site would be collected periodically at designated times by customers (i.e. local farmers) for the purpose of land spreading. All slurry collections from the site would be recorded in a log by the applicant, as per Nitrates Regulations (S.I. 113 of 2022).

All wash water produced on site (i.e. water from cleaning down pig pens between batches) is diverted to the nearest slurry tank where it is treated as slurry. There would be no discharge of any soiled water or any effluent from the site to any watercourse or to groundwater.

The existing and proposed slurry tanks conform to a recognised design standard for slurry storage, i.e. The Irish Department of Agriculture and Food Specifications S141 (*Minimum Specification for New Pig Houses*) April 2022.

As part of the proposed development, only Houses 1 and 4 will be operated as traditional deep pit housing units. All other existing housing units will be operated as shallow pit housing units. The applicant proposes to construct new underground slurry reception tanks under the new buildings.

The proposed slurry storage facilities would incorporate modern "low emission" design. The removal of slurry from underneath the pigs would reduce air and odour emissions from the site.

WASTE MATERIAL

All waste material would be stored as per the BREF Document on Emissions from Storage (July 2006) and removed from the site by a licensed waste contractor as necessary. Removal of waste materials would be documented as appropriate.

The proposed buildings would generate certain waste types during both the construction and operational phases. Waste would be segregated onsite and would be reused in infilling processes and landscaping where permitted and where possible, with remaining wastes sent for recycling or disposal as appropriate.

The operational phase would generate small amounts of typical domestic-type wastes (e.g. cardboard and plastic), animal tissue waste, fluorescent tubes and some veterinary waste which would be collected by the applicant and stored until removed by a suitably licenced waste contractor.

Tulleka Trading ULC. would ensure that all waste hauliers which are contracted by the farm are suitably licenced to transport specific waste streams from the site and that all waste would be delivered to facilities which are licenced to accept the waste.

AIR / ODOUR / CLIMATE

The main potential sources of air pollutants from the operation of the proposed development would be the livestock digestive processes and pig slurry. Emissions from digestive processes and slurry include primarily ammonia and methane. The proposed development would result in the generation of greenhouse gasses (GHG), in particular carbon dioxide, methane and

ammonia. Such air emissions would be concomitant with piggery odours. Airborne particulate dust associated with the animals is not expected to be an issue due to the modern design of the proposed buildings.

RECEIVED: 05/09/2024

Air emissions from the exiting and proposed pig farm would be reduced as a result of the proposed development. There would be no alteration to the existing pig numbers at the site. The design of the proposed new buildings and the alteration of the slurry management of existing buildings would follow Best Available Technique design principals for minimising air emissions. In addition, management techniques such as diet formulation for optimum crude protein levels and good housekeeping practice would reduce the generation of emissions to air.

Air emissions generated at the proposed development would be typical of the industry and would be anticipated to have no significant to slight air quality impacts in the regional context. Air quality in the vicinity of the development would be expected to continue to be "Good", as rated by the EPA's Air Quality Index for Health and would remain dominated by general traffic and agricultural sources within the region.

With regard to the potential for odour nuisance effects, no odour complaints have been received to date by the applicant, local council or the EPA with regard to operations at the farm. Odour modelling results show that predicted odour concentrations fall below the odour criterion recommended by EPA for new pig farms at the nearest sensitive receptors.

Therefore, it is anticipated that odour from the proposed expansion of this piggery operation would not cause a significant environmental impact in the region or nuisance to sensitive locations. Site odour at odour sensitive locations does not appear to constitute a nuisance, as odours are and will be controlled at the site through good design and housekeeping.

Therefore, there would be a long term positive effect on the odour, air quality and climate emissions from the farm as a result of the proposed development.

NOISE ENVIRONMENT

The Noise Assessment identified the main noise sensitive locations (NSLs) and assessed the potential impact of the proposed intensification of use of an existing farm at these locations, in accordance with the methodologies prescribed in ISO 9613-2:1996 "*Attenuation of Sound during Propagation Outdoors*," and in BS 4142:2014 "*Methods for Rating and Assessing Industrial and Commercial Sound*".

As a result of the baseline noise survey and predictive analysis, it was determined that the proposed development would have no significant impact on the closest noise sensitive locations during the construction phase. Predicted construction noise levels at all noise sensitive locations have been determined to fall below the BS5228 daytime construction noise limit of 65 dBA and the NRA guidance limit of 70 dBA for weekdays. Precautionary noise control measures for construction activities have been included in **Section 6.6** in order to ensure that construction noise does not exceed guidance limits.
During the operational phase, there would be no expected increase in vehicles and no expected alteration of operations as a result of the proposed extension of the farm, excluding the location and additional ventilation from the new buildings.

The maximum noise from onsite ventilation fans would be predicted to occur predominantly during the daytime periods of the warmest summer days. It is likely that ventilation fans would

only be operating at maximum from May to September, for a number of days during these months and only for short periods of these days. The maximum potential impact of noise from ventilation has been based upon all fans working at maximum power. Therefore, the predicted maximum noise levels may be seen as a worst-case scenario for ventilation noise during the operation of the site.

RECEIVED: 05/09/2024

Worst case scenario noise levels at the closest sensitive receptors have been predicted to fall below the farms EPA licence daytime noise limit of 55 dBA. Due to the low predicted resultant noise levels and the infrequency of occurrence, it is predicted that maximum fan noise would have no significant impact upon noise sensitive locations. During the normal operation of the ventilation system, it is predicted that there would be no significant impact upon noise sensitive locations.

VISUAL IMPACT

The proposed development site is located within a rural agricultural landscape, dominated by pasture fields of varying sizes, bordered by hedgerows and treelines. Residential development in the area is sparse and mostly found next to local roads. Residential property is generally dispersed along local roads. A number of one-off residences and farmyard complexes exist in the area and are the dominantly visible man-made structures in the landscape. Large farmyard complexes are common in the area and are generally composed of barrel or A-shaped sheds with green or dark finish, many including feed type silos either of unfinished stainless steel or green/dark finish.

According to the Landscape Character Assessment of County Laois, the proposed site is in a landscape character type described as “Hills and Upland”. The area is described as a prominent feature of the county, offering panoramic views of the lowland landscapes of Laois and adjacent counties from the top of hills. The hills also act as orienting features by virtue of landmarks at their summits as well as their topography. The hills also act as orienting features by virtue of landmarks at their summits as well as their topography.

The proposed development is well screened from the north, east and west by folds in the land and the treelines and hedgerows which border most fields and roads. However, the existing site is a notable feature in the landscape at viewpoints to the south. The site is also visible from viewpoints located on a higher elevation, particularly to the east where screening from vegetation is less effective.

However, gaps in the treelines and hedgerows that make the boundaries of the proposed development site would be provided with supplemental planting. This would offer better screening of the site and the main visible features would be feed bins, rooftops from buildings and associated exhaust vents.

There would be a minor to no significant and temporary visual impact from construction works as, by its nature, works would mainly occur at a low level and construction is not expected to continue for more than six months. The main visible impact would be predominantly construction vehicles and plant machinery, such as excavators and delivery vehicles.

The part of the development which would be expected to result in the most significant visual impacts is the proposed farrowing house. The proposed farrowing house would not be expected to exceed the height of the existing and proposed feed silos, the tallest existing structures currently at the site.

Therefore, it is anticipated that there would be a permanent slight to no significant impact upon the visual amenity at locations immediately to the south on the L7794 road or from viewpoints located on a higher elevation.

RECEIVED: 08/08/2024

The recommendation of a green finish on the buildings would ensure that the development would blend in well with surrounding landscape features and elements. The recommended planting of trees to the south of the existing buildings would also merge the existing and proposed structures with the treelined character of the area.

A review of the County Development Plan shows that the site is not located within a primary or secondary amenity area, nor does the site impinge upon views from amenity areas or listed views.

According to the Laois Landscape Character Assessment, Laois uplands are a landscape area with medium sensitivity. The proposed development is of an agricultural nature and would be incorporated within an existing farming enterprise. Given the nature, location and design features of the proposed buildings, it is considered that the proposed development would have a non-significant Minor-Negligible effect on the level of landscape and visual impact in the area.

BIODIVERSITY

A Natura Impact Assessment (NIS) has been prepared in support of this application and is presented in Attachment 8.1 of the EIAR.

The closest Natura 2000 sites to the farm are the River Barrow and River Nore SAC (Site Code: 002162) located approximately 276m south-east at its closest, Lisbigney Bog SAC (Site Code: 000869) c. 4.96km south-west and River Nore SPA (Site Code: 004233) c. 5.33km south-west. The only NHA site within 15km of the farm is Coan Bogs NHA (Site Code: 002382) c. 13.4km south-east.

The Ammonia Impact Assessment (Document Ref: DK21007-7) was carried out in the context of the existing baseline ammonia and nitrogen deposition conditions at Natura sites, which comprise of the existing farm and emissions from other similar activities in the area. There would be no significant additional impact to the River Barrow and River Nore SAC, Lisbigney Bog SAC or the River Nore SPA as a result of Nitrogen Deposition from the farm. Cumulative impacts of the proposed pig farm with background intensive agricultural installations (IAIs) are under EPA limits and the proposed development complies with the evaluation criteria at all sensitive locations.

It is not anticipated that the proposed extension of the farm, by itself or in combination with other developments, would impact negatively upon the Natura 2000 network.

The site is not anticipated to have a significant negative ecological impact upon the biodiversity of the area, given that there would be no loss of habitats associated with designated sites and no significant alteration to the existing activities at the site. An existing hedgerow located between the existing and new proposed development will be removed however, supplementary planting is recommended and will include native tree species. The remaining trees and hedgerows will be retained. Therefore, the lost of this hedgerow would be a minor impact.

The proposed intensification of use would be located within the same footprint as the existing pig farm and would use the existing site entrance. Therefore, no disturbance to existing hedgerows or habitats would occur as part of the proposal.

RECEIVED: 05/06/2024

No rare or protected flora were recorded within the site during the field assessment. No invasive flora species of concern were noted as present for the farm area during the site assessment. Given the nature of the proposal, it is considered that there would be no risk of introducing invasive species during the operation of the farm.

There would be no significant potential disturbance upon fauna due to noise from the farm. There would be no alteration to the existing noise environment and a noise management plan would be in place for the farm to ensure minimal noise pollution outside the site boundary.

The proposed development contains no proposal for the landspreading of pig slurry, thus it is not anticipated a potential impact upon the biodiversity of designated sites through the landspreading of pig manure as organic fertiliser, either through pollution of waterbodies or the enrichment of natural vegetation. However, manure is and would continue to be, collected by registered contractors / farmers, for application to lands held by third parties in the area. The transport and spreading of the manure would be managed in compliance with the Nitrates Regulations (S.I. No. 113 of 2022).

SOILS, GEOLOGY AND HYDROLOGY

Soils underlying the farm site are primarily composed of "Shallow well drained mineral mainly basic soil" (BminSW) with a small area of the site composed of "Shallow poorly drained mineral mainly basic" (BminSP). The subsoil at the site is classed as Carboniferous limestone comprising sands and gravels. The bedrock underlying the site is classed as Carboniferous siltstone.

Groundwater vulnerability at the farm is classed as high. According to the GSI, only two poor yielding groundwater abstractions have been recorded in the area. Water is also sourced from an onsite bored well at the farm.

The site is not located within or in the vicinity of a surface or groundwater source protection area. There is a drinking water protection area c. 2.7 km north-west of the proposed site and is part of the Ballyroan public water supply.

During the operation of the farm, the main potential impacts to soils, geology and water would include the storage and spreading of the wash water / slurry mix and accidental leakage or spillage of hydrocarbons. Mitigation measures would include the separation of 'clean' runoff from roofs and clean hardstanding area from soiled wash waters, the spreading of wash-water in accordance with the E.U. (Good Agricultural Practice for the Protection of Waters) Regulations 2022 and the appropriate storage of potentially polluting materials.

It is not anticipated that there would be any potential significant impacts upon water quality during the operation of the farm, as only clean, surface water run-off would be discharged from the site.

There would be no process effluent associated with the operation of the facility. Therefore, there would be no effluent emissions to surface or groundwaters.

Stormwater from roofs and clean yards is collected by the surface water drainage network. All surface water collected on site is directed to stone soakaways in the centre and south-west of the site, and a soil percolation area on the north-western boundary. This water would be uncontaminated and therefore should have no impact on the ground.

RECEIVED: 08/05/2024

The farm does not store significant volumes of any chemicals or materials which could pose a significant spill risk to the aquatic environment. Houses would be heated by an electric system.

The only potential contaminant to be stored on site in significant volume would be wash-water, or 'soiled water'. All soiled water is diverted to the nearest slurry leak-proof tank and cleaned as necessary. Therefore, the risk of a spillage of a potential contaminant is deemed to be low. This soiled water would be treated as slurry and would be spread on lands owned by third parties, subject to setback distances outlined in the Nitrates Regulations.

According to the Preliminary Flood Risk Assessment (PFRA) indicative flood mapping website, the site is not located within fluvial, pluvial or groundwater flood zones.

MATERIAL ASSETS (TRAFFIC)

The site is accessed by local road L7794 (speed limit set at 80 km/hr), which connects to the L7797 c. 410m to the east and to the L3777 c. 1.54km to the west. Both of these local roads link to the R430. The road is straight for c. 410m to the north-west and 190m to the south-east from the site access point and there is a sightline of c. 310m to the north-west and 160 m to the south-east along the road from the entrance.

The Average Daily Traffic generated by the pig unit in full production, as built, is 10 vehicles, including out and return journeys.

While there would be increased vehicle movements during the construction phase of the development, this would be for a limited period of time only and would be minimal. During the operational phase of the project traffic movements to and from the site should not increase as animal numbers at the site will be the same as the existing numbers.

It is not anticipated a significant impact on the L7794 road, along which the site is located, nor on the wider road network as a result of the proposed development.

THE USE OF NATURAL RESOURCES

There are no significant negative effects expected in relation to the use of natural resources.

Operations carried out on-site would lead to the consumption of water, feed, electricity and medication during the operation of the farm. The main resource to be consumed would be feed, which is classifiable as a natural resource that is a renewable resource. The site does not currently use gas nor do the proposed developments include the integration of any gas services.

It is estimated that the site currently uses c. 22,499 m3 of water per year and it is not anticipated an increase as a result of the proposed development.

There would be a modest input of electricity for the feed and watering system.

ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

RECEIVED: 03/06/2024

The proposed piggery extension will not directly affect any known recorded monuments or any recorded structures of architectural or built heritage interest.

There are eight known archaeological sites within 1km of the farm, the nearest of which are located approximately 200m from the site. The known archaeological sites within 1km of the site are as follows:

- Ringfort - rath (LA030-010)
- Ritual site - holy tree/bush (LA030-047001)
- Cross (LA030-047002)
- Cross (LA030-011003)
- Church (LA030-011001)
- Enclosure (LA030-011004)
- Graveyard (LA030-011002)
- Enclosure (LA030-013)

No sites listed in the National Inventory of Architectural Heritage (NIAH) are located in the immediate vicinity of the proposed piggery extension. Nine structures are listed within 2km, all belonging to an 18th century Georgian Gothic summerhouse, to the south-west of the farm.

The proposed piggery extension will have a *direct, permanent and negative effect* on any unknown sub-surface archaeological features that may be present across the site.

Avoidance of direct effects on any potential archaeological, architectural and cultural heritage resource identified in relation to the proposed piggery extension is the preferred mitigation option.

In order to better ascertain the archaeological potential of the footprint of the proposed extension area, geophysical survey followed by targeted test trenching is recommended. Mitigation measures are detailed within **Section 12.7**.

There are no direct physical archaeological, architectural and cultural heritage impacts to recorded heritage assets to be resolved at the operational phase of the development. Once the development has been completed, including the resolution of any archaeological material that may have been exposed, there would be no need for further monitoring of the project.

SUMMARY

The potential for the proposed extension of an existing farm to cause adverse environmental impacts, taking cognisance of the construction and operational mitigation practices recommended within this report, is anticipated to be negligible.

This is due to the nature, scale, high specification, management and location of the site due to the removal of all wastes from the site in a timely fashion by a licenced contractor for disposal or recovery.

1.0 INTRODUCTION, BRIEF FOR CONSULTANCY & SCOPE OF EIAR

1.1 INTRODUCTION

RECEIVED: 05/06/2024

Panther Environmental Solutions Limited (PES Ltd.) has been commissioned by the applicant, Tulleka Trading Unlimited, to prepare an Environmental Impact Assessment Report (EIAR), for the proposed extension project at Graigue, Ballinakill, County Laois.

The proposed development is to extend an existing piggery with five new sheds for finisher and farrowing accommodation, together with all ancillary site works and services, to allow for new welfare requirements at Graigue townland, Co. Laois.

A full description of the existing and proposed development is provided in **Section 2.0** of this EIAR document.

This EIAR is to be submitted to Laois County Council in support of an application for planning permission for the proposed development, as described above, under the Planning and Development Regulations 2001 (S.1.No 600 of 2001).

The planning application is also accompanied by an Appropriate Assessment – Natura Impact Statement (NIS) which assessed the Likely Significant Effects (LSE) to European sites (the Natura 2000 network) as a result of this project in accordance with Article 6(3) of the Habitats Directive and the Planning and Development (Amendment) Act, 2001, as amended.

1.2 ENVIRONMENTAL IMPACT ASSESSMENT & PLANNING LEGISLATION

This EIAR has been prepared in accordance with the requirements of the European Communities (Environmental Impact Assessment) Regulation, 1989 to 2017, the Planning and Development Act 2000 and the Planning and Development Regulations 2001, as amended. This legislation requires the assessment of the effects of certain public and private projects on the environment.

Schedule 5, of the Planning and Development Regulations refers to development for the purposes of Part 10 (Environmental Impact Assessment Report) of the planning regulations.

"An EIAR is required to accompany a planning application for development of a class set out in Schedule 5 of the Planning and Development Regulations which exceeds a limit, quantity or threshold set for that class of development. An EIAR will also be required by the planning authority in respect of sub-threshold development where the authority considers that the development would be likely to have significant effects on the environment (article 103)".

The schedule sets out the prescribed classes of development that require an EIAR document. The following sections of schedule 5 are applicable to the proposed development.

- *Schedule 5, Part 1:*
  17. Installations for the intensive rearing of poultry or pigs with more than:
  (a) 85,000 places for broilers, 60,000 places for hens,
  (b) 3,000 places for production pigs (over 30 kilograms)
  (c) 900 places for sows

- *Schedule 5, Part 2:*
  1. *Agriculture, Silviculture and Aquaculture*

  (e) (ii) Installations for intensive rearing of pigs not included in Part 1 of this Schedule which would have more than 2,000 places for production pigs (over 30 kilograms) in a finishing unit, more than 400 places for sows in a breeding unit or more than 200 places for sows in an integrated unit.

RECEIVED 05/06/2024

Current animal numbers housed at the site include 650 sow places and 4,800 places for production pigs (growers and finishers). It is not proposed to increase the number of pigs as permitted by the granted Industrial Emissions (IE) Licence (P0710-03) from the EPA.

The number of breeding sow places on the site does not exceed the threshold limit stated in schedule 5 (part 1) 17.(c) of the Planning and Development Regulations 2001-2022 (i.e. 900 sow places), however it exceeds the threshold limit stated in schedule 5 (part 2) 1.(e)(ii).

While there would be no alteration to the animal numbers at the farm as a result of the development, there would be notable changes in terms of the operating area of the farm and handling / design for slurry management at proposed and existing house units. Therefore, an EIAR was required for the project in cognisance of the scale of the development and the sensitivities of the existing environment.

This EIAR is drafted with particular regard to Article 94 and Schedule 6 in the 2018 planning regulations, and is submitted to provide information that may assist the planning authority in making its decision on this application for planning permission.

The EIA Directive, 2014/52/EU, amending the EIA Directive 2011/92/EU, was transposed into Irish law by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018). Circular letters issued by the Department of Housing, Planning, Community and Local Government on the 15th of May 2017 (Ref. PL1/2017) and 27th August 2018 (Ref. PL05/2018) have also been consulted in preparation of this report, advising planning authorities and An Bord Pleanála of the procedures and information necessary to comply with the EIA Directive required under the new regulations:

"The new Regulations transpose the requirements of Directive 2014/52/EU, amending previous Directive 2011/52/EU, on the assessment of the effects of certain public and private projects on the environment (the EIA Directive) into planning law with effect from 1 September 2018."

The following documents and guidelines have been consulted as part of the preparation of this report:

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018);
- *Development Management Guidelines* (Department of the Environment, Heritage and Local Government, 2007);
- Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2002);

- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003);
- Environmental Impact Assessment of Projects – Guidance on Screening (Directive 2011/92/EU as amended by 2014/52/EU). (European Union 2017);
- Environmental Impact Assessment of Projects – Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU). (European Union 2017);
- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU). (European Union 2017);
- Environmental Impact Assessment (EIA) Guidance for Consent Authorities Regarding Sub-Threshold Development (Department of the Environment, Heritage and Local Government, 2003).

RECEIVED: 05/06/2024

The guidelines state that in preparing an EIAR, the Developer will carry out an analysis of the likely effects of the project (positive or negative) on the environment. The Environmental Impact Assessment procedure commences at the project design stage when the scope of the study is determined. Studies are then carried out to investigate in detail, any potential environmental impacts. Where significant adverse impacts are identified, measures are recommended to mitigate or avoid the impact of the proposed development.

This Environmental Impact Assessment Report examines the potential significant effects of the proposed development, comprising of the proposed construction of four new pig sheds and all associated site development works at Ballinakill, Co. Laois.

The extent of the proposed farm is described in detail in Section 2 – Description of the Proposed Development. The potential environmental effects of the proposed farm are addressed in chapters 4 – 13, with chapters grouped by the general topics of Human Environment, Natural Environment, Material Assets, Architecture, Archaeology and Cultural Heritage, and Interactions and Inter-relationships.

1.3 EIA PROCESS OVERVIEW

Environmental Impact Assessment (EIA) is the process by which the anticipated effects on the environment due to a project are assessed or measured. The Environmental Impact Assessment Report (EIAR) summarises the environmental information collected during the impact assessment of the proposed development.

The steps of the EIA process can be described as follows:

(i) Screening;
(ii) Scoping;
(iii) Preparation of the EIAR;
- Consideration of Alternatives,
- Project Description,
- Description of Receiving Environment,
- Identification and Assessment of Impacts,
- Monitoring and Mitigation Proposals.

(iv) Completion of EIA,
- Scrutiny and Consent,
- Enforcement and Monitoring.

1.3.1 SCREENING

RECEIVED: 05/06/2024

In order to determine if an EIA is required for the proposed development, it is necessary to determine whether the project is listed in one of the Annexes of Directive 2011/92/EU, as amended by Directive 2014/52/EU. These annexes have been transposed into Irish Law, with the prescribed classes of development requiring an EIAR outlined in Schedule 5 of the Planning and Development Regulations, 2001 (S.I. No. 600 of 2001), as amended.

Schedule 5, Part 1, of the above mentioned regulations, prescribes the mandatory thresholds in respect to Annex I projects.

Annex II of the EIA Directive, transposed by Schedule 5, Part 2, of the Planning and Development Regulations, provides E.U. Member States discretion in determining the need for an EIA on a case-by-case basis for certain classes of projects, having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA.

The proposed development exceeds the given thresholds for an Annex I class activity described in the EU Directive 2011/92/EU. Therefore, a mandatory EIAR was required for the project.

1.3.2 SCOPING OF THE EIAR

Scoping is an essential part of the preparation of an EIAR as it ensures that all potential and important significant impacts on the receiving environment are taken into account at the earliest possible time.

Scoping provides relevant information on the most important potential impacts of the project, which will have to be addressed in the EIAR.

With regard to EPA criteria for scoping, the environmental areas that may be impacted by the proposed scheme were identified and are as follows:

Human Beings

During scoping, particular regard was given to the potential impact of the proposed extension to an existing pig facility and associated structures and operations on human beings.

In particular, potential impacts which may occur due to noise and odour during operation.

Natural Environment

Within approximately 15km from the site, multiple Special Areas of Conservation (SAC), designated and proposed Natural Heritage Areas (NHA/pNHA) and a Special Protection Area (SPA) are found. Relative to the site, River Barrow and River Nore SAC (Site Code: 002162) is c. 462m south-east; Lisbigney Bog SAC (Site Code: 000869) is c. 5.04km south-west; Ballyprior Grassland SAC (Site Code: 002256) is c. 13.17km north-east; River Nore/Abbeyleix Woods Complex pNHA (Site Code: 002076) is c. 5.83 south-west; Timahoe Esker pNHA (Site Code: 000421) is c. 8.32km north-east; Shanahoe Marsh pNHA (Site Code: 001923) is c. 9.28km north-west; The Curragh and Goul River Marsh pNHA (Site Code: 000420) is c. 11.41km south-west; Clopook Wood pNHA (Site Code: 000860) is c. 12.47km north-east; Ridge of Portlaoise pNHA (Site Code: 000876) is c. 12.63km north; Cuffsborough pNHA (Site Code: 000418) is c. 13.20km west; Coan Bogs designated NHA (Site Code: 002382) is c. 13.54km south-east; Grantstown Wood and Lough pNHA (Site Code: 000417) is c. 14.71km

southwest; Forest House Wood pNHA (Site Code: 000874) is c. 14.85km north-west; Dunamese Woods pNHA (Site Code: 001494) is c. 15.27km north-east; Stradbally Hill pNHA (Site Code: 001800) is c. 15.32km north-east; River Nore SPA (Site Code: 004233) is c. 5.36km south-west.

RECEIVED: 03/06/2024

The proposed development site is located on an aquifer categorised simultaneously as a "Regionally Important Gravel Aquifer" and "Poor Aquifer – Bedrock is Generally Unproductive except for Local Zones". Groundwater vulnerability across the site is mapped as "high" due to areas of exposed bedrock or shallow soils.

The potential impacts on land, waters and biodiversity must be assessed with care to ensure that all impacts are clearly identified and where possible removed, reduced or minimised to a satisfactory level.

Material Assets

This involves assessing impact of the proposal on land take, the availability of resources such as soils, utilities and natural resources and waste management in the area. The development would extend an existing pig facility at the proposed site, operated by the applicant. Given the location of the proposed development site in an agricultural area, the development's potential impact upon agriculture must also be assessed.

Architecture, Archaeology & Culture Heritage

A number of monuments are present within the wider vicinity of the site, the closest one being a ringfort-rath c. 196m south-west of the site. There are no sites of Architectural heritage within c. 1.8km of the site boundary. The site is comprised primarily of hardstanding and has been completely disturbed during construction of the existing pig farm at the site. The site is therefore of low potential with regard to archaeological and other cultural heritage finds.

1.3.3 SCENARIOS INVESTIGATED

A number of different scenarios have been examined when determining likely significant impacts.

The *"do nothing"* scenario which compares the quality of the existing receiving environment with that of the likely environment should the proposed scheme not be permitted.

The *"do something"* scenario which compares the quality of the existing receiving environment with that of the likely environment should the proposed scheme be permitted.

1.4 INFORMATION TO BE CONTAINED IN AN EIAR

RECEIVED: 05/06/2024

Schedule 6 of the Planning and Development Regulations, 2001, as amended, specifies the information to be contained within an EIAR, including:

1. (a) A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development.
   (b) A description of the likely significant effects on the environment of the proposed development.
   (c) A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development.
   (d) A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.

2. Additional information, relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, on the following matters, by way of explanation or amplification of the information referred to in paragraph 1:

   (a) a description of the proposed development, including, in particular—
      i) a description of the location of the proposed development
      ii) a description of the physical characteristics of the whole proposed development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases,
      iii) a description of the main characteristics of the operational phase of the proposed development (in particular, any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used, and
      iv) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases;
   (b) a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects;

   (c) a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge;

   (d) a description of the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act likely to be significantly affected by the proposed development:
      - population,

RECEIVED 05/06/2024

- human health,
- biodiversity (for example fauna and flora),
- land (for example land take),
- soil (for example organic matter, erosion, compaction, sealing),
- water (for example hydromorphological changes, quantity and quality),
- air,
- climate (for example greenhouse gas emissions, impacts relevant to adaptation),
- material assets,
- cultural heritage, including architectural and archaeological aspects, and
- landscape.

(e) (i) a description of the likely significant effects on the environment of the proposed development resulting from, among other things—

(I) the construction and existence of the proposed development, including, where relevant, demolition works,
(II) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources,
(III) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste,
(IV) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters),
(V) the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources,
(VI) the impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change, and
(VII) the technologies and the substances used, and

(ii) the description of the likely significant effects on the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act should cover the direct effects and any indirect, secondary, cumulative, transboundary, short term, medium-term and long-term, permanent and temporary, positive and negative effects of the proposed development, taking into account the environmental protection objectives established at European Union level or by a Member State of the European Union which are relevant to the proposed development;

(f) a description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved;

(g) a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of an analysis after completion of the development), explaining the extent to which

significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of the development;

(h) a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events.

RECEIVED: 05/06/2024

1.5 IDENTIFICATION OF LIKELY SIGNIFICANT IMPACTS

Schedule 6 of the Planning and Development Regulations details the information to be contained in EIAR. The EPA's "*Guidelines on the information to be contained in Environmental Impact Assessment Report, 2022*" states that "*the EIAR should be focused on the likely, significant effects*" and defines effect / impact as "*A change resulting from the implementation of a project*".

The assessment of the effects outlined in the chapters which follow, take into account the guidelines given by the EPA and those scales used in other EIAR documents for significant developments in this country. A broad outline of the description of effects is given in **Table 1.1** to **Table 1.5**.

The following factors have been considered for this EIAR when determining the significance of the effects, both positive and negative, of the proposed development on the various aspects of the receiving environment:

- The quality and sensitivity of the existing/baseline receiving environment.
- The relative importance of the environment in terms of national, regional, or local importance.
- The degree to which the quality of the environment is enhanced or impaired.
- The scale of effect, for example in terms of land area, number of people effected, number and population of species effected including the scale of change resulting from all types of effects.
- The consequence of that effect occurring.
- The likelihood/risk of the effect occurring.
- The duration of the effect from momentary to permanent.
- The degree of mitigation that can be achieved.

Where mitigation in the form of design measures have been suggested throughout the evolution of the EIAR, these have been incorporated into the scheme design in so far as is possible.

RECEIVED: 05/06/2024

Table 1.1: General EIAR Criteria (Quality of Effects)	
Quality of Effects It is important to inform the non-specialist reader whether an effect is positive, negative or neutral.	**Positive Effects** A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/Adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).

Table 1.2: General EIAR Criteria (Significance of Effects)	
Describing the Significance of Effects 'Significance' is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful (also see Determining Significance).	**Imperceptible** An effect capable of measurement but without significant consequences.
	Not Significant An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
	Very Significant An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Profound Effects An effect which obliterates sensitive characteristics.

Table 1.3: General EIAR Criteria (Probability of Effects)	
Describing the Probability of Effects Descriptions of effects should establish how likely it is that the predicted effects will occur so that the CA can take a view of the balance of risk over advantage when making a decision.	**Likely Effects** The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

RECEIVED: 05/06/2024

Table 1.4: General EIAR Criteria (Duration and Frequency of Effects)	
Describing the Duration and Frequency of Effects 'Duration' is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful.	**Momentary Effects** Effects lasting from seconds to minutes.
	Brief Effects Effects lasting less than a day.
	Temporary Effects Effects lasting less than a year.
	Short-term Effects Effects lasting one to seven years.
	Medium-term Effects Effects lasting seven to fifteen years.
	Long-term Effects Effects lasting fifteen to sixty years.
	Permanent Effects Effects lasting over sixty years.
	Reversible Effects Effects that can be undone, for example through remediation or restoration.
	Frequency of Effects Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).

Table 1.5: General EIAR Criteria (Types of Effects)	
Describing the Types of Effects	**Indirect Effects (a.k.a. Secondary or Off-site Effects)** Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	'Do-nothing Effects' The environment as it would be in the future should the subject project not be carried out.
	'Worst-case' Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable Effects When the full consequences of a change in the environment cannot be described.
	Irreversible Effects When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual Effects The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

1.6 REPORT STRUCTURE

RECEIVED: 05/06/2024

The main EIAR document is comprised of the following:

Non-Technical Summary:

A summary of the findings of the EIAR, in non-technical language.

Part I: Proposed Development:

Part I describes the existing and proposed development at the site, previous planning applicants and consents and a summary of consultations with the relevant statutory bodies and competent authorities. Part I includes the following chapters:

Chapter 1: Introduction
Chapter 2: Description of the Proposed Development
Chapter 3: Alternatives

Part II: Environmental Impacts:

Part II describes the likely significant environmental impacts arising from the proposed development. Where possible, design measures have been included to reduce or eliminate potential impacts. Where this has not been possible, mitigation measures have been suggested to reduce or eliminate the identified impacts of the proposed development.

Part II has been divided into five main sections, as per the table below.

Table 1.6: EIAR Sections and Sub-Sections

Main Section	Chapters
Section A Human Environment	4. Population & Human Health
	5. Air Quality, Odour & Climate
	6. Noise
	7. Landscape and Visual Environment
Section B The Natural Environment	8. Biodiversity
	9. Land – Soils, Geology & Hydrology
Section C Material Assets	10. Material Assets – Utilities & Traffic
	11. Material Assets – Natural and Other Resources
Section D Archaeological, Architectural and Cultural Heritage	12. Archaeological, Architectural and Cultural Heritage
Section E Interactions and Inter-relationships	13. Interactions and Inter-relationships

1.7 COMPETENT EXPERTISE

RECEIVED: 06/06/2024

Directive 2014/52/EU states that the preparation of EIAR documents should be undertaken by "*competent experts*", ensuring that the information provided is of high quality.

Panther Environmental Solutions Ltd (PES Ltd) is a leading Environmental Consulting Firm based in Carlow, Ireland. PES Ltd was formed in 2005 by Environmental Consultant Mike Fraher who has over two decades of experience working in the Environmental Consultancy Industry, both in Ireland and in the UK. The PES Ltd. team are experienced in preparing EIS / EIAR documents, having completed a number of these reports for a range of industries including the intensive agriculture sector.

This EIAR has been prepared by experienced environmental consultants with PES Ltd. Mr. Mike Fraher has over 25 years' of consultancy experience and has a B.Sc. Degree in Environmental Sciences from the University of Glamorgan, Cardiff in Wales and a Diploma in Food Sciences from Cork Institute of Technology.

Mr. Martin O'Looney has over ten years' consultancy experience and has a B.Sc. Degree in Environmental Science and Technology from Sligo Institute of Technology.

Mr. Nial Ryan has over six years' consultancy experience and has a B.Sc. (Hons) in Applied Physics from Dublin City University and a M.Sc. in Medical Device Regulatory Affairs, a Level 6 Cert in CAD and 3D Modelling, Level 7 Cert in Health, Safety and Environmental Management all from South Eastern Technical University (formerly Institute of Technology Carlow).

Mr. Luis Soares has a BSc. in Aquatic Sciences and a MSc. In Environmental Sciences and Technology from University of Porto.

Ms Paula Farrell has a BSc in Wildlife Biology from Munster Technological University (formerly IT Tralee) and has experience in elasmobranch, amphibian, bird, invertebrate, habitat and floral surveys.

Ammonia Impact Assessment & Odour Impact Assessment

This section has been prepared by Katestone Environmental Ireland Ltd., an air quality and meteorology consultancy established in Australia in 1989, with an Irish base in operation since 2017.

This section has been managed by Dr. Micheal Fogarty. Dr. Fogarty completed a Bachelor of Engineering Degree (Biosystems) at University College Dublin in 2003. He subsequently spent five years researching various odour measurement, abatement and dispersion modelling subjects, being awarded a Masters of Engineering Science in 2006 and a PhD in 2009. Micheal joined Katestone as a Senior Consultant in 2013, bringing six years' of consulting experience in air quality impact assessment. Micheal specialises in odour impact assessment and has worked on many projects involving assessment of emissions from food processing facilities intensive pig and poultry production, waste water treatment, pumping stations, landfills and asphalt production. He has designed and implemented odour monitoring campaigns involving olfactometry, field odour assessment and odour nuisance surveys. He has also utilised a range of numerical meteorological and dispersion modelling in odour assessments including Aermod Ausplume, Calmet/Calpuff, TAPM, CAL3QHCR (traffic modelling) and ISC.

Additional Katestone personnel have contributed to this section, including; Mr. Simon Welchman, an Environmental Engineer and Director of Katestone, with more than 22 years' experience; Ms. Natalie Shaw, a Principal Air Quality Consultant with over 15 years' experience and Mr. Padraig McDowell.

RECEIVED: 05/06/2024

1.8 LINKS BETWEEN EIA AND APPROPRIATE ASSESSMENT

The EU Habitats Directive (92/43/EEC) on the conservation of natural habitats and of wild fauna and flora, as amended by council directive 97/62/EC, 2006/105/EC, and Regulation EC1882/2003 of September 2003, as transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477/11), provides the framework for legal protection for habitats and species of European importance.

Article 6(3) and 6(4) of the Habitats Directive lays down the procedure to be followed when planning new developments that might affect a European site (Natura 2000 site). Article 6(3) of the Habitats Directive states;

"*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) would come into force following a determination that a plan or project may adversely affect the integrity of a European site.

In accordance with these requirements, the proposed development has been assessed to determine whether any likely significant effects would arise due to the proposed development upon European sites. The resulting Natura Impact Statement Report forms part of this application (Report Ref. PES_NIS_10049).

PART I – PROPOSED DEVELOPMENT

RECEIVED: 03/06/2024

This section of the EIAR describes the proposed extension to an existing piggery and all ancillary site works and services at Graigue, Ballinakill, Co. Laois.

This section also describes all associated site alterations and development works that would take place at the proposed development site.

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The pig farm at Ballinakill, Co. Laois is operated by the applicant Tulleka Trading Unlimited.

A piggery has existed at the proposed development site since 1973, according to the granted planning permission.

A schematic of the proposed farm site layout is provided in the figure below.

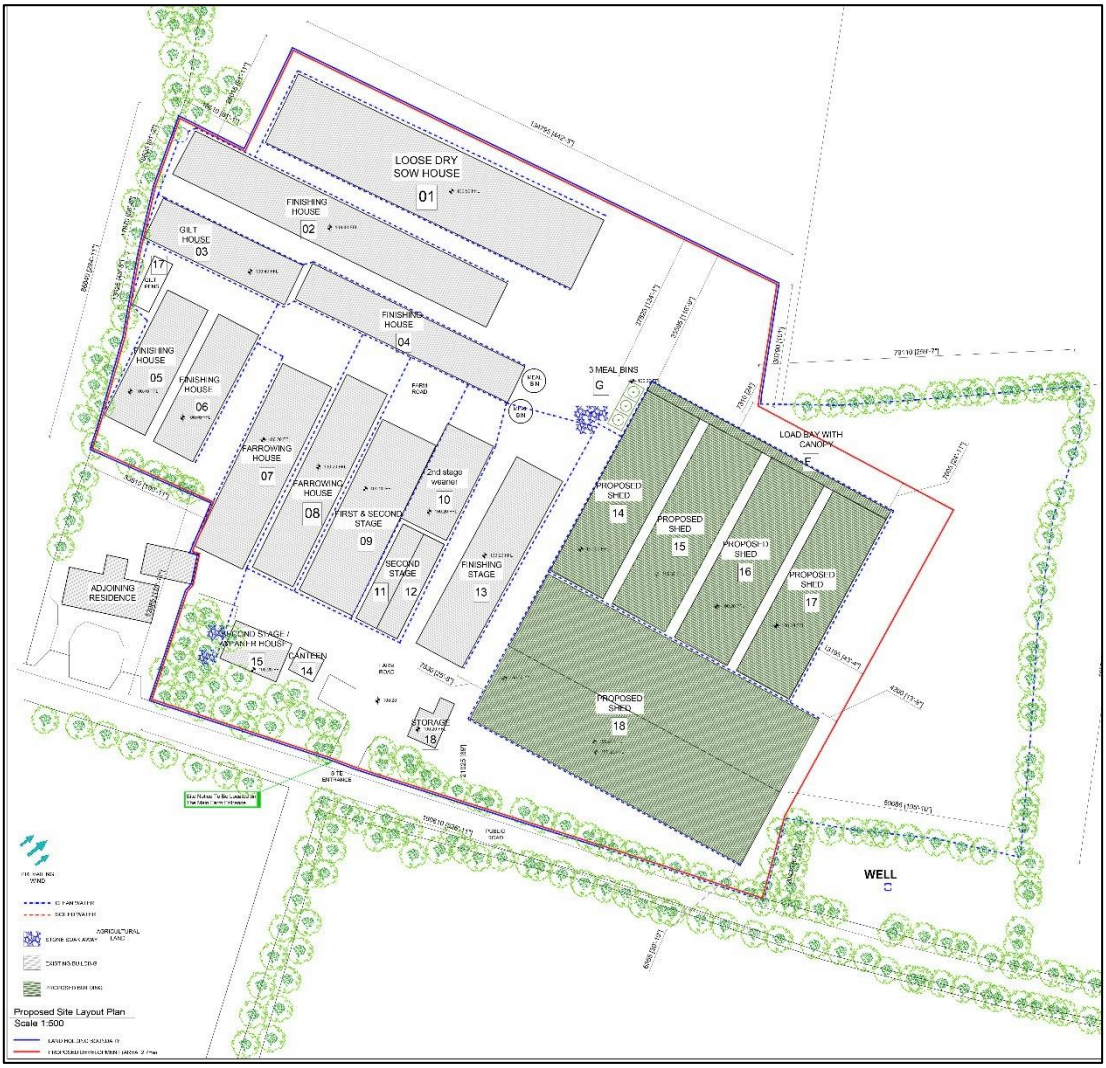


Figure 2.1: Proposed Site Layout (Agri Planning & Design)

The current planning application relates to the extension to an existing pig farm together with all ancillary site works and services.

The proposed extension of the farm would allow for an increase in the live weight of pigs at sale, improvements to animal welfare and production efficiency to sustain the financial viability of this pig rearing enterprise. The design of the proposed houses and the revision in the management of the existing houses would allow for the implementation of best available technique (BAT) shallow pit slurry storage and reductions in emissions to atmosphere from the farm.

RECEIVED: 05/06/2024

Farm operation provides direct employment for 6 full-time staff members, along with contract work for pest control contractors and hauliers delivering feed, and removing finished pigs, slurry, carcasses and wastes.

The First Schedule of the EPA Act, 1992, as amended, provides that an Industrial Emissions Licence would be required for:

6.2 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.

Under the EPA Act 1992, as amended, an *'installation'* is defined as *"a stationary technical unit or plant where the activity concerned referred to in the First Schedule is or will be carried on, and shall be deemed to include any directly associated activity, whether licensable under this Part or not, which has a technical connection with the first-mentioned activity and is carried out on the site of that activity".*

An *'activity'* is defined as *"any process, development or operation specified in the First Schedule and carried out in an installation".*

The existing piggery operation is above the threshold of 2000 places for pig production (over 30kg) outlined in Section 6.2(b) of the First Schedule of the EPA Acts 1992 to 2013, as amended. Therefore, the facility was issued with Industrial Emissions (IE) Licence for the farm from the EPA, Registration No. P0710-03. The farm would be operated under this IE licence. The EPA would be consulted with regards to the proposed extension to the pig farm.

2.1 RECENT PLANNING HISTORY OF THE SITE

The applicant is Tulleka Trading Unlimited. It is for a proposed development at the site of the sow breeding farm at Graigue townland, Ballinakill, Co. Laois.

There have been a number of previous planning applications associated with the site. Planning information was sourced from the Laois County Council ePlan Online Inquiry system (**Table 2.1**).

There are six previous planning applications relating to this site:

Table 2.1: Recent Planning History

RECEIVED: 05/06/2024

Laois Co. Co. Planning Ref	Applicant	Development Description	Status
04/996	Patrick J Cahill	Retain two second stage Weaner houses, one first stage and one second stage Weaner house, one dry sow house, one dry sow house/finishing house, one service house, three finishing houses, one farrowing house, one gilt house, one overground manure storage tank, one storage house for straw and permission to erect a new loose dry sow house and an office/canteen plus ancillary facilities (including septic tank and percolation area) at existing piggery	Incompleted
04/886	Patrick J Cahill	Retain second stage Weaner houses, one first stage and one second stage Weaner house, one dry sow house, one dry sow house/finishing house, one service house, three finishing houses, one farrowing house, one gilt house, one overground manure storage tank, one storage house for straw and permission to erect a new loose dry sow house and an office/canteen plus ancillary facilities (including septic tank and percolation area) at existing piggery	Finalised
05/460	P.J. Cahill Farms Ltd	Construct an additional new loose dry sow house at the existing pig unit	Incompleted
05/568	P.J. Cahill Farms Ltd	Construct an additional loose dry sow house, such that the capacity of the pig unit is 620 sows plus progeny for slaughter at existing pig unit	Finalised
06/918	PJ Cahill Farms Ltd.	Replace existing service house with a new finishing house and 2 no. meal bin silos such that the capacity of the unit shall accommodate all progeny of the existing 620 sow herd to slaughter. The pig unit comprises an activity in relation to which a licence under part IV of the Environmental Agency Act 1992 is required	Finalised
20/235	Tulleka Trading Ltd.	Construct two finishing houses with underground manure storage and all associated site works	Withdrawn

There are no other previous planning applications for the farm site. Planning information was sourced from the Laois County Council ePlan Online Inquiry, available at Public Planning Application Finder (arcgis.com)

2.2 OVERVIEW OF THE EXISTING ACTIVITY

RECEIVED: 05/06/2024

The location of the proposal is in a rural farming area at Ballinakill, in the townland of Graigue, Co. Laois (Grid Reference E248372 N183209).

The existing farm and proposed works are located in the townland of Graigue, Co Laois. The piggery location is c. 3.1 km north-east of Ballinakill town, c. 4.9 km south-east of Abbeyleix town and c. 15.0 km south of Portlaoise.

The site is accessed by local road L7794, which connects to the L7797 410m to the east and to the L3777 1.54km to the west. Both of these local roads link to the R430, which connects to the N77 road that passes through Abbeyleix and the N78 road 13.6km to the east of Ballinakill.

The setting is predominantly rural and in a farming area with intermittent housing along the local road network.

A residential property is located adjacent to the south-western boundary the existing pig farm. The house belongs to the former owner of the pig farm who has lived beside the farm for a long number of years. There is an understanding between the former owner and Tulleka Trading Unlimited that this house will be offered to Tulleka Trading Unlimited if it is ever to be sold. In such an instance this property will be utilised by Tulleka Trading for its farm manager and staff at the pig farm.

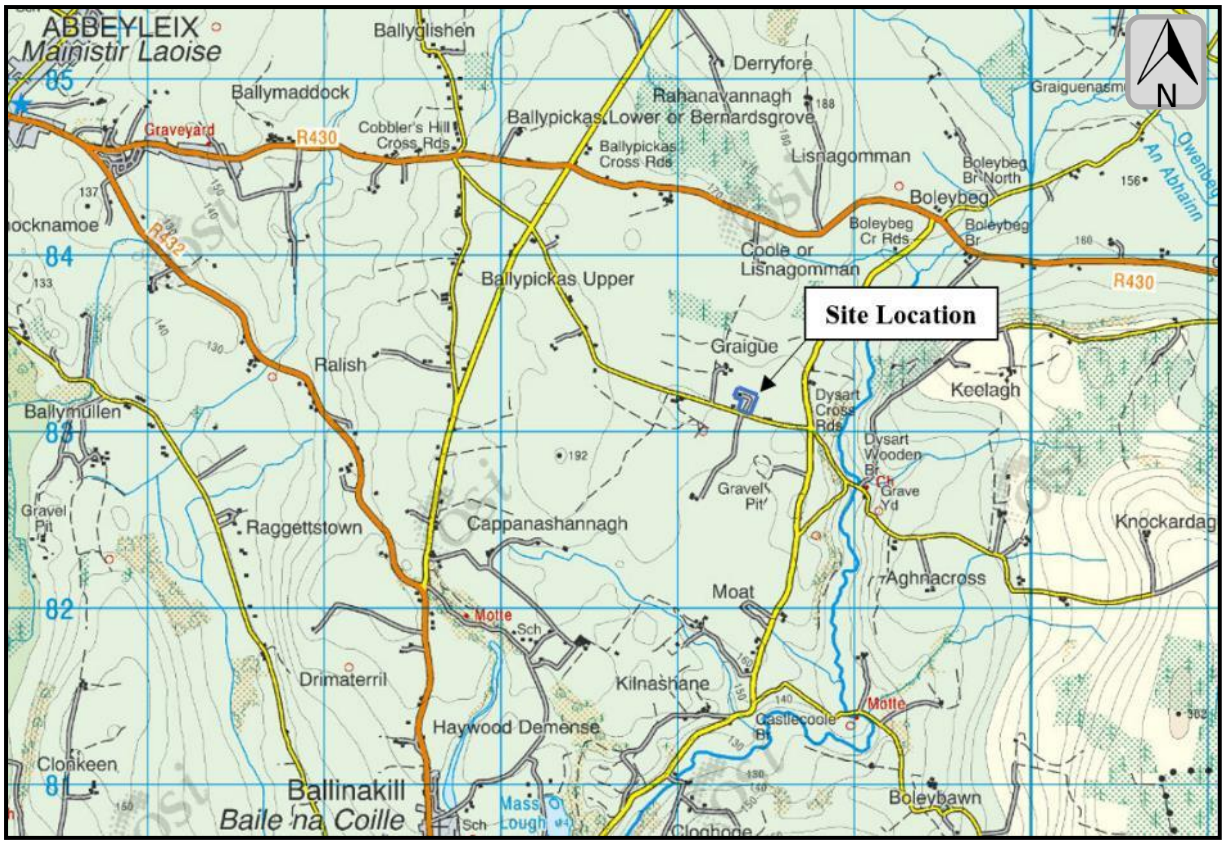


Figure 2.2: Site Location Map (Discovery map series)

Residential properties are located approximately 95m North-West of the farm and 315m North-East of the farm (145m NW and 260m NE of proposed works respectively).

To the south of the site there is a quarry / gravel pit and concrete manufacture operation under the ownership of Kilsaran, and to the west there is a derelict farm house and shed.

RECEIVED: 03/06/2024

The following figure below shows the location of the proposed development.

A pig farm is currently in operation at the site, operated by the applicant Tulleka Trading ULC. Current activities on the site include the management, feeding and monitoring of stock.

The farm operates under the conditions of an Industrial Emissions License (Reg. No. P0710-03) issued by the Environmental Protection Agency on 22nd December 2011, and amended on 18th December 2013. The farm is licenced under activity 6.2(b) of the First Schedule of the EPA Act 1992, as amended.

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

The license holder is registered as Mr Paul Tully and is operated by the applicant as director of Tulleka Trading Unlimited. The EPA licenced activity comprises the integrated unit at Graigue.

If planning permission is granted, the applicant will be required to amend or review the IE licence to incorporate the new houses into the existing licence boundary.

The existing pig farm is comprised of one loose dry sow house; five finishing houses; one gilt house; two farrowing houses; five second stage weaner houses, one of which will simultaneously serve as a first stage weaner house; one gilt pen house; twenty meal bins; one storage house and one canteen.

The area of the current farm hub measures approximately 1.69 hectares, within a total area of 3.2 hectares of agricultural lands owned by the applicant. The site is comprised mainly of concreted yards (approximately 4,700 m^2) with pig houses and welfare facilities for staff (total 7,664m^2). Access to the pig farm is via the existing gated farm entrance from the local road L7794, which is located to the south of the site. The canteen, sanitary facilities and storage house are located in the southern part of the site, near the entrance.

Within the housing units, sows and gilts are accommodated in loose part slatted accommodation, weaner accommodation are slatted houses, and animals are dry fed with separate water lines. Feed is stored in adjacent meal bins, which are located on the concrete apron at the centre of the farm. Animal numbers housed at the piggery site are listed below in **Table 2.2**.

Table 2.2: Maximum Pig Numbers at the Farm Site.

ANIMAL CLASS	EXISTING EPA LICENSED NO. OF PIGS NOTE 1
Production pigs (Growers and finishers)	4,800
Weaners	4,300
Sows	650
Maiden Gilts	120

Note 1: A 20% increase in the number of production pigs (finishers) held on site, for a period not exceeding 2 weeks, is permissible. The frequency of such occurrences must be kept to a minimum. Any other variation in any of the animals numbers specified requires prior agreement from the Agency

RECEIVED: 06/06/2024

Existing ancillary services include a storm-water drainage system which drains to groundwater soak-aways located in the centre and southern area of the site, and to a surface drain located on the western boundary (**Figure 2.3**). There are underground slurry tank systems in place below all the existing pig houses, except for houses 8 and 10. There is a septic tank present, servicing the staff toilet/facilities on site. The septic tank is in place for the disposal of domestic sewage from the site. All wastewater generated by W.C. staff facilities/office building is discharged to the septic tank system. The septic tank is constructed of pre-cast concrete and has a capacity of 4,500 litres.

Approximately 90% of the water consumed in the activity is supplied from a group water scheme (Ballypickas Group Scheme) with the remainder supplied by an on-site well. The farm is connected to the electrical mains power supply.

2.3 OVERVIEW OF THE PROPOSED DEVELOPMENT

The proposed development is to carry out an extension to an existing piggery and all ancillary site works and services. The development would add an additional c. 1.1 ha to the farm hub, resulting in a total farm hub area of 2.7 ha.

The activity on the site is and would be farming activity appropriate to the area and is consistent with the development plan for County Laois. These proposed developments would remain in compliance with the Animal Health and Welfare Act 2013 and the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022.

The proposed development is the extension to the existing pig farm with five new sheds together with all ancillary site works and services. Four of the proposed houses would be used as fattening units and would have the dimensions 67.20m length and 15.27m width. The fifth new shed would be used as farrowing unit and would have the dimensions 76.68m length and 39.84m width. These would be added to the existing thirteen sheds currently in operation at the site. The extension would add 6,288m^2 to the pig house accommodation area.

Three new meal bins will be installed within the site north-west of proposed fattening house 14. These will be approximately 4.0m wide, 4.0m long and 11.2m high.

Employment would be generated during the construction phase, as well as existing full time and seasonal workers during the operational phase. The enterprise currently provides full-time employment for six staff members at the site. The proposed development would not require an increase in the existing workforce.

It is not proposed to increase the number of pigs as permitted by the granted Industrial Emissions (IE) Licence (P0710-03) from the EPA. The extension of the farm would allow for an increase in the live weight of pigs at sale and an increase in animal welfare and production efficiency to sustain the financial viability of this pig rearing enterprise.

The proposed new structures will allow greater scope to manage disease by increasing the accommodation on the site for separating piglet litters and providing additional welfare space for pigs with undocked tails, providing for best practice under Welfare of Farmed Animals Regulations (S.I. 311 of 2010).

Advances in the genetics of the Irish sow herd are responsible for increases in numbers of piglets born alive. However, there has been a concomitant increase in the number of small and

weak piglets produced. These problems culminate in piglets dying at a younger age or reaching finishing weight at a slower rate.

RECEIVED: 05/06/2024

The proposed development would modernise the design of farrowing places at the breeding site and improve animal welfare. In order to accommodate the larger piglet litters that genetic improvements in modern pig breeds have brought, larger farrowing pens are needed to provide sufficient space for the sow and the piglets.

The provision of separate fattening units for growing pigs would also improve animal welfare by improving survival rates for pigs at the site and therefore improve the production efficiency at the site.

The space would improve the time management of the farm through allowing a longer time for disinfection and drying of rooms between batches of pigs. The development would improve the economic output of the farm as it will allow more space for the production of heavier pigs that the market now seeks.

The National Food Vision 2030 Policy Document established the need for stakeholders to work collaboratively in order to develop the pigmeat & poultry sector in terms of domestic market share for Irish-produced product and new export markets. The proposed development would aid in achieving this national policy target by improving farm efficiency, improved finished pig weight for market, and develop an economically viable pig farm that would sustain employment in a rural area.

2.4 PROPOSED SITE LAYOUT AND CONSTRUCTION

The construction phase would extend over a period of approximately 6 months. All of the construction materials and equipment required would be acquired from local sources, where possible, and transported into the site by road.

All work on the site would be conducted in accordance with the duty of safe working environment under the Safety, Health, and Welfare at Work Act 2005. All proposed buildings would be of a similar design.

2.4.1 DEMOLITION OF EXISTING STRUCTURES

No structures at the site would be demolished as a result of the proposed development. It is proposed to remove c. 25 m of hedgerow located between storage unit 18 and the proposed farrowing house 18, as shown in **Figure 2.1** above.

2.4.2 TOPSOIL & LANDSCAPING

Given the dimensions of the proposed new buildings and their underlying slurry tanks, it is estimated that between 8,900 to 12,600 tonnes of soil would need to be excavated to accommodate the new buildings / slurry tanks (weight of one cubic meter of soil ranging from 1.2 to 1.7 tonnes estimate).

It is planned that all of the soil that would be moved during the laying of services and site preparation works would be stockpiled onsite and used within the site for land levelling and landscaping.

RECEIVED: 05/06/2024

It is not intended to remove any soil/earth from the site.

2.4.3 PROPOSED PIG HOUSES

Walls would be constructed from pre-cast concrete with 80mm dark green insulated panels and roofs would comprise of insulated cement fibre sheeting.

The interior design of the buildings would be industry standard for pigs and include a state-of-the-art ventilation system, suspended ceiling, heating system, insulated internal walls and stainless steel / PVC finishes.

A site layout plan is provided in **Figure 2.1** above.

Proposed Sheds 14, 15, 16 and 17

Building 14 would be the westernmost of the four new fattening units, while buildings 15 and 16 would be located between sheds 14 and the easternmost shed 17. Each shed would serve as fattening units and would house 657 pigs.

Each building would measure c. 51.0m in length, 15.0m in width and 8.5m in height at highest point. The floor area of each of the proposed shed would be 765m^2.

The slurry tanks beneath this extension would be constructed from reinforced mass concrete. There would be manure storage capacity for 42 weeks manure production from animals housed on site and slurry tanks will have a freeboard of 200 mm.

Proposed Shed 18

Building 18 will be located to the south of the fattening units and is the largest of the proposed buildings for which planning permission is sought. It would serve as a farrowing unit and it would house 240 farrowing pens which will generally be 80% occupied (i.e. there will be 190 to 200 suckling sows in the rooms with their litters).

The building would measure c. 76.8m in length, 41.0m in width and 7.7m in height at highest point. The floor area of the proposed shed would be 3148 m^2.

2.4.4 SLURRY GENERATION AND STORAGE

Slurry produced by animals at the site would be collected and stored within shallow pit slurry storage tanks beneath the houses. At eleven (11) of the thirteen (13) existing housing units at the site, pit storage tanks will be changed from deep pit to shallow pit.

Sufficient slurry storage capacity will be provided mainly by the deep pit storage tanks of Houses 1 and 4, meeting all regulatory requirements for slurry storage at the site.

All soiled water produced on site (i.e. rainwater, vehicle and concrete surface wash-water on dirty yards, and water which has been used to clean down pig pens between batches) is diverted to the nearest slurry tank where it is stored with slurry. There would be no discharge of any soiled water or any effluent from the site to any watercourse or to groundwater.

RECEIVED: 09/08/2024

The existing and proposed slurry tanks conform to a recognised design standard for slurry storage, i.e. The Irish Department of Agriculture and Food Specifications S108(*Minimum Specification for Manure Pits and Dungsteads*).

Article 10 of the European Union (Good Agricultural Practice for Protection of Waters) Regulations), S.I. No. 113 of 2022, requires the licensee to provide a minimum of 26 weeks' storage for slurry and soiled water on-site or at an agreed storage station. This estimated capacity is adjusted to allow for a 300mm freeboard.

The volume of all slurry produced at the site within 26 weeks by the housed pigs is c. 5,363 m^3. The total slurry storage currently available at the site is c. 8,689 m^3. An additional 3,608 m^3 of storage capacity would be provided by new proposed tanks for the new buildings. The current 42 week slurry storage capacity at the site is in compliance with S.I. 113 of 2022.

Currently, the facilities stock numbers would produce an estimated 10,725 m^3 of slurry every year and there would be no increase following planning approval.

Slurry would continue to be provided to local farmers to be used as fertiliser on their own farmlands.

2.4.5 LOW EMISSION HOUSING DESIGN

Ammonia, methane and carbon dioxide are the primary atmospheric emissions from pig farms. A significant part of these emissions are produced by the decomposition of slurry organic matter during slurry storage.

The applicant intends to avail of new modern design for low atmospheric emissions in the proposed buildings.

This system was chosen because of its modern design and air emission and odour mitigating properties. The system and emission performance are further described in **Section 5.0 (Air Quality, Odour & Climate)** of this document.

As part of the proposed development, only House 1 and House 4 will be operated as traditional deep pit housing units. All other existing housing units will be operated as shallow pit housing units to reduce emissions from the site. The use of a reduced manure volume pit and frequent slurry removal results in an odour emission reduction efficiency of 25%. These technologies are in accordance with European Commission, Joint Research Centre, Georgitzikis, K., Giner Santonja, G., Roudier, S. et al., *Best Available Techniques (BAT) reference document for the intensive rearing of poultry or pigs – Industrial Emissions Directive 2010/75/EU* (Integrated Pollution Prevention and Control), Publications Office, 2017.
All pig housing units at the site will be mechanically ventilated through elevated chimney stacks. Some of the chimney stacks on current housing units will be increased in height as part of the proposed development. This will significantly reduce the potential impact of emissions in the vicinity of the site.

RECEIVED: 03/06/2024

2.4.6 SITE BOUNDARIES

The eastern, southern and western boundaries of applicant owned lands are marked by mature treelines and hedgerows. The northern boundary has no physical barrier separating the site from the grasslands in its vicinity. To the south of the site is the main entrance to the farm from the L7794 road, where staff facilities are located.

A small number of trees that border the finishing house 13 and the storage house would be removed as to accommodate the proposed buildings.

2.5 PRODUCTION PROCESSES AND MANAGEMENT

2.5.1 PRODUCTION PROCESS

The applicant currently operates an integrated pig unit at the proposed project site, housing 650 sows and 120 maiden gilts. The term "*breeding*" refers to the production of pigs from birth up to weaner weight (c. 30 kg) after which they are sent to finisher housing. The term "*finishing*" refers to the production of pigs from weaner weight to slaughter weight (c. 110 kg). The term "*integrated*" refers to the combination of both breeding and finishing within a single site.

There would be no alterations to the structures or management of the farm.

A brief description of the main processes carried out at the rearing site:

Sow Cycle

- Following farrowing, the suckling period for the sow is 28 days on average.
- At weaning, the sow is moved back into the service area where she is fed ad lib until she returns to cycle at approximately 5-7 days.
- After a gestation period of c. 114 days within the loose sow rooms, the pre-farrowing sow is moved to the farrowing rooms 4-5 days before farrowing.
- Sows will normally have anywhere from 11 to 13 pigs per litter. The national average for sow farrowing is 2.32 to 2.38 litters per sow per year (Teagasc, 2019).

Weaner Production

- Piglets are born in farrowing rooms. Approximately 28 days after farrowing the piglets, at c. 6 to 8 kg, would be weaned and placed in the 1st stage weaner house for approximately 4 weeks.
- At c. 18 to 20 kg the pigs are moved on to the 2nd stage weaner house. The pigs would stay here for about six to eight weeks or until the pigs weigh approximately 32-40 kg.
- At the last stage of production, the pigs would spend approximately 16 weeks in a finishing unit until they reached a market weight of c. 112 kg or are returned to the breeding herd as replacement sows.

The main input materials to be used in the proposed development would be the same as the inputs for the current site, for example, water, animal feed, and electricity. The pig feed is industry standard pig rations, appropriate to the nutritional requirements of the pigs.

There are also small inputs of veterinary medicines administered in accordance with relevant regulations (e.g. injectable iron, vaccines, anthelmintics and antibiotic). Other small inputs include detergents, disinfectants, and pest control products.

RECEIVED: 05/06/2024

To ensure the health of stock, all new pigs entering the site are vaccinated (i.e. vaccinated against *Mycoplasma hyopneumoniae* which causes pneumonia in pigs) on arrival and again three weeks later. New-born piglets are also often vaccinated early.

Health of stock and the potential threat of animal disease is a key management issue in the pig production process. To that end, protocols are in place to minimise the risk of disease.

All staff entering the site must shower in and have a change of clothing.

Non-essential personnel are restricted from entering the site and persons that have recently visited another pig farm (last 4 days) are prohibited from entering the site.

Vehicles such as delivery trucks and on-site vehicles are cleaned regularly to minimise the chance of transferring diseases between sites.

Farrowing houses are washed after each weaning on average every four weeks. First stage weaner houses are washed after each batch, on average every four weeks. Second stage weaners and finisher pens are washed three times a year (March/April, June/July and September/October). Loading yard is washed each week after pigs are sold and walkways are washed after pigs are moved. All rooms are disinfected after washing. This procedure would be the same in the proposed new buildings. Soiled water generation is minimised through the efficient use of wash-water during cleaning.

The principal animal welfare protocols practiced on the site include:

Dry Sow / Gilt House(s)

- ensure all sows/gilts have adequate feed and water;
- check health status and treat accordingly;
- check sows/gilts returning to cycle after service;
- scrape excess faeces from behind sows/gilts.

Farrowing House(s)

- ensure all sows have adequate feed and water;
- check the health status of this area and treat as required;
- check house temperature and heat pad temperature;
- check and record births and deaths;
- remove excess faeces, farrowing debris, dead and mummified pigs at the time of farrowing for hygiene purposes;
- manually remove all faeces at weaning to reduce water waste at power washing.

Weaner / Finisher House(s)

- ensure all pigs have adequate feed and water;
- check the health status of this area;

- check temperature and ventilation rates;
- check for water wastage via drinkers.

RECEIVED: 05/09/2024

2.5.2 SITE ACCESS / TRAFFIC

The site is accessed by local road L7794 (speed limit set at 80 km/hr), which connects to the L7797, c. 410m to the east and to the L3777, c. 1.54km to the west. Both of these local roads link to the R430. The site is c. 178m above sea level on an area that is sloped down to the south.

The road is straight for c. 410m to the north-west and 190m to the south-east from the site access point and there is a sightline of c. 310m to the north-west and 160 m to the south-east along the road from the entrance. The gateway area is surfaced with concrete and services a hardcore road that extends to the main part of the piggery.

While there would be increased vehicle movements during the construction phase of the development, this would be for a limited period of time only and would be minimal. Traffic movements during construction would be expected to consist of deliveries of building materials / plant equipment and vehicle movements from sub-contractors.

There would be no significant alteration to the existing operational traffic numbers. The Average Daily Traffic generated by the pig unit in full production is 10 vehicles. This consists of staff cars, feed delivery vehicles, pig sales, manure transport from the site and service personnel. AADT figures include out and return journeys.

2.5.3 MANAGEMENT OF SLURRY AND SOILED WATER

The enterprise on the site produces pigs and produces pig slurry as a co-product. Pig pens are washed down every four weeks, the washings from which would go directly into the slurry tanks. Slurry volume would also be derived from washings and rainfall on “dirty yard” areas around the buildings. However, it is noted that the amount of soiled water generated at the site is negligible and is handled in combination with slurry.

Pig slurry is an animal by-product by reference to the Animal By-products Regulations (S.I. 252 of 2008 and Regulation EC/1069/2009). The spreading of by-product pig slurry on land to supply fertiliser nutrients is provided for and is controlled under the European Union (Good Agricultural Practice for Protection of Waters) Regulations (S.I. No. 113 of 2022), as amended, and Directive 91/676/EEC), a.k.a. the Nitrates Regulations.

The use of pig slurry from this installation on lands owned by other farmers is required to be in accordance with the terms prescribed in the Fertilisers and Soil Improvers Order (S.I. 253 of 2008) and the Nitrates Regulations (S.I. 113 of 2022).

The system for the management of slurry in this pig unit and for the transfer of slurry to customers (i.e. occupiers of other holdings) who seek supply from the farm is:

- Collect and store all slurry in compliance with requirements under S.I. 113 of 2022. Current and proposed slurry storage capacity is compliant with the minimum 26 weeks’ slurry storage capacity;

- Store all slurry temporarily in the tanks pending sale or supply and transfer to customers, in response to customer demand, as by-product fertiliser, as is provided for and authorised under S.I. 252 of 2008 and S.I. 253 of 2008, in the knowledge that uses by customers, are required to be in compliance with standards prescribed in S.I. 253 of 2008 and S.I. 113 of 2022,;
- Record all transfers of slurry from the farm/holding as is required by Article 23(1)(g) in S.I. 113 of 2022 and maintain the records for relevant inspectors, and
- Submit details of annual supplies of pig slurry to the Department of Agriculture, Food and the Marine.

RECEIVED: 03/06/2024

Article 16 of S.I. 113 of 2022 states that the responsibility for nutrient management planning is the responsibility of each 'occupier of a holding', i.e. the farmer carrying out landspreading. The pig slurry is and would be required to be used by each occupier of each holding in compliance with S.I. 113 of 2022.

The applicant states that there is significant local demand for pig slurry as a fertiliser and pig slurry produced at the existing and proposed site would continue to be distributed to local farmers in response to their demand and for their use on their farmland. The applicant has established relationships with local customer farmers for the supply of pig slurry.

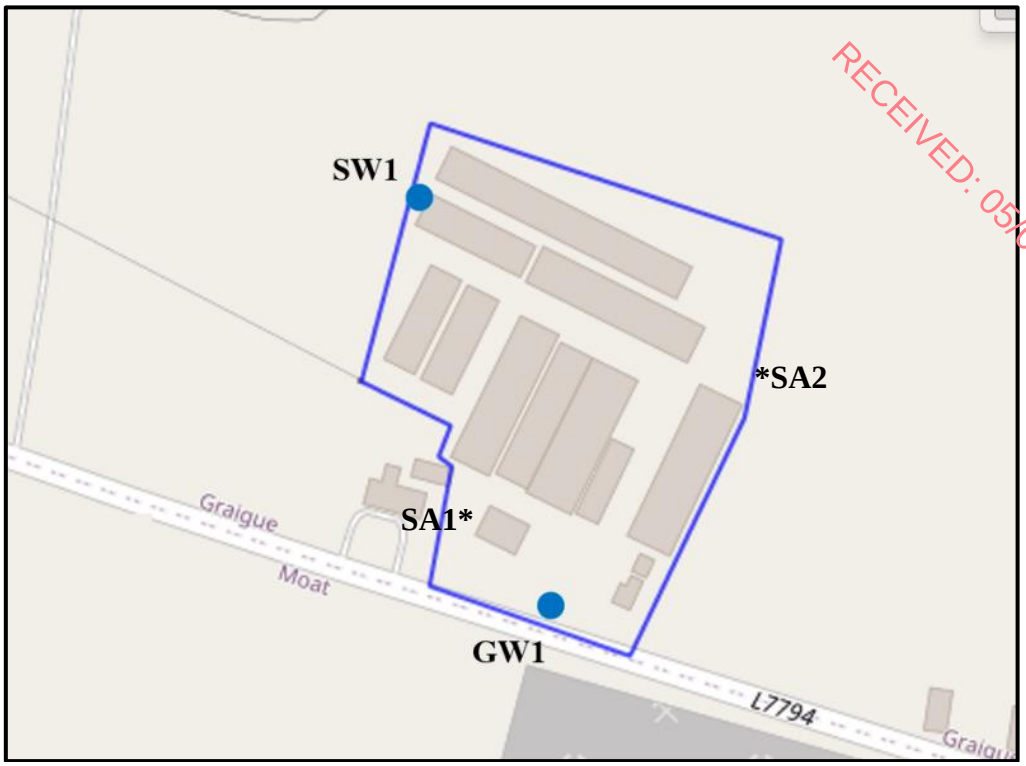
2.5.4 DRAINAGE & MONITORING

Stormwater from the existing farm, comprised of rainwater run-off from roofs and clean yards, is directed to stone soakaways in the eastern boundary (SA2) and south-west (SA1) of the site. Stormwater is also directed to a soil percolation area adjacent to north western corner (SW1) of the site.

There is one surface water monitoring point at the farm; SW1 is an inspection sump before rainwater is discharged to a percolation area, infiltrating to ground. Under Schedule C.2.3. of the sites EPA IE licence (P0710-03), these surface water monitoring sites are visually inspected weekly and sampled quarterly for COD.

There would be no alterations to the existing emissions from the farm. Rainwater from roofs of the proposed new pig houses would connect to the existing surface-water drainage network, discharging to the soakaway on the eastern boundary of the existing network (SA2). This water would be uncontaminated and therefore should have no impact on surface or groundwater.

The onsite borewell is also monitored (GW1). Under Schedule C.6.1. of the site's EPA IE licence (P0710-03), GW1 is monitored annually for Nitrate, Total ammonia, Faecal coliforms, and Total coliforms.



RECEIVED: 05/06/2024

Figure 2.3: Location of Surface and Groundwater Monitoring Points at the site.

2.5.5 ENERGY

The sites electricity is currently supplied by Eirgrid the proposed new buildings would be wired into the existing infrastructure and also be supplied by Eirgrid. A back-up silent diesel generator is located on the site.

Optimising energy input in pig farming is vital in order to reduce production costs, maintain financial viability and gain a marketing edge on competitors. Energy costs always require a significant part of the running cost of a pig farm.

According to the 2021 Annual Environmental Report submitted by Tulleka Trading Unlimited, the site electricity use for 2020 was 489,268 kWh.

The amount of energy used would be minimised by high insulation standards, regular maintenance and minimal wastage.

Efficient fan selection, good design of inlets, outlets and system cleaning are the key points to minimising energy use on a pig farm.

Table 2.3 below shows reasonable estimates of the energy required for each pig. **Figure 2.4** provides a breakdown of the overall energy consumption in a typical pig farm.

Table 2.3: Electrical Usage Finishing Phase of Pig Production. Source, Teagasc (2018) and Carbon Trust UK (2005).

STAGE	TYPICAL/PIG PRODUCED	BEST PRACTICE/PIG PRODUCED	MAIN INFLUENCE
Farrowing	8kWh	4kWh	Heating
Weaning	9kWh	3kWh	Insulation and ventilation
Finishing	10 kWh	6 kWh	Efficient fan/inlet design
Feeding system	3 kWh	1 kWh	Dry feed more efficient
Slurry handling	6 kWh	2 kWh	Heat / pumps / separators

RECEIVED: 05/06/2024

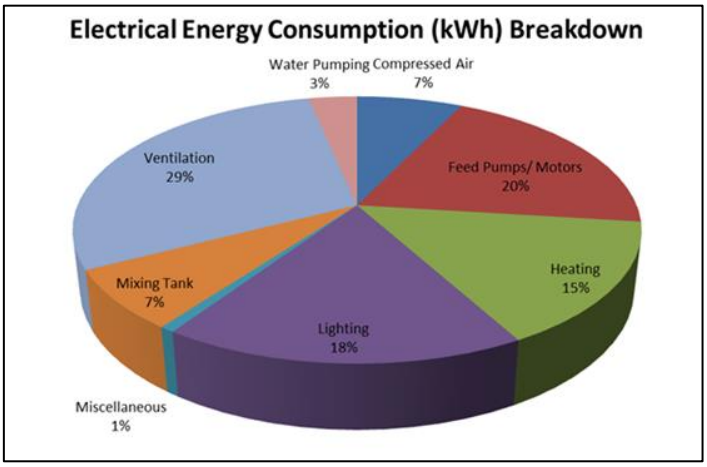


Figure 2.4: The Average Overall Energy Use Breakdown for a Typical Pig Farm (Carlow/Kilkenny Energy Agency, 2018).

The main energy uses at a piggery include:

- Heating the farrowing and first-stage weaner house;
- Ventilation systems and fans;
- Insulation of pig buildings;
- Lighting;
- Feed delivery and mixing;
- Slurry pumps to mix and agitate slurry tanks.

According to Teagasc (2018), a study involving eight piggeries found that the average amount of energy needed to produce a pig was 27kWh ranging from 17 to 37kWh/pig. Another study that included data from twenty-three piggeries (i.e. > 20,000 pigs) put the figure at 28kWh ranging from 18 to 45kWh/pig produced.

Fluorescent tube lighting is currently used in the existing buildings at the site.

Lighting in the proposed buildings would be light emitting diodes (LEDs); a less energy intensive and longer lived technology. The Applicant has recently installed 100kVa of solar panels which will generate 22% of the total annual electricity requirement of this pig farm. This will help reduce the Carbon footprint of the production process of this farm and improve its sustainability credentials.

2.5.6 HEATING

RECEIVED: 06/06/2024

There are several factors that are responsible for the thermal comfort of a pig that includes, air temperature, air speed, floor temperature and body condition.

All current buildings at the site are insulated to a high standard. The proposed buildings would also be insulated to current best practice standards. Existing buildings are heated by an electric system and so would proposed buildings.

Farrowing House: - Piglets are born into an environment of between 20 and 24 °C but require a temperature of > 30 °C. This is supplied by an electric heating system. Weaker pigs may receive extra and beneficial heat from an infrared lamp, hung over them.

1st Stage Weaner House: - These rooms are to be artificially heated with electric heaters. The floors are slatted with plastic slats. The air temperature and freshness are climatically controlled by sensors and computers.

Finisher/Gilt/Sow Houses: - These houses will receive no artificial heating. All new houses are to be totally slatted. At the finished stage of production, the optimum temperature required for finisher pig welfare is 18 to 20°C. The combination of insulated buildings and the pigs' own body heat are sufficient to maintain this temperature, so no heating system is required.

2.5.7 VENTILATION

Ventilation systems on this farm are both naturally and mechanically operated.

The ventilation system takes into account factors such as air volume, temperature, insulation value, number/size of stock present and feeding methods when controlling the ventilation system.

The system controls the temperature in the pig houses by either activating the heating system or by drawing fresh air into the buildings via several air inlets along the sides of the buildings, mixing the fresh air in the building then expelling the warm air through the roof apex exhaust vent.

Ventilation accounts for almost 30% of the overall energy use on a pig farm. The ventilation system has three main aims; to provide fresh air for the pigs to breathe, to provide the correct temperature for the pigs' and to remove stale air containing microbes, dust, harmful gases and water vapour from the pigs' environment.

The side and roof vents provide the primary method of temperature control for the sheds. As temperature increases, the roof stacks open to provide additional natural ventilation.

During periods where extra ventilation is required (primarily during periods of warm weather), the ventilation systems would be mechanically set to provide the optimal conditions for animal growth, energy efficiency, odour and noise considerations. All fans and ducts would also be cleaned regularly.

2.5.8 WATER PROVISION

RECEIVED: 05/09/2024

Water needs for the piggery would continue to be supplied from the local group water scheme and existing groundwater well at the site.

In Ireland, the National *Salmonella* Control Programme was implemented in August 2002 to monitor and control *Salmonella* infection in pigs. An effective hygiene / cleaning program has an important part to play in controlling *Salmonella* on Irish pig farms.

The cleaning of the pig's pens between batches usually starts with a pre-soak with soapy water for one day prior to power washing the pens. This has been observed (Teagasc 2018) to be an effective cleaning technique that requires the least amount of water (recommended to be sprayed on the pens at c. 1.5L/m^2).

Soiled water from the cleaning process between batches would be stored within the underground slurry tank where it would mix with the slurry and eventually be supplied to local farmers for their use on their farmland.

Broadly speaking, the drinking water requirements of pigs vary dependent on the size of the animal and / or the stage of a sows production cycle.

According to the latest available Annual Environmental Report (AER), in 2021 approximately 22,049 m^3 of water was used on the farm.

It is not expected that water consumption would increase on site as a result of the proposed development.

2.5.9 FEED SILOS

Feed management is key to the pig production process as this represents 65 to 70% of the total costs of pig production, while providing the nutritional requirements for growth of pigs at different stages.

Three new meal bins will be installed within the site north-west of proposed fattening house 14. These will be approximately 4.0m wide, 4.0m long and 11.2m high.

The applicant uses low protein diets to feed the pigs. Low protein diets have been shown to reduce GHG emissions from pigs by at least 30%.

2.5.10 RODENT BAITING

Rodent presence can be a major economic threat on a piggery. It is important to control rodents and other pests on a piggery in order to prevent loss of feedstuffs, structural damage and disease spread. In this context, rodent refers to the two principle rodents of concern in Ireland; Brown rat (*Rattus norvegicus*) and House Mouse (*Mus domesticus*).

The applicant has a rodent control plan with baiting points in place for the farm, which is maintained by Mick McGrath. The bait boxes protect the bait from weather and exclude pets

and other non-target animals. All bait boxes are clearly labelled and secured. Bait points are monitored by trained staff and the bait is replaced and recorded as required.

RECEIVED: 05/06/2024

The applicant is responsible for all rodent control measures on the site including the installation of new baiting sites appropriate for the new proposed buildings. The applicant is also responsible for inspecting and removing/replacing boxes as necessary. The number of baiting boxes would increase as per the construction of the proposed buildings.

Rodents are not a feature of the existing enterprise and are strictly controlled in the development.

All buildings are screened so that birds may not enter any of the buildings.

2.5.11 MANAGEMENT OF WASTES ARISING FROM OPERATION

Measures to prevent any significant effect of the proposed installation and the proposed activity on environmental parameters are directed towards ensuring that the systems for collecting wastes and removing them from the site for appropriate treatment in authorised waste treatment installations would be adequate for that purpose.

Wastes generated at the facility would be managed in order of priority in accordance with Section 21A of the Waste Management Act 1996, as amended, commonly referred to as the waste hierarchy.

Waste materials generated on the site would be collected and transported by appropriately authorised waste contractors for disposal, recovery or recycling at authorised installations.

The expected residues and emissions that would result from the operation of the proposed development are set out in **Table 2.4** below.

Table 2.4: Estimation of Waste Volumes for Existing and Proposed Finishing Houses.

RESIDUE/ EMISSION	CURRENT PER ANNUM	ULTIMATE DESTINATION	TRANSPORTER
Veterinary waste – Sharps	7 kg	Stericycle	Licensed Contractor
Fluorescent tubes	12.0 kg	Local Bring Centre	Applicant
Dead animals	77 tonnes	College Group	College Group
Packaging & Domestic Waste	1.2 tonnes	Waste Transfer Station	AES Portlaoise Ltd

Veterinary Waste

Veterinary waste is classified as a hazardous waste.

Veterinary waste includes used syringes, needles and the containers in which veterinary medicines and similar products (anthelmintics, antibiotics, pesticides, rodenticides, etc.) are

contained. The volume of veterinary waste would be expected to increase with the increase in pig numbers at the site.

RECEIVED: 03/06/2024

These wastes would be accumulated on-site in purpose manufactured sealed containers and eventually transported by a licensed contractor to Stericycle addressed at 430 Beech Road, Naas Road, Western Industrial Estate Dublin. The company specialises in the Waste Disposal and Healthcare sector.

This process would not change if the proposed developments went ahead. The applicant keeps a veterinary waste register on site.

Fluorescent Tubes and Lightbulbs

Fluorescent tubes are classified as a hazardous waste.

The waste fluorescent tubes currently produced by the site are collected on site by the applicant and then periodically deposited in local Bring Centre.

This arrangement would not change for the proposed development. The applicant keeps a fluorescent tube waste register on site.

Animal Carcasses

Animal carcasses are currently stored in a covered leak-proof steel container on site and collected, at a minimum, fortnightly by College Group addressed at College Road, Nobber, Co. Meath. College Group is engaged in the rendering of animal by-products to produce meal, protein, oil and tallow.

This process would not change if the proposed developments went ahead. It is possible that the lower stocking density provided by the new houses will increase animal welfare, which in turn, could result in a reduction in animal mortality. The applicant keeps a carcass register onsite.

Rodent Waste

The applicant would manage rodent baiting and removal from the site. Rodents are not a feature of the existing enterprise and are strictly controlled in the development

This arrangement would not change for the proposed development. The applicant keeps a pest control register on site.

Packaging & Domestic Waste

Packaging (paper and cardboard) derived from the outer covers of various inputs such as veterinary medicinal products and the minor feed ingredients is and would be collected on site.

An amount of "domestic-type" waste is also generated from the site.

All domestic refuse for disposal from the site is collected by AES Portlaoise Ltd who removes the waste periodically and disposes it in a landfill site. This arrangement would not change for the proposed development. The applicant keeps a packaging and domestic waste register on site.

RECEIVED: 05/06/2024

2.6 REFERENCES

Animal Health and Welfare Act, 2013. Available online: Animal Health and Welfare Act 2013 (irishstatutebook.ie)

European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2022 (S.I. No. 113 of 2022).

Safety, Health and Welfare at Work Act, 2005. Available online: Safety, Health and Welfare at Work Act 2005 (irishstatutebook.ie)

3.0 ALTERNATIVES

3.1 EXAMINATION OF POSSIBLE ALTERNATIVES

RECEIVED: 05/06/2024

Schedule 6, Article 94 of the Planning and Development Regulations 2001 requires that:

Information to be contained in an Environmental Impact Statement shall include –

(1d) an outline of the main alternatives studied by the developer and an indication of the main reasons for his or her choice, taking into account the effects on the environment.

It is recognised within both the Act, the Guidelines and Draft Guidelines on the Information to be contained in EIAR produced by the EPA August 2017 reflect the requirements of the Directive in that:

'*A description of the **reasonable alternatives** studied by the person or persons who prepared the EIAR, **which are relevant** to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.*'

Indeed, the Guidelines recognise at paragraph 4.13 that:

"*For example, some projects may be site specific so the consideration of alternative sites may not be relevant.*"

This section investigates the following alternatives to the proposed development:

- Alternative Site;
- Alternative Layout and Design;
- Alternative Process;
- Alternative Management of Slurry By-Product.
- "Do-Nothing" Alternative

3.2 ALTERNATIVE SITE

A review of available lands within the applicant's holding reveals that the proposed site location is the most appropriate site for the development.

The proposed buildings are intended to provide extensions to provide improved market weight, additional animal accommodation, animal welfare and environmental performance benefits to the existing farm enterprise. The new buildings are proposed to be integrated into the existing farm and farmyard operated by the applicant.

Acquiring property further away from the proposed site has been ruled out as an option by the applicant for several reasons, including the following:

- Additional costs associated with purchasing and developing a new site.
- A new site would require the construction of new feeding, watering and heating systems, whereas the proposed site would only require that the existing systems be extended to accommodate the new buildings.

- The same economies of scale applies to other associated systems including the stormwater system, slurry storage system and the water supply network on site.
- New site access would not be a requirement at the proposed location.
- A new site would require a new electricity infrastructure, whereas the existing site would only require connection to the existing electrical systems.
- The applicant is also established in the area and has an existing customer base of local farmers who obtain organic fertilisers from the enterprise.

RECEIVED: 05/06/2024

The most practical site for the proposed development is adjacent to the existing buildings so that access, services and controls could be easily shared.

The proposed location is considered the best economically viable option for the applicants and would ensure the future productivity of the company.

The site operates under an Industrial Emissions Licence issued by the EPA and the environmental controls required under this licence would apply to the operations at the proposed development. This would ensure that existing environmental management systems, mitigation and controls can be availed of for the proposed new structures.

3.3 ALTERNATIVE LAYOUT AND DESIGN

The layout and design of the proposed buildings have been based upon feasibility, environmental impacts, animal welfare (S.I. 311 of 2010) and the efficiency of the pig rearing process. The minimising of operational costs was also a key factor in deciding the layout and design of the proposed buildings.

There were no other buildings on site which could be used to accommodate the proposed development (i.e. modernise farrowing places, improve survivability of low weight weaners, increase in finished pig weights at the site). The layout and design proposed takes into consideration the required connections with existing infrastructure and utilities.

The proposed design of the new buildings incorporates the most up to date concepts in modern pig farming in relation to animal welfare and environmental control. The design of the proposed development incorporates “low emission housing” design elements in order to minimise the potential for significant environmental impacts at the site.

3.4 ALTERNATIVE PROCESSES

The activities at the site would not change. The production process would be industry standard and identical to that already in place at the farm (i.e. the rearing and finishing of pigs). These activities are not expected to change for the foreseeable future, therefore, no other alternative process was considered for the development.

A key motivation for developing the site is to improve the animal welfare performance of the existing farm, which would increase the production at the site, improving the economic viability of the enterprise in a market which is prone to price volatility. The construction of the modern design sheds would improve outcomes from the existing stock and the additional stock finishing weight would improve the financial performance of the farm enterprise.

3.5 ALTERNATIVE MANAGEMENT OF SLURRY BY-PRODUCT

RECEIVED: 05/06/2024

Land spreading is a practical and economic means of utilising the nutrients in pig slurry. The process is common in rural Ireland and is in line with the current thinking on resource recovery. The applicant has an existing customer base of local farmers who obtain organic fertilisers from the enterprise.

Due to increasing costs for chemical fertilisers, slurry is becoming an essential part of the agricultural industry in Ireland. Higher transportation costs in the future will make the availability of local organic fertiliser by-product producers an asset to local agri-business.

3.6 "DO-NOTHING" ALTERNATIVE

The "do-nothing" alternative would result in no extension or new buildings added to the existing pig farm in the townland of Graigue, County Laois. The existing piggery at the site would remain in operation and the land proposed for development would remain as an existing grassland in ownership of the applicant.

As discussed in further detail in the following sections of this statement, the level of risk to the environment would not increase significantly as a result of the proposed development, given existing environmental controls and proposed mitigation measures.

The "do-nothing" alternative would deny the locality the opportunity to gain from the economic benefits associated with the meeting of market demand finishers. It may also impact upon employment growth at the operation. The proposed development will add to the economic activity on the farm, with consequent positive effect in the region and the local community.

Should the proposed development proceed, it would support the following policy objectives outlined in the Laois County Development Plan 2021 – 2027:

ED 10: Economic Development Policy Objectives
Ensure a sufficient quantum and range of serviced employment lands is zoned and available to accommodate appropriate enterprise development.

The proposed development is zoned as rural / agricultural. The existing and proposed farm allow for a relatively high employment density in this zoning designation.

RL 3: Policy Objectives for Agriculture and Food Production
Work with the Eastern and Midlands Regional Assembly and other relevant stakeholders in identifying areas of high value agricultural land in the County to address the need for sustainable food supplies.

The proposed development would support the sustainability of the farm business, the proposed development includes environmentally sustainable design principles and the continued operation under an EPA licence would ensure ongoing tracking of environmental sustainability targets for the management of the farm.

RL 4: Policy Objectives for Rural Development

Support the expansion, diversification and intensification of agriculture and the agri-food sector by facilitating appropriate related development subject to environmental and planning considerations.

RECEIVED: 05/06/2024

The proposed development would support the current intensive agricultural use of the farm.

RL 5: Policy Objectives for Rural Development

Support and facilitate agri-tourism and the work of farming / local bodies within the county in the promotion of the rural economy, including agriculture development, tourism adaptation, rural diversification and in the development of new initiatives to support farming.

The proposed development would support the current intensive agricultural use of the farm, providing relatively high employment density and economic benefit to the rural economy.

RL 13: Policy Objectives for Rural Development

Have regard to Laois' Landscape Character Assessment, as well as more general Planning considerations, such as transport, environmental sensitivities, habitat considerations, the need for buffer zones around water bodies in its determination of planning applications related to land-based economic activities.

The Laois' Landscape Character Assessment has been considered as part of this design and application submission, in addition to potential impacts to biodiversity, surface-waters and other environmental receptors.

ES 33: Groundwater Protection Policy Objectives

Encourage the use of catchment-sensitive farming practices, in order to meet Water Framework Directive targets, European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022, as amended, and comply with the relevant River Basin Management Plan.

The existing farm is designed and operated in accordance with the Nitrates Regulations. It is a legal requirement that customer farmers comply with Nitrates Regulation requirements during the use of slurry by-product on their lands.

PART II - ENVIRONMENTAL IMPACTS

RECEIVED: 05/09/2024

This section of the EIAR describes the likely significant environmental impacts arising from the proposed extension to an existing piggery with five new sheds and all ancillary site works and services at Ballinakill, County Laois.

Where possible, design measures have been included to reduce or eliminate possible impacts. Where this has not been possible, mitigation measures have been suggested to reduce or eliminate the identified impacts of the proposed development.

SECTION A - HUMAN ENVIRONMENT

This section of the Environmental Impact Assessment Report deals with the potential effects of the proposed scheme on human beings.

These effects have been grouped into:

Air Quality, Odour and Climate Impacts

The impact of:

- emissions to air generated by the proposed development,
- odours generated by the proposed development on nuisance odour in the general vicinity, and
- on climate.

Noise Impacts

The impact of noise generated by the proposed development on noise levels in the general vicinity has been assessed.

Landscape and Visual Impacts

The impact of the proposed development on the visual amenity of the landscape has been assessed.

While human beings interact in some way with every aspect of the environment, the above interactions are considered the most significant in this case. The impacts of the proposed development on human beings in relation to effects on the natural environment are further considered in **Section B**, while the impacts of effects on archaeology, architecture and cultural heritage and material assets are considered in **Sections C and D** respectively.

4.0 POPULATION & HUMAN HEALTH

4.1 INTRODUCTION

RECEIVED: 05/06/2024

Any development that alters the existing environment has the potential to impact upon human beings at a local and/or regional scale, through impacts upon socio-economic factors including demographics, land use, economic development and employment.

This section of the EIAR provides an overview of the receiving social-economic environment of the area and briefly outlines the main potential impacts of the proposed development, at both the construction and operational phases, on human beings. The following sections of this EIAR provide detailed assessments of potential impacts on human beings and detail proposed mitigation measures to address the identified impacts.

4.2 METHODOLOGY

A study was undertaken to assess the potential impact of the proposed development on the receiving socio-economic environment. This study comprised a review of available information with regards to population and dynamics, economic activity, employment, land use and residential amenity. Information was obtained from the Central Statistics Office (CSO) and the Laois County Development Plan 2021 – 2027.

4.3 RECEIVING ENVIRONMENT

4.3.1 POPULATION AND DYNAMICS

According to the 2016 Census, County Laois had a population of 84,697, comprising 42,811 males and 41,886 females, growing from 80,559 in 2011. This represents a population increase of approximately 5.1% since the previous Census in 2011. Preliminary results of the 2022 Census indicate a population increase of approximately 8.2% since 2016 to a total population of 91,657 (46,218 males and 45,439 females).

Table 4.1 shows the changes in population by age group in County Laois between the 2011 and 2016 Census. Considerable increases are noted for the older age groups, with an increase of 18.8% for the 60 to 84 age group and an increase of 17.2% in the 85+ age group. The population of the 40 to 59 age group increased by11.3%. A population decrease was noted in the 20 to 39 age group at -7.3%. The youngest age group, 0 to 19 showed an increase in population of 6.4%

Table 4.1: Population Change Between 2011 Census and 2016 Census/Age Group.

AGE GROUP	2011 POPULATION	2016 POPULATION	% CHANGE
0 – 19	24,579	26,140	6.4
20 – 39	24,687	22,890	-7.3
40 – 59	19,860	22,096	11.3
60 – 84	10,608	12,604	18.8
85+	825	967	17.2

RECEIVED: 05/06/2024

Abbeyleix Town is the closest major town to the proposed site and it covers approximately 3.2 km^2. The population of Abbeyleix Town during the 2011 census was 1,827, which decreased to 1,770 in 2016 comprising of 871 males and 899 females. The proposed development is located within the Dysartgallen local electoral area which had a total population of 255 during the 2016 Census.

The nearest urban areas, within 15 km, to the proposed site include Abbeyleix, Ballinakill, Ballinacolla, Ballyragget, Ballyroan Castlecomer, Durrow, Newtown, Portlaoise and The Swan. **Table 4.2** details the population change within these areas between the 2011 Census and 2016 Census.

All of these urban areas within the vicinity of the facility experienced stable population levels since the previous 2011 Census, apart from the towns of Ballyroan and Newtown, which experienced an increase of 23.7% and 9.3%, respectively.

Table 4.2: Population Changes in Towns within the Purlieu of the Proposed Site 2011 – 2016.

AREA	2011 POPULATION	2016 POPULATION	% CHANGE
Abbeyleix	1,827	1,770	-3.1
Ballinakill	435	445	2.3
Ballacolla	138	136	-1.4
Ballyragget	1,089	1,082	-0.6
Ballyroan	455	563	23.7
Castlecomer	1,456	1,502	3.2
Durrow	843	835	-0.9
Newtown	246	269	9.3
Portlaoise	-	22,050	-
The Swan	213	216	1.4

4.3.2 ECONOMIC ACTIVITY

The Department of Agriculture, Food and the Marine (DAFM) reports that the agri-food sector is Ireland's largest indigenous industry, contributing €26 billion to the national economy in 2015, employing 8.4% of the working population and accounting for 10.7% of Ireland's exports. The DAFM's report, "Food Wise 2025", identifies further growth opportunities for the sector, with the aim to position Ireland as a world leader in sustainable agri-food production.

There are two major towns within 15 km of the site, including, Abbeyleix at c 4.9 km to the north-west and Portlaoise c. 15.0 km to the north, with associated businesses and industry.

All properties within the vicinity of the proposed site are listed as agricultural (i.e. Crop and animal production, hunting and related service) and manufacturing activities (manufacture of other articles of concrete, plaster and cement). **Figure 4.1** below shows the address points of those organisations in relation to the proposed sites location. The organisations are categorised by their NACE Code, commonly referred to the Pan-European classification system.

The proposed development is located in the Graigue townland in the south of Co. Laois, c. 4.9 km south-east of Abbeyleix town (Grid Reference E248372 N183209). The pre-eminent land use and economic activity in the local area is agriculture. There are a number of small-scale activities located within 1.0km of the proposed development, including four farm hubs (NACE

Code A.01.00), one raising of swine/pigs (NACE Code A.01.46) operated by the applicant, and one manufacture of other articles of concrete, plaster and cement (NACE Code C.23.69).

RECEIVED: 05/06/2024

Beyond 1 km of the site, the main land use in the area continues to be crop, animal production, hunting and related service activities. There is also a small community field 1.4 km north-east of the site in the townland of Boleybeg.

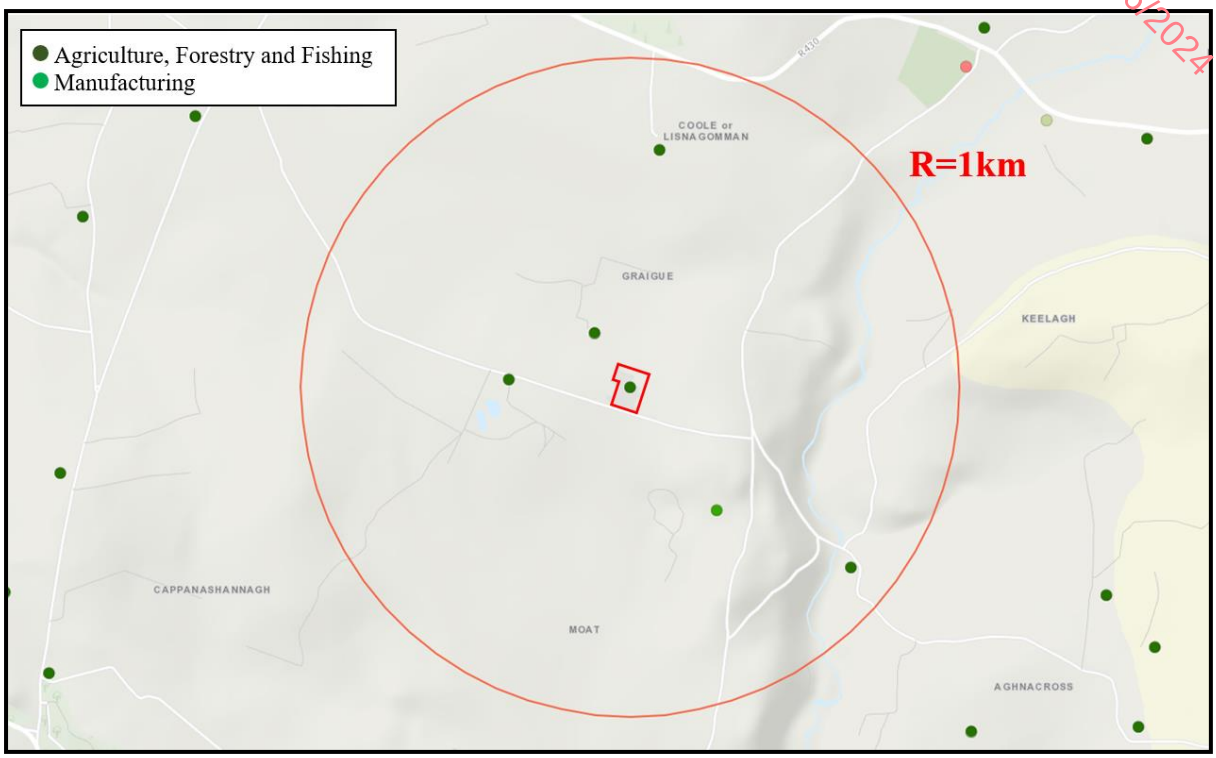


Figure 4.1: Commercial Activities per NACE Code Within 1km of the Site

There are ten EPA licenced facilities within 15 km of the proposed development.

Table 4.3: EPA Licenced Facilities Within 15km of the Proposed Development.

LICENCE NO.	LICENCE NAME	LICENCE TYPE (FIRST SCHEDULE OF EPA ACT, 1992, AS AMENDED)	APPROX. DISTANCE FROM DEVELOPMENT SITE
P0332-01	Randstone Ltd.	n/a	5.0km NE
P0527-01	Flemings' Fireclays Manufacturing Ltd.	13.4.1: Other Activities	8.5km E
P0531-01	Dineen Refractories Ltd.	13.4.2: Other Activities	11.1km E
P0530-02	Ormonde Brick Ltd.	13.4.1: Other Activities	11.3km SE
P0359-03	Tirlán Ltd.	7.2.1: Food and Drink	12.0km SW
P1108-01	Glanbia Cheese EU Ltd.	7.8 (a) (i): Food and Drink	13.4km N
P0849-01	Michael O'Shea	6.2 (a): Intensive Agriculture	14.4km SE
P1028-01	Glanbia Foods Ireland Ltd.	7.8 (a) (iii): Food and Drink	14.4km N
W0184-02	Enva Ireland Ltd.	11.2 (j): Waste	14.8km NW
P0322-01	Laois Sawmills Ltd	8.3: Wood, Paper, Textiles and Leather	15.0km NE

RECEIVED: 05/06/2024

The closest licenced site is c. 5.0km north-west of the site which is a pig finishing site, operated by the applicant. The main activity at the site is the manufacture of vitamins involving the use of heavy metals, despite not being classified under the First Schedule of the EPA Act.

Figure 4.2 below shows the locations of all EPA Licenced Facilities in the surrounding area of the proposed development, which is listed in **Table 4.3** above.

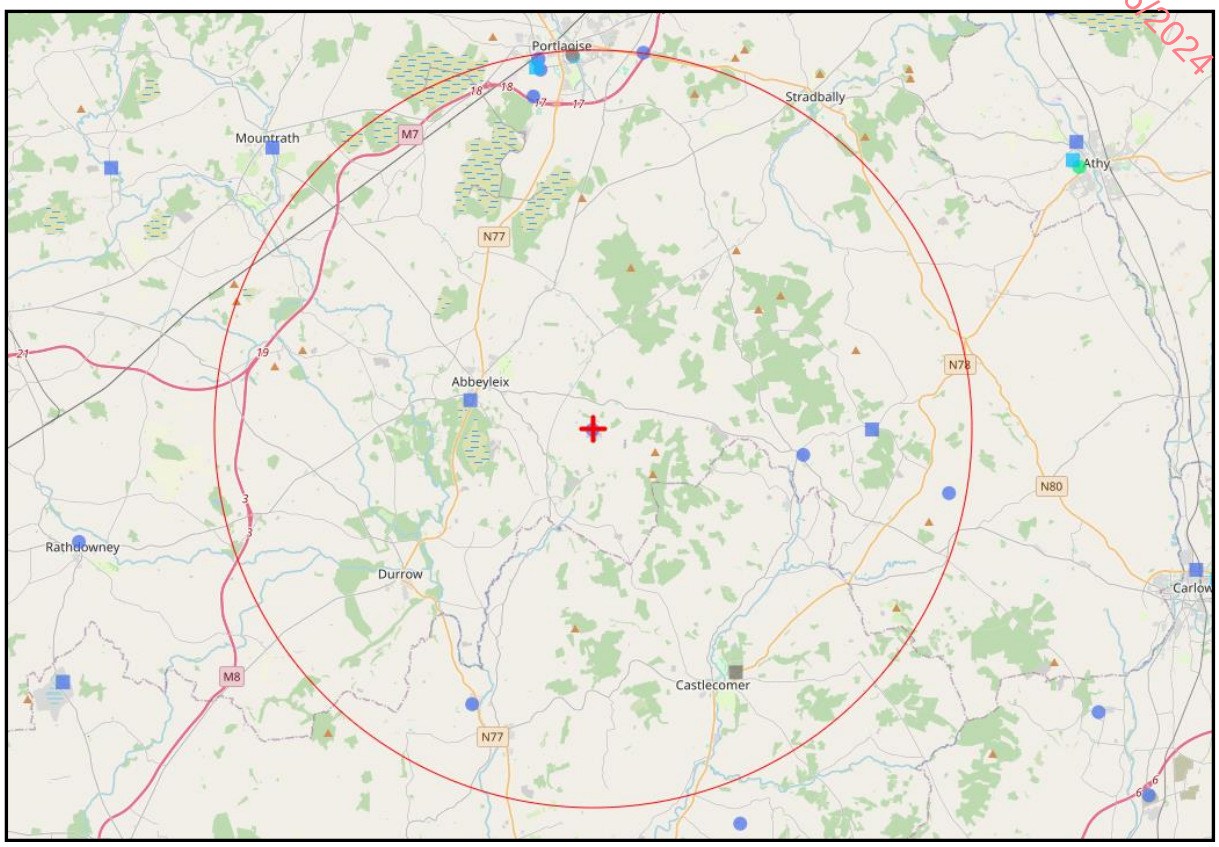


Figure 4.2: EPA Licenced Facilities within 10km of the Proposed Development.

4.3.3 EMPLOYMENT

The total potential labour force for 2016 in County Laois was 39,609 individuals, which represents 46.8% of the total population. In the 2016 Census. The labour force participation rate for 2016 was 62.0% with an unemployment rate of 15.3%.

Table 4.4: Summary of the Working Population in Co. Laois, 2016.

AREA	PERSONS	% OF TOTAL POTENTIAL LABOUR FORCE
Total at work	39,609	46.8
Unemployed looking for the first job	616	1.6
Unemployed, having lost or given up the previous job	5,452	13.8

The labour force participation rate was calculated by expressing the labour force, aged 15 years and over who are at work, looking for their first regular job or unemployed, as a percentage of the total population aged 15 years and over.

Table 4.4 provides a summary of the working population for County Laois. The agriculture sector accounted for 6.14% of employment of the labour force in 2016. **Table 4.5** below provides a synopsis of the total workforce in Laois by their broad industrial group.

RECEIVED: 08/09/2024

Table 4.5: Persons at Work by Broad Industrial Group 2016.

OCCUPATION (INDUSTRIAL GROUP)	PERSONS AT WORK	% OF TOTAL POTENTIAL LABOUR FORCE
Agriculture, forestry and fishing (A)	2,431	6.14
Mining and quarrying (B)	187	0.47
Manufacturing (C)	2,756	6.96
Electricity, gas, steam and air conditioning supply (D)	224	0.57
Water supply; sewerage, waste management and remediation activities (E)	256	0.65
Construction (F)	1,976	4.99
Wholesale and retail trade; repair of motor vehicles and motorcycles (G)	4,972	12.55
Transportation and storage (H)	1,576	3.98
Accommodation and food service activities (I)	1,711	4.32
Information and communication (J)	710	1.79
Financial and insurance activities (K)	906	2.29
Real estate activities (L)	121	0.31
Professional, scientific and technical activities (M)	1,308	3.30
Administrative and support service activities (N)	931	2.35
Public administration and defence; compulsory social security (O)	2,543	6.42
Education (P)	2,806	7.08
Human health and social work activities (Q)	3,980	10.05
Arts, entertainment and recreation (R)	409	1.03
Other service activities (S)	678	1.71
Activities of households as employers producing activities of households for own use (T)	28	0.07
Activities of extraterritorial organisations and bodies (U)	5	0.01
Industry not stated	3,027	7.64
Unemployed looking for first regular job	616	1.56
Unemployed, having lost or given up the previous job	5,452	13.76

At 12.55 %, the wholesale and retail trade sector employs the largest number of Laois's total labour force. This sector includes the repair of motor vehicles and motorcycles and wholesaling and retailing which is the final steps in the distribution of merchandise. At a similar percentage, 10.05% of the human health and social work activities sector also employs a similar number of Laois' total labour force.

At 6.14% of the 2016 workforce, agriculture was the seventh largest employment sector in the county.

Table 4.6 below provides a summary of the working population of Laois, given by principal economic status in County Laois.

Table 4.6: Population Aged 15 Years and Over by Principal Economic Status 2016.

ECONOMIC STATUS	PERSONS	% OF TOTAL POTENTIAL LABOUR FORCE
Professional workers	2,016	5.1
Managerial and technical	9,973	25.2
Non-manual	7,344	18.5
Skilled manual	5,745	14.5
Semi-skilled	4,805	12.1
Unskilled	1,363	3.4
All other gainfully occupied and unknown	2,296	5.8
All social classes	33,541	84.7

RECEIVED: 05/06/2024

4.3.4 LAND USE AND SETTLEMENT PATTERNS

The proposed development would be located within the townland of Graigue, Co. Laois. The nearest settlement to the proposed development site is the town of Ballinakill, located c. 3.1 km south-west of the site. The next closest populated area is the town of Abbeyleix c. 4.9 km north-west of the site.

Graigue is in the Electoral Division of Dysartgallen and has an area of c. 283 acres. The townland is bordered by several townlands including Ballypickas Upper to the west, Boleybeg and Coole of Lisnagomman to the north, Keelagh to the east and Moat to the South. The eastern border of the townland also roughly coincides to the course of the Owveg River.

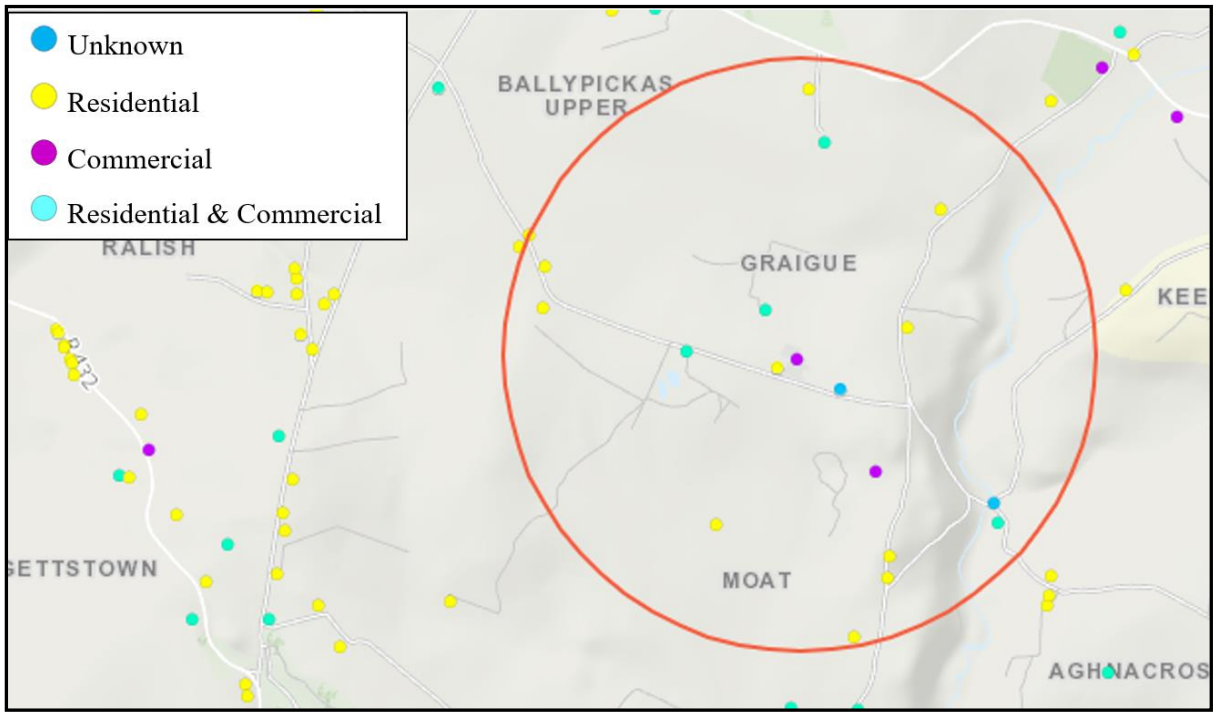


Figure 4.3: Address Points by Buildings for Properties within 1km of the Site

The proposed development is located within a rural agricultural landscape, sparsely populated, with residential development primarily linearly aligned along with the existing road network. A number of large farmsteads, as well as a commercial development (concrete product supplier) are also located within the area.

Figure 4.3 shows the address points of properties within the vicinity of the proposed development. Points in yellow represent residential properties, points in purple represent commercial only properties, points in cyan represent properties accommodating both residential and commercial uses while points in blue are unknown.

RECEIVED: 06/06/2024

The majority of development within the vicinity of the proposed site are residential properties, four residential/commercial and one commercial property. It can be seen that the majority of buildings in the area are residential and residential & commercial.

4.3.5 COMMUNITY AND SOCIAL INFRASTRUCTURE

Community infrastructure within the vicinity of the proposed development would be primarily located within the nearby town of Ballinakill, located c. 3.1 km south-west of the site and the town of Abbeyleix in County Laois c. 4.9 km north-west of the site.

Ballinakill has a population of c. 435 as of 2016. The village is situated on the R432 regional road in the south of Co. Laois. Community and social infrastructure within Ballinakill include Ballinakill Mixed National School, a creche, a guitar and cookery school, a cemetery, an outdoor swimming pool, pubs and cafes and a gas station.

The town of Abbeyleix has a population of c. 1,770 as of 2016 and is situated on the N77 national secondary road south of Portlaoise.

Community and social infrastructure within Abbeyleix include schools, an education centre, a health centre, sports clubs (including GAA), restaurants, pubs, cafes, supermarkets, a gas station, a garda station, a heritage house and a church.

1.1.1 AMENITIES AND TOURISM

The proposed development is located in the Midland Region of Ireland. According to Fáilte Ireland's (2021) profile of tourism in Ireland in 2019, approximately 2.1 million overseas tourists spent over €749 million in the Mid East / Midlands region of Ireland.

According to the Eastern and Midland Region Regional Spatial & Economic Strategy (RSES), the Region is also home to areas of rich heritage and immense natural beauty that support a varied tourism and recreation offering. Abbeyleix, located 4.9 km to the north-west of the proposed site, is a designated Irish Heritage Town.

Portlaoise is a key regional town and the largest town in Co. Laois, located 15.0 km north of the proposed site. Portlaoise is situated on the R445 regional road network which links it to the M7 (Limerick to Dublin) motorway. Portlaoise is also served by Irish Rail, the Portlaoise train station sits on the main Dublin to Cork / Limerick rail line. Waterford Airport is located approximately 1h30 from Portlaoise.

Portlaoise has a rich architectural heritage with the town centre designated as an Architectural Conservation Area. Locally, a range of amenities exist within Portlaoise, which are a valuable resource for tourists, including the River Triogue Blueway and the accessibility of the Slieve Bloom Mountains. The Midland Regional Hospital serves the catchment areas of counties Laois, Offaly, Kildare, Carlow and Tipperary.

1.2 IMPACTS

RECEIVED: 05/06/2024

A brief overview of the potential impacts on human beings during the construction and operational phases is provided below. More detailed assessments are discussed in the following sections of this EIAR.

1.2.1 ECONOMY AND EMPLOYMENT

In the Midland Regional Planning Guidelines (2010 – 2022) the Midland region is described as containing many areas of high-quality agricultural land. The guidelines go on to say that agriculture will continue to play a major role of the regional economy and it is essential to maximise its potential.

The proposed development would have a positive impact upon the local economy by providing temporary employment for people for the duration of the construction phase (approximately 6 months) and support the continued employment of currently employed Tulleka Trading ULC staff during the operational phase.

The creation of jobs during the construction phase would further contribute to the economy of the area through direct spending of goods and services in the area. The site currently provides employment for 6 full-time staff, including the company Director. The proposed development would not increase the number of full time staff at Tulleka Trading ULC.

The proposed development would also provide a proportional increase in indirect employment during the operational phase, for example, via haulier contractors and other services required. Agriculture is the predominant enterprise in the region and provides employment to a relatively large number of people in the area.

1.2.2 AMENITIES AND TOURISM

There may be greater use of local amenities during the construction phase by contractors, but the construction of the proposed development would not affect the tourism profile of the area.

There are no predicted negative impacts on local amenities and tourism arising from the operational phase. Any persons directly employed during the operational phase of the project would have the opportunity to avail of the local amenities and tourism.

Their potential use, both personal and business-related, of local amenities and tourism facilities may positively benefit the business community in the area, including amenity providers.

1.2.3 AIR, DUST AND ODOUR

While it is not considered that the proposed development would pose a significant risk to air quality, there would be a potential nuisance impact upon human beings with regards to the generation of dust during the construction phase and odour during the operational phase. An assessment of the potential air quality impacts arising from the proposed development is discussed in detail in **Section 5.0** of this EIAR.

Excavations and earth moving operations may generate quantities of construction dust, particularly in drier weather conditions. The extent of any construction dust generation depends on the nature of the construction dust (soils, sands, gravels, silts etc.) and the construction activity. The potential for construction dust dispersion depends on the local meteorological conditions such as rainfall, wind speed and wind direction.

RECEIVED: 05/06/2024

The potential for dust generation during construction works is unlikely to impact upon third party residences in the locality, as the closest property is over 200m from the site boundary. However, there would be an increased risk of fouling of the road outside the construction site. Any potential impact of dust would be temporary, given the transient nature of construction works. Dust control measures would be implemented throughout the construction phase to reduce the potential impact. Standard working practices and mitigation measures for dust control are outlined in **Section 5.7**.

Pig farms have a history of creating nuisance odours. However, this may be mitigated by good housekeeping practices and newly constructed modern pig building design. There has been no history of odour complaints at the site.

During the operational phase of the proposed development, as outlined in further detail in **Section 5.6**, it is anticipated that odour from the proposed expansion of this piggery operation would not cause a significant environmental impact in the region or nuisance to sensitive locations. Modelled site generated odours at odour sensitive locations do not appear to constitute a nuisance, as odours are and will be controlled at the site through good design, improved management of slurry within existing buildings and existing good housekeeping practices.

1.2.4 NOISE

Noise generated during the construction and operational phases of the proposed development has the potential to impact human beings within the vicinity of the site. An assessment of potential impacts upon human beings due to noise associated with the proposed development is discussed in **Section 6.0**.

During the construction phase, it would be anticipated that there would be no significant impact on local residences within close proximity to the proposed development. Control and mitigation measures to reduce the potential for noise nuisance are outlined in **Section 6.6**. Given the transient nature of construction works and the provided control and mitigation measures are implemented, noise from construction would not be considered to pose a significant impact upon human beings.

No significant additional noise impact would be anticipated during the operational phase of the proposed development in combination with existing operations. Due to the low predicted resultant noise levels and the infrequency of occurrence it is predicted that maximum fan noise would fall below the recommended noise limits and would have no significant impact upon noise sensitive locations.

The proposed development is unlikely to generate noise levels that will significantly impair amenity beyond the site boundary.

1.2.5 TRAFFIC

RECEIVED: 05/06/2024

The site is accessed by local road L7794 (speed limit set at 80 km/hr), which connects to the L7797 c. 410m to the east and to the L3777 c. 1.54km to the west. Both of these local roads link to the R430. The site is c. 178m above sea level on an area that is sloped down to the south. The road is straight for c. 410m to the north-west and 190m to the south-east from the site access point and there is a sightline of c. 310m to the north-west and 160 m to the south-east along the road from the entrance.

Traffic on this local road is composed of normal car traffic and HGV's associated with local agriculture, the concrete manufacturer, the local haulier enterprise and the applicant's farm.

While there would be increased vehicle movements during the construction phase of the development, this would be for a limited period of time only and would be minimal. Traffic movements during construction would be expected to consist of deliveries of building materials / plant equipment and vehicle movements from sub-contractors.

The Average Daily Traffic generated by the pig unit in full production, as built, is 10 vehicles. This consists of staff cars, feed delivery vehicles, pig sales, manure transport from the site and service personnel. AADT figures include out and return journeys.

During the operational phase of the project, traffic movements to and from the site are expected to be similar to current movements. Operational traffic movements would be expected to involve deliveries, collections and staff movement.

1.2.6 LAND-USE

The proposed buildings would be erected on a grassland area within site's boundaries, thus turning additional land from agricultural pasture to agricultural intensive. The proposed buildings would be an addition to the already existing pig farm on site and would be of a similar, more modern design to the existing buildings.

1.2.7 VISUAL AMENITY

A detailed assessment of the potential impacts upon visual amenity arising from the proposed development is discussed in detail in **Section 7.0** of this EIAR.

The proposed development is not expected to have a significant impact on the visual landscape of the region. The proposed structures are proximate to the existing structures and very similar in terms of design, height and scale.

Natural screening within the area is substantial. There are numerous well-established hedgerows and trees along the eastern and western boundaries of the site. The southern boundary is partially concealed by vegetation with existing gaps that would directly expose the proposed buildings to public view from L7794 road. To the north of the site is a grassland area which has no residential developments within. Despite a lack of hedgerows and trees on the northern boundary, screening to the north is provided by vegetation located outside of the site as well as topography.

The development would be expected to result in visual impacts either immediately to the south on the L7794 road or, as mentioned, from viewpoints located on a higher elevation. However, the majority of the proposed development would be shielded from view, not only by topography and vegetation, but also by the existing structures and buildings at the site. Nonetheless, the proposed farrowing and fattening units would have a similar character to the existing buildings at the site, albeit with a more modern design It is also noted that, from the available viewpoints, the proposed development would not significantly alter the scale of the overall farm hub in the landscape as the proposed buildings would obscure existing structures, or be obscured by these structures.

RECEIVED: 03/06/2024

Therefore, it is anticipated that there would be a permanent slight to no significant impact upon the visual amenity at locations surrounding the site. It is anticipated that impacts would be predominantly limited to hilltop locations that afford visibility to the site from the east. Mitigation measures with respect to visual impacts are provided within **Section 7.5**.

1.2.8 WATER

The proposed site is positioned in the Killkenny-Ballynakill Gravels groundwater body (GWB). The GWB covers an area c. 63.5 km^2 and achieved a WFD status of Good during the period 2016-2021. Elevation within the GWB ranges from c. 50 m in the south along the River Nore in Kilkenny to c. 184 m along L7794 local road where the site is accessed from in the north. Rivers flows are predominantly southwards and westwards, to River Nore.

During the construction phase of the proposed development, there would be a potential for impacts upon water in the event of contamination of underlying groundwater and potential contamination of surface water.

Groundwater at the site could be contaminated due to potential “spills” at the site, especially during excavation works where the overburden is removed. A deterioration in surface water quality could arise through the release of suspended solids during soil disturbance works, the release of uncured concrete and the release of hydrocarbons (fuels and oils) in the run-off to surface waters.

It is not anticipated that the proposed development would have the potential to adversely impact water quality during the operational phase. Stormwater from roofs and clean yards would be directed to the stormwater drainage system. All soiled water would be diverted to the nearest pig slurry tank. All existing and proposed stormwater discharges are via soakaway or soil percolation areas. There is no surface field drainage within the vicinity of the site. There would be no process effluent emissions from the site.

All slurry / wash water mix would be land spread by customer farmers in accordance with the *European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2022, as amended.*

Water quality at the site would be protected by the implementation of mitigation measures (outlined in **Section 9.5**of this EIAR) and through the implementation of a responsible working environment (e.g. the appropriate handling and storage of potentially polluting substances and the regular inspection and maintenance of construction plant).

1.3 MAJOR ACCIDENTS AND NATURAL DISASTERS

RECEIVED: 05/06/2024

As noted in Directive 2014/52/EU, precautionary actions need to be put in place for certain projects which, '*due to their vulnerability to major accidents and/or natural disasters (such as flooding, sea level rise or earthquakes) are likely to have significant adverse effects on the environment*'.

The proposed development would not fall within the Seveso III Regulations or European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015, as no dangerous substances / significant volumes of chemicals would be used at the site.

During the construction phase of the proposed development, the risk of spills to the environment would be minimised through the implementation of measures, such as the appropriate storage of potentially polluting substances (e.g. oils, fuels), the regular maintenance and inspection of construction plant, the implementation of good housekeeping practices and the provision of spill kits.

It is considered that the most likely natural disaster to which the proposed development may be vulnerable to and could have significant adverse effects on the environment, is fluvial flooding.

According to the Commissioners of Public Works in Ireland responsible for developing flood maps for the Republic of Ireland website (www.floodinfo.ie), as part of the Catchment Flood Risk Assessment and Management (CFRAM) Programme, the site is not located within any fluvial, pluvial or groundwater flood zones. Further flood risk details are provided in **Sections 9.4.2.6** of this EIAR.

1.4 MITIGATION MEASURES

The following sections of this EIAR provide further information on the potential impacts on human beings as a result of the proposed development. Mitigation measures have been proposed to address the potential impacts and are detailed under the following sections:

- Air Quality, Odour & Climate
- Noise
- Landscape and Visual
- Biodiversity
- Land - Soils, Geology and Hydrology
- Material Assets
- Architectural, Archaeological and Cultural Heritage

1.5 REFERENCES

RECEIVED: 05/06/2024

Central Statistics Office – Census 2016 Reports, Available at https://www.cso.ie/en/census/, Accessed June 2023.

Department of Agriculture, Food and the Marine. Available at: https://www.agriculture.gov.ie/agri-foodindustry/ Accessed June 2023.

Environmental Protection Agency Licence public access information, Available at: http://www.epa.ie/licensing/iedipcse/ Accessed June 2023.

EPA online map viewer. Available at: https://gis.epa.ie/EPAMaps/ Accessed June 2023.

Fáilte Ireland (2021) *Key Tourism Facts 2019*. Available at: https://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/3_Research_Insights/4_Visitor_Insights/KeyTourismFacts_2019.pdf?ext=.pdf Accessed January 2024.

Floodmap.ie Viewer. Available at: https://www.floodinfo.ie/ Accessed June 2023.

Geological Survey of Ireland map viewer. Available at: https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228 Accessed June 2023.

Myplan.ie Viewer. Available at: https://viewer.myplan.ie/ Accessed June 2023.

Laois County Development Plan 2021-2027. Available at: https://laois.ie/departments/planning/review-of-laois-county-development-plan-2017-2023-2/ Accessed January 2024

5.0 AIR QUALITY, ODOUR & CLIMATE

5.1 INTRODUCTION

RECEIVED: 05/08/2024

This air quality study identifies, describes and assesses the impact of the proposed development on air quality. Particular attention has been given to sensitive receptors, such as residential areas and to the extent of the exposure of these receptors to airborne pollutants derived as a result of the development.

This assessment was prepared in accordance with the EPA documents "*Guidelines on the information to be contained in an Environmental Impact Assessment Reports, 2022*".

It is noted that techniques for the limitation of air emissions have been proposed as part of the design of the new pig units, i.e. depth of manure holding pits, frequency on manure removal, ventilation design and surface area of manure exposed beneath the slats and have been addressed in this section.

5.1.1 AIR EMISSIONS

Air quality is variable and subject to significant spatial and temporal variation. In relation to spatial variation in air quality, concentrations generally fall significantly with distance from major sources. Thus, residential exposure is determined by the location of sensitive receptors relative to major sources in the area. Temporally, air quality can vary significantly due to changes in traffic volumes, meteorological conditions and wind direction.

The main potential sources of air pollutants from the proposed development would be from the digestive processes and slurry of the pigs. Emissions from digestive processes and slurry of the pig herd include odours associated with the gases, ammonia, nitrogen oxides, methane and carbon dioxide.

Ventilation in pig houses is necessary to provide a constant environment inside the house, which enables optimum pig growth and results in gaseous emissions.

The type of ventilation to be used in the proposed facility would be passive ventilation with mechanical ventilation assist, which is to Department of Agriculture specification. Ventilation would be provided by side wall louvered vents and roof stack vents.

The vents operate automatically and are controlled by temperature probes, which will in turn be managed by a central computer system. Temperature within the houses would be maintained based upon the air circulation and temperature control needs of the animals.

Generally, the fans would operate continuously at low to medium % power states in order to maintain fresh air within the buildings. For sow and pre-finisher accommodation, where ventilation is used as the primary temperature control mechanism, ventilation rates would fluctuate based upon internal building temperature. Maximum ventilation rates would not reach maximum output until outside temperatures exceeded 21 ^{o}C. Based on this temperature, the fans would not be operating during evening and night-time hours and only during the warmest of summer days.

As no fuel is burned on site, the main potential source of air pollutants is from the proposed development digestive processes and slurry of the pig herd during the operational phase of the development.

RECEIVED: 05/06/2024

In certain facilities, drainage and bad house-keeping can be a significant source of odours. Spillages and drain liquid from offal storage containers and offal handling can contaminate significant surface areas. The build-up of organic matter on rough concrete surfaces can lead to significant emissions especially during warmer summer months. Great care should be taken to ensure the elimination of fugitive emissions such as these through good housekeeping and management.

Gaseous Emissions from the Pig Buildings

Odour

Odour nuisance is considered to be pollution and is primarily of concern due to potential impacts upon amenity value of public and private areas and the wellbeing of local receptors.

The odorants that are released from the operations of pig production are the result of anaerobic metabolism of micro-organisms. This conversion starts in the digestive system of the pig, but accelerates within hours after excretion. In combination with ammonia, substances such as hydrogen sulphide (H_2S), sulphur and volatile fatty acids contribute to the characteristic malodour. The concentration of these latter compounds may be negligible in a measurable sense however when combined, they create an odour.

The main source of the odour emissions from a pig farm is from the storage of pig slurry. Bacterial growth during storage results in release of volatile compounds, which are emitted to the atmosphere from the slurry surface and particularly at agitation. Malodours arise from pig buildings and from the land spreading of pig slurry. The applicant would supply manure to local farmers for their use on their farmland and no landspreading would take place at the proposed site or on the applicant lands.

Malodour is defined as a nuisance; however it is non-toxic and non-infectious. Experience with Irish pig farms would suggest that operating pig farms are seldom as strong a focus for odour complaints as planned pig farms i.e. that the general perception may be worse than the actual impact.

An odour impact assessment was used to inform the design of the pig farm to ensure concentrations of odour due to emissions from onsite sources are within the acceptable odour level defined by the Environmental Protection Agency (EPA) in Ireland at nearby sensitive receptors.

Ammonia (NH_3)

Ammonia is abundant in slurry (approximately 50-60% of pig slurry N can be Ammonia N). It is highly volatile and is emitted when the slurry is in contact with air during storage. It disperses rapidly in the atmosphere. Agriculture is the largest contributor of NH_3 emissions to atmosphere in Ireland. NH_3 emissions from the proposed development which would quickly dissipate to background levels within a few hundred meters of the site, however, cumulative low level emissions may contribute to ecosystems further afield.

The proposed development would emit NH_3 from the air vents in the pig houses. A spike in NH_3 levels is normal in rural areas adjoining cattle and pig farmyards.

RECEIVED 05/06/2024

Certain land-spreading practices release ammonia into the atmosphere. This is a normal occurrence in a rural environment and agriculture (in particular the landspreading of animal slurry) accounts for most of the national NH_3 deposition. However, this may be minimised through appropriate spreading methods. While contained within the slurry, NH_3 does not leach through soils to surface or groundwater as it is a cation absorbed by negatively charged soil colloids. Soil ammonia has been found to have positive impacts for agricultural land, promoting crop growth.

Article 16 of S.I. 113 of 2022 states that the responsibility for nutrient management planning is the responsibility of each 'occupier of a holding', i.e. the farmer carrying out landspreading. The applicant would supply manure to local farmers for their use on their farmland and no landspreading would take place at the proposed site.

Emission of ammonia to the atmosphere is undesirable from an ecological point of view because it has toxic, eutrophic and acidifying effects on certain ecosystems. In particular, the presence of high ammonia levels in peatland ecosystems has been found to inhibit the growth of the moss species which form the bog, allowing sedge and grass species to outcompete.

Other Gaseous Emissions

Methane and Nitrous Oxide are green-house gases which would be emitted from the proposed development. Methane is emitted from two sources: firstly from the digestive process of organic matter in pigs and secondly from anaerobic decomposition processes of organic matter in slurry. Nitrous Oxide is produced during several microbial processes in the nitrogen (N) cycle within manure and slurry.

5.1.2 DUST

Dust generation, dispersion and deposition from operational and construction activities are typically considered an environmental nuisance for sensitive receptors in the vicinity of a development.

Other potential sources of dust in the proposed development may include trafficking and strong winds in dry conditions, leading to the suspension of dust particles from the pig finishing operation. Minor emissions of particulate matter would also be generated in association with litter within farrowing and sow/gilt houses.

Earthworks during construction are also a potential source of dust pollution.

5.2 LEGISLATIVE CONTEXT

RECEIVED: 05/06/2024

The main legislation and guidelines pertaining to air quality in Ireland are outlined below.

AIR POLLUTION ACT, 1987:

Under this act, local authorities and/or the Environmental Protection

Agency (EPA) are given responsibilities relating to air quality monitoring, to the prevention of air pollution and the issuing of air pollution licences. Owners of certain industrial facilities must obtain an air pollution licence from their local authority or an Industrial Emissions / Integrated Pollution Prevention and Control licence from the EPA.

AMBIENT AIR QUALITY STANDARDS REGULATIONS, 2022 (S.I. NO. 739 OF 2022):

These regulations transpose the Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) into Irish legislation. The regulations specify the limit or target values for specific air pollutants including sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM_{10} and $PM_{2.5}$), lead, benzene, carbon monoxide, and ozone. The EPA is the competent authority for the purpose of the CAFE Directive.

TA LUFT AIR QUALITY STANDARD:

There are no statutory limit values for dust deposition in Ireland, above which nuisance is considered to exist. Generally, the German regulation "*Technical Instructions on Air Quality Control*", commonly known as the "TA Luft Air Quality Standard", is referred to in measuring and assessing the level of dust deposition and potential for dust nuisance.

LEGISLATION OF ODOUR NUISANCE IN IRELAND.

The Public Health Act of 1878 introduced legislation to control nuisance in Ireland, but its execution became viable after the implementation of the Planning and Development Act (1963) (Scannell, 1995). Any industry producing a nuisance was controlled under these regulations and the development of scientific measurement techniques made it practical to quantify and control the release of gaseous environmental pollutants from enterprises.

Odour impact from any facility on the surrounding vicinity may be considered a nuisance. Section 107 of the Public Health Act 1878 states that *"Sanitary authorities are bound to inspect their district for nuisances'.* Upon the receipt of any information respecting the existence of a statutory nuisance, the sanitary authority is obliged, if satisfied of the existence of the nuisance, to serve an abatement notice on the person by whose act or default the nuisance arises or continues or, if such a person cannot be found, on the owner or occupier of the premises on which the nuisance arises" (Scannell, 1995).

Odour is defined as environmental pollution in section 4(2) of the EPA Act (1992), as it is considered to potentially cause a nuisance and/or adversely affect the countryside or a place of special interest.

Waste licensing and Integrated Pollution Control Licensing (IPC) (now IPPC) for specified facility types was implemented in 1996 by the EPA and the related guidance note was termed BATNEEC (Best available Technology Not Entailing Excessive Cost) (i.e. now BAT which

complement the BATNEEC Notes) (EPA, 1996). It set out specific conditions for these industries (i.e. Intensive Agricultural Production, Landfills, Waste transfer stations, etc.) to be implemented in order to comply with the environmental requirements of the EPA. Minimisation of odour emissions and complaints is one of the requirements of the BATNEEC Guidance Note for industries likely to cause odour emissions. For example, a typical IPC license/Waste license condition states '*that there shall be no emission to the atmosphere of environmental significance and that all operations on site shall be carried out in a manner such that air emissions and/or odours do not result in significant impairment and/or interference with amenities beyond the site boundary and at odour sensitive locations in the area'* (EPA, 1996).

RECEIVED: 09/08/2024

Local authorities and the EPA have responsibility for ensuring enterprises meet their planning and environmental requirements. Where these facilities are found to be causing odour nuisance, local government enforces Section 29 of the 1987 Air Pollution Act and serves the offenders with an abatement notice. If the facility is licensed as an IPPC or Waste enterprise, the EPA can enforce the conditions of the license and either serve the facility with non-compliance for odour detected beyond the site boundary or prosecute the facility and seek a high court injunction to close the facility.

As part of SI 787 of 2005 '*the planning authority where granting permission for a development in accordance with section 34 of the Act of 2000 attach such conditions to the permission as may be, in the opinion of the authority and having regard to the function of the Agency under Article 4 of these Regulations, necessary to ensure that the plant is so operated and maintained as to ensure that it avoids causing nuisance through odours or noise*'.

Additionally, in considering an appeal to planning, Board Pleanala '*shall include such conditions as may be necessary in its opinion to ensure that the plant is so operated and maintained as to avoid causing nuisance through odours or noise'*.

EPA LICENCE

The existing site is licensed by the Environmental Protection Agency (EPA), Licence Ref: P0710-03, which sets environmental emission limits for the site.

Licence Condition 5.1 states:

'No emissions, including odours, from the activities carried on at the site shall result in an impairment of, or an interference with amenities or the environment beyond the installation boundary or any other legitimate uses of the environment beyond the installation boundary.'

5.3 METHODOLOGY

This section has been prepared following a desktop review, which involved reviewing baseline air quality monitoring data for the area, the identification of existing air emissions sources and any sensitive receptors and the assessment of potential impacts to air quality resulting from the proposed development.

An Ammonia Impact Assessment and an Odour Impact Assessment were conducted by Micheal Fogarty, Paddy McDowell and Natalie Shaw of Katestone Environmental Pty Ltd. to perform a predictive odour, ammonia and depositional nitrogen impact assessment of an

existing farm and proposed extension to pig production facility using dispersion modelling techniques. The dispersion modelling has been completed in accordance with the requirements of EPA's Air Dispersion Modelling Guidance Note (AG4). The assessment of odour has also been conducted in accordance with EPA's instruction note for the assessment of odour emissions from intensive agriculture pig installations (EPA, 2022).

RECEIVED: 05/06/2024

These reports are provided within **Attachment 5.1** and **5.2** of this EIAR.

5.4 DESCRIPTION OF BASELINE AIR QUALITY

The location of the proposed development is in a rural, farming area, within an existing piggery in the townland of Graigue, Co. Laois. The site is located 3.1km north-east of Ballinakill town centre, 4.9km south-east of Abbeyleix town centre and 15.1km south of Portlaoise.

The site is accessed by local road L7794, which connects to the L7797 410m to the east and to the L3777 1.54km to the west. Both of these local roads link to the R430, which connects to the N77 road that passes through Abbeyleix and the N78 road 13.6km to the east of Ballinakill.

5.4.1 EXISTING SOURCES OF AIR EMISSIONS

The dominant existing sources of air emissions in the area would be local road traffic, private residences, and emissions from agricultural activities, such as the housing of animals and spreading of organic fertilisers. However, the combined effect on air quality would be expected to be low. Dust would also be generated on local roads and from agricultural activities, particularly during dry periods.

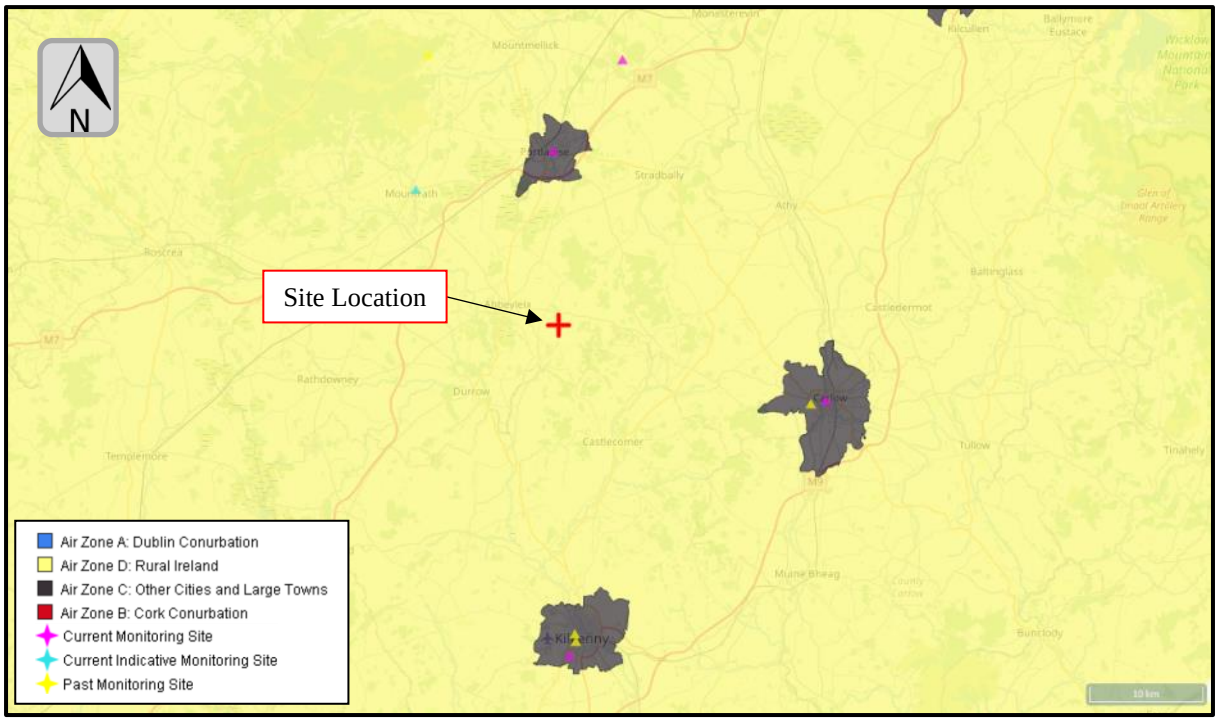


Figure 5.1: Air Quality Zones and Monitoring Sites

RECEIVED: 05/06/2024

Air quality is judged relative to the Air Quality Standards, which are concentrations of pollutants in the atmosphere, which achieve a certain standard of environmental quality. Air Quality Standards are formulated on the basis of an assessment of the effects of the pollutant on public health and ecosystems.

The EPA monitors national air quality from a number of sites around the country. This information is available from the EPA's website. According to the EPA's classification of zones for air quality, the proposed development would be located in Zone D – Rural.

There are no air monitoring stations currently operating within the vicinity of the proposed development. The closest of the currently operating stations which give real time data in the National Ambient Air Quality Monitoring Network, and which is located within the same zone (Zone D), is the Emo Court station, Emo Court House, County Laois (Easting: 253739 Northing: 206606) c. 24 km north of the site. **Figure 5.1** below shows the location of the proposed site in relation to the current air quality monitoring stations in Ireland and defined air quality zones.

Several network stations are located in Zone D. The Zone D air quality zone covers most of the state (i.e. Zone A: Dublin Zone B: Cork and Zone C: Other cities and large towns). Monitoring stations in Zone D are responsible for monitoring a specific suite of parameters, which may differ from station to station. Emo Court station only monitors NO_2 and O_3.

Despite the considerable distance from the proposed development site, Emo Court is within the same air quality zone and can provide an indicative baseline assessment of air quality for the area of the farm.

Table 5.1 below summarises the annual mean results for monitoring during 2021 and 2022 for the nearest Zone D monitoring station to the farm. All results returned were below the relevant annual mean limit values.

Table 5.1: Annual Mean for Air Monitoring undertaken at Emo Court Monitoring Station for the 2021-2022 period.

Parameter (µg/m^3)	Annual Mean Limit Value	Emo Court Station	
		2021	2022
NO_2	40	3.61	3.48
O_3	-	52.74	53.66

The EPA's Air Quality Index for Health (AQIH) is a number from one to ten that scores the current air quality in a region. A reading of ten means the air quality is very poor and a reading of one to three inclusive means that the air quality is good. This is the highest category for air quality. The index is based on information from monitoring instruments at representative locations in the region and may not reflect local incidents of air pollution.

According to the EPA's Air Quality Index for Health Map, the site is positioned in the Rural East AQIH Region, where the last registered air quality (May 2021) was at 3 - Good. While station specific monitoring information is not available in the EPA's report, "*Air Quality in Ireland, 2021*", the report states that air quality in Ireland is generally good. However, there are localised issues in some cities, towns and villages. These were primarily attributed to traffic emissions and solid fuel burning. The most recent report is from 2022 "*Air Quality in Ireland*

Report 2021". This report is based on data obtained from the 97 monitoring stations that formed the National Ambient Air Quality Network in 2021. Highlights of the report include:

RECEIVED: 05/06/2024

- Air quality in Ireland is generally good;
- In 2021, Ireland met all of its EU legal requirements, but failed to meet WHO guideline levels;
- Air pollution is a major environmental risk to human health;
- Fine particulate matter ($PM_{2.5}$) and nitrogen dioxide (NO_2) remain the main threats to air quality;
- $PM_{2.5}$ is mainly generated from burning solid fuels in our homes and NO_2 from road transport;
- Ireland and Europe should move towards achieving the health based WHO Air Quality guidelines.

5.4.2 EXISTING SOURCES OF ODOUR EMISSIONS

In a regional context, the proposed site is positioned in an agricultural hinterland where typical farm odours are to be found and expected. There are no significant dominant odour sources in the area other than farm hubs.

Significant odours would generally be present during the slurry spreading season associated with the agricultural industry in the area, of which the piggery site is a part. Agricultural farm hubs throughout the area would be expected to generate odours within the vicinity of animal housing, slurry and silage storage.

The farm is currently in operation and would constitute an existing odour source. No odour complaints have been received to date by the applicant, local council or the EPA with regard to current operations.

5.4.3 CLIMATE AND AGRICULTURE IN IRELAND

Agriculture sector greenhouse gas emissions arise from animal digestion (methane emissions), manure/slurry management, and the landspreading of nitrogen and urea fertilisers. Fuel combustion and energy use are also sources of greenhouse gasses in agriculture.

The EPA *Ireland's Greenhouse Gas Emissions Projections 2022-2040* report projects expected greenhouse gas emissions across sectors, with the Agriculture sector including agriculture, forestry and fishing. The report provides information of projected greenhouse gas emissions under the following scenarios;

- **With Existing Measures (WEM)**: projection of future emissions based on the measures currently implemented and actions committed to by Government.

- **With Additional Measures (WAM)**: projection of future emissions based on the measures outlined in the latest Government plans at the time Projections are compiled.

The Agriculture sector is reported to have contributed 38% of Ireland's total emissions in 2021.

RECEIVED: 05/06/2024

The report projects that the sector emissions are expected decrease by almost 4% over the period 2021-2030 from 23.6 to 22.8 Mt CO2 eq under the WEM scenario. Existing measures include alterations to the Nitrates Action Programme and Nitrates Regulations (SI 113 of 2022 as amended), enhanced lime application and nutrient efficiency through implementation of the "*AgClimatise*" policy document, and the use inhibited / protected urea fertiliser (additive inhibits ammonia volatilisation) remains at current levels.

Under the WAM scenario emissions are projected to decrease to 19 Mt CO2 eq by 2030 which is an almost 20% reduction over the period 2021 to 2030. These additional measures include, reduction in crude protein in pig diets, use of slurry amendment additives, covered external slurry storage and low emission slurry landspreading techniques.

However, the report also determines that potential stronger growth, particularly in the dairy and suckler sectors, would likely lead to higher emissions over the projected period.

5.5 MODELLING ASSESSMENT

5.5.1 ASSESSED LOCATIONS

The residences in the area are linearly aligned along the existing local road network and land-cover is predominantly agricultural pasturelands. The site is rural in character and located at c. 178m above sea level on an area that is sloped down to the south. In a regional context, lands to the north-east, east and south-east are at a higher elevation than the site.

Figure 5.2: Nearest sensitive odour receptors to the pig farm (Katestone)

Odour sensitive receptors are mapped in **Figure 5.2**. The closest sensitive receptor is 82m northwest of the site boundary and 95m northwest of the closest pig housing unit at the site. Other sensitive receptors are located further away to the northeast, east, southeast and west. These sensitive receptors were included in the modelling assessment. The residential property adjacent to the site is occupied by the former owner of the farm and has been made aware of all future developments at the site and is not considered as a sensitive receptor.

RECEIVED: 05/06/2024

5.5.2 ODOUR MODELLING METHODOLOGY

The adopted methodology is based on a dispersion modelling study incorporating source characteristics and operational activity data with meteorological data that is representative of the site and surrounding region. The odour assessment was conducted in accordance with recognised techniques for dispersion modelling specified in EPA's Air Dispersion Modelling Guidance Note (AG4). The dispersion model, CALPUFF, was used to predict ground-level concentrations of odour across the model domain due to the pig farm. The assessment of odour has also been conducted in accordance with EPA's instruction note for the assessment of odour emissions from intensive agriculture pig installations (EPA, 2022).

Industry specific guidance on modelling odour dispersion from sources such as intensive poultry farms and cattle feedlots recommend the use of TAPM/CALMET to generate representative Site-specific data. Research in Europe indicates that meteorological data generated using a numerical model provided a better indication of locations where odour nuisance occurred (Feliubadaló et al, 2008). In that study, locations of likely odour nuisance were determined using the German VDI grid assessment approach. The correlation between observed and modelled odour concentrations was significantly better using the TAPM/CALMET approach compared to traditional steady state gaussian models such as AERMOD.

The assessment methodology has included:

- Selection of odour assessment criteria from Irish guidance;
- Derivation of an emissions inventory for the pig farm based on:
    - The layout and design of the housing units and sources
    - Emission factors from the EPA 2022 Pig Instruction Note
- Generation of a representative meteorological dataset using prognostic meteorological modelling techniques.
- Characterisation of meteorological conditions in the region using prognostic meteorological data
- Dispersion modelling using the regulatory dispersion model, CALPUFF, to predict ground-level concentrations of odour across a Cartesian grid that covers the study area.
- Comparison of the predicted ground-level concentrations of odour against the odour assessment criteria.

5.6 IMPACTS

5.6.1 ODOUR

RECEIVED: 05/06/2024

Air quality in this region is generally good and reflective of the rural climate in Ireland with odour sources of a minor nature. Site-specific meteorological data was generated to represent conditions surrounding the site.

All pig housing units at the site will be mechanically ventilated sheds and were configured as point sources in the modelling assessment.

SOURCE ODOUR ASSESSMENT

Generally, site management in relation to potential odours was found to be good and typical of farmyard management practices in Ireland.

In relation to the Manipulation of dietary protein and supplements, the EPA 2022 Pig Instruction Note states "*Manipulating animal feed by reducing dietary protein will reduce the amount of unused protein that passes through a pig's digestive system. Fewer precursor compounds present in the slurry will reduce potential odour"*. The levels of crude protein and supplements has been optimised at levels that minimise the amount of unused protein that passes through the pig's digestive system.

Manure/slurry is stored within underground tanks and is not frequently agitated and concrete surfaces are cleaned of fresh manure. In relation to the use of a reduced manure volume pit, the depth of manure in the proposed new pig housing units at the site will be maintained at a level of 60 cm or less. The depth of manure in all existing housing units with the exception of housing unit 1 and housing unit 4 will be kept below 60 cm. The use of a reduced manure volume pit and frequent slurry removal results in an odour emission reduction efficiency of 25% as specified in the EPA 2022 Pig Instruction Note.

Odour sources relating to the proposed development would be of similar intensity and persistence to the existing infrastructure, due to modern design of proposed buildings and to incorporation of odour mitigation measures.

ODOUR IMPACT ASSESSMENT

Please also refer to the Odour Assessment Report in Attachment 5.1, which contains detailed results and maps.

The closest sensitive receptor is 82 m northwest of the site boundary and 95 m northwest of the closest pig housing unit at the site. The closest third-party odour sensitive residential locations to the facility are c.200 metres to the north-east of the site and c.370m west of the existing site. These are also a source of odour emissions, as they are commercial locations related to crop and animal production. The closest third-party odour sensitive residential-only locations to the facility are c. 385m to the north-east and c. 620m to the south-west.

According to the EPA 2022 Pig Instruction Note, the acceptable odour levels specific to intensive agriculture is 5.0 ouE/m^3 for existing pig-production units. Predicted ground-level concentrations of odour (1-hour average, 98th percentile) at the five nearest sensitive receptors due to the pig farm are presented in **Table 5.2**.

RECEIVED: 03/06/2024

Table 5.2: Predicted ground-level concentrations of odour (1-hour average, 98th percentile) at the five nearest sensitive receptors due to the pig farm.

Receptor	1-hour 98th Odour Concentrations (ouE/m³)				
	2016	2017	2018	2019	2020
DR1	3.2	3.7	3.4	3.1	3.2
DR2	4.7	3.6	4.6	4.8	4.3
DR3	3.5	1.3	2.3	2.6	2.5
DR4	0.9	0.3	1.0	0.4	0.7
DR5	0.6	0.6	0.5	0.8	0.5
Odour Criteria (Current)			5.0 ouE/m³		

The results show that predicted concentrations comply with the odour criterion recommended by EPA for new pig farms of 5.0ouE/m3 at the five nearest sensitive receptors included in the modelling assessment.

Plate 1 is a contour plot that presents the highest ground-level concentrations (1-hour average, 98th percentile) across the model domain during the five-year period prepared by Katestone and included in the Odour Impact Assessment report.

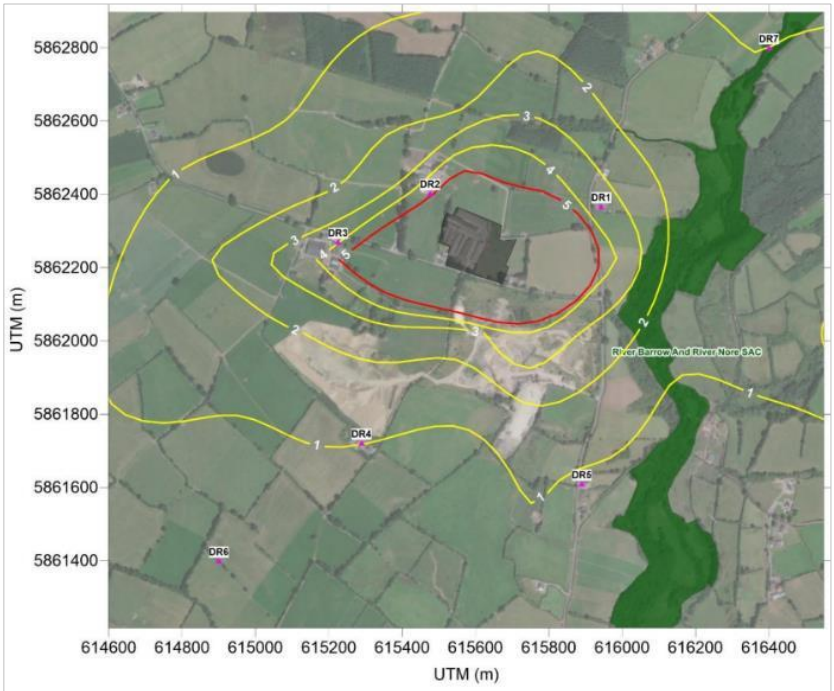


Plate 1	Highest predicted 98th percentile 1-hour average ground-level concentrations of odour of five modelled years due to the pig farm		
Location: Moate, Co Laois	**Averaging period:** 1-hour	**Data source:** CALPUFF	**Units:** ouE/m³
Type: 98th percentile	**Criterion level:** 5 ou (Red Line)	**Prepared by:** P McDowell	**Date:** September 2023

It is anticipated that there would be no significant impact to the amenity of the area as a result of the proposed development.

While EPA BATNEEC Guidance recommends a set-back distance of 400m from third-party residences, this set back distance cannot always be achieved in the real world, particularly given the proliferation of one-off housing developments in rural Ireland in recent years.

RECEIVED: 06/06/2024

The only sensitive receptor within 100 m of the proposed site is a commercial location related to crop and animal production. Downwind of the prevailing wind direction, land is composed mainly of pasture.

As stated previously, no odour complaints have been received to date by the applicant, local council or the EPA with regard to operations at the farm.

The high standards of design of the proposed pig houses, improvement of the operation of the existing pig houses, coupled with continued good housekeeping practices currently in place at the site, would serve to ensure the effective control of odour emissions and mitigate the risk of environmental impact and nuisance to sensitive receptors from odours associated with the site.

Land-spreading of pig slurry on farmlands is a known source of odour during certain parts of the year. Increased emissions may at times be associated with transporting and land-spreading slurry from the site. However, the spreading of pig slurry is not considered a significant odour issue as this is a short term, common and accepted practice in rural areas.

Proposed measures under the new Department of Agriculture, Food and the Marine (DoAFM) Guidance "*Code of Good Agricultural Practice for reducing Ammonia Emissions from Agriculture*" January 2021 provides measures to reduce ammonia emissions from agriculture up to 2030. These measures would also reduce odour emissions, as the mechanisms for the evolution of ammonia and odorous compounds from agricultural sourced are largely similar.

Therefore, it is anticipated that odour from the proposed expansion of this piggery operation would not cause a significant environmental impact in the region or nuisance to sensitive locations. Site odour at odour sensitive locations does not appear to constitute a nuisance, as odours are and will be controlled at the site through good design and housekeeping.

5.6.2 AIR QUALITY & CLIMATE

There would be no alteration to the existing pig numbers, and it is not expected that the proposed development would result in a significant increase in the production of slurry at the farm. Therefore, it is not anticipated an associated increase in gaseous emissions of ammonia, nitrogen oxides and methane from the digestive processes and slurry of the pig herd.

The Applicant has recently installed 100kVa of solar panels which will generate 22% of the total annual electricity requirement of this pig farm. This will help reduce the Carbon footprint of the production process of this farm and improve its sustainability credentials.

Emissions would be associated with the collection and application of slurry from the tanks.

Table 5.3 below includes the estimated emissions associated with existing pig numbers at the piggery.

The figures for ammonia, methane, and nitrous oxide were obtained using the EPA's AER PRTR Intensive Agriculture Emissions Calculation Tool.

As stated above, proposed measures under the new Department of Agriculture, Food and the Marine (DoAFM) Guidance "*Code of Good Agricultural Practice for Reducing Ammonia Emissions from Agriculture*" January 2021 provides measures to reduce ammonia emissions from agriculture up to 2030. As these initiatives, and other initiatives under DoAFM "*'Ag-Climatise' A Roadmap towards Climate Neutrality*" are implemented, it is anticipated that odour and air emissions across the agricultural sector would reduce.

RECEIVED: 05/06/2024

Table 5.3: Annual Emissions of Ammonia, Methane and Nitrous Oxide.

EMISSION PARAMETER	CURRENT TOTAL KG/YEAR
Ammonia (NH_3)	19,769
Methane (CH_4)	117,605
Nitrous oxide (N_2O)	71

The above figures relate to the existing emissions from the site, which are not expected to increase as it is not proposed to increase animal stocking numbers at the farm. Reduction of emissions through proposed design measures have been addressed in the mitigations section of this chapter.

An Ammonia Impact Assessment (Attachment 5.2) was carried out by Katestone Environmental Pty Ltd to ascertain whether the levels of emissions from the proposed pig production facility will result in ground level impact in the vicinity of the site operations. The report determined that the proposed pig farm complies with the EPA evaluation criteria at all sensitive locations. See Section 8 for more details on the report.

5.6.3 DEPOSITIONAL DUST

Dust levels generated by the development during the operational phase would be expected to be negligible.

The majority of the trafficked areas of the yard are hardcore and dust generation during dry windy periods would be expected. However, there are no current issues at the site with regard to fouling of surfaces or vegetation with dust from the site and no significant impact would be expected as a result of operation of the proposed extensions and buildings.

Operational dust arising from the site would be expected to be evident only on the site and would not impact on dwellings and other buildings in the vicinity of the site. There are no third-party residences within a 200 m radius of the site. It should also be noted that the residential property adjacent to the site is occupied by the former owner of the farm and has been made aware of all future developments at the site and is not considered as a sensitive receptor. There is an understanding between the former proprietor and Tulleka Trading ULC. that this property will be offered to Tulleka Trading ULC. if it is ever to be sold. In such an instance, this property will be utilised by Tulleka Trading ULC. for its farm manager and staff at the pig farm.

A significant potential nuisance associated with construction activities is dust. Excavations and earth moving operations may generate quantities of construction dust, particularly in drier weather conditions. The extent of any construction dust generation depends on the nature of the construction dust (soils, sands, gravels, silts etc.) and the construction activity. The potential

for construction dust dispersion depends on the local meteorological conditions such as rainfall, wind speed and wind direction.

RECEIVED: 05/09/2024

Minimal levels of dust would be expected to be generated during the construction phase given the confined area of earthworks and the short term of the construction phase.

The issue of construction dust dispersion may be exaggerated with vehicles transporting sand/gravel/concrete/etc. to and from the site having the potential to cause an environmental nuisance to use of the local road.

Construction dust control is a common part of construction management practices. The effect of construction activities on air quality, in particular construction dust, would not be significant following the implementation of the proposed mitigation measures outlined below.

5.7 MITIGATION MEASURES

5.7.1 MITIGATION OF ODOUR, AIR AND CLIMATE EFFECTS

Like the majority of the agriculture and foods industry, the operation of a piggery is faced with the issue of preventing odours causing impact to the public at large. Odours from pig farms can be significantly reduced by implementing good management practices.

Emissions from this site are currently minimised using the following systems baseline principles;

- Use of low protein diets to all animals on site to reduce emissions of nitrogen-based compounds;
- Water and feed systems are maintained in optimum condition and operation so as to minimise water and feed wastage;
- Slurry management kept to a high standard;
- Stocking density maintained at design level;
- Minimisation of carcasses by keeping the herd health to the highest possible standard;
- Limited areas where pigs are moved outside buildings and covering of passageways and yards where animals have access;
- Animal trafficked external yards cleaned down as soon as practical;
- Reducing uncontrolled air movements on site and leakage from the ventilation system and from pig houses (i.e. correctly sealed windows and doors);
- The use of a high-tech computerized ventilation system, in animal houses with a backup system;
- Transporting pig slurry in suitably contained leak proof vehicles;
- Cognisance of meteorological conditions which favour the spread of odours.

The proposed buildings would incorporate a *'low emission'* pig housing design features including:

- A reduction in stocking density;
- Altering manure storage practices at eleven (11) of the thirteen (13) existing housing units at the site, which will be changed from deep pit storage tanks to shallow pit storage tanks;
- Altering ventilation points on some of the pig housing units.

It is considered that, as a result of these design and operational mitigation measures, there would not be a significant alteration to the level of odour generated at the facility. It is considered that, due to the proposed design, management practices and location of the farm, there would be no significant impact upon the amenity value of the area as a result of the proposed development.

RECEIVED: 05/08/2024

In addition, the measures outlined above, and as detailed within the attached Katestone Reports, would reduce the existing air quality and greenhouse gas emissions from the farm.

Therefore, there would be a long term positive effect on the odour, air quality and climate emissions from the farm as a result of the proposed development.

5.7.2 MITIGATION OF DEPOSITIONAL DUST

During the operational and construction phase of the proposed extension of the existing pig finishing operation, all efforts would be made to ensure no dusting occurs.

As with the current operation, it is not considered that dust would be a significant nuisance issue at the proposed site.

Good housekeeping should be maintained at all times. Public roads should be inspected regularly to ensure that fouling by dust does not occur, as higher density traffic on the road would increase airborne dust traveling from the site.

It is proposed to adhere to good working practices and standard dust mitigation measures to ensure that the levels of dust generated would be minimal during the construction phase and are unlikely to cause any significant environmental nuisance.

Topsoil and gravel overburden would be used in the levelling off and landscaping of the site which would be stabilised by natural plant reinstatement.

Hard surface parts of the farmyard would be swept to remove mud and aggregate materials from their surface. Roads outside the site would be regularly inspected for cleanliness and cleaned as necessary.

Material handling systems and site stockpiling of materials would be designed and laid out to minimise exposure to wind.

Should construction activities occur during particularly dry weather, a water misting system would be installed to reduce the level of dust travelling offsite.

5.8 CUMULATIVE IMPACTS & MITIGATION

It is considered that, due to the proposed design, management practices and location of the farm, there would be no significant impact upon the amenity value of the area as a result of the proposed development alone.

There are several small farm hubs in the surrounding area which would account towards the cumulative impacts of agricultural air emissions in the area, and agriculture would be the most significant source of air emissions in the area.

RECEIVED: 05/06/2024

The Ammonia Impact Assessment (Attachment 5.2) carried out by Katestone Environmental Pty Ltd included an assessment of in-combination effects on Ammonia and Nitrogen emissions from the farm in compliance with the methodology outlined in EPA (2021) Ammonia and Nitrogen Assessment Guidance for intensive agriculture. The review of sources identified that there were no other sources that may act in-combination with the application/review installation, outside of the baseline conditions used in the model and established in 2018.

As there would be a reduction in odour, air quality and greenhouse gas emissions from the proposed pig farm, it is considered that there would be a long term positive effect when considered in combination with other similar sources locally and farther afield.

5.9 REFERENCES

Air Pollution Act, 1987, 6 of 1987. Available online: https://www.irishstatutebook.ie/eli/1987/act/6/enacted/en/html Accessed January 2024.

Ambient Air Quality Standards Regulations, S.I. No. 739 of 2022, Dublin: Stationery Office. Available online: https://www.irishstatutebook.ie/eli/2022/si/739/made/en/ Accessed January 2024.

Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry or Pigs (2017).

Bobbink, R., Bal D., van Dobben H.F., Jansen A.J.M., Nijssen M, Siepel H., Schamineé J.H.J., Smits N.A.C. & de Vries W., (2012) Chapter 2 The Effects of nitrogen deposition on the structure and functioning of ecosystems. https://www.semanticscholar.org/paper/The-effects-of-nitrogen-deposition-on-the-structure-Bobbink-Bal/5372c921433dfcecaafb179178f9a6b01863bb97

Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe. Available online: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0050&from=en Accessed January 2024.

Dravnieks, A., Schmidtsdorff, W. and Meilgaard, M., 1986. Odor thresholds by forced-choice dynamic triangle olfactometry: reproducibility and methods of calculation. *Journal of the Air Pollution Control Association*, *36*(8), pp.900-905.

EMEP/EEA Air Pollutant Emission Inventory Guidebook (2023). Available online. https://www.eea.europa.eu//publications/emep-eea-guidebook-2023 Accessed January 2024.

Environmental Protection Agency (2009) AER PRTR Intensive Agriculture Emissions Calculation Tool. Available online: http://www.epa.ie/pubs/advice/aerprtr/pigpoultryaerprtrguidance/aerprtrintensiveagriculturee missionscalculationtool.html Accessed July 2023.

Environmental Protection Agency (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports. Available online: https://www.epa.ie/pubs/advice/ea/EPA%20EIAR%20Guidelines.pdf Accessed July 2023.

Environmental Protection Agency. Air Quality in Ireland 2022. Available online: https://www.epa.ie/publications/monitoring--assessment/air/Air_Quality_Report_22_v8v2.pdf Accessed January 2024.

Environmental Protection Agency. Air Quality in Ireland 2021. Available online: https://www.epa.ie/publications/monitoring--assessment/air/EPA-Air_Quality_in-Ireland-Report_2021_-interactive-pdf.pdf Accessed January 2024.

EPA Unified GIS Application, Available online: https://gis.epa.ie/EPAMaps/ Accessed January 2024.

EPA (2021): Odour Impact Assessment Guidance for EPA Licensed Sites (AG5).

EPA (2023): Ireland's Greenhouse Gas Emissions Projections 2022-2040

EPR Intensive Agriculture Emissions Calculation Tool. Available online: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.epa.ie%2Fpublications%2Fcompliance--enforcement%2Flicensees%2Freporting%2FAER-PRTR-Intensive-Agriculture-Emissions-Calculation-Toolset-Version-3-2016.xls&wdOrigin=BROWSELINK

Hayes, E.T., Leek, A.B.G., Curran, T.P., Dodd, V.A., Carton, O.T., Beattie, V.E. and O'Doherty, J.V., 2004. The influence of diet crude protein level on odour and ammonia emissions from finishing pig houses. *Bioresource technology*, *91*(3), pp.309-315.

IAQM (2023). Guidance on the assessment of dust from demolition and construction. Available online: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-dust-2023-BG-v6-amendments.pdf Accessed January 2024.

IPPC Application form for a variation to a pig and poultry farm, NIEA Q57/20 Part C. V1.

IPPC Reference Document on Best Available Techniques for Intensive Rearing of Poultry and Pigs.

Klarenbeek, J.V., Jongebreur, A.A. and Beumer, S.C.C., 1982. Odour emission in pig fattening sheds. *Wageningen, The Netherlands: IMAG*.

Krzyzanowski, M. and Cohen, A., 2008. Update of WHO air quality guidelines. Air Quality, Atmosphere & Health, 1(1), pp.7-13.

Lachance, I., Godbout, S., Lemay, S.P., Larouche, J.P. and Pouliot, F., 2005. Separation of Pig Manure Under Slats: to Reduce Releases in the Environment!. In 2005 ASAE Annual Meeting (p. 1). American Society of Agricultural and Biological Engineers.

Mol, G. & Ogink, N. (2004). The effect of two ammonia-emission-reducing pig housing systems on odour emission. Water science and technology : a journal of the International Association on Water Pollution Research. 50. 335-40. 10.2166/wst.2004.0299.

RECEIVED: 05/06/2024

Ogink, N.W.M. and Groot Koerkamp, P.W.G., 2001. Comparison of odour emissions from animal housing systems with low ammonia emission. *Water Science and Technology*, *44*(9), pp.245-252.

Pedersen, P. (1997): Køling af gylle i slagtesvinestalde med fuldspaltegulv. Videncenter for Svineproduktion. Meddelelse nr. 357, pp. 6.

Rahman, S. and Borhan, M.S., 2012. Typical odor mitigation technologies for swine production facilities: A review. *J. Civ. Environ. Eng*, *2*, p.117.

Rzeźnik, W., Mielcarek, P. and Rzeźnik, I., 2016. Limiting Odour Emission from Piggery through Application of Heat Recovery System. *Agricultural Engineering*, *20*(1), pp.167-176.

Santonja G.G., Georgitzikis K. Scalet B.M. Montobbio P. Roudier S., & Delgado Sancho L. (2017) Best available techniques (Bat) reference Guide Document for the Intensive Rearing of Poultry or PigsSCAIL, 2014.

SCAIL Agriculture User Guide.

Ubeda, Y., Lopez-Jimenez, P.A., Nicolas, J. and Calvet, S., 2013. Strategies to control odours in livestock facilities: a critical review. Spanish Journal of Agricultural Research, 11(4), pp.1004-1015.

Environment Agency (2014): How to comply with your environmental permit for intensive farming.

Valli, L., Moscatelli, N., (2008). Odour emissions from livestock production facilities. Centro Ricerche Produzioni Animali – CRPA SpA Corso Garibaldi 42, 42100 Reggio Emilia, Italy.

Van Geel, P.L.B.A. (2006) Annex 1 - Odour Nuisance and Farming Act, Netherlands.

RECEIVED: 05/06/2024

6.0 NOISE ENVIRONMENT

6.1 INTRODUCTION

RECEIVED: 09/05/2024

Tulleka Trading ULC. proposes to extend an existing piggery with five new sheds, together with all ancillary site works and services at Graigue, Ballinakill, Co. Laois. The proposed development would occur within the existing site currently in the ownership of the applicant.

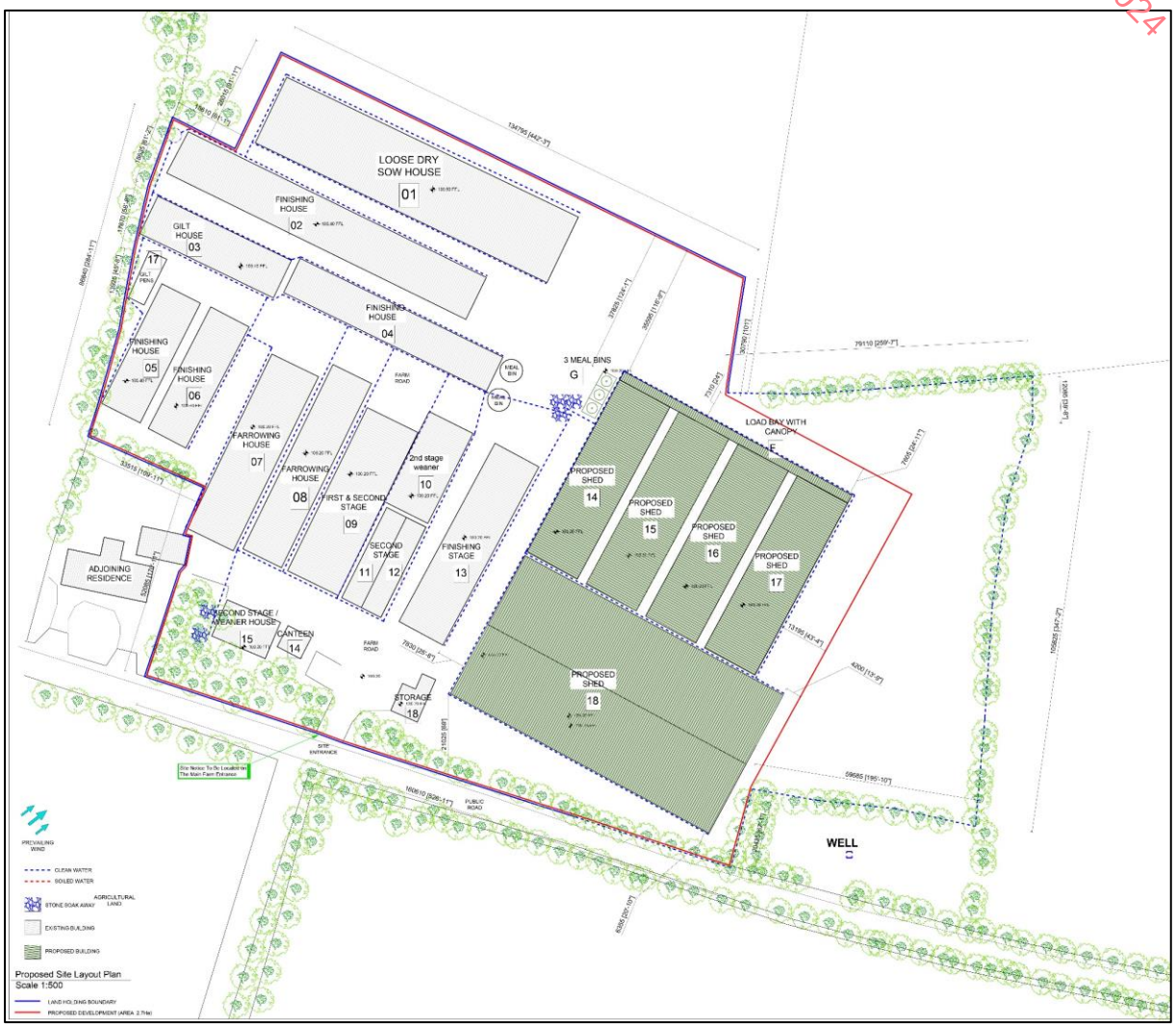


Figure 6.1: Proposed Site Layout (Agri Planning & Design)

Panther Environmental Solutions Ltd was commissioned by Tulleka Trading ULC. to carry out a Noise Impact Assessment in support of an Environmental Impact Assessment Report (EIAR).

The report presents and interprets the results of the survey with reference to the 2016 EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4).*

The study identifies, describes and assesses the impact of the proposed development in terms of noise, in particular, the potential noise impacts on residential locations (noise sensitive receptors) in the vicinity of the proposed development.

6.2 LEGISLATIVE CONTEXT

RECEIVED: 06/06/2024

Planning and Development Act 2000 (S.I. No. 30 of 2000), as amended

Local authorities are responsible for the planning and environmental regulation of any proposed developments. The current planning and environmental regulatory framework requires these developments to comply with the Planning and Development Act (2000) and related regulations.

The local authorities and An Bord Pleanála attach conditions relating to environmental management of these developments to planning permissions granted. Local authorities consider the land use and planning issues associated with the proposed developments in their County Development Plans.

The EPA Act (Noise) Regulations 1994 (S.I. No. 179 of 1994)

The relevant part of the Environmental Protection Agency Act 1992 dealing with noise is Part VI, Sections 106 to 108. These Sections deal with the control of noise, the power of local authorities to prevent or limit noise and the issue of noise as a nuisance.

The 1994 Regulations came into effect in July 1994 and outline the procedures for dealing with noise nuisance. The Regulations allow affected individuals, local authorities or the EPA to take action against an activity causing a noise nuisance.

These Regulations replaced the procedures for noise complaints contained in the Local Government (Planning & Development) Act 1963. Companies must show that reasonable care was taken to prevent or limit the noise from their activities.

If the courts decide that a company is responsible for causing a noise nuisance, they can order the company to take measures to reduce, prevent or limit it.

EPA 'Guidance Note on Noise (NG4)' (2016)

The document relates primarily to noise surveys and assessments for EPA licensed facilities but in the absence of any other directly applicable guidance documents, it also is pertinent for the purposes of noise surveys and assessments accompanying planning applications.

It deals in general terms with the approach to be taken in the measurement and control of noise, and provides advice in relation to the settling of noise ELV's and compliance monitoring. In line with World Health Organisation (WHO) guidance, it recommends that the following noise levels not be exceeded at the facades of the nearest noise-sensitive receptors:

Period	Times	Standard dB(A)	Low Background Noise Area dB(A)
Day	(07:00 to 19:00hrs)	55dB $L_{Ar,T}$	45dB $L_{Ar,T}$
Evening	(19:00 to 23:00hrs)	50dB $L_{Ar,T}$	40dB $L_{Ar,T}$
Night	(23:00 to 07:00hrs)	45dB $L_{Aeq,T}$	35dB $L_{Ar,T}$

Other EPA general EIA guidelines such as Guidelines on the Information to be Contained in Environmental Impact Assessment Reports [2022] and Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements) [2003] have been considered in the preparation of this Noise and Vibration Chapter.

BS5228:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise

RECEIVED: 03/06/2024

There is currently no statutory guidance in Ireland relating to the maximum permissible noise level for a project's construction phase. Current guidance on permissible noise levels is therefore considered somewhat limited. In the absence of any statutory guidance or other specific limits prescribed by relevant authorities, an appropriate best practice measure has been adopted as the standard for this project.

Best practice guidelines are taken from the British Standard BS 5228 – 1: 2009 (+A1 2014): *'Code of Practice for Noise and Vibration Control On Construction And Open Sites – Noise'*. BS 5228 sets out an approach for setting appropriate construction noise limits for residential dwellings, but it does not provide guidance for commercial or office buildings.

The BS 5228 *'ABC Method'* calls for the designation of a noise sensitive location into a specific category (A, B or C) based on existing ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded, indicates that a potential noise impact is associated with the construction activities.

Threshold of Potential Significant Effect			
Assessment category and threshold value period	**Threshold value, in decibels (LAeq, T)**		
	Category A[a]	**Category B**[b]	**Category C**[c]
Night-time (23.00−07.00)	45	50	55
Evenings and weekends[d]	55	60	65
Daytime (07.00−19.00) and Saturdays (07.00−13.00)	65	70	75
NOTE 1: A potential significant effect is indicated if the LAeq, T noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level. NOTE 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total LAeq, T noise level for the period increases by more than 3 dB due to site noise. NOTE 3: Applied to residential receptors only.			
a) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values. b) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values. c) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values. d) 19.00–23.00 weekdays, 13.00–23.00 Saturdays and 07.00–23.00 Sundays.			

The National Roads Authority (NRA) Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004)

The NRA's guidance document Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004) is the recognised Irish guidance document for the assessment of road traffic noise. This document sets out the key items that should be included in a noise

and vibration assessment for any significant road scheme. As a minimum, it stipulates that the following items should be included:

RECEIVED: 05/09/2024

- A series of noise surveys to quantify the prevailing noise climate at sensitive receptors along the existing and proposed routes;
- Preparation and calibration of a suitable noise prediction model;
- Prediction of Do Minimum and Do Something noise levels for opening and design years;
- Comparison of predicted Do Something noise levels with the design goal and three conditions that must be satisfied before mitigation measures are deemed necessary;
- Specification and assessment of road traffic mitigation measures, where required;
- Assessment and review of construction impacts and mitigation measures;
- Assessment and review of vibration.

This document has been referred to in the consideration of road traffic noise associated with the proposed development. The document also presents maximum permissible noise levels at dwelling facades during construction activities. This provides a useful reference for assessing construction noise of the proposed development.

The National Roads Authority (NRA) Guideline Construction Noise Limits		
Period	**$L_{Aeq\ (1hr)}$ dB**	**$L_{pA\ (max)slow}$ dB**
Monday to Friday (07:00 to 19:00hrs)	70	80
Monday to Friday (19:00 to 22:00hrs)	60	65
Saturday (08:00 to 16:30hrs)	65	75
Sundays and Bank Holidays (08:00 to 16:30hrs)	60	65

EPA Licencing

The existing site is licensed by the Environmental Protection Agency, licence ref: P0710-03, which sets environmental noise emission limits for the site.

Licence Condition 4.1 states:
'Noise from the installation shall not give rise to sound pressure levels (Leq, 30mins) measured at noise sensitive locations of the installation, which exceed the limit value(s) specified in Schedule B.4 Noise Emissions, of this licence.'

Schedule B.4: Noise Emissions	
Daytime L_{Aeq}(30 minutes)	**Night-time L_{Aeq}(30 minutes)**
55 dB(A) Note 1	45 dB(A) Note 1

Note 1: '*There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at the boundary'*

6.3 REGIONAL ENVIRONMENTAL SETTING

RECEIVED: 03/06/2024

The site is located 3.1km north-east of Ballinakill town centre, 4.9km south-east of Abbeyleix town centre and 15.1km south of Portlaoise.

The site is accessed by local road L7794, which connects to the L7797 410m to the east and to the L3777 1.54km to the west. Both of these local roads link to the R430, which connects to the N77 road that passes through Abbeyleix and the N78 road 13.6km to the east of Ballinakill.

The area is rural in character with residences in the area predominantly linearly aligned along the existing road network.

There are no significant dominant point noise sources in the region as the local area is rural and not influenced by any local industry. However, the Kilsaran Ballinakill cement operation, located immediately to the south is a local source of noise. While the proposed development is in a rural area, the influence of traffic from the local roads during the daytime is a prominent source of noise in the area.

6.3.1 BASELINE NOISE ASSESSMENT METHODOLOGY

Baseline noise monitoring was carried out in general accordance with the EPA, 2016 "*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (*NG4*)".

In order to predict the impact of the construction and operational phases of the proposed development, sample noise monitoring locations were selected based upon the nearest location within groups of NSL's sharing similar orientation with regard to the proposed site and intervening topography.

Table 6.1: Noise Monitoring Locations

Ref. No.	Grid Ref	Location Type	Location
NM1	S 48336 83157	Noise Monitoring Location	At the site
NM2	S 48198 83336	Noise Monitoring Location	145m North-West of the site
NM3	S 48737 83368	Noise Monitoring Location	260m North-East of the site

Grid Ref Source: http://irish.gridreferencefinder.com

The baseline environmental noise levels at NM1 – NM3 locations were determined by instrumented monitoring of existing noise levels. This was determined by taking 30-minute broadband noise measurements at these four noise monitoring locations.

It is considered that noise levels measured at each of the NM locations would be representative of existing noise levels at nearest residential property or Noise Sensitive Locations (NSL).

All measurements were taken at:

- 1.2 – 1.5 metres height above local ground level
- 1.0 – 5.0 metres away from reflective surfaces

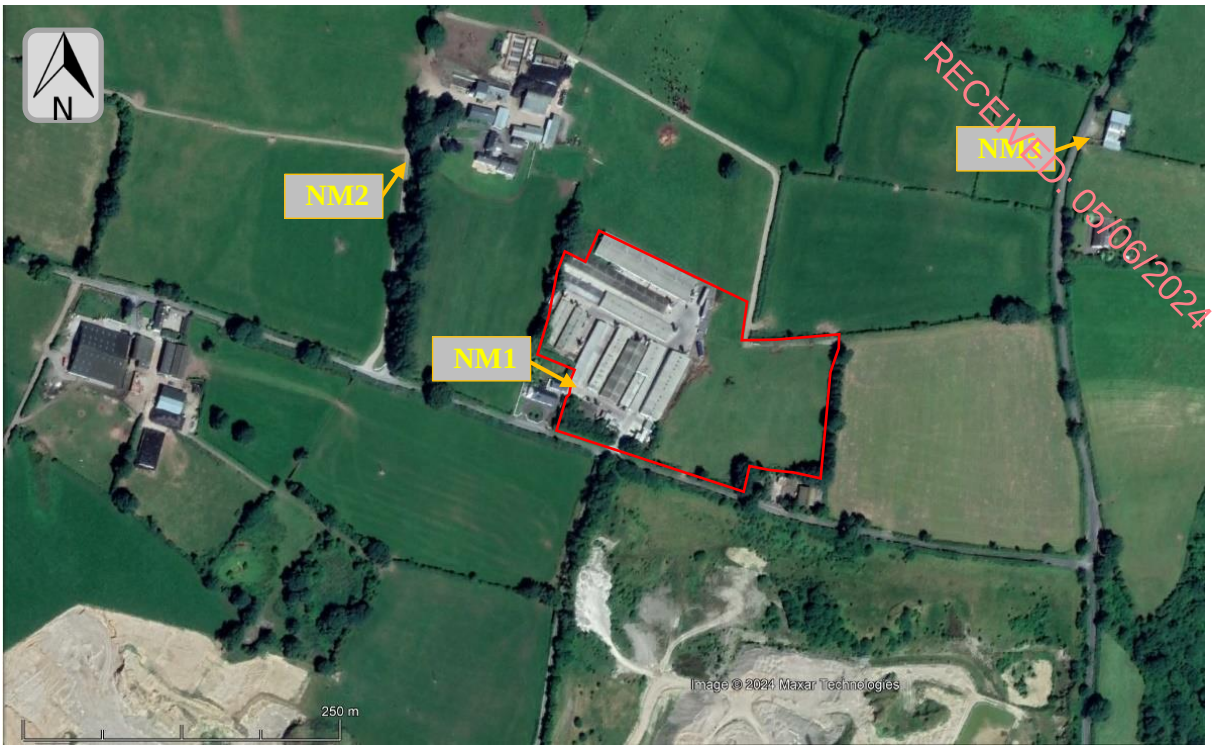


Figure 6.2: Monitoring and Noise Sensitive Locations (Google Earth)

6.3.1.1 Equipment Used

The equipment used for the noise monitoring was a Cirrus CR:171B Sound Level Meter (serial no: G071199), a Cirrus CR:831C Sound Level Meter (serial no: D21509FF), two MK:224 Microphones (serial no: 216368A & 203215A) and a CR:515 Acoustic Calibrator (serial no: 54060). The CR:171B and its corresponding MK:224 were both calibrated externally on the 4th of October 2022. The CR:831C and its corresponding MK:224 were calibrated externally on the 8th & 9th of August 2023. The CR:515 was also calibrated externally on the 9th of August 2023.

A calibration check of 94 dB(A) at 1kHz was carried out on the instrument before and after measurement. The calibrator is a Class 1 grade, which conforms to IEC 60942:2003. The difference between the initial calibration value, any subsequent calibration check, and a final calibration checks on completion of measurements did not exceed 0.5 dB, and the instrument calibration was found to be satisfactory.

Certifications of calibration are provided in **Attachment 6.2**.

6.3.1.2 Meteorological Conditions

Weather conditions during the survey were dry and cool (varying between -3°C and 6°C), with calm wind speeds of less than 5 m/s or 10 knots from a predominantly southerly direction.

Weather conditions were in line with those recorded at the Oak Park Weather Station, located 24.90km east-southeast of the site boundary, as per Appendix F.

The Sound Level Meters were also fitted with windshields to minimise interference from meteorological conditions during all monitoring periods.

6.3.2 BASELINE NOISE ASSESSMENT – RESULTS

RECEIVED: 05/06/2024

The table below show the daytime, evening and night-time measurement results taken at the four monitoring locations outlined in **Table 6.1**. These points are mapped in **Figure 6.2**.

Table 6.2: Baseline Noise Monitoring Summary							
Ref	**Time**	**Leq**	**L_{10}**	**L_{90}**	**Equipment Operational**	**Tonal Element**	**Background**
Daytime							
NM1	10.24	49	53	41	Yes (Low fan noise)	None	Traffic, bird song, dog barking
NM1	12:00	59	62	44	Yes (Low fan noise, Site traffic)	None	
NM1	12:35	51	54	44	Yes (Low fan noise)	None	
NM2	09:47	46	49	37	Tractor engine / reverse signal	None	Traffic, bird song, dog barking
NM2	11:18	47	43	38	Tractor engine / reverse signal	None	
NM2	11:54	44	46	40	Tractor engine / reverse signal	None	
NM3	10:05	52	53	50	Reverse signal	None	Traffic, bird song, dog barking
NM3	10:36	60	48	40	Reverse signal	None	
NM3	11:13	56	45	38	Reverse signal	None	
Evening							
NM1	22:22	41	32	27	Yes (Low fan noise)	None	Traffic
NM2	21:48	34	36	27	None	None	Traffic, dog barking
NM3	22:19	48	45	37	None	None	Traffic, dog barking
Night-time							
NM1	23:38	39	34	28	Yes (Low fan noise)	None	Traffic
NM1	00:07	53	56	45	Yes (Low fan noise)	None	
NM2	23:04	40	33	26	None	None	Traffic, Dog barking
NM2	23:34	49	52	42	None	None	
NM3	00:19	30	28	22	None	None	Traffic, Dog barking
NM3	23:00	48	46	37	None	None	

6.3.2.1 Quiet Area Screening

The location of the development has been screened in order to determine if it is located in an area that could be considered a *'Quiet Area'* according to the EPA NG4 Guidance, which states:

The location of the proposed development should be screened in order to determine if it is to be located in or near an area that could be considered a 'Quiet Area' in open country according to the Agency publication Environmental Quality Objectives - Noise in Quiet Areas.

RECEIVED: 05/06/2024

This is achieved using the following checklist:

Table 6.3: Quiet Area Screening Checklist

Screening Question	Answer	
	Yes	**No**
Is the site >3km away from urban areas with a population >1,000 people?	✓	
Is the site >10km away from urban areas with a population >5,000 people?	✓	
Is the site >15km away from urban areas with a population >10,000 people?		✓
Is the site >3km away from any local industry?		✓
Is the site >10km away from any major industry centre?	✓	
Is the site >5km away from any national primary route?		✓
Is the site >7.5km away from any motorway or dual carriageway?	✓	
QUIET AREA?		✓
Other Relevant Comments	Portlaoise <15km (pop:22,050) Kilsaran Ballinakill (concrete) <10m South N77 primary route – 4.80km west.	

The proposed development location does not comply with all criteria within the checklist. Therefore, it is considered that the development would not be located within a '*Quiet Area*', as per EPA NG4 Guidance.

6.3.2.2 Areas of Low Background Noise Screening

When an area is not identified as being *a 'Quiet Area'*, the existing background noise levels measured during the environmental noise survey should be examined to determine if they satisfy the following criteria:

- Average Daytime Background Noise Level ≤ 40dB L_{AF90}
- Average Evening Background Noise Level ≤ 35dB L_{AF90}
- Average Night-time Background Noise Level ≤ 30dB L_{AF90}

Noise monitoring has indicated that the average daytime and night-time background L_{AF90} noise levels did not fall below the levels outlined in Step 3, Chapter 4.4.2 of the EPA *Guidance Note on Noise from Scheduled* Activities (NG4), during the monitoring periods.

Table 6.4: Low Background Noise Screening Table – Daytime

RECEIVED: 05/06/2024

Reference	LA_{90} dB(A)		
	Day	Evening	Night
NM1.1	41	27	28
NM1.2	44	–	45
NM1.3	44	–	–
NM2.1	37	27	26
NM2.2	38	–	42
NM2.3	40	–	–
NM3.1	50	37	22
NM3.2	40	–	37
NM3.3	38	–	–
Average	**44**	**33**	**39**

$$\text{Average} = 10.\text{Log}\frac{1}{n}\sum_{i=1}^{n} 10^{LA90/10}$$ When L = Noise Level Recorded

Noise monitoring has indicated that the average background LA_{90} noise level is below the daytime threshold level outlined in Step 3, Chapter 4.4.2 of the EPA document *Guidance Note on Noise (NG4)*.

Given the noise monitoring results obtained and the character of the area, it is unlikely that this area would be considered a '*Low Background Noise Area'*. Therefore, typical recommended noise level limits would be applicable to the site during the operational phase.

Period	Time Period	Limit
Daytime	07:00 to 19:00 hrs	55 dB(A)
Evening	19:00 to 23:00 hrs	50 dB(A)
Night-time	23:00 to 07:00 hrs	45 dB(A)

6.3.3 BASELINE NOISE ASSESSMENT – ANALYSIS

The principal factor influencing the mitigation of noise from site operations is its distance from noise sensitive locations. Increasing distance from a noise source significant increases the attenuation of noise as sound energy reduces by the inverse of the square of distance travelled (inverse square law).

The closest third-party noise sensitive location is c.200m from the proposed operation. The residential property adjacent to the site is occupied by the former owner of the farm and has been made aware of all future developments at the site and potential increase in noise.

The terrain between the closest noise sensitive locations and the existing site is composed of mature hedgerows, treelines and grassland. For the purpose of noise attenuation, these surfaces are considered 'porous', whereas made ground would be considered 'reflective'.

RECEIVED: 03/06/2024

The baseline monitoring undertaken as part of this noise impact report, summarised in **Table 6.2** above, shows that the site is compliant with is current licence limits of 55dB for the daytime and 45dB for the night-time period.

All monitored Leq noise levels were below or equal to these licence limits, with the exception of the daytime NM3 figures of 56dB and 60dB, which was elevated as a result of non-site related sources, and daytime NM1 figure of 59dB, which was elevated due to the traffic entering / exiting the site. Night time exceedances at NM1 and NM3 were as a result of non-site related sources, comprising of passing traffic and intermittent breezes in the trees. The L_{90} noise levels, which would better reflect the continuous noise sources from the farm ranged from 37 to 50 dBA Daytime, 27 to 37 dBA Evening, and 22 to45 dBA Night-time.

Therefore, existing site related noise does not appear to constitute a nuisance at the closest third-party noise sensitive locations.

6.4 PREDICTIVE NOISE ASSESSMENT

In order to determine the impact of noise from the construction and operational phases of the pig operation on noise sensitive locations, the predicted noise levels at the nearest noise sensitive locations surrounding the farm have been calculated in accordance with the methodology prescribed in ISO 9613-2:1996 '*Attenuation of Sound during Propagation Outdoors*'. The resultant predicted noise levels have been assessed in accordance with the methodology prescribed in BS 4142:2014 '*Methods for Rating and Assessing Industrial and Commercial Sound*'.

ISO 9613-2:1996

The noise prediction methodology used in this report is based upon the international standard ISO 9613-2 "*Attenuation of Sound during Propagation Outdoors*".

This standard outlines a method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at a distance from a variety of sources.

The central formula for this calculation is as follows:

$$\mathbf{A = A_{div} + A_{gr} + A_{bar} + A_{misc}}$$

Where:

A	is the attenuation due to site conditions
A_{div}	is the attenuation due to the geometrical divergence (distance from source)
A_{gr}	is the attenuation due to the ground effect
A_{bar}	is the attenuation due to a barrier
A_{misc}	is the attenuation due to miscellaneous other effects as appropriate

This attenuation factor is then subtracted from the predicted park activity noise at the proposed activity. The resultant figure is the predicted noise from the proposed activity at a given noise monitoring location.

This figure may then be added logarithmically to the existing background noise at the noise monitoring location to attain the predicted noise level if the proposed activity were to begin.

RECEIVED: 03/06/2024

Relevant Formulae

In order to carry out this predictive analysis, the following attenuation characteristics have been taken into account:

Divergence – A_{div}

The geometrical divergence accounts for the spherical spreading in the free field from the point sound source, causing attenuation due to the inverse square law. Divergence is calculated as follows:

$$A_{div} = 20.\text{Log}\left(\frac{d}{do}\right)$$

Where:
d is the distance from the source to the receiver (meters)
do is the reference distance (1-meter) or distance from source to monitoring point (meters)

6.4.1 SOURCE NOISE SPECIFICATIONS

6.4.1.1 Construction Noise

A typical construction programme for such a development would take approximately 10 to 12 months.

Delivery movements and on-site machinery noise would likely occur during Phases 2-4, with peak movements during Phase 3.

Table 6.5 below contains a breakdown of the likely construction phases.

Table 6.5: Construction Phases

Phase	Likely Noise Sources
Phase 1 – Site Preparation	• Stripping of topsoil for concrete extension. • Cut and fill activities.
Phase 2 – Foundation Works	• The import and rolling of hardcore material. • The import, screeding and planning/ finishing of concrete.
Phase 3 – Framework Construction	• Installation of main structure I-beam/girder framework. • Installation of pre-cast concrete walls;

Phase	Likely Noise Sources
Phase 4 – Walls & Roofs	• Installation of steel purlins, girts and bracing framework. • Installation of insulated wall and roof cladded sheets.
Phase 5 – Finishing and Commissioning	• Installation of rooftop ventilation. • Installation of feed silos. • Installation of internal lighting and electrical system;

RECEIVED: 05/06/2024

Depending upon the ground conditions encountered during construction and the contractor appointed, the methodology for the construction programme may vary. A review of standard noise values for various construction plant and equipment from the British Standard 5228-1:2009+A1:2014 has therefore been undertaken.

The construction plant and machinery will change as the project develops, with plant and equipment only operating within any particular section of the site for a relatively short period of time.

Table 6.6 contains typical noise levels from various construction plant that would be used during the construction phase. These standard noise emission data, recalculated from 10m to 1m, will be used for the purposes of the worst-case noise assessment of the proposed works.

BS 5228 – Sound Level Data Table are provided in **Attachment 6.3**.

Table 6.6: Noise Levels from Construction Phase (Ref: BS5228:2009)

Phase	Activity/Equipment	Sound Pressure at 1m LAeq	Combined Sound Pressure at 1m, LAeq
1	C2.7 Tracked Excavator (14t)	90	101 dB
	C2.28 Wheeled Loader (loading lorries)	96	
	C2.37 Roller (rolling fill)	99	
2	C2.37 Roller (rolling fill)	99	**102 dB**
	C4.4 Dumper (9T)	96	
	C4.14 Wheeled backhoe loader (9T)	87	
	C4.18 Cement Mixer Truck (discharging) (Mixing Concrete)	95	
3	C2.35 Telescopic Handler (10T)	91	101 dB
	C4.23 Small cement mixer	81	
	C4.46 Mobile telescopic crane (50T)	87	
	C4.93 Angle grinder (grinding steel)	100	

Phase	Activity/Equipment	Sound Pressure at 1m LAeq	Combined Sound Pressure at 1m, LAeq
4	C2.8 Wheeled Backhoe Loader (8t)	88	99 dB
	C2.35 Telescopic Handler	91	
	C4.59 Diesel Scissors Lift	98	
5	C2.35 Telescopic Handler	91	99 dB
	C4.59 Diesel Scissors Lift	98	

RECEIVED: 05/06/2024

$$\text{Combined} = 10.\text{Log}\sum_{i=1}^{n} 10^{L/10}$$

6.4.1.2 Operational Noise

The proposed ventilation system for the proposed houses would be Mechanical Ventilation. Each of the sheds has inlet louvered vents on the sides of the sheds and multiple exhaust vents.

The site would have a total of c.125 fans, which would include 38 new model DA600 roof extraction fans or similar, should the proposed development be granted planning permission. Fans on weaner houses operate continuously at a medium power level in order to provide sufficient fresh air to the weaners.

In sow and finisher houses, the fans are the main method of climate control and fan power is moderated by air temperature. When air temperature increases above 14°C, the fans begin to operate as a percentage of the temperature increase between 14°C and 21°C. Above 21°C, the fans operate at 100%.

Operational noise at the site would typically be characterised by ventilation noise during warm weather conditions. Maximum fan noise is based upon noise specifications provided by the proposed fan supplier.

The noise specifications for the proposed on-site fans or similar are presented in **Attachment 6.3**, with fan type 'DA 600 LPC-11-2' or similar installed. As can be seen from the data sheet provided in **Attachment 6.3**, each of these fans produce a noise level of 71 dB at a distance of 2-meters, which equates to 77 dB at a distance of 1-meter.

As the operation of ventilation at maximum would be extremely rare (only during very warm weather conditions), a predictive assessment has been carried out to determine the potential impact of noise during this worst-case scenario.

6.4.2 PREDICTIVE NOISE – RESULTS

Further details of the predictive noise calculations are provided in **Attachment 6.7**.

In order to determine the potential impact of noise from the proposed development during the construction phase, the resultant noise levels at the three defined noise sensitive receptors have

been calculated, based on distance from the NSR to the closest area with the potential to contain construction plant operations.

RECEIVED: 05/06/2024

Table 6.7: Predictive noise assessment summary.

Ref	Location	Construction	Operation (Maximum Ventilation)
Source Noise Level (dBA)		102	77
NSR1	NSR 104m SW	62	61
NSR2	NSR 216m NW	55	53
NSR3	NSR 229m NE	55	47

As can be seen in **Table 6.7** above, the background noise levels (LA_{90}) at the three monitoring locations ranged between 37 – 50 dB(A). When rounded to the nearest 5 dB, the daytime ambient noise levels taken at NM locations in the vicinity of the proposed site range between 40 – 50 dB, with an overall and rounded average of 40 dB.

There is currently no statutory guidance in Ireland relating to the maximum permissible noise level for a project's construction phase. Current guidance on permissible noise levels is therefore considered somewhat limited. In the absence of any statutory guidance or other specific limits prescribed by relevant authorities, an appropriate best practice measure has been adopted as the standard for this project.

Best practice guidelines are taken from the British Standard BS 5228 – 1: 2009 (+A1 2014): *'Code of Practice for Noise and Vibration Control On Construction And Open Sites – Noise'*. BS 5228 sets out an approach for setting appropriate construction noise limits for residential dwellings, but it does not provide guidance for commercial or office buildings.

The BS 5228 *'ABC Method'* calls for the designation of a noise sensitive location into a specific category (A, B or C) based on existing ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded, indicates that a potential noise impact is associated with the construction activities. Therefore, the site would be designated as *'Category A'* as defined in **Section** Error! Reference source not found. and a noise *threshold* o f 65 dB would apply to the construction phase of the development at the closet noise sensitive receptors.

BS5228:2009 Assessment

Using the *operational* source noise level of 77 dB outlined in **Section 6.4.1.2** and the reduction of noise as a result of distance, it was possible to calculate the potential combined noise impact at the closest noise sensitive receptors.

Table 6.8 below shows the calculated potential operational noise levels at the closest NSR's, compared to the recommended daytime limit.

Table 6.8: Predicted Noise Impact at Noise Sensitive Receptors – Operational			
Ref.	**LAeq (dB) at NSR**	**EPA Daytime Limit (dB)**	**Difference (dB)**
NSR1	61	55	6
NSR2	53		-2
NSR2	47		-8

RECEIVED: 05/06/2024

In order to determine the potential impact of noise from the proposed development during the construction phase, the resultant noise levels at the three defined noise sensitive receptors have been calculated, based on distance from the NSR to the closest area with the potential to contain construction plant operations.

A source noise level of 102 dB has been utilized to represent *Phases 2* of construction, which corresponds to Foundation Works, as outlined in **Table 6.6**.

Table 6.9 below shows the difference between the calculated potential noise impact at the NSR's, compared to the calculated *ABC threshold* determined above.

Table 6.9: Predicted Noise Impact at Noise Sensitive Receptors – Construction			
Ref.	**LAeq (dB) at NSR**	**ABC Limit (dB)**	**Difference (dB)**
NSR1	62	65	-3
NSR2	55		-10
NSR2	55		-10

6.4.3 PREDICTIVE NOISE – ANALYSIS

The following sections compares the calculated noise rating arising from the proposed development and existing baseline noise at noise sensitive locations, as summarised above.

6.4.3.1 Operational Phase

As can be seen from **Table 6.8** above, the calculated potential operational noise levels at the closest NSR's would range between 6 above and -8dB below the recommended daytime limit of 55 dB.

Operational noise levels were determined using distance calculations from the noise sensitive locations. It is anticipated that the above calculations are an over-estimate as they do not take into consideration existing or proposed *reflective* noise barriers in the vicinity of the site.

It should also be noted that the residential property at NSR1 is occupied by the former owner of the farm and has been made aware of all future developments at the site and potential increase in noise.

Pig sheds are typically kept to a high temperature, relative to ambient air temperature. Fans on sheds would predominantly be used for the introduction of fresh air to the sheds and would not normally be required to regulate indoor temperature.

RECEIVED: 05/06/2024

Therefore, these fans would normally be operating at a steady state and would only operate at maximum during the hottest periods of summer days.

Table 6.10: Example of Temperature Requirements in Heated Housing for Different Pig Categories in Healthy Conditions

Farrowing pen	Weaned Pigs	Mating and Gestating Sows	Fattening Pigs
Room and sow location: up to 20–22°C	7 kg, up to 25°C	Mating, up to 20°C	20 kg, up to ***20–22°C***
	10 kg, up to 24°C	Early gestation, up to 20°C	30 kg, up to 18°C
Piglet area: first days after birth, ***28–30°C***	15 kg, up to 22°C	Middle gestation, up to 18°C	40 kg, up to 16°C
	20 kg, up to 20°C	End of gestation, up to 16°C	50 kg, up to 15°C
	25 kg, up to 18°C		

Source: BAT Reference Document for the Intensive Rearing of Poultry or Pigs (2017)

Therefore, external temperature would have to exceed 28-30°C before all 125 extraction vents would be operate at a max capacity, as per **Table 6.10**. However, this temperature applies to *Farrowing* only, while the temperature for all other pig types is lower.

The finished site would contain multiple pig categories throughout the 18 sheds:

Table 6.11: Pig Type & Total Number per Shed & Vent

Type	No. Head	No. Sheds	No. Vents
Dry Sow	607	1	6
Fattener	4,800	8	64
Farrowing	2,580	3	23
1st Stage Weaner	1,720	1	8
2nd Stage Weaner	163	5	24
Total	**9,870**	**18**	**125**

As can be seen from **Table 6.11**, *Fatteners* would make up majority of the overall herd, accounting for 49% of all pigs and 44% of all sheds, which contain 51% of all roof vents.

Therefore, majority of the site vent would be operationing at a temperature of between 20–22°C, as per **Table 6.10** above.

The following table details the total number of hours per month where the maximum recorder air temperature at Oak Park Weather Station, located approx. 24.90km east-southeast from the site, was at or above 20°C (min temperature requirement for *Fatteners* as per **Table 6.10**) over a ten-year period (2013 – 2022):

Table 6.12: Percentage of Hours per Month with Temperature ≥ 20°C (2013 – 2022)			
Month	**Total No. Hours**	**No. Hours ≥ 20°C**	**Percentage %**
Jan	7,440	0	0
Feb	6,768	0	0
Mar	7,440	0	0
Apr	7,200	7	0
May	7,440	170	2.28
Jun	7,200	552	7.67
Jul	7,440	1212	16.29
Aug	7,440	683	9.18
Sep	7,200	209	2.90
Oct	7,440	0	0
Nov	7,200	0	0
Dec	7,440	0	0
Total	**87,648**	**2833**	**3.23%**

RECEIVED: 05/06/2024

As can be seen from **Table 6.12** above, it is likely that majority of ventilation fans would only operate at maximum capacity during May to September, and for a small percentage, 3.23% of yearly hours.

Within the same 10-year period, there were no hourly temperatures at or above 21°C between the night-time hours of 23:00 to 07:00.

It was also calculated that maximum worst-case scenario of all ventilation fans operating, as a result of an external temperature of 28°C (min temperature requirement for *Farrowing* as per **Table 6.10**), may occur between the months of July to August, and for a very small percentage, 0.09%, of yearly hours.

Therefore, due to the low calculated operational noise levels and the infrequency of occurrence of the maximum noise level it is predicted that fan noise would not have a significant impact upon noise sensitive locations, once the recommend control measure are put in place. See **Section 6.6**.

6.4.3.2 Construction Phase

As can be seen from **Table 6.9** above, the calculated potential construction noise levels at the closest NSR's would range between -3 & -10 dB below the recommended 65 dB threshold.

Construction noise levels were determined using distance calculations from the closest noise sensitive location to the closest boundary point. It is anticipated that the above calculations are an over-estimate as they do not take into consideration sound attenuating effects such as sound degradation from ground absorption, air absorption, reflections and attenuation by surfaces, foliage and topography have not been considered.

It should also be noted that these noise levels are considered a worst-case scenario, as it assumes that the construction activity of each phase are carried out simultaneously at a single boundary location (i.e. dumping and rolling of material would occur before cement mixer trucks would discharge). It is not anticipated that such an event would occur.

6.5 EVALUATION OF THE RESULTS

RECEIVED: 03/09/2024

As a result of this baseline noise survey and predictive analysis, it is anticipated that the proposed development would have no significant impact on the closest noise sensitive locations during the construction phase. Predicted construction noise levels at all noise sensitive locations have been determined to be below the BS5228 daytime limit of 65 dBA and the NRA guidance limit of 70 dBA for weekdays. Precautionary noise control measures for construction activities have been included in **Section 6.6**.

During the worst-case scenario operational phase at the proposed development, it is anticipated that there would be no significant impact on the closest noise sensitive locations due to maximum ventilation noise.

Maximum worst-case scenario ventilation fan noise would only be expected to occur during the daytime in the summer and only during short periods of these days. Predicted worst-case scenario noise levels at all noise sensitive locations have been determined to be between 6 above and -8dB below the site's existing EPA license daytime limit of 55dB.

The predicted exceedance of recommended noise limits would occur at the residence immediately adjacent to the farm, occupied by the former owner of the site. This resident has been made aware of all future developments at the site and potential increase in noise. It is also understood that there is an agreement that, should the house be sold in the future, the applicant / farm operator would have first refusal on the property. As such, it is not considered that nuisance noise would occur at this residential location.

Noise levels at the next closest sensitive receptors fall below the recommended noise limit. Due to the low predicted resultant noise levels and the infrequency of occurrence, it is predicted that maximum fan noise would have no significant impact upon noise sensitive locations.

During the normal operation of the ventilation system, it is predicted that there would be no significant impact upon noise sensitive locations.

It is the conclusion of this report that there would be a moderate impact for a limited period of time on noise sensitive locations as a result of the initial construction phase. There would be no significant impact on noise sensitive locations, as a result of the operational phase of the proposed development at Graigue, Co. Laois.

6.6 NOISE MITIGATION

The following noise control measures should be implemented by the construction works contractor for the duration of the construction of the proposed development:

- Plant and machinery used on-site would comply with the EC (Construction Plant and Equipment) Permissible Noise Levels Regulations, 1988 (S.I. No. 320 of 1988). All noise producing equipment would comply with S.I. No 632 of 2001 European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001;
- All construction activities would take place between 7:00am and 19:00pm, Monday to Friday, and 7:00am to 13:00pm on Saturdays. Any expected high noise works which, by necessity, are required to be carried out outside of these times would be notified to

the relevant bodies and any potentially effected local residents in good time and prior to specified works commencing;

- No plant used on site would be permitted to cause an ongoing public nuisance due to noise;
- Where required, screens or barriers would be erected to shield particularly noisy activities;
- Deliveries would be organised to arrive during daytime hours (between 7:00am and 19:00pm, Monday to Friday, and 7:00am to 12:00pm on Saturdays);
- Care would be taken when unloading vehicles to minimise noise disturbance. Materials should be lowered, not dropped, insofar as practicable and safe;
- Regular maintenance would be carried out on all construction equipment, machinery and vehicles;
- Construction plant would be operated in accordance with the operator's instructions;
- Engine and machinery covers would be maintained in good working order and would remain closed whenever machinery is in use;
- Where practicable, all mechanical plant would be fitted with effective exhaust silences and pneumatic tools fitted with mufflers or silencers;
- Construction plant would be selected, where possible, with low inherent potential for the generation of noise;
- Construction plant would be switched off or throttled back to a minimum when not in use;
- Staff personnel would be instructed to avoid unnecessary revving of machinery;
- All contractor vehicles will use existing site access roads and surfaces of hard standing.
- Site roads will be maintained in a clean condition and the site speed limit of 15 km/hr will be strictly adhered to.
- Site personnel would notify the Project Manager in the event equipment or plant becomes defective, resulting in high noise emissions. Any defective plant would be kept out of service until the necessary repairs are undertaken.

Cognisance should be taken of the

- National Roads Authority's "*Guidelines for the Treatment of Noise and Vibration in National Road Schemes*",
- the British Standard 5228: Part 1 "*Code of practice for Noise Control on Construction and Open Sites*" and
- the CIRIA 2015 "*Environmental Good Practice on Site*".

RECEIVED: 05/09/2024

6.7 REFERENCES

RECEIVED: 05/06/2024

- EPA, *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)*, 2016.
- EPA, *Environmental Noise Survey Guidance Document*, 2003.
- ISO 9613 – *Attenuation of Sound during Propagation Outdoors*:
  - *Part 2: General method of calculation*
- ISO 1996 – *Acoustics: Description, measurement and assessment of environmental noise:*
  - *Part 1: Basic quantities and assessment procedures.*
  - *Part 2: Determination of sound pressure levels.*
  - *Part 3: Application to noise limits.*
- EN BS 4142:2014 *Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas*".
- BS5228-1:2009+A1:2014 – *Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.*
- National Roads Authority, *Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes*, 2014.
- National Roads Authority, *Guidance for the Treatment of Noise and Vibrations in National Road Schemes*, 2004.
- BREF Document for Intensive Rearing of Poultry or Pigs (2017) Reference Document for the Intensive Rearing of Poultry or Pigs.
- Grant S. Anderson and Ulrich J. Kurze, "*Outdoor Sound Propagation*," Chpt. 5 in Noise and Vibration Control Engineering – Principals and Applications, edited by L.L. Beranek and I.L. Vér, (John Wiley & Sons, NY, NY 1992).
- NSW Department of Primary Industries, Environmental Management Guidelines for the Dairy Industry, September 2008.
- Noise levels in lairages for cattle, sheep and pigs in abattoirs in England and Wales (C A Weeks 1, S N Brown, S Lane, L Heasman, T Benson, P D Warriss), September 2009.
- Joint Research Centre "*Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry and Pigs*" Draft 2, European IPPC Bureau, August 2013.

7.0 LANDSCAPE & VISUAL

7.1 INTRODUCTION

RECEIVED: 08/08/2024

This section of the EIAR provides an assessment of the likely landscape and visual impacts of the proposed development at Ballinakill, Co. Laois. This assessment involved a detailed review of all plans, sections and elevations of the proposed scheme and various publications and reports, together with a visit to the proposed site and its environs.

7.2 METHODOLOGY

This assessment is made with regard to the vulnerability of the landscape to change and to the location of visual receptors relative to the proposed development. The methodology used in the assessment is based on the EPA's "*Advice Notes on Current Practice in the preparation of Environmental Impact Statements, 2003*" and "*Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2022*".

7.2.1 BASELINE STUDY METHODOLOGY

In order to facilitate the assessment of the proposed development, the visual envelope was determined. The envelope defines the general area within which the development site may be visible, whether completely or slightly due to topography. The visual envelope extends c. 2 to 3 km from the site at its furthest point. Beyond the visual envelope, any visual impacts are considered negligible.

Potential viewpoints were established using online mapping sources. These were investigated along with all other potential viewpoints identified during the site survey.

The site survey was carried out on Friday 19th January 2024 in cloudy weather conditions. The visibility assessment concentrated on the publicly accessible areas such as road networks, residential and amenity areas.

Desktop and fieldwork were supported by online mapping tools from EPA, GeoHive, Google maps, Geological Survey Ireland, Myplan web map portal, Ordnance Survey Ireland and the Laois County Development Plan 2021-2027.

Photographs illustrating views from viewpoints were taken using the camera of an iPhone 11 Pro Max.

7.2.2 LANDSCAPE ASSESSMENT CRITERIA

With regard to landscape assessment, there are two separate but closely related aspects. The first aspect is a visual impact, i.e. the extent to which a new structure in the landscape can be seen. Visual impacts may be categorised under "Visual intrusion" and "Visual Obstruction", where:

Visual intrusion is impacting on a view without blocking;
and
Visual obstruction is impacting on a view involving blocking thereof.

In assessing visual impact, various aspects and stages are considered in detail including, impact during phasing, impact on completion and longer-term established impact.

RECEIVED: 08/08/2024

The second aspect is **impacting on landscape character,** i.e. responses that are felt towards the landscape and drawn on the appearance of the land, including aspect, land-use, topography, vegetative cover etc. and their interaction to create specific patterns and landscape units distinctive to particular localities. The character of the existing landscape setting is considered taking account of the various natural and man-made features, such as topography, landform, vegetation, land-use, built environment together with the visibility of and the views to and from the landscape.

The significance criteria used in the assessment are based on the impact levels suggested in the EPA Guidelines on the information to be contained in the afore mentioned EPA reports, which are set out in this volume of the EIAR.

7.2.3 LANDSCAPE PLANNING

The Laois County Development Plan 2021 - 2027, is the statutory development control and forward planning document pertaining to the project area. The Landscape Character Assessment (LCA) of County Laois (2021) was published by Laois County Council as part of the Laois County Development Plan 2021 - 2027.

County Laois has been divided into six distinct Landscape Character Types:

- Mountains, Hills and Upland Areas;
- Lowland Agricultural Areas;
- River Corridors and Lakes;
- Peatland Areas;
- Urban Fringe Areas;
- Rolling Hill Areas.

7.3 EXISTING ENVIRONMENT

The County Development Plan identifies ‘sensitive areas’ as upland areas, visually open and expansive areas and areas in the vicinity of natural heritage or built heritage assets or scenic views. Hills and uplands represent some potential in terms of tourism development. The proposed development site is located within an upland area, which is classified as a medium sensitive landscape area. These are areas with the capacity to accommodate a range of uses without significant adverse effects on the appearance or character of the landscape having regards to localised sensitivity factors.

The nearest Listed View identified in the County Development plan is “023 – Heywood Demense” with views over farmland and of Ballymartin Hill, which is located 1.93km to the south – west of the site at its closest approach (**Figure 7.1**).

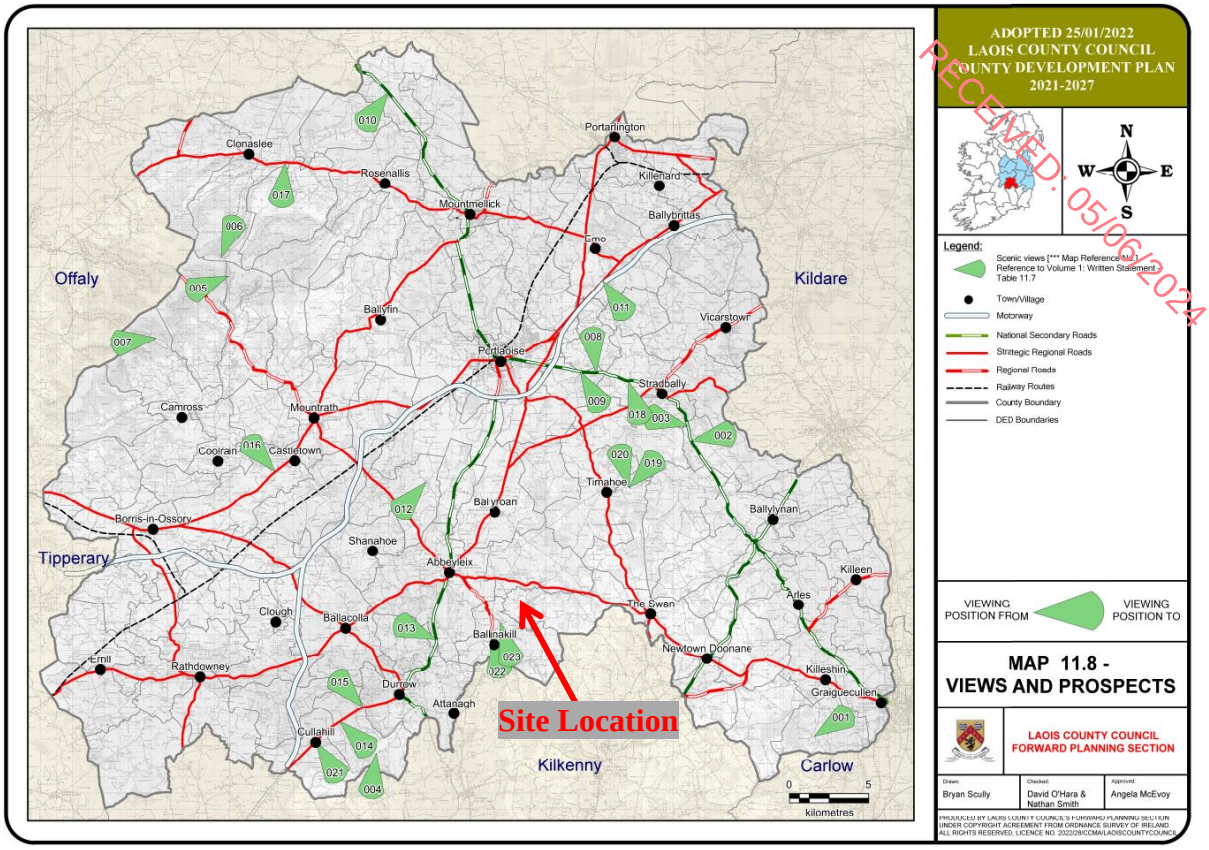


Figure 7.1: Views and Prospects

7.3.1 DYSARTGALLEN, GRAIGUE TOWNLAND LANDSCAPE

The proposed development site is located in the townland of Graigue, which is positioned in the 'Hills and Upland' landscape character type, according to the LCA of County Laois (**Figure 7.2**). Hills and uplands are a prominent feature of the county, offering panoramic views of the lowland landscapes of Laois and adjacent counties from the top of hills. The hills also act as orienting features by virtue of landmarks at their summits as well as their topography.

The Hills and Uplands also form important historic features with an abundance of archaeological features and contain evidence of human settlement extending back 9,000 years. New dwellings are scarce when compared to the older stock, abandoned and derelict buildings, and agriculture is marginal.

The Hills and Uplands have been given a Medium sensitivity rating by the Laois Co. Co and ascribed Policy Objective LCA5 as follows '*Ensure that development will not have a disproportionate visual impact (due to excessive bulk, scale or inappropriate siting) and will not significantly interfere with or detract from scenic upland vistas, when viewed from areas nearby, scenic routes, viewpoints and settlements*'. Medium sensitivity areas are described as areas with the capacity to accommodate a range of uses without significant adverse effects on the appearance or character of the landscape having regards to localised sensitivity factors.

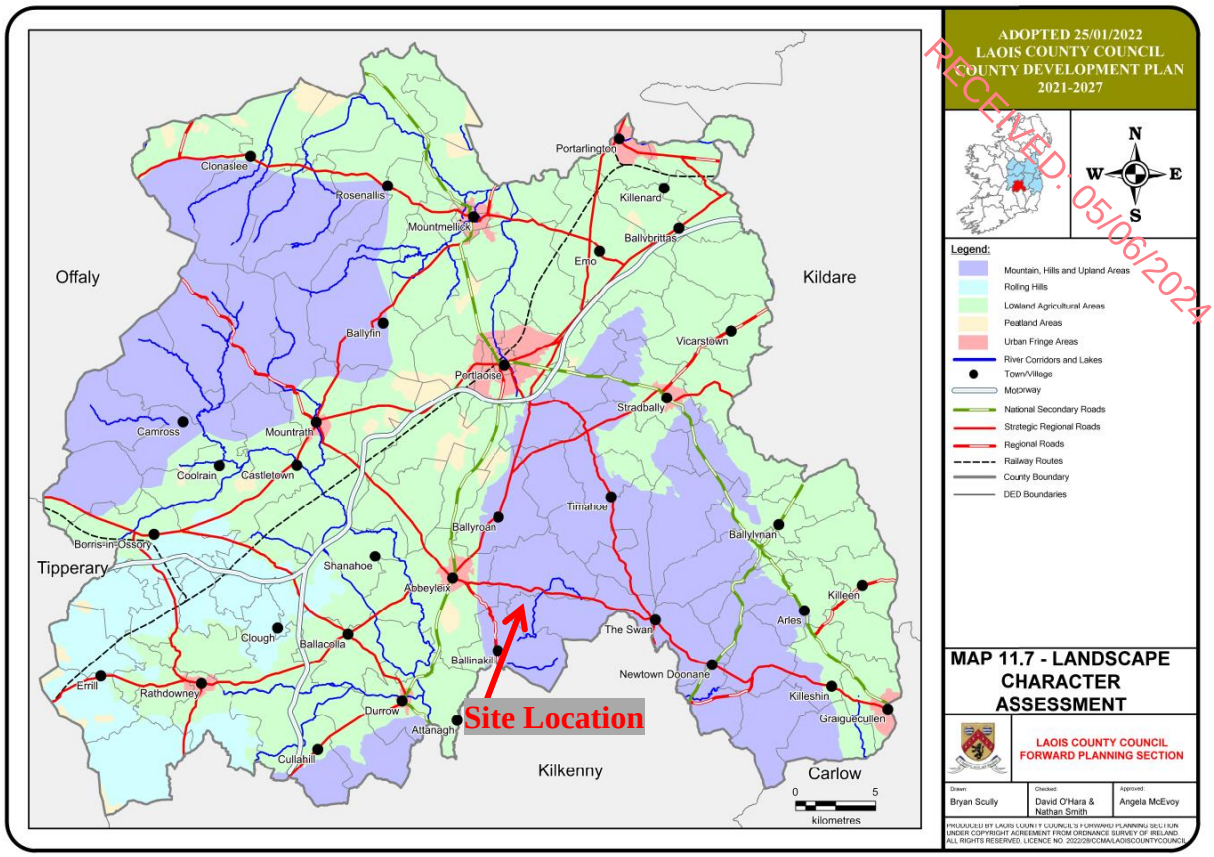


Figure 7.2: The Landscape Character Assessment.

7.3.2 LANDSCAPE SETTING OF THE PROPOSED SITE

.

The piggery is located on sloped ground west of the Owveg River at an elevation of c. 178m above sea level. The immediate area around the piggery is characterised by pasture lands. Topography is characterized by undulating lowlands, hills and a river valley along the Owveg river.

The site is bordered to the south by the L7794 that separates the Graigue and Moat townlands and to the west and east by hedgerows/treelines dividing the site from adjacent lands. Apart from a single wire fence, there are no visible physical borders on the northern boundary of the site.

The piggery is partially visible from a number of locations on the local public roadways mainly from the south. The sites visibility from the east, north and west is limited due to effective screening both from trees/hedges and topography.

Throughout the area, the land is farmed with fields enclosed with a varied mix of hedges, banks, and fences. Pasture for cattle and sheep is the primary agriculture type in the area. Residential property is generally dispersed along local roads. A number of one-off residences and farmyard complexes exist in the area and are the dominantly visible man-made structures in the landscape. Immediately to the south of the piggery is a sand and gravel quarry and concrete block manufacturer operated by Kilsaran, formerly owned by Cemex ROI Ltd.

7.4 IMPACTS

RECEIVED: 05/06/2024

The assessment of potential visual amenity impacts involved examining the locations of domestic dwellings, views from public roads and the location of the proposed development. In assessing the impact, potential impacts associated with both the construction and operational phases were considered.

7.4.1 "DO-NOTHING" SCENARIO

Should the proposed development not proceed, the existing use of the site as a piggery would remain un-changed. There would be no impact on the visual amenity of the area.

7.4.2 CONSTRUCTION PHASE

The proposed development is to carry out an extension to an existing piggery and all ancillary site works and services.

The construction phase would have a relatively low landscape and visual impact. The construction phase is not expected to continue for more than six months. Aspects which pertain to the construction phase proper include:

(i) The general site works;
(ii) Excavating foundations (for tank installation);
(iii) The construction of the new buildings.

Access for construction vehicles would be via the existing farm entrance and parking would occur within the existing farm yards.

There would be a minor to no significant and temporary visual impact from construction works given the fact that the building site would be primarily at a low level and effectively screened from surrounding roads by the topography, existing vegetation and buildings at the site.

It is anticipated that the visual impact of the construction phase would be insignificant due to the temporary period and screening from intervening buildings, topography and treelines.

7.4.3 OPERATIONAL PHASE

As part of this EIAR a visual assessment was carried out at locations where the proposed development would have the potential to create a visual impact. The existing piggery was used as a visual reference and to represent the proposed development, which would be of similar design. **Figure 7.3** below shows the locations of each '*visual point*' from which the proposed site's visibility was assessed. The site visual assessment was carried out on the 19th January 2024 by Panther Environmental Solutions Ltd personnel.

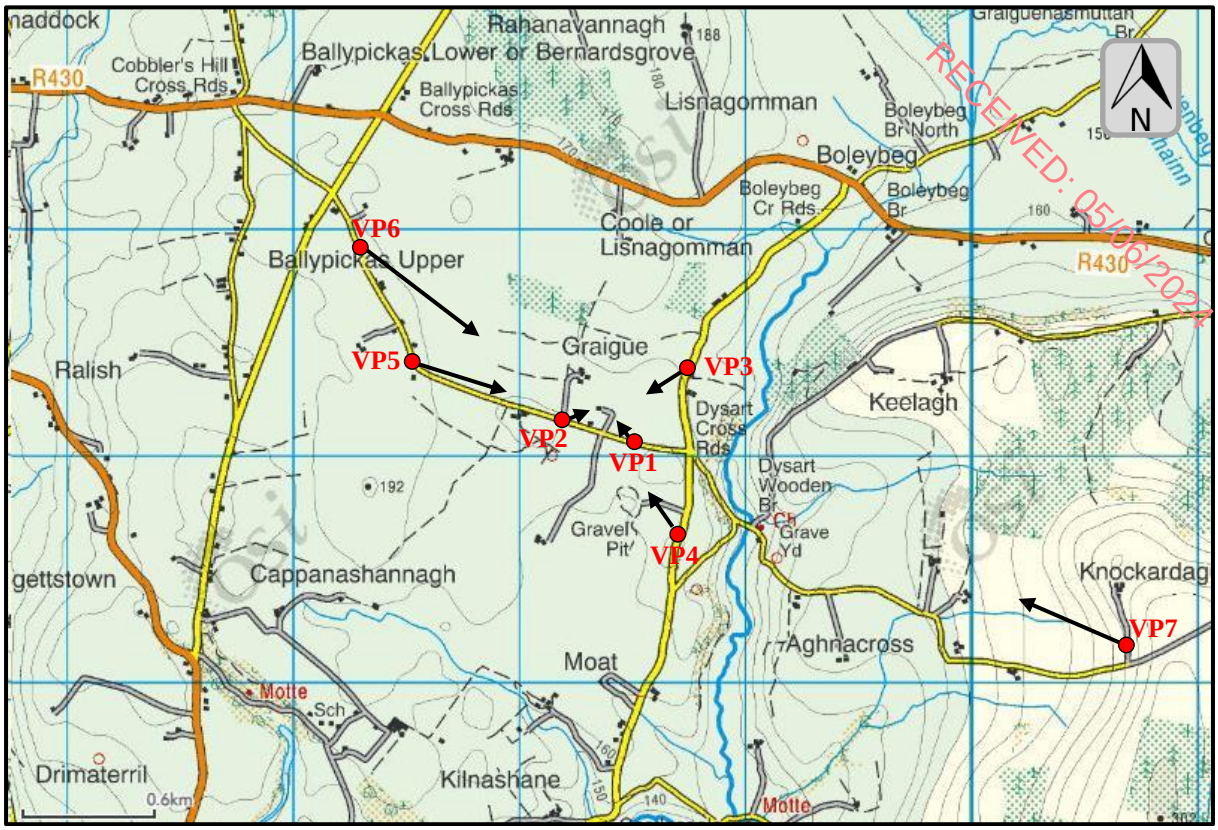


Figure 7.3: Visual Point Locations

The following section catalogues the information taken from each view point VP.

Visual Point No.1

Along the eastern approach to the site on the L7794 road, there is a well developed roadside hedgerow and treeline with shields views to the existing and proposed farm site. The treeline surrounding the derelict dwelling just south-east of the proposed site also provides good quality screening from this approach, even from the minor rise c.250m from the road.

VP1 was located at the existing gate which provides access to the undeveloped site from the L7794 local road located to the south.

At this point, the easternmost shed 13, feed silos and other equipment were clearly visible from the public road. The majority of the existing site is shielded from view by the existing shed 13, the treeline/hedgerow along the L7794 and the treeline perpendicular to the southern boundary of the site.

Within the c. 70m approach to the exiting farm entrance, the existing hedgerow is relatively low. At the field entrance, there is virtually no visual screening to the grassland where the proposed new sheds would be located. The proposed farrowing house 18 would be the most visually prominent feature of the piggery from this view point, while also effectively blocking from view proposed fattening units 14, 15, 16 and 17. The new shed would also block the existing visible elements of the piggery from view at this location.

VP1: Grid Ref: S 48422 83092

It is considered that there would be a significant impact upon the visual amenity or landscape character on this approach to the farm. The proposed farrowing house would be expected to form a new horizon at this location. It is possible that the existing and proposed feed silos, which are the tallest elements of the piggery, would be screened by the proposed shed 18.

It is noted that this viewpoint represents the local road passing the farm, and there are no residences or other sensitive receptors in this location. Therefore, while the impact to the visual character of this location would be significant, the sensitivity of the location is low.

Visual Point No.2

VP2 represents views of the site approaching from the west along the L7794 local road which passes the southern boundary of the site.

VP2 was located c.120m west of the site boundary and c.250m west of VP1. From this point of view, it is possible to observe the rooftops of the existing buildings along with the exhaust vents and feed silos. These structures have intermittent visibility due to the existing vegetation and the adjoining residence to the west of the site.

VP2: Grid Ref: S 48188 83171

It is unlikely that elements of the proposed new sheds, which would be on the opposite side of the piggery, would be visible from this particular point of view. The existing vegetation in the surroundings of the site would effectively block the buildings from view, which would be further screened by the existing sheds at the farm. It is also noted that this visual assessment was carried out during winter season where vegetation cover is minimal, thus representing a "worst-case scenario" for visual screening.

It is considered that all proposed developments would be obscured from view by the vegetation and existing site structures leading up to the site from this approach. It is not considered that the public road or residences along the road would be impacted by the proposed development. It is not considered that there would be a visual amenity or landscape impact as a result of the development at locations represented by these viewpoints.

Visual Point No.3

VP3: Grid Ref: S 48743 83403

VP3 represents views of the site approaching from the L7797 local road which is located to the east of the site.

VP3 was located c. 285m north-east of the piggery along the local road. None of the existing on-site buildings were visible at this location, shielded by the intervening topography and vegetation. The proposed development would also be completely screened from view at this point and along the local road, if constructed.

RECEIVED: 05/06/2024

It is not considered that there would be an impact upon the visual amenity or landscape character at the areas represented by this location.

Visual Point No.4

VP4: Grid Ref: S 48723 82697

VP4 represents the view from the L7797 approximately 465m to the south-east of the site on the opposite side of the quarry. Visibility of the site from this road are rare due to the alterations in topography and the well developed hedgerows/treelines in the area.

From this point of view, it is possible to observe the rooftops of the existing buildings along with the exhaust vents and feed silos. These structures are partially concealed by the quarry, the topography and surrounding vegetation in the area. It is also noted that this visual assessment was carried out during winter season where vegetation cover is minimal, thus representing a "worst-case scenario" for visual screening.

The proposed new buildings would be located to the east of the existing buildings at the site where the vegetation along the southern boundary of the site is denser. Therefore, visual screening of the proposed development from this point of view would be more effective. The site is not visible at all along the majority of this road.

RECEIVED: 05/06/2024

It is considered that any visual amenity and landscape impact from the proposed development upon the local road would be imperceptible.

Visual Point No.5

VP5: Grid Ref: S 47519 83432

VP5 was taken from L7794 local road c. 820m to the west of the site boundary close to private properties situated along the road. This point is representative of the view of the local residents in the area.

Despite the vantage point offered by the elevated perspective, the vast majority of the site was not visible due to the local vegetation screening. Discernible elements of the site from this point of view were the roof fan vents and feed silos. It is also noted that this visual assessment was carried out during winter season where vegetation cover is minimal, thus representing a "worst-case scenario" for visual screening.

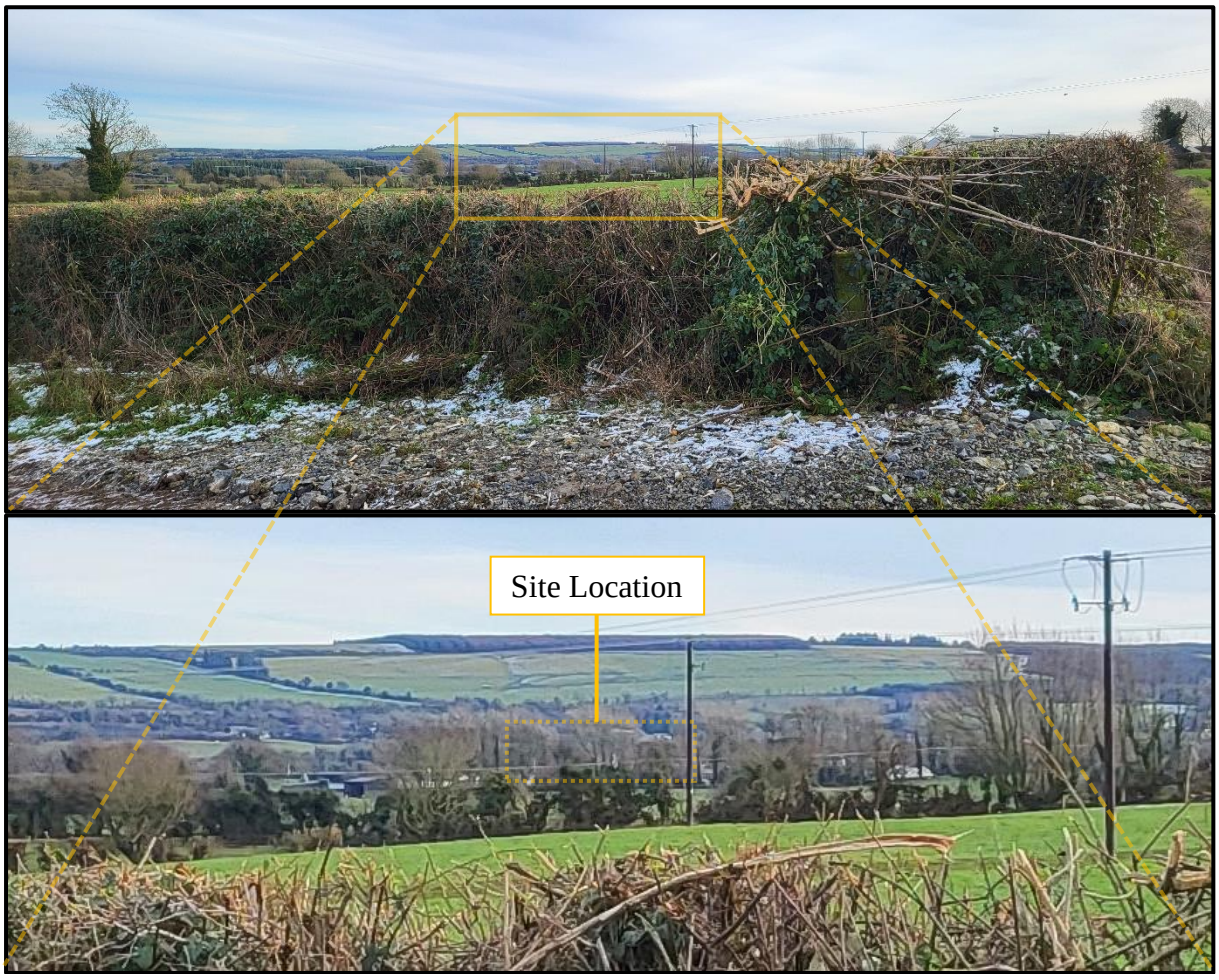
The proposed development would also be effectively screened from view at this location. Additionally, any discernible element of the new proposed development would not protrude from the remaining farm infrastructure.

RECEIVED: 05/06/2024

It is not considered that there would be a visual amenity or landscape impact as a result of the development at locations represented by these viewpoints.

Visual Point No.6

VP6: S 47279 83941



VP6 represents the viewpoint further up the L7794 approximately 1.25 km north-west of the site in Ballypickas Upper townland.

The vast majority of the site was also not visible in VP6 due to the screening provided by the vegetation. Discernible elements of the site from this point of view were again the roof fan vents and feed silos.

The proposed development would be located on the opposite side of the existing visible elements of the piggery which, together with the surrounding trees and hedges, would greatly block the new buildings from view.

It is considered that negative impacts to visual amenity arising from the proposed development at this viewpoint would not be significant.

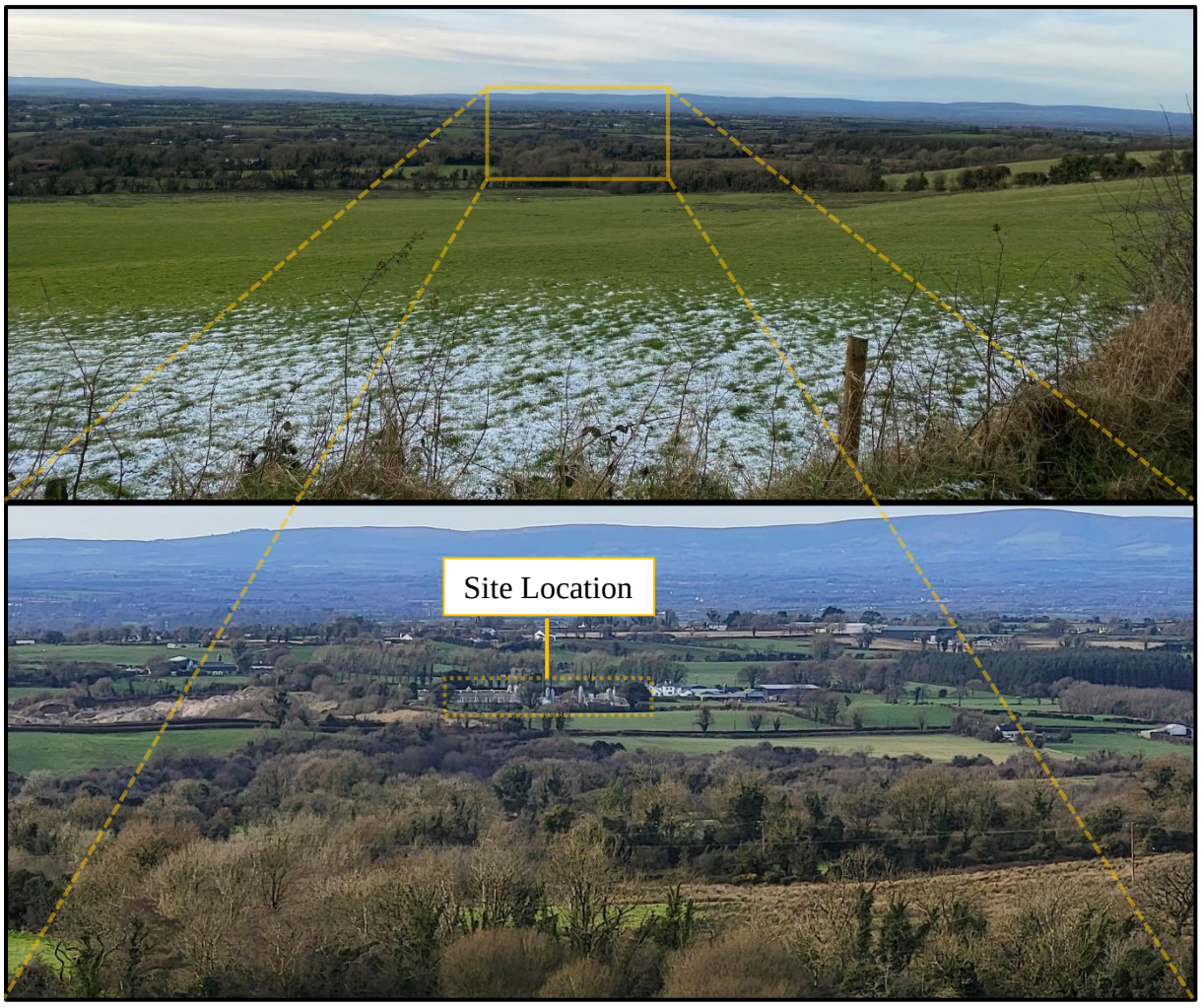
Visual Point No.7

RECEIVED: 05/06/2024

VP7 represents the viewpoint from an access road off the L77951 local road at the top of Cooper's Hill in Knockardagur townland. The visual point is approximately 2.4 km south-east of the proposed site.

From this elevated perspective, farm buildings and feed silos are visible due to lack of screening on a lowland area. Other farm sites are visible from this point. It is also noted that the most visually striking element of the area where the farm is located is the quarrying site operated by Kilsaran, which is immediately to the south of the proposed site.

VP7: Grid Ref: S 50683 82110



There would be a "slight to not significant" negative visual impact from the proposed fattening and farrowing houses, as the buildings would be more prominent in the site as they would be facing this point of view. However, the farm is already established in the landscape and the proposed development would not significantly alter the visual form or character of the site.

It is considered that there would be a permanent "slight to not significant" negative impact to visual amenity as a result of the development at locations represented by this viewpoint.

RECEIVED: 03/09/2024

Summary of Visual Impacts

The topography of the landscape in the immediate vicinity of the proposed site is characterised by lowland, low-rise hills and the Owveg river valley to the east. Undulating topography, as represented in much of the surrounding landscape, has the ability to both shelter and absorb the visual impact of developments. The majority of the surrounding hedgerows and treelines are well-established, are high and thick, providing good screening. In addition, farm sites such as the proposed development would be considered typical of the wider rural area.

Figure 7.4: Visual Assessment Points and Site Visibility (Google Earth)

In the wider landscape, the existing structures at the piggery are visually shielded to an extent on all directions because of the hedges/trees and local topography. There were no viewpoints to the site from publicly accessible areas to the north of the site. Peripheral views of the existing site to the south-east are partially screened by these features. The existing structures and the site as a whole are most exposed from viewpoints located on a higher elevation, particularly to the east where screening from vegetation is less effective.

The development would be expected to result in visual impacts either immediately to the south on the L7794 road or, as mentioned, from viewpoints located on a higher elevation, such as VP7. However, the majority of the proposed development would be shielded from view, not only by topography and vegetation, but also by the existing structures and buildings at the site. Nonetheless, the proposed farrowing and fattening units would have a similar character to the existing buildings at the site, albeit with a more modern design It is also noted that, from the available viewpoints, the proposed development would not significantly alter the scale of the overall farm hub in the landscape as the proposed buildings would obscure existing structures, or be obscured by these structures.

Therefore, it is anticipated that there would be a permanent slight to no significant impact upon the visual amenity at locations surrounding the site. It is anticipated that impacts would be predominantly limited to hilltop locations that afford visibility to the site from the east.

RECEIVED: 05/06/2024

When designing new buildings, consideration is often given to colours of external facing materials to ensure a level of compatibility with the surrounding landscape. It is recommended that the proposed farrowing and fattening houses are to be finished in a dark green colour. This would act to blend the proposed structure with the existing boundary vegetation and make the edges of the structures less well defined.

It is also recommended that boundaries of the site be supplemented with additional planting to suppress gaps in the vegetation, where possible, in order to provide further screening around the site.

7.4.4 LANDSCAPE PLANNING IMPACT

The European Landscape Convention Florence of October 2000 aimed to encourage member States to adopt policies and measures at local, regional, national and international level for protecting, managing and planning landscapes throughout Europe. The convention set out a range of different solutions which States could apply, according to their specific needs.

Ireland signed and ratified the Council of Europe's European Landscape Convention which came into effect on the 1st of March 2004. The Convention obliges Ireland to implement policy changes and objectives concerning the management, protection and planning of the landscape. In Ireland the National Landscape Strategy (2015 – 2030) is used to ensure compliance with the convention and to establish principles for protecting and enhancing it while positively managing its change.

The objectives of Irelands National Landscape Strategy are to:

- Implement the European Landscape Convention by integrating landscape into Ireland's approach to sustainable development;
- Establish and embed a public process of gathering, sharing and interpreting scientific, technical and cultural information in order to carry out evidence-based identification and description of the character, resources and processes of the landscape;
- Provide a policy framework, which will put in place measures at national, sectoral - including agriculture, tourism, energy, transport and marine - and local level, together with civil society, to protect, manage and properly plan through high quality design for the sustainable stewardship of Ireland's landscape;
- Ensure that Ireland takes advantage of opportunities to implement policies relating to landscape use that are complementary and mutually reinforcing and that conflicting policy objectives are avoided in as far as possible;

Laois County Council has implemented its Landscape Character Assessment as part of its commitment to the European Landscape convention. The council's planning policy in assessing developments, has regard to the guidance contained in the Landscape Character Assessment. Proposed developments should seek to minimise the visual impact, particularly in areas designated as Sensitive Landscapes.

Laois County Council encourages the development of sustainable alternative agricultural enterprises and non-agricultural enterprises as a means of supporting a viable rural community subject to the retention of the holding's primarily agricultural use and the proper planning and sustainable development of the area.

RECEIVED: 05/06/2024

Laois County Council has implemented a series of actions and policies aimed at understanding, protecting, managing and planning the landscape of the county while also facilitating development. Policies such as LCA1 (Policy Objectives for Landscape Character Areas) state: '*Ensure that consideration of landscape sensitivity is an important factor in determining development uses. In areas of high landscape sensitivity, the design, type and the choice of location of proposed development in the landscape will also be critical considerations*'.

The following table lists some of the more applicable landscape management policies from the Laois County Council Development Plan 2021 – 2027.

Table 7.1: Policy Objectives for Landscape Character Areas, Laois County Development Plan (2021-2027).

POLICY / OBJECTIVE REF	POLICY / OBJECTIVE / RECOMMENDATION
LCA 2	Protect and enhance the county's landscape, by ensuring that development retains, protects and, where necessary, enhances the appearance and character of the existing local landscape and conserve valuable habitat including any European and National Designations.
LCA 3	Seek to ensure that local landscape features, including historic features and buildings, hedgerows, shelter belts and stone walls, are retained, protected and enhanced where appropriate, so as to preserve the local landscape and character of an area, whilst providing for future development.
LCA 4	Seek to minimise the individual and cumulative adverse visual impacts that local concentrations of one-off housing, outside of settlements, may have on Hills and Upland, River Corridor and Lakes and Mountain landscape character areas or High Sensitivity areas. In this regard, in locations where the Council considers that there is a risk of individual or cumulative adverse impacts, the Council will only consider proposals for housing developments where a need for the dwelling has been demonstrated in accordance with the criteria contained in the Rural Housing Policy contained in Chapter 4.

Other relevant policy objectives relate to the upland areas where the proposed development is located, as listed in **Table 7.2** below.

Table 7.2: Policy Objectives for Hills and Uplands Areas and Mountain Areas, Laois County Development Plan (2021-2027).

POLICY / OBJECTIVE REF	POLICY / OBJECTIVE / RECOMMENDATION
LCA 5	Ensure that development will not have a disproportionate visual impact (due to excessive bulk, scale or inappropriate siting) and will not significantly interfere with or detract from scenic upland vistas, when viewed from areas nearby, scenic routes, viewpoints and settlements.
LCA 6	Ensure that developments on steep slopes (i.e. >10%) will not be conspicuous or have a disproportionate visual impact on the surrounding environment as seen from relevant scenic routes, viewpoints and settlements.

POLICY / OBJECTIVE REF	POLICY / OBJECTIVE / RECOMMENDATION
LCA 7	Facilitate, where appropriate, developments that have a functional and locational requirement to be situated on steep or elevated sites (e.g. reservoirs, telecommunication masts or wind energy structures) where residual adverse visual impacts are minimised or mitigated.
LCA 8	Maintain the visual integrity of areas which have retained a largely undisturbed upland character and Respect the remote character and existing low-density development in these areas.
LCA 9	Have regard to the potential for screening vegetation when evaluating proposals for development within the uplands.
LCA 10	Actively propose the designation of the Slieve Blooms as a Special Amenity Area and seek an Order to that effect.
LCA 11	Protect the positive contribution that views across adjacent lowland areas and landmarks within the landscape make to the overall landscape character.

RECEIVED: 05/08/2024

7.4.5 LANDSCAPE AND VISUAL IMPACT ASSESSMENT SUMMARY

The following methodology for assessing the visual impact of the development has been derived in accordance with the following guidance documents:

- Environmental Protection Agency, EPA (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports. Ireland;
- Landscape Institute, LI, and Institute of Environmental Management and Assessment, IEMA, (2013). Guidelines for Landscape and Visual Impact Assessment, Third Edition, UK, Routledge;
- Landscape Institute, LI, Advice Note 01/11 (2011). Photography and Photomontage in Landscape and Visual Impact Assessment, UK;
- Countryside Agency in conjunction with Scottish Natural Heritage (2002). Landscape Character Assessment: Guidance for England and Scotland, UK;

Sensitivity Given the nature, location and design features of the proposed development, it is considered that the landscape sensitivity of the area is "medium" and tolerant to change. The visual sensitivity of the area is also considered to be "medium" given that the site is a less important element in the view.

Magnitude of Change The magnitude of landscape change may be considered "medium" due to the fact that the development is technically an extension of an existing facility. The magnitude of visual change may also be considered "low" in that the proposed development would not result in any noticeable change in the existing view.

According to the LCA, Laois uplands are a landscape area with medium sensitivity. The region in which the proposed site is positioned comprises a gently undulating topography. The landscape is reasonably tolerant of change and has the capacity to absorb suitable developments (i.e. agricultural).

The proposed development is of an agricultural nature and would be incorporated within an existing farming enterprise. Therefore, it is not anticipated that there would be any significant impact to the landscape character of the area.

RECEIVED: 05/06/2024

Table 7.3: Significance of Landscape Effects Matrix

SIGNIFICANCE OF EFFECTS		SENSITIVITY		
		HIGH	MODERATE	LOW
MAGNITUDE OF CHANGE	HIGH	Major	Moderate-Major	Moderate
	MEDIUM-HIGH	Moderate-Major	Moderate	Minor-Moderate
	MEDIUM	Moderate	Moderate	Minor
	LOW-MEDIUM	Moderate	Minor-Moderate	Minor-Negligible
	LOW	Minor-Moderate	Minor	Negligible
	LOW -NEGLIGIBLE	Minor-Moderate	Minor-Moderate	Negligible
	NEGLIGIBLE	Negligible	Negligible	Negligible

(effects rated moderate and above are considered significant).

With regard to visual impacts, the proposed buildings would be well screened to the west, north and east by existing treelines/hedgerows and the undulating topography of the area. The design and site layout of the proposed buildings would take into consideration the need to minimise the associated visual impact. The proposed structures are proximate to the existing structures and very similar in terms of design, height and scale.

There are gaps in the treelines/hedgerows to the south of the site that would make the proposed new sheds readily visible to the public from the L7794. However, these would be filled with new plants to offer further screening, and merge the existing and proposed structures with the treelined character of the area.

The recommendation of a green finish on the buildings would ensure that the development would blend in well with surrounding landscape features and elements.

Given the nature, location and design features of the proposed buildings, it is considered that the proposed development would have a non-significant Minor-Negligible effect on the level of landscape and visual impact in the area.

7.5 MITIGATION MEASURES

All existing hedgerows should be retained in so far as is practical. There is an appropriate amount of greenery in the form of mature trees and hedgerows currently at the site to screen the development site from several directions and incorporate the farm hub into the natural landscape.

The proposed finished site structures would be of a similar visual character as the existing buildings on the site. It is recommended that native trees, appropriate to the area, are planted south of the existing buildings, where feasible. While planting along this boundary is unlikely to completely mitigate views of the development, once mature, a treeline would aid in breaking up the site as a single visual element in the landscape and would help to blend foreground and background treelined character.

It is also recommended to finish the new buildings in a dark green colour, which would significantly help to blend the structure into the existing environment helping to reduce or even nullify any visual impact.

RECEIVED: 05/06/2024

7.6 RESIDUAL IMPACTS

The completed development, on its own or in combination with other developments, would result in no significant residual impact to the visual amenity of the landscape, given that the proposed development would effectively be an expansion to the already existing piggery, and would not significantly alter the physical scale of the farm in the landscape.

Taking into account the "medium" sensitivity of the landscape type and "low – medium" magnitude of visual impact that the proposed development would create, the development would result in a minor – negligible residual effect to the visual character of the area.

7.7 REFERENCES

Natural England and Department for Environment, Food & Rural Affairs (2014). Landscape and seascape character assessments. Available online: https://www.gov.uk/guidance/landscape-and-seascape-character-assessments Accessed January 2024.

Environmental Protection Agency (2003) Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements). Available online: https://www.epa.ie/publications/monitoring--assessment/assessment/EPA_Advice_Notes-on_Current-Practice-on-prep-EIS_2003.pdf Accessed July 2019.

Environmental Protection Agency (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports. Available online: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf Accessed June 2023.

Guidelines used in the preparation of the landscape and visual impact assessment. Available online. http://www.pleanala.ie/misc/PCI/PCI1/DAF1/North%20South%20-%20Draft%20Application%20File/Volume%203/Volume%203C%20Appendices/Appendix%2011.1%20CMSA%20Tables.pdf Accessed June 2023.

National Landscape Strategy for Ireland (2015 – 2025). Department of Arts, Heritage and the Gaeltacht. Dublin, Irish government. Available online: https://www.gov.ie/pdf/?file=https://assets.gov.ie/95852/388d4758-50c1-42bd-9adc-0bdfe1291765.pdf#page=null
Accessed January 2024.

Landscape Character Assessment of Laois (2022) Landscape Character Assessment. Available online: https://laois.ie/wp-content/uploads/Appendix-6-LCA-of-Adopted-LCDP-2021-2027.pdf Accessed June 2023.

Landscape Institute, LI, Advice Note 01/11 (2011). Photography and Photomontage in Landscape and Visual Impact Assessment, UK. Available online: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2018/06/draft-tin-2018-XX-photography-photomontage-lvia.pdf Accessed January 2024.

The European Landscape Convention Florence. European Treaty Series-No. 176. Council of Europe, Palais de l'Europe, Strasbourg 22-23 March 2007. Available online: https://rm.coe.int/16806b07e6 Accessed January 2024.

Laois County Council (2022) Laois County Development Plan 2021-2027. Available online: https://laois.ie/departments/planning/review-of-laois-county-development-plan-2017-2023-2/ Accessed June 2023.

RECEIVED: 05/06/2024

SECTION B - THE NATURAL ENVIRONMENT

RECEIVED: 05/06/2024

This Section of the Environmental Impact Assessment Report deals with the potential effects of the proposed development on the natural environment. The effects have been grouped as follows:

Impacts on Biodiversity
Impacts on Land – Soils, Geology, Hydrogeology and Hydrogeology

The various aspects of the natural environment interact to some degree with each other so that assessing one aspect in isolation can be misleading. For example, the survival of terrestrial fauna can be dependent on floral composition, which is in turn dependent on soil composition and groundwater levels. Similarly, the diversity of aquatic flora and fauna would be impacted by both hydrology and the quality of waters receiving drainage from the proposed scheme.

Human Beings also interact with the natural environment, often by altering land-use and landscape patterns for the purpose of agriculture and settlement.

8.0 BIODIVERSITY

8.1 INTRODUCTION

RECEIVED: 05/06/2024

This section outlines the biodiversity currently present in the area of the proposed development and assesses the impact of the proposal on the habitats and species identified. This section should be read in conjunction with the site layout plans for the proposed development and project description sections of the EIAR. Mitigation measures have been proposed where required.

The ecological assessment involved a desktop review and the undertaking of a field assessment of the site to identify habitats and species of flora and fauna present in order to determine the ecological diversity of this area. A Natura Impact Statement (NIS) has been prepared for the proposed development and accompanies the planning application (Report Ref. PE_NIS_ 10049).

The objectives of the ecological assessment were as follows:

- To undertake a comprehensive desktop review to identify European sites (Natura 2000 sites) within the vicinity of the proposed development and to determine previously recorded fauna for the area;
- To undertake a field assessment of the proposed development site and surroundings;
- To evaluate the biodiversity value of the proposed development and surroundings;
- To determine and assess the potential impacts of the proposed development on biodiversity;
- To propose mitigation measures for both the construction and operational phases of the development, where required, to reduce potential impacts upon biodiversity.

8.2 LEGISLATIVE FRAMEWORK & PLANNING POLICY

8.2.1 LEGISLATIVE CONTEXT

The main legislation pertaining to biodiversity and nature conservation in Ireland is outlined below.

The Wildlife Act, 1976 and Wildlife (Amendment) Act, 2000

The Wildlife Act is the primary piece of Irish legislation providing for the protection and conservation of wildlife and provides for the control of specific activities which could adversely affect wildlife, for example the regulation of hunting and wildlife trading. Under the Wildlife Act, all bird species, 22 other fauna species and 86 flora species in Ireland are afforded protected status. The Wildlife Act, 1976 allows for the designation of specific areas of ecological value such as Statutory Nature Reserves and Refuges for Fauna. The Wildlife (Amendment) Act, 2000 provides for greater protection and conservation of wildlife and also provides for the designation and statutory protection of Natural Heritage Areas (NHA).

The Flora (Protection) Order, 2022 (S.I. 235 of 2022)

This order provides statutory protection to flora listed in Section 21 of the Wildlife Act, 1976 and Wildlife (Amendment) Act, 2000. Under the Order, it is illegal to wilfully cut, uproot or damage the listed species or interfere in any way with their habitats.

European Communities (Birds and Natural Habitats) Regulations, 2021 (S.I. 293 of 2021)

These regulations transpose the European Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora (known as the "Habitats Directive") and the European Council Directive 2009/147/EC on the Conservation of Wild Birds (known as the "Birds Directive") into Irish Law. The regulations provide for the designation and protection of Natura 2000 sites comprising of Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The regulations safeguard the SAC and SPA sites from developments with the potential to significantly impact upon them. The EC (Birds and Natural Habitats) Regulations also address invasive species, making it an offence without a licence to plant, allow to disperse, escape or spread, to reproduce or propagate, to transport, to sell or advertise invasive species specified in the regulations.

RECEIVED: 05/08/2024

The Local Government (Water Pollution) Act, 1977, as Amended

This Act provides for the control of water pollution, by prohibiting the discharge of un-licenced polluting matter into waters.

European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. 272 of 2009)

The regulations give statutory effect to Directive 2008/105/EC and provide legal status to quality objectives for all surface waters and environmental quality standards for pollutants. The regulations allow for the classification of surface waters by the Environmental Protection Agency (EPA) in accordance with the ecological objectives approach of the Water Framework Directive. The regulations also provide for the establishment of inventories of priority substances by the EPA and the preparation of pollution reduction plans.

Water Framework Directive (2000/60/EC)

The Water Framework Directive (WFD) aims to improve the water environment (including groundwater, rivers, lakes, estuaries and coastal waters) of E.U. Member States. The aim of the WFD is for Member States to achieve and maintain "good status" in all water bodies.

The Fisheries (Consolidation) Act, 1959, as Amended

The Act prohibits the entry of polluting substances into waters, which have the potential to adversely impact upon fish, prohibits the obstruction of passage of certain fish species and provides legal protection to the spawn/fry of eels, salmon and trout, in addition to their spawning or nursey grounds.

Fisheries (Amendment) Act, 1999

This Act outlines the responsibilities of the Regional Fisheries Board to ensure the protection and conservation of fish and their habitats within its area of jurisdiction.

European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. 293 of 1988)

These regulations give statutory effect to Directive 78/659/EEC. The regulations designate salmonid waters, specify the quality standards for designated salmonid waters and outline the monitoring requirements.

Planning and Development Regulations, 2001 to 2018

These regulations transpose the requirements of Directive 2014/52/EU (and previous Directive 2011/52/EU) on the assessment of the effects of certain projects on the environment into planning law. Under these regulations, development plans must include mandatory objectives for the conservation of natural heritage and for the conservation of European sites.

8.2.2 PLANNING POLICIES

RECEIVED: 05/09/2024

National Policies

A number of documents have been published in relation to the Government's commitment to sustainable development, including the National Planning Framework 2040, Ireland's Second National Implementation Plan for the Sustainable Development Goals 2022-2024 and Our Sustainable Future A Framework for sustainable development in Ireland.

Regional Policies

The Regional Spatial & Economic Strategy (RSES) of the Eastern & Midland Regional Assembly, which includes the counties of Dublin, Kildare, Laois, Longford, Louth, Meath, Offaly, Westmeath and Wicklow, outlines the long-term spatial planning strategy for the area. A number of policies relate to biodiversity and are relevant to the proposed development, as per **Table 8.1** below.

Table 8.1: Regional Policies Relevant to Biodiversity and the Proposed Development

REFERENCE	POLICY
RPO 6.24	Support the Departments of Agriculture, Food and the Marine, and Communications, Climate Action and Environment to enhance the competitiveness of the agriculture sector with an urgent need for mitigation as well as real and effective and adaptation mechanisms for the long-term sustainability of the agri-sector.
RPO 7.16	Support the implementation of the Habitats Directives in achieving an improvement in the conservation status of protected species and habitats in the Region and to ensure alignment between the core objectives of the EU Birds and Habitats Directives and local authority development plans.
RPO 7.17	Facilitate cross boundary co-ordination between local authorities and the relevant agencies in the Region to provide clear governance arrangements and coordination mechanisms to support the development of ecological networks and enhanced connectivity between protected sites whilst also addressing the need for management of alien invasive species and the conservation of native species.
RPO 10.6	Delivery and phasing of services shall be subject to the required appraisal, planning and environmental assessment processes and shall avoid adverse impacts on the integrity of the Natura 2000 network.
RPO 10.7	Local authority core strategies shall demonstrate compliance with DHPLG Water Services Guidelines for local authorities and demonstrate phased infrastructure – led growth that is commensurate with the carrying capacity of water services and prevent adverse impacts on the integrity of water dependent habitats and species within the Natura 2000 network.

Local Policies

Local planning policies are detailed in the Laois County Development Plan, 2021 – 2027 (as varied). A number of policies relate to biodiversity and are relevant to the proposed development, summarised as follows:

RECEIVED: 05/06/2024

Table 8.2: Summary of Local Policies Relevant to Biodiversity and the Development

POLICY REFERENCE	AREA
BNH 1	Protect, conserve, and seek to enhance the county's biodiversity and ecological connectivity.
BNH 2	Conserve and protect habitats and species listed in the Annexes of the EU Habitats Directive (92/43/EEC) (as amended) and the Birds Directive (2009/147/EC), the Wildlife Acts 1976 and 2010 (as amended) and the Flora Protection Orders.
BNH 3	Support and co-operate with statutory authorities and others in support of measures taken to manage proposed or designated sites in order to achieve their conservation objectives and maintain the favourable conservation status and conservation value of Sites under National and European legislation and International Agreements and maintain and /develop linkages between them where feasible.
BNH 4	Protect and maintain the conservation value of all existing and future Natural Heritage Areas, Nature Reserves, Ramsar Sites, Wildfowl Sanctuaries and Biogenetic Reserves in the county.
BNH 5	Projects giving rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall not be permitted on the basis of this Plan (either individually or in combination with other plans or projects). Screening for AAs and AAs undertaken shall take into account invasive species as relevant.
BNH 6	Assess, in accordance with the relevant legislation, all proposed developments which are likely to have a significant effect (directly or through indirect or cumulative impact) on designated natural heritage sites, sites proposed for designation and protected species.
BNH 7	Protect Natural Heritage Areas (NHA) from developments that would adversely affect their special interests.
BNH 8	Recognise and protect the significant geological value of sites in County Laois and safeguard these sites, in consultation with the Geological Survey of Ireland and in accordance with the National Heritage Plan and "Geological Heritage Guidelines for the Extractive Industry".
BNH 9	Engage with the National Parks and Wildlife Service to ensure Integrated Management Plans are prepared for all Natura sites (or parts thereof) andensure that plans are fully integrated with the County Development Plan and other plans and programmes, with the intention that such plans are practical, achievable and sustainable and have regard to all relevant ecological, cultural, social and economic considerations and with special regard to local communities.
BNH 10	Support the objectives of the All Ireland Pollinator Plan 2015-2020 by encouraging the planting of pollinator friendly trees and plants within grassverges along public roads and existing and future greenways, new hedgerows, public parks and public open spaces in towns and villages, including part of mixed use and residential developments.
BNH 11	Support measures to protect Swift population such as the creation of Swift nest cavities in all new commercial and public buildings (schools/libraries, etc).
BNH 12	Supports the efforts of the Midland Transition team to: • Pursue funding opportunities and actions to mitigate the impact of the Bord na Móna job losses on the individuals concerned, and the impact on the local and regional economy; and

POLICY REFERENCE	AREA
	• Position the region to develop alternative forms of employment, attract investment and maximise existing employment opportunities and resources.
BNH 13	It is a policy objective of the Council to require new developments to identify, protect and enhance ecological features by making provision for local biodiversity (for example, through provision of swift boxes or bricks, bat roost boxes, green roofs, etc.) and improve the ecological coherence of wider green infrastructure.
BNH 14	It is an objective of the Council to protect existing swift roosts as identified in the County Swift Survey and ensure existing nest sites are not lost through inappropriate renovation or destruction.
BNH 15	In dealing with applications for new developments, the Planning Authority will have regard to the following: • Inclusion of swift nesting opportunities in new buildings through use of swift brick or swift nest boxes where appropriate
BNH 16	Work with relevant stakeholders such as the Office of Public Works (OPW) and local stakeholders to develop a Landscape Conservation Assessment in relation to the Heath and its attributes during the plan period.

RECEIVED: 05/06/2024

Biodiversity Plans

Following on from Ireland's third National Biodiversity Plan 2017–2021, Ireland's fourth National Biodiversity Action Plan 2023-2027 has been drafted for public consultation and "*is set against a backdrop of unprecedented challenges for nature in Ireland and globally*". It aims to build on from the successes of previous NBAP's. It sets out 6 objectives which include for a whole government approach to biodiversity, to meet conservation and restoration needs, to secure nature's contribution to people, embed biodiversity at the heart of climate action, enhance the evidence base for action on biodiversity and to strengthen Ireland's contribution to international biodiversity initiatives. The new plan also includes a set of targets and actions for each objective.

All-Ireland Pollinator Plan

In 2015, Ireland joined a number of other European countries in developing a strategy to address pollinator decline and protect pollination services. 68 governmental and non-governmental organisations agreed a shared plan, the "*All-Ireland Pollinator Plan 2015-2020*". The new version "*All-Ireland Pollinator Plan 2021-2025*" seeks to build on from the success of the previous plan and identifies 186 actions to make Ireland pollinator friendly. The plan provides a total of 37 targets for six different objectives which include, farmland, public land, private land, All-Ireland Honeybee Strategy, conserving rare pollinators and strategic coordination of the plan.

8.3 METHODOLOGY

RECEIVED: 05/06/2024

8.3.1 RELEVANT GUIDELINES

The following guidance documents have been consulted for this assessment, with a full list of consulted documentation and guidelines included within **Section 8.8**:

- *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2018);
- *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA, 2022);
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA, 2009);
- *A Guide to Habitats in Ireland* (Fossitt, 2000);
- *Best Practice Guidance for Habitat Survey and Mapping* (Smith *et al*., 2011);
- *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA, 2009);
- *Expedition Field Techniques: Bird Surveys* (Bibby *et al*., 2000);
- *Bird census and survey techniques* (Gregory *et al*., 2004);
- *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn.) (Collins 2016);
- *Bat Mitigation Guidelines for Ireland* (Kelleher and Marnell, 2006);
- *Bats and artificial lighting in the UK* (Bat Conservation Trust, 2018);
- *Bats & Lighting: Guidance Notes for Planners, Engineers, Architects and Developers* (Bat Conservation Ireland, 2010).

8.3.2 STUDY AREA / ZONE OF INFLUENCE

Following guidance set out by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) and the National Roads Authority (2009), a Zone of Influence should be determined, which identifies the area in which the development could potentially impact upon ecological receptors and aquatic environments. The zone of influence takes into consideration the assigned ecological value of the receptors, which ranges from international, national, county to local, and potential pathways for impacts to occur. The zone of influence also takes into consideration the watercourse surrounding the proposed development. Taking into consideration best practice guidance and the nature of the development, the study area for the assessment ranges from the site boundary for habitats, to buffers of 100m for specific species. However, it should be noted that these buffers were extended where required.

8.3.3 DESKTOP RESEARCH

Desktop research comprised of gathering information on designated sites within the potential zone of influence of the proposed development, reviewing mapping sites to provisionally identify any potential ecologically important features prior to the site assessment and reviewing online resources to determine what notable species, including protected, rare or invasive, had

previously been recorded for the proposed development area and environs. The following online resources were consulted as part of this process:

RECEIVED: 05/06/2024

- National Parks and Wildlife Service (NPWS) website: mapping of designated sites and information on designated sites within the vicinity of the development;
- NPWS Wildlife Manuals for certain habitats and species;
- National Biodiversity Data Centre (NBDC) website: data on notable species (protected, rare or invasive) within the 2km square (S48W) and 10km square (S48) in which the proposed development is located;
- NPWS reports on "*The Status of Protected EU Habitats and Species in Ireland*";
- NPWS Ireland Red Lists for species;
- Botanical Society of Britain and Ireland website: flora distribution maps;
- Data on the status of bird species from "*Birds of Conservation Concern in Ireland 2014-2019*", (Coulhoun and Cummins, 2013);
- Various mapping websites, including EPA Unified GIS Application, Google Maps, Myplan and OSI.
- Protected Mammals Survey by Wildlife Surveys Ireland.

In addition to the above, the NPWS was contacted on the 2nd June 2023 in relation to records for sensitive, rare, threatened and protected species within 10km of the development location. Results were returned on the 9th of July 2024.

Water quality data from the EPA was reviewed for the assessment of biological and environmental data collected on waterbodies in Ireland (Accessed May 2024).

8.3.4 FIELD SURVEYS METHODOLOGY

A site assessment was undertaken on the 3rd of November 2023 to examine the ecological context of the proposed development, as outlined in **Table 8.3** below. Surveys had due consideration for the relevant best practice guidelines as referenced in **Section 8.3.1**.

Table 8.3: Ecological Surveys Informing the EIAR

SURVEY	STUDY AREA	SURVEY DATES
Habitat Survey	Complete site	3rd November 2023
Fauna Survey	Complete site	3rd November 2023
Daytime Assessment of Bat Roost Potential	Complete site	3rd November 2023
Bird Survey (General)	Complete site	3rd November 2023

Habitats and Flora Survey

This assessment involved determining the habitats and flora present within the proposed development. The habitat survey was undertaken in accordance with the standard methodology outlined in Fossitt's "*A Guide to Habitats in Ireland*", (Fossitt, 2000), a hierarchical classification scheme based upon the characteristics of vegetation present. The Fossitt system also indicates when there are potential links with Annex I habitats of the E.U. Habitats

Directive (92/43/EEC). Cognisance was also taken of the Heritage Council guidelines, "*Best Practice Guidance for Habitat Survey and Mapping*", (Smith *et al.*, 2011). The relative abundances of flora was determined using the DAFOR Scale, an acronym for the abundance levels – Dominant, Abundant, Frequent, Occasional and Rare.

RECEIVED: 09/05/2024

During the site walkover, any notable flora species were recorded, with an emphasis on statutorily protected or rare species, species of conservation significance and invasive species.

Fauna Survey

A fauna survey was undertaken during bright and dry weather conditions. Direct observation methods were used for the survey of fauna, however, these methods may not be suitable for shy and nocturnal species. Therefore, indirect methods were also employed, focusing on evidence of fauna including tracks, burrows/setts/nests, droppings, food items and hair. The habitats on site were assessed for signs of usage by fauna and the potential to support protected or red-listed species.

Bat Survey – Assessment of Bat Roost Potential

The proposed development would not necessitate the removal of any other mature trees, hedgerows or treelines at the site.

A daytime assessment of the buildings and mature tree scheduled for removal was undertaken on the 3rd of November 2023. The assessment comprised of an external inspection of the buildings and tree to identify potential roost features (PRFs) and evidence of bat activity, using close focusing binoculars. The criteria used to categorise the PRFs or suitability of trees and buildings as a potential roost are summarised in the table below, based upon the guidelines by Collins (2016) and Hundt (2012).

Table 8.4: Bat Roost Potential Categories

CATEGORY	DESCRIPTION
High Trees / buildings that are suitable for use by large numbers of bats on a regular basis	Features include holes, cracks or crevices that extend or appear to extend back to cavities suitable for bats. In buildings, examples include eaves, barge boards, gable ends and corners of adjoining beams, ridge and hanging tiles, behind roofing felt or within cavity walls. In trees, examples include hollows and cavities, rot holes, cracks/splits and flaking or raised bark which could provide roosting opportunities. Any ivy cover is sufficiently well-established and matted so as to create potential crevices beneath. **Further survey work would be required to determine whether or not bats are present, and if so, the species present. Appropriate mitigation and potential licensing requirements may then be determined.**
Moderate Moderate potential is assigned to trees / structures with potential to support bat roosts but supports fewer features than a high potential building / tree and is unlikely to support a roost	From the ground, building / tree appears to have features (e.g. holes, cavities, cracks or dense ivy cover) that may extend back into a cavity. However, owing to the characteristics of the feature, they are deemed to be sub-optimal for roosting bats. **Further survey work would be required to determine whether or not bats are present, and if so, the species present. Appropriate mitigation and potential licensing requirements may then be determined.**

CATEGORY	DESCRIPTION
of high conservation value.	
Low Low potential is assigned to structures and trees with features that could support individual bats opportunistically.	If no features are visible, but owing to the size, age and/or structure, hidden features, sub-optimal for roosting bats, may occur that only an elevated inspection may reveal. In respect of ivy cover, this is not dense (i.e. providing PRF in itself) but may mask presence of PRF features. **Further survey work may be required for buildings only or works may proceed using reasonable precautions (e.g. controlled working methods, under license or supervision of a bat worker).**

RECEIVED: 03/06/2024

Bird Survey

General bird usage of the development site was assessed on the 3rd of November 2023. While walking the development site, stops were undertaken on a regular basis during which time the area was scanned as far as the terrain or weather conditions allowed. Birds were identified by visual sightings and auditory identification of songs and calls. Birds flying overhead were also included as part of the survey.

Surveys Scoped Out

The following ecological features were scoped out:

Invertebrate (aquatic) / Fish surveys: There are no aquatic features within the proposed development footprint or immediate vicinity of the site. The nearest aquatic feature is the River Owveg, located approximately 394m south-east of the development site. It is considered that the assessment of the potential impacts of the development upon water quality (discussed further in this section and within **Section 9**) is sufficient in assessing the potential impact of the development upon water quality and aquatic habitats and species.

Bat Activity Survey: No significant vegetation removal works are required as part of the proposed development. The existing development has limited external lighting and no trees or hedgerows considered to have bat roost potential are to be removed. Approximately 20m of an existing hedgerow located to the west of the new proposed development will be removed. This hedgerow was considered as having low bat roost potential. It is therefore considered that a bat activity survey is not required and that the potential impact upon bat species can be determined based upon the fauna survey and assessment of bat roost potential undertaken as discussed in the sections above.

Survey Limitations

Every effort has been made to provide an accurate assessment of the situation pertaining to the site. However, an ecological survey can only assess a site at a particular time and is limited by various factors such as the season, timing of the survey, climatic conditions and species behaviour. Ecological surveys are therefore snapshots in time and should not be regarded as a complete study. Direct observations or evidence of protected species is not always recorded during ecological surveys. However, this does not indicate that the species is absent from the site.

To ensure any limitations encountered did not significantly impact upon the findings of the ecological assessments, the ecological surveys undertaken also assessed the potential of the habitats to support protected species, and cognisance has been taken of available online baseline data (e.g. flora and fauna records from the NBDC, consultation with NPWS regarding protected / threatened species, consultation with BCI regarding bat roost records, previous surveys undertaken by Wildlife Surveys) and a precautionary approach taken.

RECEIVED: 03/06/2024

8.3.5 ECOLOGICAL VALUATION CRITERIA

The ecological value of the habitats and species identified at the development site have been assessed following the criteria outlined in the 2009 NRA guidelines and is consistent with the Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (CIEEM, 2018).

8.4 DESCRIPTION OF EXISTING ENVIRONMENT

The proposed development is to carry out an extension to an existing piggery and all ancillary site works and services. The proposed development includes the addition of one new farrowing unit, four new fattening units and three new meal bins, which would be located to the east of the existing buildings as per the site layout plan.

The closest Natura 2000 site is the River Barrow and River Nore SAC (Site Code: 002162) located approximately 276m south-east at its closest (see **Attachment 8.1**). The Lisbigney Bog SAC (Site Code: 000869) and the River Nore SPA (Site Code: 004233) are also within the potential Zone of Influence.

The land use of the area surrounding the proposed development is mainly rural with only two EPA licenced facilities in operation within 10 km from the site. The proposed development is located with agricultural and forest habitats in close proximity.

The expected construction timeframe of the proposed development would be approximately 6 months, with hours of operation from 7am to 7pm Monday to Friday, and 8am to 2pm on Saturdays in Summer months. However, when daylight hours are limited (October – March) construction works would commence one hour after sunrise (dawn) and stop one hour before sunset (dusk).

8.4.1 DESIGNATED SITES

The proposed development does not directly impinge on any designated site. In total, there are 5 designated sites located within the potential Zone of Influence (ZoI) of the proposed development: 3 Special Area of Conservation (SAC) sites, 1 Special Protection Area (SPA) site and 1 Natural Heritage Area (NHA) sites. There are also 10 proposed Natural Heritage Area (pNHA) sites within the potential Zone of Influence (ZoI) of the development site. There are no RAMSAR sites, National Parks or Nature Reserve sites located within the potential Zone of Influence (ZoI) of the development site.

Maps detailing these designated sites in relation to the proposed development are included in **Attachment 8.1**.

RECEIVED: 05/09/2024

The following tables detail the SAC, SPA, NHA and pNHA sites located within the potential Zone of Influence (ZoI) of the proposed development.

The proposed development site is located on the Kilkenny-Ballynakill Gravels groundwater body and within the Killeshin Siltstone Formation, where a section of some of the nearest designated sites are also located, namely the River Barrow and River Nore SAC. Given the location and proximity of designated sites to the proposed development site, it is considered that the development site would have a groundwater connection with the designated sites.

RECEIVED: 05/06/2024

Table 8.5: SAC Sites within the potential Zone of Influence (ZoI) of the Proposed Development

SITE NAME	SITE CODE	APPROX. DISTANCE TO DEVELOPMENT	QUALIFYING INTERESTS
River Barrow and River Nore SAC	002162	276m SE	[1130] Estuaries [1140] Mudflats and sandflats not covered by seawater at low tide [1170] Reefs [1310] *Salicornia* and other annuals colonising mud and sand [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1410] Mediterranean salt meadows (*Juncetalia maritimi*) [3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [4030] European dry heaths [6430] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [7220] *Petrifying springs with tufa formation (*Cratoneurion*) [91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91E0] *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [1016] *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1029] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1092] *Austropotamobius pallipes* (White-clawed Crayfish) [1095] *Petromyzon marinus* (Sea Lamprey) [1096] *Lampetra planeri* (Brook Lamprey) [1099] *Lampetra fluviatilis* (River Lamprey) [1103] *Alosa fallax fallax* (Twaite Shad) [1106] *Salmo salar* (Salmon) [1355] *Lutra lutra* (Otter) [1421] *Trichomanes speciosum* (Killarney Fern) [1990] *Margaritifera durrovensis* (Nore Pearl Mussel)
Lisbigney Bog SAC	000869	4.96 km SW	[1016] *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [7210] *Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*
Ballyprior Grassland SAC	002256	13.1 km NE	[6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites)

**Denotes a priority habitat under the Habitats Directive*

RECEIVED: 05/06/2024

Table 8.6: SPA Sites within the potential zone of influence of the Proposed Development

SITE NAME	SITE CODE	DISTANCE TO PROPOSED DEVELOPMENT	SPECIAL CONSERVATION INTEREST
River Nore SPA	004233	5.33km SW	[A229] Kingfisher (*Alcedo atthis*)

Table 8.7: NHA Sites within the potential zone of influence of the Proposed Development

SITE NAME	SITE CODE	APPROX. DISTANCE TO PROPOSED DEVELOPMENT
Coan Bogs NHA	002382	13.4 km SE

Table 8.8: pNHA Sites within the potential Zone of Influence (ZoI) of the Proposed Development

SITE NAME	SITE CODE	APPROX. DISTANCE TO PROPOSED DEVELOPMENT
Lisbigney Bog pNHA	000869	4.96 km SW
River Nore/Abbeyleix Woods Complex pNHA	002076	5.79 km SW
Timahoe Esker pNHA	000421	8.24 km NE
Shanahoe Marsh pNHA	001923	9.21 km NW
The Curragh And Goul River Marsh pNHA	000420	11.3 km SW
Clopook Wood pNHA	000860	12.4 km NE
Ridge of Portlaoise pNHA	000876	12.6 km N
Cuffsborough pNHA	000418	13.1 km W-SW
Grantstown Wood And Lough pNHA	000417	14.7 km SW
Forest House Wood pNHA	000874	14.8km NW

RECEIVED: 05/06/2024

For this assessment, the sites considered to be within the potential zone of influence of the proposed development are the River Barrow and River Nore SAC (Site Code: 002162), the Lisbigney Bog SAC (Site Code: 000869), the River Nore SPA (Site Code: 004233) and the Coan Bogs NHA (Site Code: 002382), due to potential hydrological connectivity and a potential deterioration in air quality.

Ballyprior Grassland SAC (Site Code: 002256), Timahoe Esker pNHA (Site Code: 000421), Clopook Wood pNHA (Site Code: 000860) and Ridge of Portlaoise pNHA (Site Code: 000860), are not located within the same river catchment as the development site and therefore are not hydrologically connected with the development. Therefore, in the absence of a source-pathway-receptor relationship and given the distances from the development, these sites have been screened out.

River Barrow and River Nore SAC (Site Code: 002162)

The conservation objectives for the SAC site are to maintain or restore the favourable conservation condition of the qualifying interest. An excerpt from the Natura 2000 Data Form for the River Barrow and River Nore SAC is included below, while further details are available within the site's site synopsis (NPWS, 2016).

"This site consists of most of the freshwater stretches of the Barrow/Nore River catchments. The Barrow is tidal as far upriver as Graiguenamanagh while the Nore is tidal as far upriver as Inishtioge. The site also includes the extreme lower reaches of the River Suir and all of the estuarine component of Waterford Harbour extending to Creadan Head. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King's Rivers on the Nore. Both rivers rise in the Old Red Sandstone of the Slieve Bloom Mountains. They traverse limestone bedrock for a good proportion of their routes, though the middle reaches of the Barrow and many of the eastern tributaries run through Leinster Granite. A wide range of habitats associated with the rivers are included within the site, including substantial areas of woodland (deciduous, mixed), dry heath, wet grassland, swamp and marsh vegetation, salt marshes, a small dune system, biogenic reefs and intertidal sand and mud flats. Areas of improved grassland, arable land and coniferous plantations are included in the site for water quality reasons.

The site supports many Annexed habitats including the priority habitats of alluvial woodland and petrifying springs. Quality of habitat is generally good. The site also supports a number of Annex II animal species - *Salmo salar*, *Margaritifera margaritifera*, *M.m. durrovensis*, *Alosa fallax fallax*, *Austropotamobius pallipes*, *Petromyzon marinus*, *Lutra lutra*, *Lampetra fluviatilis* and *L. planeri*. Annex I Bird species include *Anser albifrons flavirostris*, *Falco peregrinus*, *Cygnus cygnus*, *Cygnus columbianus bewickii*, *Limosa lapponica*, *Pluvialis apricaria* and *Alcedo atthis*. A range of rare plants and invertebrates are found in the woods along these rivers and rare plants are also associated with the saltmarsh."

The main site vulnerabilities, including any key pressures or trends within and around River Barrow and River Nore SAC that have been identified as impacting upon the site, may be summarised as:

- Agricultural intensification;

RECEIVED: 05/06/2024

- Pollution to surface waters (limnic, terrestrial, marine & brackish);
- Modifying structures of inland water courses;
- Dykes and flooding defense in inland water systems;
- Erosion;
- Removal of hedges and copses or scrub;
- Sand and gravel quarries;
- Port areas;
- Industrial or commercial areas;
- Intensive fish farming, intensification;
- Netting;
- Leisure fishing;
- Intensive cattle grazing;
- Forest and Plantation management & use;
- Use of fertilizers (forestry);
- Forestry activities not referred to above;
- Peat extraction;
- Fishing and harvesting aquatic resources;
- Invasive non-native species;
- Human induced changes in hydraulic conditions;
- Dredging/ removal of limnic sediments;
- Water abstractions from surface waters;
- Reduction in migration/ migration barriers;
- Changes in abiotic conditions.

Lisbigney Bog SAC (Site Code: 000869)

The conservation objectives for the SAC site are to maintain or restore the favourable conservation condition of the qualifying interests. An excerpt from the Natura 2000 Data Form for the Lisbigney Bog SAC is included below, while further details are available within the site's site synopsis (NPWS, 2013).

"This site comprises a small wetland situated c.5 km north-east of Durrow. The principal habitat is fen, with reed swamp, wet grassland, pools and scrub also occurring. At present, the site is not used for any particular activity other than light grazing.

The site supports a population of the Annex II snail *Vertigo moulinsiana*. The site contains a small though significant example of *Cladium mariscus* fen. Similar habitat in this part of the country is scarce. All recently surveyed sites with confirmed populations of this species are considered important."

The main site vulnerabilities, including any key pressures or trends within and around the Lisbigney Bog SAC that have been identified as impacting upon the site, may be summarised as:

- Abandonment of pastoral systems, lack of grazing;
- Burning down of vegetation;

RECEIVED: 05/06/2024

- Species composition change;
- Disposal of household / recreational facility waste;
- Disposal of inert materials;
- Landfill, land reclamation and drying out, general;

River Nore SPA (Site Code: 004233)

The conservation objectives for the SPA site are to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. An excerpt from the site's Natura 2000 Data Form is included below, while further details are available within the site's site synopsis (NPWS, 2011).

"The River Nore SPA is a long linear site that includes the following river sections: the River Nore from the bridge at Townparks, (north-west of Borris in Ossory) to Coolnamuck (approximately 3 km south of Inistioge) in Co. Kilkenny; the Delour River from its junction with the River Nore to Derrynaseera bridge (west of Castletown) in Co Laois; the Erkina River from its junction with the River Nore at Durrow Mills to Boston Bridge in Co. Laois; a 1.5 km stretch of the River Goul upstream of its junction with the Erkina River; the Kings River from its junction with the River Nore to a bridge at Mill Island Co. Kilkenny. The site includes the river channel and marginal vegetation.

The River Nore support nationally important numbers of *Alcedo atthis*. Other species which occur within the site include *Cygnus olor*, *Anas platyrhynchos*, *Phalacrocorax carbo*, *Ardea cinerea*, *Gallinula chloropus*, *Gallinago gallinago* and *Riparia riparia*."

The main site vulnerabilities, including any key pressures or trends within and around the River Nore SPA that have been identified as impacting upon the site, may be summarised as follows:

- Port areas;
- Landfill, land reclamation and drying out, general;

Coan Bogs NHA (Site Code: 002382)

The following is an excerpt from the Site Synopsis is included below (NPWS, 2004).

"Coan Bogs NHA consists of two small areas of upland blanket bog located to the east of Castlecomer, Co. Kilkenny. The first bog lies in the townland of Coan East, 2.5 km to the north-east of Coan village at the altitude 270 m to 281 m. The second bog is situated 3 km to the north-west of Coan village in the townland of Smithstown. It lies at an altitude of 240 m. Bedrock geology for both areas is shale overlain locally by glacial till. Blanket bog vegetation is well developed in central areas of both bogs although cutover surrounds them. Plantation forestry also surrounds the sites.

Vegetation on the eastern bog is characterised by tall Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Hare's-tail Cottongrass (*Eriophorum vaginatum*) and lichen

RECEIVED 05/06/2024

Cladonia portentosa. Round-leaved Sundew (*Drosera rotundifolia*) is also common. There are large hummocks of bog mosses *Sphagnum capillifolium* and *S subnitens*. Hollows containing some *S. papillosum* are dominated by Bog Asphodel (*Narthecium ossifragum*). Cranberry (*Vaccinium oxycoccos*), a species more characteristic of raised bogs, is also present and Bilberry (*V. myrtillus*) occurs on larger hummocks along with the moss *Hypnum jutlandicum*. Further east the bog becomes wetter with up to 60% bog moss cover. In this wet area Cranberry is abundant and another characteristic raised bog species, Bog-rosemary (*Andromeda polifolia*) occurs.

The western bog is also dominated by Ling Heather, Crossed-leaved Heath and Hare's-tail Cottongrass with some Bog Asphodel. Bog moss cover reaches 80% and moss *Hypnum jutlandicum* and Lichens (*Cladonia* spp.) also occur. Bog-rosemary and Round-leaved Sundew are also present. This bog becomes drier in the south with Deergrass (*Scirpus cespitosus*) more prevalent. Bog Asphodel occurs on bare peat by the southern cutover.

The cutover around the eastern bog is dominated by Purple Moor-grass (*Molinia caerulea*) with clear-felled plantations at the margins. Cutover on the northern side is planted with new conifer forest. Wet cutover on the eastern side is dominated by Purple Moor-grass with Ling Heather, Bilberry, the moss *Polytrichum commune* and scattered Willow (*Salix* spp.).

The western bog has cutover dominated by Birch (*Betula* spp.) scrub to the east and south and new plantation forest to the west.

Current landuse on the margins of the western bog consists of mechanical peat-cutting and planting of conifer forest. There is some encroachment of conifer seedlings onto both bogs from surrounding forestry. These activities that have resulted in loss of habitat and damage to the hydrological condition of both areas, pose a continuing threat to their conservation.

Coan Bogs NHA is a site of considerable conservation significance consisting of upland blanket bog. This site, although small, is undisturbed and shows good characteristics of blanket bog with some raised bog indicator species. Blanket bog habitat is a globally scarce resource. It is largely confined to coastal regions at temperate latitudes with cool, wet, oceanic climates. North-west Europe contains some of the best-developed areas of blanket bog in the world. The most extensive areas are found in Ireland and Britain. Upland blanket bogs, due to their exposure to severe climatic conditions at high elevations, are particularly vulnerable to erosion by human activities and extensive areas are currently undergoing active erosion due mainly to overgrazing. The current area of intact upland blanket bog in Ireland represents only a fraction of the original resource, due to the combined impacts of afforestation and overgrazing, and intact examples are therefore extremely valuable for nature conservation. Their long-term survival requires sensitive management."

8.4.2 FLORA & HABITATS

The development site is located within a rural area, in an area primarily dominated by pasture, arable land and forests. The nearest watercourse to the development site is the is the River Owveg, located approximately 394m south-east. A number of one-off residences and farmyard complexes exist in the area.

RECEIVED: 05/06/2024

The proposed development is to carry out an extension to an existing piggery, with boundaries consisting of hedgerows and treelines.

During the site walkover, seven main habitats were identified. The dominant habitat onsite was identified as **buildings and artificial surfaces (BL3)** habitat, comprising of the site office and canteen, farm sheds, walls and hard standing cement surfaces. It was species poor but includes Moss (Bryophyta), Groundsel (*Senecio vulgaris*), Red Deadnettle (*Lamium purpureum*), Willowherb (*Epilobium* spp.) and Greater Plantain (*Plantago major*).

Improved agricultural grassland (GA1) is found to the east and north and extends outside the red line boundary. This is the dominant grassland type with a species composition of Ryegrass (*Loilum* spp.), Dock (*Rumex* spp.), Creeping Buttercup (*Ranunculus repens*), Clover (*Trifolium* spp.), Thistle (*Cirsium* spp.) and Nettle (*Urtica dioica*).

Hedgerows (WL1) border the proposed development to the south and north-east. It includes Hawthorn, Holly, Blackthorn, Dog Rose, Elder, Beech, Sycamore, Gorse with an understory of Bramble (*Rubus fruticosus*), Nettle (*Urtica dioica*), Cow Parsley (*Anthriscus sylvestris*), Ivy (*Hedera helix*), Hart's-tongue Fern (*Asplenium scolopendrium*), Cleavers (*Galium aparine*) and Thistle (*Cirsium* spp.).

Treeline (WL2) habitat is found along the south, and outside the west and east boundary. It is dominated by Sycamore (*Acer pseudoplatanus*) and Beech (*Fagus* spp.) with Ash (*Fraxinus* spp.) and an understory of Cypress (*Cupressus* spp.), Elder (*Sambucus* spp.), Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*), Bramble (*Rubus fruticosus*) and Cow Parsley (*Anthriscus sylvestris*).

An area of **Scattered trees and parkland (WD5)** habitat is found to the south-west of the proposed development. It was comprised of Apple (*Malus* spp.), Beech (*Fagus* spp.), Elder (*Sambucus* spp.) with an understory of Ivy (*Hedera helix*), Creeping Buttercup (*Ranunculus repens)* and Dandelion (*Taraxacum* spp.).

An area of **recolonising bare ground (ED3)** habitat is found to the east amongst the chicken houses and in the centre adjacent the improved agricultural grassland. It is comprised of Nettle (*Urtica dioica*), Cleavers (*Galium aparine*), Thistle (*Cirsium* spp.), Moss (Bryophyta), Ivy (*Hedera helix*), Sycamore (Acer spp.) saplings, Dock (*Rumex* spp.), Herb Robert (*Geranium robertianum*), Red Deadnettle (*Lamium purpureum*), Groundsel (*Senecio vulgaris)*, Willowherb (*Epilobium* spp.) and Hairy Bittercress (*Cardamine hirsuta*).

Dry meadows and grassy verges (GS2) is found to the north-west. It is comprised of Bent Grass (*Agrostis* spp.), False-oat Grass (*Arrhenatherum elatius*), Mustard (Brassica), Sycamore (*Acer* spp.) and Willow (*Willow* spp.) samplings, Vetch (*Vicia* spp.), Dock (*Rumex* spp.), Great Willowherb (*Epilobium hirsuta*), Nettle (*Urtica dioica*) and Hogweed (*Heracleum* spp.).

RECEIVED: 05/06/2024

Habitats of note outside the red line boundary include **Improved agricultural grassland (GA1), Treelines (WL2)** and **amenity grassland (GA2)** with areas of **dry meadows and grassy verges (GS2)** to the south.

No plant species of conservation significance or third schedule invasive plant species were noted during the site assessment.

The seven habitats identified as per the Fossitt habitat classification scheme for the proposed development are summarised in **Table 8.9**, and are shown on a habitat map included as **Figure 8.1**, and as **Attachment 8.2**. A photo log and full list of flora recorded are included in **Attachments 8.3** and **8.4** respectively.

Table 8.9: Summary of Habitats Identified at the Proposed Development Site

HABITAT CLASSIFICATION HIERARCHY		
LEVEL 1	**LEVEL 2**	**LEVEL 3**
G – Grassland and marsh	**GA** – Improved grassland	**GA1** – Improved agricultural grassland
		GA2 – Amenity grassland (improved)
	GS – Semi-natural grassland	**GS2** – Dry meadows and grassy verges
W – Woodland and scrub	**WL** – Linear woodland / scrub	**WL1** – Hedgerows
		WL2 – Treelines
E – Exposed rock and disturbed ground	**ED** – Disturbed ground	**ED3** – Recolonising bare ground
B – Cultivated and built land	**BL** – Built land	**BL3** – Buildings and artificial surfaces

The majority of the site, comprising of buildings and artificial surfaces, improved agricultural grassland, amenity grassland, buildings and artificial surfaces, recolonising bare ground, can be considered to be modified and of low ecological value. The remainder of the habitats at the site, including hedgerows and treelines, can be considered to be of moderate to high ecological value.

No plant species of conservation significance or invasive plant species were noted during the site assessment.

RECEIVED: 05/06/2024

Figure 8.1: Habitat Map of Encountered Habitats at the Proposed Development Site, Graigue, Co. Laois

RECEIVED: 05/06/2024

8.4.3 FAUNA (EXCLUDING BATS)

Terrestrial Fauna

Mammals, typical of that found throughout the rest of Ireland, which would be expected to be found in the general area include Badger (*Meles meles*), Fox (*Vulpes vulpes*), Otter (*Lutra lutra*), Pine Marten (*Martes martes*), Stoat (*Mustela erminea hibernica*), American Mink (*Mustela vison*), Irish Hare (*Lepus timidus hibernicus*), Rabbit (*Oryctolagus cuniculus*), Hedgehog (*Erinus europaeus*), Red Squirrel (*Sciurus vulgaris*), Wood Mouse (*Apodemus sylvaticus*), Pygmy Shrew (*Sorex minutus*), Greater White-toothed Shrew (*Crocidura russula*), Bank Vole (*Myodes glareolus*), and Fallow Deer (*Dama dama*).

Evidence of fauna (trackways) was observed within a hedgerow habitat to the south-east. No scat or footprints were observed. No evidence of any other fauna including protected species, were observed during the site walkover. In the absence of aquatic habitats within the development site itself, the site would have limited potential to support aquatic species. There was no evidence of otter, including spraints, tracks or holts, at the development site.

There was no evidence of badger, including setts or latrines, at the development site. However, there are several sett records on the NBDC website from the Badger Setts of Ireland Database dating from 1975 to 2023, which are located in the 10km S48 tetrad where the site is also located. It is therefore possible that areas of the development site may be used by badgers for foraging.

As there are no woodlands, it is not considered that the proposed development would offer suitable habitat for Pine Martin. No coniferous or deciduous woodlands existing onsite. However, Pine Martin may be present within the wider vicinity. No trees or hedgerows will be removed as part of this development.

The development site is located within the current distribution and current range but outside favourable reference range of pine marten (NPWS, 2019c). While there was no evidence of pine marten at the site, the NBDC has a record for a live sighting in 2020, approximately 1.06km to the north of the development site. Given the absence of woodland on the development site and within the immediate vicinity, it is not considered that pine marten may use the site for foraging however, Pine Martin may use the habitats within the wider environment.

No reptiles or amphibians were recorded onsite. It is unlikely Common Frog (*Rana temporaria*) would utilise the grassland habitats for hibernation as grass swards are shorter as a result of grazing. Also, there are no aquatic habitats onsite for breeding. As there are limited areas of damp tussocky vegetation, peatlands etc, it is not considered that the proposed development would contain suitable habitat for the Viviparous Lizard (*Zootoca vivipara*).

With regards terrestrial invertebrates, no Marsh Fritillary (*Eurodryas aurinia*) was recorded onsite. In the absence of swamp, fen and marsh habitat within the site, and in the absence of historic records, it is not considered that the proposed development would be suitable to support populations of Desmoulin's Whorl Snail.

RECEIVED 06/09/2024

Aquatic Fauna

With regards aquatic fauna, there are no aquatic habitats located within the development site itself. Therefore, the development site itself would have limited potential to support aquatic species. As discussed further in **Section 8.4.7** below, the Owveg River is located approximately 394m south-east of the site at its closest. The Owveg River converges with the River Nore approximately 26.3km downstream from its source. Stormwater from roofs and clean yards is collected by the surface water drainage network. All surface water collected on site is directed to stone soakaways in the centre and south-west of the site.

The development site is located within the current distribution, current range and favourable reference range of otter (*Lutra lutra*) (NPWS, 2019c), while the NBDC has records for otter approximately 1.25km from the development site. However, it is unlikely that the development site would be of significance to otter given the absence of aquatic habitats and given that no evidence of otter, including spraints, tracks or holts, at the development site.

In the absence of aquatic habitats onsite, it is unlikely that the site would have the potential to support Frog (*Rana temporaria*) or Smooth Newt (*Lissotriton vulgaris*). No evidence of these amphibians were recorded during the ecological site assessment. Although the Common frog hibernate in tall grasses, there would be limited suitable habitat onsite for this species.

The development site is located within the current distribution, current range and favourable reference range of Freshwater Pearl Mussel (*Margaritifera margaritifera*) (NPWS, 2019c). However, it is not located within a river catchment identified as supporting Freshwater Pearl Mussel populations (DoEHLG, 2010).

The development is located within the current range and current distribution, but outside favourable reference range of the of White-clawed Crayfish (*Austropotamobius pallipes*) (NPWS, 2019c). The NBDC has records (2010) for Crayfish within the Owveg River, with the nearest records located approximately 3.8km downstream of its closest point to the site and 2.1km directly to the south of the site. It is possible, therefore, that Crayfish are located downstream of the development site.

The development site is located outside the current distribution, current range and favourable reference range of Sea Lamprey (*Petromyzon marinus*) and River Lamprey (*Lampetra fluviatilis*), but within the current distribution and current range of Brook Lamprey (*Lampetra planeri*) (NPWS, 2019c). The development site is located outside the current distribution, current range and favourable reference range of Atlantic Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax*), Killarney Shad (*Alosa fallax killarnensis*) and Pollan (*Coregonus pollan*) (NPWS, 2019c).

RECEIVED: 05/06/2024

8.4.4 FAUNA - BATS

Desk Based Review

According to the NBDC records for bats within 10km of the proposed development site, a total of six species have been recorded (Hectad S48), as follows:

- Common Pipistrelle (*Pipistrellus pipistrellus*);
- Soprano Pipistrelle (*Pipistrellus pygmaeus*);
- Daubenton's Bat (*Myotis daubentonii*);
- Natterer's Bat (*Myotis nattereri*);
- Leisler's Bat (*Nyctalus leisleri*);
- Brown long-eared Bat (*Plecotus auratus*).

The NPWS's National Lesser Horseshoe Bat Roost Database was also consulted with regards any roost records for Lesser Horseshoe Bat (*Rhinolophus hipposideros*). The Lesser Horseshoe Bat is mainly confined to the west of Ireland, with the NPWS database indicating that the nearest record for this bat is located a considerable distance from the development site – approximately 86km to the south-west.

Assessment of Bat Roost Potential

No buildings, hedgerows or trees are to be removed as part of the proposed development. A majority of the buildings onsite are considered as having negligible to low bat roost potential.

No evidence of bat usage (including droppings, urine staining, grease markings or prey remains) was recorded for the majority of the existing buildings. While some areas of disrepair were noted, which could provide entry opportunities for bats, it is considered that these buildings would have negligible potential to support bat roosts given that there are no attic voids, with the buildings designed as open in nature to the roof height and given that these buildings are in use. The weaner house to the south is considered as having low bat roost potential however, given its current use within an operating pig farm, it is unlikely bats would utilise this as it is an area of frequent disturbance.

Figure 8.2: Buildings with negligible to low bat roost potential (to be retained)

Assessment of Bat Roost Potential – Hedgerows and trees

The hedgerow along the south and north-eastern boundaries would be considered as having negligible bat roosting potential however, they may be used by commuting bats. A treeline outside the west and east are considered as having low to moderate bat roost potential. The assessment of the trees and hedgerows was based on an external survey undertaken visually from the ground. The proposed development will not require the removal of any hedgerows or treelines. It is therefore considered that the proposed development would not have a significant impact on bats if within the area. The proposed lighting scheme will also be sensitive to nocturnal species and will be angled away from trees and hedgerows. The treeline to the west is adjacent existing buildings and the treeline to the east will not be adjacent to the new proposed development.

Figure 8.3: (From top left) Hedgerow to north-east with negligible bat roost potential, Treeline to west with low to moderate bat roost potential, Sycamore to west with moderate bat roost potential, Ash along southern boundary with moderate bat roost potential - all to be retained. Hedgerow in centre with low bat roost potential – to be removed.

8.4.5 AVIFAUNA

Given the agricultural land use of the surrounding area, it would be expected that common grassland and hedgerow species would be present in the area. The following table details the bird species recorded during the site walkover on the 3rd of November 2023 and their protection and conservation concern statuses.

Table 8.10: Protection and Conservation Concern Statuses for Recorded Birds

COMMON NAME	SCIENTIFIC NAME	E.U. BIRDS DIRECTIVE	BOCCI* RED LIST	BOCCI* AMBER LIST
Blackbird	*Turdus merula*	-	-	-

RECEIVED: 05/06/2024

COMMON NAME	SCIENTIFIC NAME	E.U. BIRDS DIRECTIVE	BOCCI* RED LIST	BOCCI* AMBER LIST
Bullfinch	*Pyrrhula pyrrhula*	-	-	-
Chaffinch	*Fringilla coelebs*	-	-	-
Coal Tit	*Periparus ater*	-	-	-
Goldfinch	*Carduelis carduelis*	-	-	-
Grey Wagtail	*Motacilla cinera*	-	✓	-
House Sparrow	*Passer domesticus*	-	-	✓
Jackdaw	*Coloeus monedula*	-	-	-
Magpie	*Pica pica*	-	-	-
Robin	*Erithacus rubecula*	-	-	-
Rook	*Corvus frugilegus*	-	-	-
Starling	*Sturnus vulagaris*	-	-	✓
Wren	*Troglodytes troglodytes*	-	-	-

**The BoCCI (Birds of Conservation Concern in Ireland) List classifies bird species into one of three lists (Red, Amber or Green) based on their conservation status and conservation priority.*

A total of 13 bird species were recorded during the site walkover. Grey Wagtail are red listed under the BoCCI classification, while House Sparrow are amber listed. None of the bird species recorded are listed under Annex I of the E.U. Birds Directive

8.4.6 RECORDS OF PROTECTED, RARE & INVASIVE SPECIES

National Biodiversity Data Centre Records

Flora and fauna records were reviewed on the National Biodiversity Data Centre (NBDC) website for the proposed development site and the vicinity.

No protected flora species under the Flora (Protection) Order, 2022 (S.I. No. 235 of 2022) were recorded for the thirty years previous for the 10km square (S48) in which the proposed development site is located, while records were returned for five invasive flora species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011): Giant Hogweed (*Heracleum mantegazzianum*), Giant-rhubarb (*Gunnera tinctoria*), Himalayan Knotweed (*Persicaria wallichii*), Japanese Knotweed (*Fallopia japonica*) and *Rhododendron ponticum*.

Fauna records for the previous thirty years were reviewed on the NBDC website for the 2km tetrad (R48W) in which the proposed development is located. Bird species of note recorded include Swallow (*Hirundo rustica*), Kestrel (*Falco tinnunculus*), Linnet (*Carduelis cannabina*), Pheasant (*Phasianus colchicus*), Starling (*Sturnus vulgaris*), Woodpigeon (*Columba palumbus*), Sparrow (*Passer domesticus*), Sand Martin (*Riparia riparia*) and Sky Lark (*Alauda arvensis*).

RECEIVED: 05/06/2024

Fauna of note include the protected species Daubenton's Bat (*Myotis daubentonii*), Lesser Noctule (*Nyctalus leisleri*), Pipistrelle (*Pipistrellus pipistrellus sensu lato*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*).

National Parks and Wildlife Services Records

Records of protected, rare or threatened flora and fauna species within 10km of the development site were obtained from the NPWS and are included in **Table 8.11** and **Table 8.12** below.

Table 8.11: Records of Protected, Rare or Threatened Flora Species from the NPWS.

COMMON NAME	SCIENTIFIC NAME	PROTECTION[1]	CONSERVATION STATUS[2,3]
Henbane	*Hyoscyamus niger*	None	Near Threatened
Common Wintergreen	*Pyrola minor*	FPO	Near Threatened
Red Hemp-nettle	*Galeopsis angustifolia*	FPO	Vulnerable
Basil Thyme	*Clinopodium acinos*	None	Near Threatened
Greater Broomrape	*Orobanche rapum-genistae*	None	Near Threatened
Green-winged Orchid	*Orchis morio*	None	Vulnerable
Small-white Orchid	*Pseudorchis albida*	FPO	Vulnerable
Yellow Bird's-nest	*Monotropa hypopitys*	None	Near Threatened
Opposite-leaved Pondweed	*Groenlandia densa*	FPO	Near Threatened
Autumn Gentian	*Gentianella amarella*	None	Near Threatened
Cladonia portentosa	*Cladonia portentosa*	None	None
Smooth Broom	*Bromus racemosus*	None	Near Threatened
Sheperd's-needle	*Scandix pecten-veneris*	None	Regionally Extinct

Notes:
[1] HD II/IV = Habitats Directive Annexes II/IV; FPO = Flora Protection Order.
[2] Vascular flora from the Irish Red Data Book 10 Vascular Plants (Wyse Jackson *et al.*, 2016); Bryophytes from the Irish Red List No. 8 (Lockhart *et al.*, 2012).
[3] IUCN Red list http://www.iucnredlist.org/ - accessed January 2024

Table 8.12: Records of Protected, Rare or Threatened Fauna Species from the NPWS.

COMMON NAME	SCIENTIFIC NAME	PROTECTION[1]	CONSERVATION STATUS[2,3]
Badger	*Meles meles*	WA	Least Concern
Black-headed Gull	*Larus ridibundus*	WA	Amber
Brook Lamprey	*Lampetra planeri*	HD II/WA	Least Concern
Desmoulin's Whorl Snail	*Vertigo moulinsiana*	HD II	Endangered
Common Frog	*Rana temporaria*	WA	Least Concern
Common Lizard	*Zootoca vivipara*	WA	Least Concern
Common Sandpiper	*Actitis hypoleucos*	WA	Amber
Fallow Deer	*Dama dama*	WA	Least Concern

RECEIVED: 05/06/2024

COMMON NAME	SCIENTIFIC NAME	PROTECTION[1]	CONSERVATION STATUS[2,3]
Grey Wagtail	*Motacilla cinerea*	WA	Red
Hedgehog	*Erinaceus europaeus*	WA	Least Concern
Herring Gull	*Larus argentatus*	WA	Red
House Martin	*Delichon urbicum*	WA	Amber
Irish Hare	*Lepus timidus subsp. hibernicus*	WA/HB V	Least Concern
Kingfisher	*Alcedo atthis*	WA, BDI	Amber
Little Egret	*Egretta garzetta*	WA	Green
Mallard	*Anas platyrhynchos*	WA, BDII/III	Green
Mute Swan	*Cygnus olor*	WA	Amber
Nore Pearl Mussel	*Margaritifera durrovensis*	HD II/WA	Critically Endangered
Otter	*Lutra lutra*	HD II/IV, WA	Near Threatened
Pine Marten	*Martes martes*	WA	Least Concern
Red Squirrel	*Sciurus vulgaris*	WA	Least Concern
Sand Martin	*Riparia riparia*	WA	Amber
Sky Lark	*Alauda arvensis*	WA	Amber
Swallow	*Hirundo rustica*	WA	Amber
Snipe	*Gallinago gallinago*	WA, BDII/III	Vulnerable, Amber
Spotted Flycatcher	*Muscicapa striata*	WA	Amber
Stoat	*Mustela erminea*	WA	Least Concern
White-clawed Crayfish	*Austropotamobius pallipes*	HD II, WA	Endangered
Willow Warbler	*Phylloscopus trochilus*	WA	Amber

Notes:
[1] HD II/IV = Habitats Directive Annexes II/IV; WA = Wildlife Acts; BD I/II/III = Birds Directive Annexes I/II/III.
[2] Terrestrial Mammal Red List (Marnell *et al.* 2009); Birds of Conservation Concern in Ireland 2020-2026 (Gilbert *et al*, 2021); Red-listed Amphibians, Reptiles and Freshwater Fish (King *et al.* 2011); Red-listed Non-marine Molluscs (Byrne *et al.*, 2009).
[3] IUCN Red list http://www.iucnredlist.org/ - accessed February 2024

8.4.7 WATER QUALITY

The proposed development is located within the Nore catchment (15) and the Nore_SC_060 sub-catchment.

The Owveg River is located approximately 394m south-east of the site at its closest. Stormwater from roofs and clean yards is collected by the surface water drainage network. All surface water collected on site is directed to stone soakaways in the centre and south-west of the site, which drain to the ground. Based on the topography of the site (i.e. gently sloping to the south), it would appear that the ground water flow is toward the Owveg River. However, because of the

RECEIVED 05/06/2024

complexities of groundwater flow direction it is possible that underground drainage and groundwater flow do not simply follow surface topography.

The Owveg River, which is a tributary of the Nore River, flows in a generally south-west direction for c. 15.5 km until the confluence of the two rivers. The River Nore then continues for several km before it meets the River Barrow, merging the two catchments. From this confluence, the river flows mostly in a southwards direction to Waterford Harbour.

The Owveg River is part of the River Barrow and River Nore Special Area of Conservation (SAC)(Site Code: 002162), and its downstream section is designated as River Nore Special Protection Area (SPA)(Site Code: 004233). The Owveg River, unlike River Nore, is not designated as a Salmonid Water under EC (Quality of Salmonid Waters) Regulations (S.I. No. 293 of 1988). At its closest, the River Barrow and River Nore SAC is approximately 276m south-east of the site and the River Nore SPA is c. 5.33 km south-west (7.87 km downstream from the closest point to the site).

The Environmental Protection Agency (EPA) undertake surface water monitoring along the Owveg River. The results for the nearest monitoring stations with available information (as per **Table 8.13**) for the period 2005 – 2022 are summarised in **Figure 8.4** below for indicative purposes.

Table 8.13: Monitoring Stations of the Owveg River within the Vicinity of the Development

STATION NO.	STATION LOCATION	EASTING	NORTHING	APPROX. LOCATION RELATIVE TO WILTON CONFLUENCE
RS15O010080	Owveg (Nore) - Boleybeg Br	249572	184084	1.4km Upstream
RS15O010160	Br WNW of Boleybawn (Cloghoge)	247986.84	181021.26	3.8km Downstream
RS15O010280	Owveg (Nore) - Castlemarket Br	245767.84	178086.81	8.4km Downstream

RECEIVED: 05/06/2024

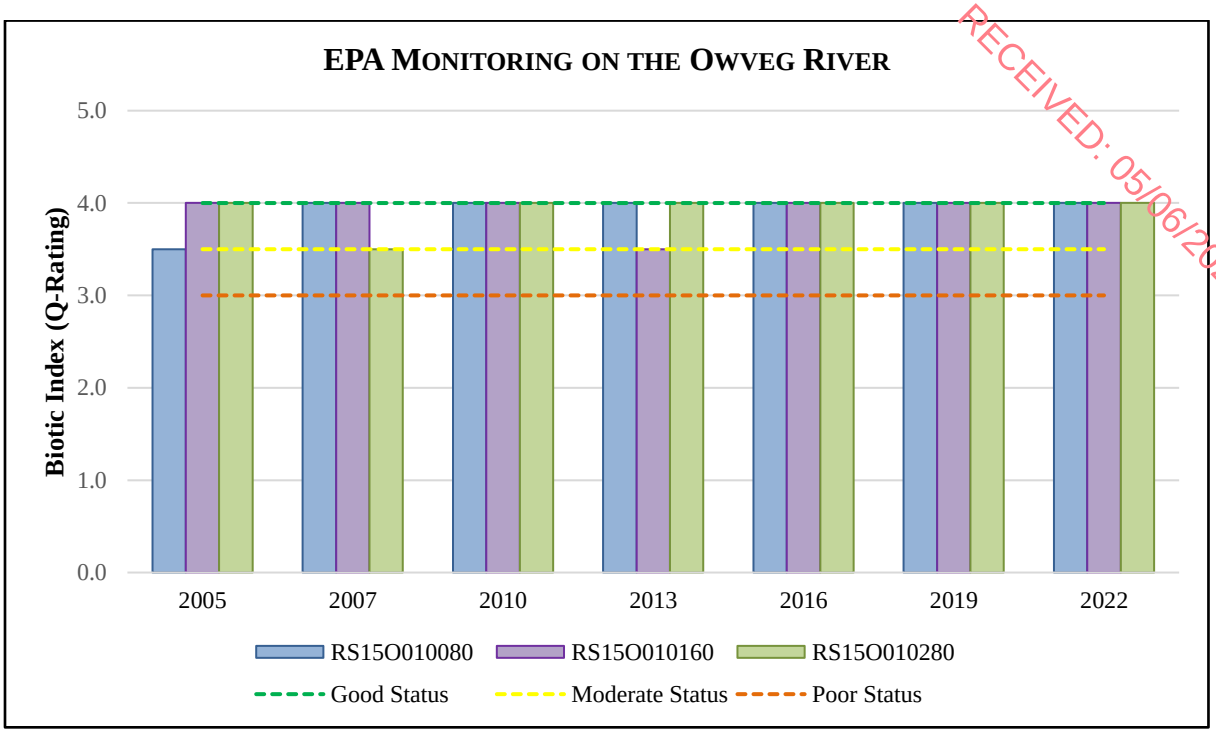


Figure 8.4: EPA Ecological Monitoring of the Owveg River from 2005 – 2022

As can be seen in the figure above, the Owveg at the three monitoring stations has achieved a water quality status ranging between Q3-4 (moderate) to Q4 (good) from 2005 – 2022, with recent monitoring showing a water quality status of Q4 (good).

EPA comments on the most recent monitoring results for the Owveg River are as follows:

"*The Owveg (Nore) is again in Good ecological condition throughout when surveyed in 2022.*"

As per the applicant's EPA Licence, "*There shall be no emissions to water of environmental significance*". The monitoring results mentioned above indicate that the existing farm activities are unlikely to be having an adverse impact upon water quality of the Owveg River. There would be no discharges of soiled water from the site. All soiled water would be diverted to the nearest pig slurry tank. The surface water collected by the current stormwater system should be uncontaminated and therefore have no impact on either the surface or groundwater in the area.

8.5 IMPACTS

8.5.1 DETERMINATION OF ECOLOGICAL VALUE

The ecological value of the habitat types and species identified at the proposed development site has been assessed following the criteria outlined in the National Roads Authority (NRA) guidelines (2009). **Table 8.15** and **Table 8.16** below detail the habitats recorded and potential species, and their associated ecological value.

RECEIVED 05/06/2024

Table 8.14: Ecological Value of Identified Habitats at the Proposed Development

HABITAT TYPE	HABITAT RATING	KEY ECOLOGICAL RECEPTOR?
Amenity grassland (improved) (GA2)	Local importance, lower value	No. Species poor habitat. Low ecological value.
Improved agricultural grassland (GA1)	Local importance, lower value	No. Species poor habitat. Low ecological value.
Dry meadows and grassy verges (GS2))	Local importance, higher value	Yes. Area of semi-natural habitat, comprising mainly of native species. May provide habitat for pollinators and foraging for bats/birds.
Hedgerows (WL1)	Local importance, higher value	Yes. This habitat is a semi-natural habitat and may provide opportunities for bird nesting and foraging for bats, no works are proposed within this area.
Treelines (WL2)	Local importance, higher value	Yes. This habitat is a semi-natural habitat and may provide opportunities for bird nesting and foraging for bats, no works are proposed within this area.
Recolonising bare ground (ED3)	Local importance, lower value	No. Area of disturbed ground with recolonising vegetation. Low ecological value.
Buildings and artificial surfaces (BL3)	Local importance, lower value	No. Comprised of existing buildings and structures and yard areas. Little to no vegetation present. Low ecological value.

RECEIVED: 03/06/2024

Table 8.15: Ecological Value of Species Present / within the Vicinity of the Development

SPECIES	SPECIES RATING	KEY ECOLOGICAL RECEPTOR?
Badger	Local importance, higher value	Yes. While no evidence of badger was recorded within the vicinity of the development site, it is possible that areas of the site are used for foraging.
Otter	Local importance, higher value	No. Not recorded within the vicinity of the development site. Site has limited potential to support this species, given the absence of aquatic habitats onsite, and given that the nearest watercourse, the Owveg River, is located approximately 394m from the site.
Pine Marten	Local importance, higher value	No. No evidence of pine marten was recorded within the vicinity of the development site. No Areas of woodland exist onsite therefor the proposed development would offer limited nesting and foraging grounds.
Bats	Local importance, higher value	Yes. The existing trees and hedgerows could offer suitable roosting and foraging habitat. No works are proposed for these areas.
Other Fauna	Local importance, low to high value	No. Limited sightings / evidence of other fauna. Site has limited potential to support other fauna species.
Breeding Birds	Local importance, higher value	Yes. All birds, their nests, eggs and young are protected under the Wildlife Act.
Aquatic Fauna	Local importance, low to high value	No. Site has limited potential to support aquatic fauna species, given the absence of aquatic habitats onsite, and given that the nearest watercourse, the Owveg River, is located approximately 395m from the site.

8.5.2 CONSTRUCTION PHASE

Designated Sites – SAC and SPA Sites

As discussed in detail in the Natura Impact Statement Report prepared for the project (Ref. No. PES_NIS_10049), and within **Section 8.4.1** above, the European sites considered to be within the potential zone of influence of the proposed development are River Barrow and River Nore SAC

RECEIVED 05/06/2024

(Site Code: 002162), the Lisbigney Bog SAC (Site Code: 000869) and the River Nore SPA (Site Code: 004233), due to hydrological connectivity with the proposed development.

The proposed development does not directly impinge on any part of a European site and as such would not be expected to have any *in-situ* effects upon a protected site through loss or destruction of habitat, fragmentation of habitat, disturbance of habitat or direct reduction in species density or diversity.

The closest protected site to the development is River Barrow and River Nore SAC, located approximately 276m to the south-east. Lisbigney Bog SAC and River Nore SPA are hydrologically connected to the development and are located approximately 4.96km and 5.33km respectively from the development site. Given the presence of designated sites within the vicinity of the development, potential *ex-situ* impacts must also be considered.

It is not considered that the proposed development site would contain the habitats or species for which the River Barrow and River Nore SAC, Lisbigney Bog SAC or River Nore SPA are designated for. Much of the existing habitats have been modified and are of lower ecological value. Approximately 20m of an existing hedge to the west of the new proposed development will be removed. This hedgerow was considered as having low bat roost potential. No evidence of protected mammals were recorded within. The hedgerow may be used by nesting birds. This hedgerow will not be removed during the bird nesting season (1st March and August 31st). There was no evidence of any other fauna or protected fauna within the red line boundary.

Kingfisher is listed as a qualifying interest of the River Nore SPA however, the nearest mapped watercourse is the Owveg [Nore] watercourse located approximately 394m to the east of the proposed development. There are no NBDC records for the special conservation interest for the 2km square (Tetrads – S48W) in which the development is located. While it is noted that the Owveg River is located approximately 394m from the development site, no aquatic habitats of note are present within the development site itself. Therefore, the proposed development would not offer suitable habitat for this species.

The potential disturbance on protected species due to construction noise would not be considered significant, given the transient nature of works, the construction timeframe (6 months) and given the distances between the development site and Lisbigney Bog SAC and River Nore SPA. Although River Barrow and River Nore SAC is 276m at is closest from the proposed development, protected species potentially inhabiting the vicinities of the site would be accustomed to the expected noise environment due to the existing activities currently carried out at the site and on other sites in the vicinity of the development.

The potential disturbance on protected habitats due to dust during the construction phase would not be considered significant, given the transient nature of construction works, the construction timeframe (6 months) and given the distances between the development site and Lisbigney Bog SAC and River Nore SPA. Additionally, it is proposed to adhere to good working practices and standard dust mitigation measures to ensure that the levels of dust generated would be minimal during the construction phase and are unlikely to cause any significant impacts upon River Barrow and River Nore SAC, which is the nearest designated site.

RECEIVED 06/06/2024

Activities as part of the construction of the development would not have the potential to cause a significant impact upon designated sites due to invasive species. There would be no significant import of materials with the potential to contain invasive flora species. Soils excavated during construction works would be stockpiled and re-used for site levelling and site landscaping, therefore no importation of topsoil or subsoil would be required as part of the development works.

The proposed development is located within the Nore Catchment (15) and is potentially hydrologically connected to River Barrow and River Nore SAC and River Nore SPA. Lisbigney Bog SAC, despite being located within the same subcatchment as the proposed site, does not have a direct hydrological connection via surface water and is within a separate groundwater body. Therefore, impacts on water quality due to the proposed development site are not anticipated. Furthermore, it should be noted that the development site is not hydrologically connected to the Ballyprior Grassland SAC, therefore no potential impacts on water quality due to the proposed development site are anticipated upon this site.

During the construction phase of projects, a deterioration in water quality can arise through the release of suspended solids during soil disturbance works, the release of uncured concrete and the release of hydrocarbons (fuels and oils). A deterioration in water quality has the potential to have an adverse impact upon the qualifying interests of the River Barrow and River Nore SAC and River Nore SPA, particularly qualifying interests which have conservation objectives relating to water quality.

Construction works would be approximately six months in duration only. Construction works would be confined to the proposed development footprint, which, at its closest, is located approximately 394m from the nearest watercourse (Owveg river), with no works taking place within or immediately adjacent to riparian or aquatic habitat. With regards to the existing stormwater drainage network, rainwater run-off from roofs and clean yards is directed to stone soakaways (SA1 & SA2) and to surface monitoring point SW1, a percolation area to the north-west. Surface water run-off from the roofs and hardcore areas for the new proposed development will be directed to an existing soakaway in the centre (SA2). All discharged surface water will be clean. Therefore, the risk of the proposed development impacting upon water quality would be greatly reduced.

With regards suspended solids, it is considered that there would be no significant risk upon the water quality of the Owveg River, and thus the River Barrow and River Nore SAC and River Nore SPA, given that excavated soils would be used in site levelling and landscaping activities and therefore would be exposed for a limited period of time only, and given that excavation works would not be located within the immediate vicinity of any watercourses (as discussed above, at least 394m from the nearest watercourse). In the unlikely event suspended solids are entrained in stormwater run-off, the solids would likely be retained onsite as run-off percolates to ground (given the absence of watercourses or drains within the immediate vicinity of the development site).

There would be no significant risk of water quality deterioration as a result of uncured concrete, given that works would not be located within the vicinity of any watercourses (with the nearest

RECEIVED: 05/06/2024

watercourse approximately 394m from the development footprint) and given that surplus concrete would be returned to the batching plant.

It is therefore considered that the proposed development would have a significant impact on designated sites due to a deterioration in water quality, noise, fragmentation of habitat or disturbance to species. General construction mitigation measures will be implemented to prevent a deterioration in water quality during the construction phase.

Designated Sites – Coan Bogs NHA

As noted in **Section 8.4.1**, one NHA site, Coan Bogs NHA (Site Code: 002382), is considered to be within the potential zone of influence of the proposed development site.

The proposed development does not directly impinge on this NHA site and therefore would not be expected to have any *in-situ* effects through loss or destruction of habitat, fragmentation of habitat or disturbance of habitat.

It is not considered that the proposed development has the potential to impact upon this NHA site due to invasive species, given that there would be no significant import of materials with the potential to contain invasive flora species. Soils excavated during construction works would be stockpiled and re-used in site levelling and landscaping, therefore there would be no requirement for importation of topsoil or subsoil.

It is not considered that the proposed development would have the potential to impact upon Coan Bogs NHA due to a potential deterioration in water quality, given that the NHA site is located within a separate subcatchment of the Nore Catchment and therefore is not considered to be a direct hydrological connection to the development.

Habitats and Flora

The construction phase of the development would result in a direct and permanent loss of the existing habitats improved agricultural grassland (GA1) which is a modified and species poor habitat. Therefore, its loss would not be considered significant. The boundary treelines and hedgerows will be retained as well as existing habitats within the existing operating poultry farm to the west. The proposed development footprint is approximately 6,208m^2 in total. Approximately 3,640m^2 of this footprint (approximately 100%%) would be located within the improved agricultural grassland (GA1) habitat.

The proposed development will be accessed via an existing entrance and therefore, will not require any hedgerow or tree removal. The recommended supplemental planting would comprise filling gaps in existing hedgerows and treelines along the site's boundaries with native trees, appropriate to the area.

Following the Landscape and Visual Impact Assessment, it has been recommended that any gaps in the hedgerows, where necessary, be filled with treelines and hedgerows, particularly in the boundary to the south of the existing piggery buildings. The supplemental planting of hedgerows

RECEIVED: 05/06/2024

and treelines, resulting in the protection of hedgerows (WL1) and treelines (WL2) habitats, would be a positive impact upon habitats and flora, particularly if native tree species are incorporated into the planting scheme.

No rare plant species or protected flora under the Flora (Protection) Order 2015, were recorded within the proposed development area. Therefore, the proposed development would not be considered to impact upon any rare or protected flora species.

No protected habitats listed within the River Barrow and River Nore SAC or the Lisbigney Bog Sac were recorded within the red line boundary.

During construction works, there is potential for invasive species to be introduced to the development site through the movement of materials, such as soil and stone and the arrival of construction plant and equipment from an area with invasive species.

Under Regulation 49(2) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to any plant which is included in Part 1 of the Third Schedule shall be guilty of an offence. Materials containing invasive species such as Japanese Knotweed are considered "controlled waste" and, as such, there are legal restrictions on their handling and disposal. Under Regulation 49(7) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), it is a legal requirement to obtain a license to move "vector materials" listed in the Third Schedule, Part 3.

The potential risk of introducing invasive species during the construction phase would be considered low, as no invasive flora species of concern were recorded during the site assessment and given that there would be no significant import of materials with the potential to contain invasive flora species. Soils excavated during construction works would be stockpiled and re-used for site levelling and site landscaping, therefore no importation of topsoil or subsoil would be required as part of the development works. Any stone required would be sourced locally where possible and would be inspected prior to arrival onsite for the presence of invasive species.

The construction works contractor would also ensure that all equipment and plant would be thoroughly washed and inspected prior to arriving to the development site. Therefore, it is considered that there would be no significant risk of introducing invasive species during construction works from importation of materials or the arrival to site of construction plant and equipment.

Dust emissions may arise during construction activities, in particular during earth-moving works, which may have the potential to impact upon photosynthesis, respiration and transpiration processes of flora due to the blocking of leaf stomata. However, given the transient nature of construction works, the construction timeframe (6 months) and standard working practices including dust control, the potential impact to flora would not be considered significant.

RECEIVED: 05/06/2024

The potential impact upon habitats and flora due to a deterioration in water quality is discussed in detail below, while further information on potential impacts on water quality is addressed in **Section 9**.

Fauna and Avifauna

As noted above, approximately 100% of the proposed development footprint would take place within the Improved agricultural grassland (GA1) habitat. This habitat is considered as having been modified and of low ecological value, therefore, the potential impact upon fauna due to habitat loss or habitat fragmentation would be reduced.

Other than the typical hedgerow and garden birds, and trackways observed within a hedgerow to the south-east, no other fauna or evidence of fauna was recorded within the red line boundary of the proposed development. While some trees and hedgerows may offer suitable bat roost potential or foraging/commuting routes, these will not be removed. The proposed development will also be positioned away from the existing trees and hedgerows, therefore it is not considered that there would be any significant impact to birds or bats potentially within the site.

Direct mortality of fauna may occur due to the removal of vegetation at the site, in addition to the use of heavy construction plant and machinery. Mortality of fauna is most likely to occur during the mammal and bird breeding season, when young are at their most vulnerable.

Where possible, scrub and tree removal would not take place during the bird nesting season (1st of March – 31st of August), greatly reducing the potential for mortality. However, it may be necessary to undertake some scrub / tree removal works during the bird nesting season. In such instances, a suitably qualified ecologist would be engaged to carry out inspections for the presence of breeding birds prior to any clearance works taking place. Where nests are present, the ecologist would make a decision as to whether a "Licence to interfere with or destroy the breeding places of any wild animals", is required from the NPWS. Alternatively, the ecologist may establish a suitable buffer zone around an active nest, with removal works rescheduled until chicks have fledged. Where no evidence of nests is found during inspection, hedgerow / tree removal works must be undertaken within three days of inspection.

The proposed development would not offer suitable habitat for the qualifying interests of the River Barrow and River Nore SAC and the Rive Nore SPA given the absence of aquatic habitats.

No protected fauna, or evidence of protected fauna, were noted as present on the development site. There was no evidence of badger, including setts or latrines, or evidence of otter including holts, slides, tracks or spraints. Given the absence of suitable woodlands, it is not considered that the proposed development would offer suitable habitat for Pine Martin. Should protected fauna be present, it is not anticipated that construction works would have a significant impact owing to the extent of the development footprint, the habitat types impacted upon and the short duration of construction works.

RECEIVED: 06/06/2024

In the event a protected species is encountered during construction or vegetation removal works, an officer of the NPWS would be notified prior to the resumption of construction works.

As noted in the "*Habitats and Flora*" section above, it has been recommended as part of the Landscape and Visual Impact Assessment (Section 7) that additional planting be carried out in gaps along existing treelines and hedgerows, particularly to the south of the existing piggery buildings. The planting of a treeline would be a positive impact upon fauna and avifauna, particularly if native tree species are incorporated into the planting scheme.

Construction work has the potential to disturb fauna due to the generation of construction noise. However, construction noise would not be considered to pose a significant risk to fauna owing to the transient nature of works, the construction timeframe (6 months) and given that all vehicles where possible would be equipped with mufflers to suppress noise, as is standard practice. Where possible, no construction works would be conducted outside of normal working hours, therefore there would be no disturbance to nocturnal species.

The potential impact upon fauna due to a deterioration in water quality is discussed in the "*Water and Biodiversity*" section below.

Bats

Construction works have the potential to result in direct and indirect impacts on local populations of bats through habitat loss (vegetation clearance, tree felling) and disturbance (increased lighting) potentially affecting existing foraging areas and commuting routes.

A majority of the existing habitats are considered as having negligible to low bat roost potential. A treeline to the west and east are considered as having low to moderate bat roost potential. Should any hedgerows or trees be removed, they should be re-assessed prior to felling or soft-felled under the supervision of a suitably qualified ecologist.

The majority of bat species utilise linear features, such as hedgerows and treelines and areas of mature vegetation for foraging and commuting. Additionally, supplemental planting, comprising native species along treelines and hedgerows along the site's boundaries, is recommended, which would provide additional wildlife corridors and foraging and commuting habitat.

Artificial lighting during the construction phase has the potential to negatively impact upon bat species, as illumination can impact upon their roosting sites, commuting routes and foraging areas. While some bat species, such as Leisler's bats (*Nyctalus leisleri*), may take advantage of prey concentrating around light sources, other bat species are sensitive to lighting and will avoid artificially lit up areas. This can potentially sever commuting and foraging routes. As noted above, construction works would not be conducted outside of normal working hours where possible, which would considerably reduce the potential impacts upon bat species. Measures with regards artificial lighting, as outlined in **Section 8.6.1**, would be required to be implemented to reduce the potential impact of light pollution.

RECEIVED 05/06/2024

Water Quality and Biodiversity

The construction phase of projects has the potential to impact upon flora and fauna due to a deterioration in water quality. Risks to water quality could arise due to the potential release of suspended solids during soil disturbance works, the release of uncured concrete and the release of hydrocarbons (fuels and oils).

A potential source of chemical contamination of surface water would be from the release of hydrocarbons (oils, fuels) from construction plant and equipment. Hydrocarbons can affect water quality, potentially resulting in toxic and / or de-oxygenating conditions for aquatic flora and fauna. Pollution could occur in a number of ways, such as neglected spillages, the storage handling and transfer of oil and chemicals and refuelling of vehicles.

Another potential source of contamination of surface water would be the release of uncured concrete. In the event of uncured concrete entering a waterbody, the pH would be altered locally, potentially leading to the death of aquatic flora, fish and macroinvertebrates and alteration to the waterbody substrate.

During the operational phase, it is not anticipated that the proposed development would have a significant impact on water quality of protected sites due to the landspreading of wash waters. The spreading of manure would be undertaken in accordance with the setback distances from surface waterbodies and abstraction points specified in the Nitrates Regulations. This would minimise the risk of any pollution occurring, and protected sites being impacted due to the spreading of organic fertilisers. As manure from the development is a replacement for other chemical and organic fertilisers on the current, proposed and any future potential spread lands, it is considered that the impact of manure being used as a fertiliser would have a neutral to no significant additional impact upon the biodiversity of land spreading areas.

Stormwater from the existing farm, comprised of rainwater run-off from roofs and clean yards, is directed to stone soakaways in the centre and south-west of the site (SA1 and SA2) and to a percolation area (SW1) to the north-west. Surface water from the new proposed development will discharge to an existing soakaway in the centre (SA2). All discharged surface water will be clean and uncontaminated, therefore it is not considered that there would e a significant impact on the River Barrow and River Nore SAC or any other designated site due to a deterioration in water quality during the operational phase.

The risk of water quality deterioration as a result of uncured concrete would be further reduced, given that precast concrete / blockwork would be used where possible and surplus concrete would be returned to the batching plant. The proposed development will alter the soil infiltration capacity however, the infiltration capacity of the soil within the surrounding area would still be available. Excavated soils would be used in site levelling and landscaping activities and therefore would be exposed for a limited period of time only.

The qualifying interest of the River Nore SPA, Kingfisher (*Alcedo atthis*) [A229], feeds on various species of small fish and larger aquatic insects. Consequently, an impact on water quality could impact food availability for Kingfisher. During the construction phase of this development, it has

RECEIVED 06/06/2024

been determined that there would be impact upon the qualifying interests of the River Barrow and River Nore SAC and River Nore SPA as the closest mapped watercourse is approximately 394m from the proposed development. According to the Ground Water Data Viewer Eve maps, the proposed development is located within an area of high soil permeability however, an area of low permeability exists between the proposed development and the River Barrow and River Nore SAC. Given the distance, it is unlikely that any potential contaminants during the construction phase would reach the Owveg River. As the permeability of the soil is low to the east, potential contaminants would be likely to be retained in the vicinity of the works.

Precautionary control methods would be implemented by the construction works contractor as standard practice to prevent a deterioration in water quality. These measures are outlined in **Section 8.6.1**, and are further detailed in **Section 9**.

8.5.3 OPERATIONAL PHASE

Designated Sites – SAC and SPA Sites

The potential impacts of the proposed development upon designated sites due to land-take is discussed in **Section 8.5.2**. As the development site does not directly impinge upon any part of a European site, no *in-situ* effects upon designated sites are expected due to loss or destruction of habitat, fragmentation of habitat, disturbance of habitat or direct reduction in species density. The proposed development will be operating within modified habitats (improved agricultural grassland). Approximately 20m of an existing hedgerow between the existing and new proposed development will be removed however, this hedgerow has no links to any protected habitat listed within a Natura 2000 site.

It is not envisaged that protected species would be adversely impacted upon due to noise generated by the proposed development or by noise generated from the associated site traffic, given the nature of the proposed development and the distances to the Lisbigney Bog SAC and River Nore SPA. Although River Barrow and River Nore SAC is 276m at is closest from the proposed development, protected species potentially inhabiting the wider vicinities of the site would be accustomed to the expected noise environment due to the existing activities currently carried out at the site and on other sites in the vicinity of the development.

It is considered that the operational phase of the proposed development would have the potential to significantly impact upon air quality within the area, with the potential to adversely impact upon River Barrow and River Nore SAC, Lisbigney Bog SAC or River Nore SPA as detailed above.

It is not anticipated that the operational phase of the development has the potential to impact upon the listed habitats and species of the River Barrow and River Nore SAC, Lisbigney Bog SAC or River Nore SPA sites due to deleterious effects on water quality given the proposed drainage system.

Only clean stormwater from the site would be directed to stone soakaways in the centre and south-west of the site, which drain to the ground.

RECEIVED: 05/06/2024

There are no process effluent emissions from the site, with all animal manure stored within underground slurry tanks, awaiting collection for landspreading activities. All slurry tanks have been designed to ensure the site has sufficient storage capacity for any manure generated onsite.

It is not considered that the proposed development would have impact either on its own or in combination with other developments with regards to the land spreading of manure / sludges. Pig manure from the development site is currently land spread, and would continue to be land spread, on third party lands in the area. The transport and spreading of the manure would be managed in compliance with the Nitrates Regulations (S.I. No. 113 of 2022), such as complying with the timing of the land spreading, nutrient management planning and set-back distances around sensitive receptors and transport vectors. Additionally, the proposed development does not include an increase in animal stocking numbers at the farm and no alteration to current manure generation at the site is anticipated. Therefore, no cumulative impacts upon water quality due to land spreading would be anticipated.

Designated Sites – Coan Bogs NHA

The closest Natural Heritage Area are the River Nore/Abbeyleix Woods Complex pNHA (Site Code: 002076) located approximately 5.8km to the west and the Lisbigney Bog pNHA (Site Code: 000869) located approximately 4.9km to the south-west. There is no direct hydrological connection between the Lisbigney Bog pNHA and the proposed development however, the River Nore/Abbeyleix Woods Complex is potentially hydrologically connected downstream.

As discussed in section 8.5.2, it is not considered that the proposed development would have the potential to impact upon Coan Bogs NHA due to a potential deterioration in water quality, given that the NHA site is located within a separate subcatchment of the Nore Catchment and therefore is not considered to be a direct hydrological connection to the development.

Potential impacts for these designated sites would be similar to that discussed within section 8.5.2 and section 8.5.3.

In conclusion, it is not considered that the proposed development would have a significant impact on a protected site during the operational or construction phase given the implementation of mitigation measures.

8.5.4 CUMULATIVE IMPACTS

The following plans and projects were reviewed and considered for in-combination effects with the proposed development:

- Laois County Development Plan 2021 - 2027;
- Proposed and permitted developments in the area available on Laois County Council planning system.

RECEIVED 05/06/2024

The proposed development is located in a rural area, with some nearby residential properties located along the local road network. The land use of the area is mainly agricultural pasture, with one-off housing and occasional farmyards. The site is located 3.1km north-east of Ballinakill town centre, 4.9km south-east of Abbeyleix town centre and 15.1km south of Portlaoise. There are few commercial enterprises within the general area, with the exception of agricultural enterprises.

There is one EPA waste licenced facility located within 15km of the development; Enva Ireland Ltd., Waste Licence Ref. No. W0184-02, located approximately 15km to the north-west of the site. There are also a number of EPA IE / IPC licenced facilities located within 15km of the development site, as shown in the table below.

Table 8.16: EPA Licenced Facilities within 15km of the Development

LICENCE NO.	LICENCE NAME	LICENCE TYPE (FIRST SCHEDULE OF EPA ACT, 1992, AS AMENDED)	APPROX. DISTANCE FROM DEVELOPMENT SITE
P0332-01	Randstone Ltd.	n/a	5.0km NE
P0527-01	Flemings' Fireclays Manufacturing Ltd.	13.4.1: Other Activities	8.5km E
P0531-01	Dineen Refractories Ltd.	13.4.2: Other Activities	11.1km E
P0359-03	Tirlán Ltd.	7.2.1: Food and Drink	12.0km SW
P1108-01	Leprino Foods EU Ltd.	7.8 (a) (i): Food and Drink	13.4km N
P0849-01	Michael O'Shea	6.2 (a): Intensive Agriculture	14.4km SE
P1028-01	Glanbia Foods Ireland Ltd.	7.8 (a) (iii): Food and Drink	14.4km N
W0184-02	Enva Ireland Ltd.	11.2 (j): Waste	14.8km NW
P0322-01	Laois Sawmills Ltd	8.3: Wood, Paper, Textiles and Leather	15.0km NE

Potential cumulative impacts are discussed under the following headings.

Habitat Loss / Fragmentation

As discussed previously, the proposed development does not directly impinge on any part of a European site, and as such would not be expected to have any *in-situ* effects upon a protected site through loss or destruction of habitat or fragmentation of habitat. With regards *ex-situ* effects, it is not considered that the proposed development site would contain the habitats or species for which the River Barrow and River Nore SAC, Lisbigney Bog SAC and River Nore SPA have been designated.

The surrounding land-use of the proposed development site is mainly agricultural pastureland, with one-off housing and occasional farmyards, which can be considered modified and of low biodiversity value.

The habitats within the red line boundary are a mix of low and high ecological value. The improved agricultural grassland (GA1) is comprised of the entirety of the construction area and is considered a modified, low ecological value habitat. The loss of this habitat would not have a significant

RECEIVED 05/06/2024

impact on protected fauna. The trees and hedgerows are of higher ecological value. No trees or hedgerows are to be removed as part of this development. The proposed development does not contain protected habitats nor is there a link to protected habitats that could be impacted during vegetation removal works. Any future landscaping will incorporate a mix of native and non-native non-invasive species within its design.

While no proposed developments were identified on the Laois County Council planning site within the immediate vicinity of the applicant's proposed site, should future planning applications be submitted for the area, it is likely that they would also be located on agricultural land. Therefore, there would be no cumulative habitat loss or fragmentation impacts which could pose a significant risk to biodiversity.

Disturbance to Species

Disturbance to species may arise through noise emissions and human activity. The main in-combination noise and human activity effects would be from any commercial activities within the area. However, as noted above, there are few commercial enterprises located within the vicinity of the development site, with the general area around the development site mainly used for agricultural purposes and for some dispersed one-off housing. Therefore, owing to the distances of commercial activities and the EPA licenced facilities detailed in the table above from the development site and given the nature of activities at the proposed development site (internal rearing of pigs), it is considered that there would be no cumulative noise impacts, or other disturbance effects due to human activity, which would have the potential to adversely impact upon fauna in the area.

Air Quality

The main cumulative impacts of the proposed development with regards air emissions upon biodiversity would be the potential generation of ammonia emissions to air from agricultural activities during the operational phase. In particular, ammonia emissions have the potential to adversely impact upon peatland habitats, by inhibiting the growth of certain moss species, allowing grass and sedge species to outcompete. Ammonia emissions within the general area would be mainly associated with intensive agricultural facilities. The nearest EPA licenced intensive agricultural installation to the farm site (P0849-01) which could act in combination to generate cumulative impacts with the proposed development (i.e. ammonia emissions) is located approximately 14.4km.

A predictive odour, ammonia and depositional nitrogen impact assessment of the existing farm and proposed extension to pig production facility was carried out by Katestone Environmental Pty Ltd. Predicted Annual average max Ground level NH_3 concentration for Proposed Pig Production Facility ($\mu g/m^3$) was measured for the following Natura 2000 sites:

RECEIVED: 05/06/2024

NATURA 2000 SITE	Predicted Annual average max Ground level NH_3 conc. for Existing Pig Production Facility ($\mu g/m^3$)	Nitrogen deposition flux (kg ha^{-1} yr^{-1})	Nitrogen deposition critical load (kg ha^{-1} yr^{-1})
River Barrow and River Nore SAC	0.05	0.5	30.0
Lisbigney Bog SAC	0.03	0.3	15.0
Max predicted value	**0.005**	**0.5**	**30.0**
Critical level	**3.0**	**-**	**-**

As can be seen in the table above, the process contributions (PC) from the existing farm fall below the 20% threshold level defined in Step 5 EPA's Ammonia and Nitrogen Assessment Guidance at all ecologically sensitive receptor locations modelled on the River Barrow and Nore SAC and on the Lisbigney Bog SAC. There will be no increase in animal stocking numbers as per the proposed development. Therefore, it is not anticipated an increase in ammonia and nitrogen emissions arising from activities carried out at the farm that could impact ecologically sensitive locations upon completion of the development.

At 20% of the nitrogen deposition critical load, the process contribution limits for each site would be 6 or 3 kg ha^{-1} yr^{-1}. The nitrogen deposition process contributions (PC) for the proposed farm extension would comply with these limits at each site.

Therefore, no significant cumulative impact upon habitats is anticipated, given that there are few The report has concluded that:

- *The impacts of the proposed pig farm in isolation are under EPA limits and therefore complies with the Step 4 evaluation criteria at all modelled locations on the Nore River SPA.*
- *The cumulative impacts of the proposed pig farm with background IAIs are under EPA limits and therefore complies with the Step 5 evaluation criteria at all modelled locations on River Barrow and River Nore SAC and Lisbigney Bog SAC.*

There would be no significant additional impact to the River Barrow and River Nore SAC, Lisbigney Bog SAC or the River Nore SPA as a result of Nitrogen Deposition from the farm.

Furthermore, the proposed development has incorporated design measures which limit the potential for the generation of ammonia emissions to atmosphere. These design measures include the depth of manure holding pits, ventilation design and surface area of manure exposed beneath the slats.

RECEIVED: 05/09/2024

Deterioration in Water Quality

Continued implementation of the Water Framework Directive would result in achieving, or maintaining, improvements to water quality in the Nore Catchment. Developments such as this proposed development could act in combination with existing environmental pressures on the Nore Catchment, including: agriculture, anthropogenic, domestic and urban waste water, urban run-off, industry (including extractive) and forestry. In particular, the proposed development could act in combination with other similar projects which are hydrologically connected with the Owveg River or River Nore.

The proposed development could act in combination with other developments with regards to the landspreading of manure / sludges. As discussed in **Section 8.5.3**, "*Water Quality and Biodiversity*", pig manure from the development site is currently landspread and would likely continue to be landspread, on third party lands in the area. The landspreading of manure is undertaken in accordance with the Nitrates Regulations, such as complying with the timing of the landspreading, nutrient management planning and set-back distances around sensitive receptors and transport vectors. At least three of the facilities (Randstone Ltd., Tirlán Ltd. in Ballyragget, Mr. Michael O'Shea) in **Table 8.17** above generate sludges from wastewater treatment or pig manure, with the sludges / manure landspread by farmers or contractors. However, the landspread of these sludges / manure would be required to be undertaken in compliance with the Nitrates Regulations. Additionally, the proposed development does not include an increase in animal stocking numbers at the farm and no alteration to current manure generation at the site is anticipated. Therefore, no cumulative impacts upon water quality due to landspreading would be anticipated.

8.5.5 "DO-NOTHING" SCENARIO

Should the development not be built, there would be no change to the environmental impacts of the existing site. The proposed development footprint would likely remain as buildings and artificial surfaces habitat with improved agricultural grassland (GA1) while the recolonising bare ground (ED3) area would potentially transition into grassland habitat. The grassland is a modified habitat. It is assumed that the hedgerows and tree would remain but would be managed. Therefore, given the current use of the development site and ongoing activities, it is unlikely that the proposed site would be of significant ecological value in the future.

8.5.6 POTENTIAL IMPACTS PRE-MITIGATION

Table 8.18 below provides a summary of the potential impacts of the proposed development pre-mitigation, during the construction and operational phases.

RECEIVED: 05/06/2024

Table 8.17: Summary of Predicted Impacts Pre-Mitigation

IMPACT	DEVELOPMENT PHASE	DIRECT / INDIRECT	LIKELIHOOD	DURATION	REVERSIBLE	SIGNIFICANCE	IMPACT TYPE
Habitat Loss	Construction & Operational	Direct	Certain	Permanent	No	Slight to Moderate significance	Negative
Introduction of Invasive Flora Species	Construction	Direct	Unlikely	Temporary	Yes	Slight significance	Negative
Fauna Disturbance	Construction	Indirect	Possible	Temporary	Yes	Slight significance	Negative
	Operational	Indirect	Unlikely	Permanent	Yes	Not significant	Neutral
Fauna Mortality (bird nesting)	Construction	Direct	Possible	Permanent	No	Moderate significance	Negative
Bats – Disturbance / Severance of Habitat	Construction	Direct & Indirect	Possible	Temporary	Yes	Slight significance	Negative
	Operational	Indirect	Unlikely	Permanent	Yes	Not significant	Neutral
Surface Water Quality Deterioration	Construction	Indirect	Possible	Temporary	Yes	Slight significance	Negative
	Operational	Direct	Unlikely	Permanent	Yes	Not significant	Neutral
Designated Sites (air quality)	Construction & Operational	Indirect	Possible	Temporary	No	Moderate significance	Negative

RECEIVED: 09/09/2024

8.6 MITIGATION MEASURES

8.6.1 CONSTRUCTION PHASE

The mitigation measures outlined below would be implemented to ensure there is no significant impact upon the biodiversity of the area and designated sites during the construction phase of the development.

General Mitigation Measures

- All construction works would be confined as far as possible to the development footprint;
- All plant machinery and equipment would be maintained in good working order and regularly inspected;
- Where possible, no construction works would be conducted outside of normal working hours.

Habitats and Flora

- Regular site inspections would be undertaken to ensure that no growth of invasive species has taken place;
- Any imported materials would be screened for invasives;
- Supplementary planting of additional linear features such as trees and hedgerows comprised of native and non-native non-invasive species (section 7);
- The construction works contractor would take cognisance of the NRA's document "*Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes*", 2006. In particular, the construction works contractor would take cognisance of the guidelines with regards swales, sewage systems and drainage network and the determination of the root protection area of any existing trees to be retained;
- The construction works contractor would ensure that all equipment and plant is inspected for the presence of invasive species and thoroughly washed prior to arriving to the development site;
- All relevant construction personnel would be trained in invasive flora species (main species of concern, including Japanese Knotweed) identification and control measures;
- In the event of any invasive species listed in Part 1 of the Third Schedule appearing onsite, works within the immediate vicinity would cease until the invasive plant has been appropriately treated and disposed of, in accordance with Regulation 49 of the European Communities (Birds and Natural Habitats) Regulations 2011;
- Cognisance would be taken of National Roads Authority's Guidelines on "*The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*";

- Excavated soil during earth-moving activities and excavations would be segregated into subsoil and topsoil and reused in reinstatement and landscaping activities where possible. Natural recolonisation would be allowed to take place where possible;

RECEIVED: 05/06/2024

Fauna (excluding bats)

- As a minimum, the construction work contractor would comply with all legislative provisions relating to scrub / tree removal and the protection of birds and would have regard to reducing impacts on nesting birds;
- In instances where scrub / tree removal is required during the bird nesting season (1st of March – 31st August inclusive), the trees required for removal would be inspected by a suitably qualified ecologist prior to any removal works for the presence of breeding birds. Where nests are present, the ecologist would make a decision as to whether a "Licence to interfere with or destroy the breeding places of any wild animals", is required from the NPWS. Alternatively, the ecologist may establish a suitable buffer zone around an active nest, with removal works rescheduled until chicks have fledged. Where no evidence of nests is found during inspection, hedgerow / tree removal works must be undertaken within three days of inspection;
- Control measures should be put in place with regard to Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes (NRA 2006).
- The building site should be made safe for mammals with hazards such as open holes/excavations covered over or fitted with ramps to allow for escape. Guidelines on what to do for both active and inactive setts must be followed, if a badger sett is found during site clearance works:
- Should a protected fauna species such as badger or the common frog be found during the construction phase of the project, an officer of the NPWS would be notified prior to the resumption of construction works;
- Existing habitats along the site's boundaries would be protected via the supplemental planting of hedgerows and treelines using native species, as recommended in the Landscape and Visual Assessment in Section 7.
- To reduce the potential for disturbance due to noise, all plant and machinery would be maintained in good working order and regularly inspected, where possible vehicles would be equipped with mufflers to suppress noise and where possible, no construction works would be conducted outside of normal working hours.
- Should any hedgerows or trees be removed, they should be re-assessed prior to felling or soft-felled under the supervision of a suitably qualified ecologist.

Bats

- Construction works in the hours of darkness, when bats are active (April – October), would be kept to a minimum;
- Lighting of hedgerows / treelines and woodland would be avoided where possible to ensure that potential commuting and foraging corridors are maintained;

RECEIVED: 05/09/2024

- Should lighting be required during construction works, it would be of a low height (without compromising safe working conditions) to ensure minimal light spill. Where possible and where practicable to do so, timers or motion sensors would be used;
- Directional lighting would be used where possible, by use of louvres or shields fitted to the lighting;
- White light emitting diode (LED) would be used where possible, which is considered to be low impact in comparison to other lighting types.
- The planting of substantial landscape features integrated to the wider network of green corridors such as hedgerows, woodland and scrub, preferably native species;
- If bat activity has not been determined then felling of moderate roost potential trees should be only undertaken in the period late August to late October/early November.
- Felled trees should be left for 48 hours, to allow for any potential bats to escape.
- Dark buffer zones can be used to separate habitats or features from lighting by forming a dark perimeter around them;

Water Quality

As noted in **Section 8.5.2**, no adverse impacts upon water quality are anticipated. However, the following mitigation measures would be implemented by the construction works contractor as standard practice:

- The construction works contractor would adhere to standard construction best practice, taking cognisance of the Construction Industry Research and Information Association (CIRIA) guidelines "*Control of Water Pollution from Construction Sites; guidance for consultants and contractors*" 2001, "*Control of Water Pollution from Construction Sites – Guide to Good Practice*", 2002, and the 2016 guidelines published Inland Fisheries Ireland, "*Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters*";
- Excavations and earth-moving activities would be planned outside periods of heavy rainfall, to limit the potential for suspended solids to become entrained within surface water run-off;
- Where spoil from earth-moving activities is generated, this would be stored at a designated area of the development site. Spoil would be stored temporarily (until used in landscaping or transported offsite by licenced haulier), and where possible would be covered or, alternatively, graded to avoid ponding or water saturation. Where required, silt fencing would be placed adjacent the storage area for stockpiled soil;
- Should water be encountered during excavation works, water would be pumped to a constructed silt control feature, such as a settlement pond. A filter would be provided at the pump inlet and, where required, dewatering bags or silt fences would be used at the outlet to retain any potential silt entrained in the water. Pumping operations would be supervised at all times;
- All construction plant machinery and equipment would be maintained in good working order and regularly inspected. Where construction plant shows signs of hydrocarbon

leakage, site personnel would cease the operation of the item in question. Any defective plant would be kept out of service until the necessary repairs are undertaken;

- A temporary site compound would be established by the construction works contractor, which would be used for the storage of all machinery and plant when not in use, the re-fuelling of plant and the storage of all associated oils and fuels for plant. The temporary site compound would be located within the agricultural field in the northern section of the development site;
- Any fuels, oils or chemicals, including waste fuel, oil or chemicals, would be stored in accordance with the EPA guidance on the storage of materials, in designated bunded areas at the temporary site compound, with adequate bund provision to contain 110% of the largest drum volume or 25% of the total volume of containers;
- The designated area for the storage of hydrocarbons / chemicals would be inspected on a regular basis;
- Where appropriate, small construction plant equipment would be placed on drip trays;
- Fuels / oils would be handled and stored with care to avoid spillage or leakage;
- Spill kits, adequately stocked with spill clean-up materials such as booms and absorbent pads, would be readily available onsite. In the unlikely event of a hydrocarbon spillage, contaminated spill clean-up material would be properly disposed of to an authorised waste contractor;
- Where re-fuelling of construction plant is required to take place onsite, re-fuelling would be undertaken within a bunded area, within the temporary site compound;
- Pre-cast concrete would be used over uncured concrete where possible. Any uncured concrete works would be supervised at all times, and would be scheduled outside of periods of expected heavy rainfall;
- Concrete would be poured directly into the shuttered formwork from the Ready Mix Truck, reducing the risk of spillage;
- The wash-out of Ready-Mix Truck drums would not be permitted onsite, in the environs of the site, or at a location which could result in a discharge to surface water;
- Surplus uncured concrete would be returned to the batching plant where possible;
- An impermeable concrete washout area would be installed, if required, by the construction works contractor at the temporary site compound. Excess uncured concrete not returned to the batching plant, in addition to chute washings, would be deposited in the designated concrete washout area. The construction works contractor would arrange for the removal of concrete from this area at regular intervals during the construction phase;
- It is not envisaged that vehicle wheel wash facilities would be required. However, in particularly dry weather, additional dust control measures may be required, including the provision of a wheel wash facility. Should a wheel wash facility be required, it would be located away from any drainage system within the proposed development site and the associated run-off would be collected via a settling pond;

RECEIVED: 05/06/2024

8.6.2 OPERATIONAL PHASE

RECEIVED: 05/04/2024

The following mitigation measures would be implemented to ensure there would be no significant impact upon the biodiversity of the area and designated sites during the operational phase of the development;

- Good housekeeping practices would be observed throughout the site during the operational phase;
- The existing facility has a documented Environmental Management System, which would be updated to incorporate the proposed development;
- Native flora species would be incorporated in the landscaping of the site as much as possible;
- Rodent populations on the farm would be controlled by a combination of rodenticide (managed by the applicant as per their rodent control programme), high spec buildings, good housekeeping and well-designed storage and dispensing of feed.
- Stormwater from the site, comprised of rainwater run-off from roofs, is directed to stone soakaways in the centre and south-west of the site. There is one surface water monitoring point located on this system, SW1. In accordance with the site's Industrial Emissions Licence, surface water is visually inspected weekly at SW1 and sampled quarterly;
- Surface water run-off from the yard area is directed to existing slurry tanks and will not mix with clean stormwater from roofs;
- The site would not propose to store any significant volumes of chemicals or materials, which could pose a significant spill risk to the aquatic environment;
- The site would ensure that any fuels, oils or chemicals would be stored in accordance with the EPA guidance on the storage of materials, in designated, bunded areas, with adequate bund provision to contain 110% of the largest drum volume or 25% of the total volume of containers;
- The site would ensure that an adequate supply of spill clean-up material is readily available, in the event of any spillages onsite;
- Litter would be removed directly from the house floor in a covered trailer after the removal of each batch. Removal and transport of litter should be avoided during heavy rain;
- In order to minimise any potential emissions, the operation and management of the farm will be operating within the guidelines outlined in the Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry and Pigs (2017);
- The operation of the farm will be in accordance with the Nitrates Regulations S.I. 113 of 2022.

As detailed within the Odour Impact Assessment (Document Ref: DK21007-6) and Ammonia Impact Assessment (Document Ref: DK21007-7) prepared by Katestone, the following design and mitigation measures have been proposed for the farm extension:

- Manipulation of dietary protein and supplements;

- The use of reduced manure volume pit;
- Alteration of manure storage practices at eleven (11) of the thirteen (13) existing housing units at the site, which will be changed from deep pit storage tanks to shallow pit storage tanks ;
- Alteration of ventilation points on some of the current pig housing units (increase height of some of the chimney stacks).

RECEIVED: 05/06/2024

As noted in **Section 8.5.3**, no adverse impacts upon water quality are anticipated during the operational phase. However, the following measures in relation to the protection of water quality would be implemented by the applicant as a matter of good environmental management at the site and in accordance with the site's Industrial Emissions Licence:

- The site would ensure that any fuels, oils or chemicals would be stored in accordance with the EPA guidance on the storage of materials, in designated, bunded areas, with adequate bund provision to contain 110% of the largest drum volume or 25% of the total volume of containers;
- The site would ensure that an adequate supply of spill clean-up material is readily available, in the event of any spillages onsite;
- Surface water monitoring would continue to be undertaken on a quarterly basis for COD or BOD, and the stormwater inspection chamber would continue to be inspected on a weekly basis;

8.6.3 "WORST CASE SCENARIO"

If the proposed development proceeded without the mitigation measures outlined in **Section 8.6.1**, there would be no potential impact upon bat species due to the removal of the grassland habitat. No trees or hedgerows are to be removed. There would be a slight to moderate impact in terms of lighting during the construction phase. In the absence of mitigation measures, there would be a slight impact upon fauna due to habitat loss. There would also be a potential moderate impact upon fauna, should vegetation clearance be undertaken during the mammal and bird breeding season. However, this is unlikely to occur, given that there are legal restrictions under the Wildlife Act 1976 as amended, with regards the removal of vegetation from uncultivated land.

During construction works, there would be potential to inadvertently introduce invasive species to the area. However, even in the absence of mitigation measures, this would be considered unlikely given that there would be no significant import of materials to the site and given that delivery of materials would be inspected prior to removal from the site of origin. Where invasive species are confirmed, the loads would be required to be adequately treated or disposed of appropriately and therefore, would not be transported to the proposed development site. Also, the proposed development is not located in very close proximity to a designated site with no vector for invasive species to spread.

RECEIVED: 05/06/2024

8.7 RESIDUAL IMPACTS

Table 8.18: Summary of Residual Impacts Post-Mitigation

IMPACT	DEVELOPMENT PHASE	SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL SIGNIFICANCE	RESIDUAL IMPACT TYPE
Habitat Loss	Construction & Operational	Slight significance	• Excavated soils would be segregated into subsoil and topsoil, and reused in reinstatement and landscaping works. Where possible, natural recolonisation would be allowed to take place • Replacement habitat would be created via the planting of a new hedgerow, approximately 250m in length, along the northern site boundary, comprised of native species • The planting of a treeline to the south of the existing piggery facilities, as recommended in Section 7 Landscape & Visual, should incorporate native tree species.	Slight significance	Neutral
Introduction of Invasive Flora Species	Construction	Slight significance	• Construction plant would be inspected and washed prior to arriving onsite; • Regular site inspections for the presence of invasive species would be undertaken • Should invasive species appear onsite, works would immediately cease until the plant was appropriately treated and disposed of	Not significant	Neutral
Fauna Disturbance	Construction	Slight significance	• Where possible, no construction works would be conducted outside of normal working hours • All plant machinery and equipment would be maintained in good working order and regularly inspected	Slight significance	Minor Negative

RECEIVED: 05/06/2024

IMPACT	DEVELOPMENT PHASE	SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL SIGNIFICANCE	RESIDUAL IMPACT TYPE
			• Where possible, vehicles would be equipped with mufflers to suppress noise • As a minimum, the construction work contractor would comply with all legislative provisions relating to scrub / tree removal • Should a protected fauna species be found during the construction phase, the NPWS would be notified prior to the resumption of construction works		
	Operational	Not significant	None required	Not significant	Neutral
Fauna Mortality	Construction	Moderate significance	• As a minimum, the construction work contractor would comply with all legislative provisions relating to scrub / tree removal • Where scrub / tree removal works are required during the bird nesting season (1st March to 31st August), the sections / trees for removal would be inspected by an ecologist for the presence of breeding birds. Where nests are present, a decision would be made as to whether a licence is required from the NPWS, or whether a suitable buffer zone could be established around the active nest with removal works rescheduled until chicks have fledged	Slight significance	Minor Negative
Bats – Disturbance / Severance of Habitat	Construction	Slight Significance	• Lights would be angles away from trees and hedgerows • Construction works would be carried out during daylight hours • Measures would be implemented to reduce the potential for light pollution	Not significant	Neutral

RECEIVED: 05/06/2024

IMPACT	DEVELOPMENT PHASE	SIGNIFICANCE	MITIGATION MEASURES	RESIDUAL SIGNIFICANCE	RESIDUAL IMPACT TYPE
			• Construction works in the hours of darkness would be kept to a minimum • No removal of existing trees or hedgerows proposed.		
	Operational	Not significant	None required	Not significant	Neutral
Surface Water Quality Deterioration	Construction	Not significant	• None required, however standard construction measures have been included within **Section 8.6.1** which would be implemented as is standard best practice in the construction industry.	Not significant	Neutral
	Operational	Not significant	• None required, however measures have been included with **Section 8.6.2** which would be implemented by the applicant as a matter of good environmental management at the site and in accordance with the site's Industrial Emissions Licence.	Not significant	Neutral
Designated Sites	Construction & Operational	Moderate significance	• Design elements for the minimisation of potential air quality impacts to protected sites have been incorporated into the design of the proposed buildings, and the management of the existing farm. This is comprised of implementing Best Available Technique slurry management practices for this farm.	Not significant	Neutral

8.8 REFERENCES

RECEIVED: 05/06/2024

Averis, B. (2013) *Plants and Habitats: An introduction to common plants and their habitats in Britain and Ireland*. United Kingdom: Swallowtail Print Ltd.

Bat Conservation Ireland (2010) *Bats & Lighting: Guidance Notes for Planners, Engineers, Architects and Developers*.

Bat Conservation Trust (2018) *Bats and artificial lighting in the UK. Bats and the Built Environment series. Guidance Note 08/18.*

Bibby, C., Jones, M. and Marsden, S. (2000) "Expedition Field Techniques: Bird Surveys".

Botanical Society of Britain and Ireland flora distribution maps, available at: https://bsbi.org/maps

Byrne, A., Moorkens, E.A., Anderson, R., Killeen, I.J. & Regan, E.C. (2009) *Ireland Red List No. 2 – Non Marine Molluscs*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

Chartered Institute of Ecology and Environmental Management (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland*.

CIRIA (2002) *Control of Water Pollution from Construction Sites – Guide to Good Practice.*

CIRIA (2001) *Control of Water Pollution from Construction Sites; guidance for consultants and contractors*.

Colhoun, K. and Cummins, S. (2013) Birds of Conservation Concern in Ireland 2014-2019, *Irish Birds*, 9, pp. 523-544.

Collins, J. (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn.). The Bat Conservation Trust.

Council Directive (EC) 2009/147/EC of 30 November 2009 on the conservation of wild birds.

Council Directive (EC) 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

Council Directive (EC) 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy – more commonly known as the Water Framework Directive.

Curtis, T.G.F. and McGough, H.N. (1988) *The Irish Red Data Book 1 Vascular Plants*. Wildlife Service Ireland.

Department of Housing, Local Government and Heritage (2024) *National Biodiversity Action Plan 2023-2030*.

Devlin, Z. (2014) *Wildflowers of Ireland: A Field Guide*. Cork: Collins Press.

RECEIVED: 05/06/2024

DoEHLG (2010) *Freshwater Pearl Mussel Strategic Environmental Assessment*. Department of the Environment, Heritage and Local Government.

DoEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*.

Environment DG, European Commission (2021) *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*.

Environmental Protection Agency (2022) *Guidelines on the information to be contained in Environmental Impact Assessment Reports*.

Environmental Protection Agency (2015) Draft. *Advice Notes for Preparing Environmental Impact Statements*.

Environmental Protection Agency Licence public access information, Available at: http://www.epa.ie/licensing/iedipcse/

Environmental Protection Agency Unified GIS Application, Available at: https://gis.epa.ie/EPAMaps/

European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009), as amended.

Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. Kilkenny: The Heritage Council.

Gregory, R.D., Gibbons, D.W. and Donald, P.F. (2004) Bird census and survey techniques. *Bird Ecology and Conservation*, pp.17-56. United States: Oxford University Press.

Hundt, L. (2012) *Bat Surveys: Good Practice Guidelines, 2nd edition*. Bat Conservation Trust.

Inland Fisheries Ireland (2016). *Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters.*

Johnson, O. and More, D. (2006) *Collins Tree Guide: The Most Complete Field Guide to the Trees of Britain and Europe.* London: HarperCollins Publishers.

Kelleher, C. and Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. *Irish Wildlife Manuals*, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

King, J.L., Marnell, F., Kingston, N., Rosell, R., Boylan, P., Caffrey, J.M., FitzPatrick, Ú., Gargan, P.G., Kelly, F.L., O'Grady, M.F., Poole, R., Roche, W.K. and Cassidy, D. (2011). *Ireland Red List No. 5: Amphibians, Reptiles and Freshwater Fish*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Lockhart, N., Hodgetts, N. & Holyoak, D. (2012) *Ireland Red List No.8: Bryophytes*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Marnell, F., Kingston, N. and Looney, D. (2009). *Ireland Red List No. 3: Terrestrial Mammals*, National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

Matson, R., Delanty, K., Gordon, P., O'Briain, R., Garland, D., Cierpal, D., Connor, L., Corcoran, W., Coyne, J., McLoone, P., Morrisey-McCaffrey, E., Brett, T., Ní Dhonnabhain, T. and Kelly, F.L., (2018) *Sampling Fish in Rivers 2017 – Ballintotty & Ollatrim, Factsheet No. 17*. National Research Survey Programme. Inland Fisheries Ireland.

Midland Regional Authority (2010) *Regional Planning Guidelines for the Midland Region 2010-2022*.

Moorkens, E. A. (2000). Conservation management of the freshwater pearl mussel *Margaritifera margaritifera*. Part 2: Water Quality Requirements. *Irish Wildlife Manuals,* No. 9. Dúchas, the Heritage Service, Dublin.

Moorkens, E. A. (1999). Conservation management of the freshwater pearl mussel *Margaritifera margaritifera*. Part 1: Biology of the species and its present situation in Ireland. *Irish Wildlife Manuals,* No. 8. Dúchas, the Heritage Service, Dublin.

National Parks & Wildlife Service, Available at: http://www.npws.ie/protected-sites

National Roads Authority (2010) *The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads.*

National Roads Authority (2009) *Guidelines for Assessment of Ecological Impacts of National Road Schemes.*

National Roads Authority (2009) *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*.

National Roads Authority (2006a) *Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes.*

National Roads Authority (2006b) *Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes.*

National Roads Authority (2006c) *Guidelines for the Treatment of Bats during the Construction of National Road Schemes.*

National Roads Authority (2006d) *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes.*

NPWS (2019a) *The Status of Protected EU Habitats and Species in Ireland*. Volume 1: Summary Overview Unpublished Report, National Parks and Wildlife Services, Department of Culture, Heritage and the Gaeltacht.

RECEIVED: 05/06/2024

NPWS (2019b) *The Status of EU Protected Habitats and Species in Ireland.* Volume 2: Habitats Assessments. Unpublished report. National Parks and Wildlife Services, Department of Culture, Heritage and the Gaeltacht.

NPWS (2019c) *The Status of EU Protected Habitats and Species in Ireland.* Volume 3: Species Assessments. Unpublished report. National Parks and Wildlife Services, Department of Culture, Heritage and the Gaeltacht.

NPWS (2011) *Conservation Objectives: River Barrow and River Nore SAC 002162*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2022) *Conservation Objectives: River Nore SPA 004233*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2021) *Conservation Objectives: Lisbigney Bog SAC 000869*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2020) Natura Standard Data Form for River Barrow and River Nore SAC.

NPWS (2020) Natura Standard Data Form for River Nore SPA.

NPWS (2018) Natura Standard Data Form for Lisbigney Bog SAC.

NPWS (2016) *Site Synopsis: River Barrow and River Nore SAC 002162.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2011) *Site Synopsis: River Nore SPA 004233.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013) *Site Synopsis: Lisbigney Bog SAC 000869.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Parnell, J. and Curtis, T. (2012) *Webb's An Irish Flora*. Cork: Cork University Press.

Regan, E.C., Nelson, B., Aldwell, B., Bertrand, C., Bond, K., Harding, J., Nash, D., Nixon, D., & Wilson, C.J. (2010) *Ireland Red List No. 4 – Butterflies*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Ireland.

Reynolds, J.D. (1998) Conservation management of the white-clawed crayfish, Austropotamobius pallipes. Part 1. *Irish Wildlife Manuals*, No. 1. National Parks and Wildlife Service.

Rose, F. (2006) *The Wildflower Key: How to identify wild flowers, trees and shrubs in Britain and Ireland*. China: Frederick Warne & Co.

Smith, G.F., O'Donoghue, P., O'Hora, K. and Delaney, E. (2011) *Best Practice Guidance for habitat survey and mapping*. The Heritage Council, Kilkenny. Available at: www.heritagecouncil.ie/wildlife/publications/

Strachan, R. (2010) *The Mammal Detective*. Cambridge: Whittet Books Ltd.

RECEIVED: 05/06/2024

Sutherland, W.J. (Ed.). (2006) *Ecological Census Techniques*. United Kingdom: Cambridge University Press.

Laois County Council (2022) Laois County Development Plan 2021-2027. Available at: https://laois.ie/departments/planning/review-of-laois-county-development-plan-2017-2023-2/

Wheater, C.P., Bell, J.R. and Cook, P.A. (2011) *Practical Field Ecology: A Project Guide.* John Wiley & Sons.

Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) *Ireland Red List No. 10: Vascular Plants*. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.

RECEIVED: 05/06/2024

9.0 LAND – SOILS, GEOLOGY AND HYDROLOGY

RECEIVED: 05/08/2024

9.1 INTRODUCTION

This chapter describes the soils, geology, hydrology and hydrogeology of the existing environment surrounding the site for the proposed extension to an existing piggery and all ancillary site works and services. The objective of this chapter is to determine the likely significant impacts on the soils, geology, hydrology and hydrogeology of the area arising from the proposed development and to propose measures to mitigate these impacts, if required.

This chapter has been prepared in accordance with guidelines from the Environmental Protection Agency (EPA) and the Institute of Geologists of Ireland (IGI):

- EPA (2002). *Guidelines on Information to be contained in Environmental Impact Statements.*
- EPA (2022). *Guidelines on the Information to be contained in Environmental Impact Assessment Reports.*
- IGI (2013). *Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements.*

A detailed description of the existing and proposed development is outlined in **Section 2** of this EIAR.

9.2 METHODOLOGY

The following works were undertaken to complete the assessment of the potential effects on soils, geology, hydrology and hydrogeology:

- Desk study to collate and examine available existing information on soils, geology, hydrology and hydrogeology for the proposed development site and surrounding area;
- Review of information for the proposed development with particular regard to proposed soil/subsoil excavations;
- Review of information for the management of water, stormwater and water usage;
- Interpretation of all data, assessment and reporting.

9.3 DESCRIPTION OF THE EXISTING ENVIRONMENT

This section describes the existing baseline environment in terms of the soils, geology, hydrology and hydrogeology of the proposed development site and the surrounding area. Based on this information, the potential impacts of the proposed development are identified, as are the measures required to mitigate any identified negative impacts.

9.3.1 LAND & SOILS

RECEIVED: 05/06/2024

SUBSOILS:

The subsoils beneath the proposed site are mapped as limestone sands and gravels (Carboniferous). This subsoil type is the dominant subsoil type in the immediate surrounding area see **Figure 9.1**.

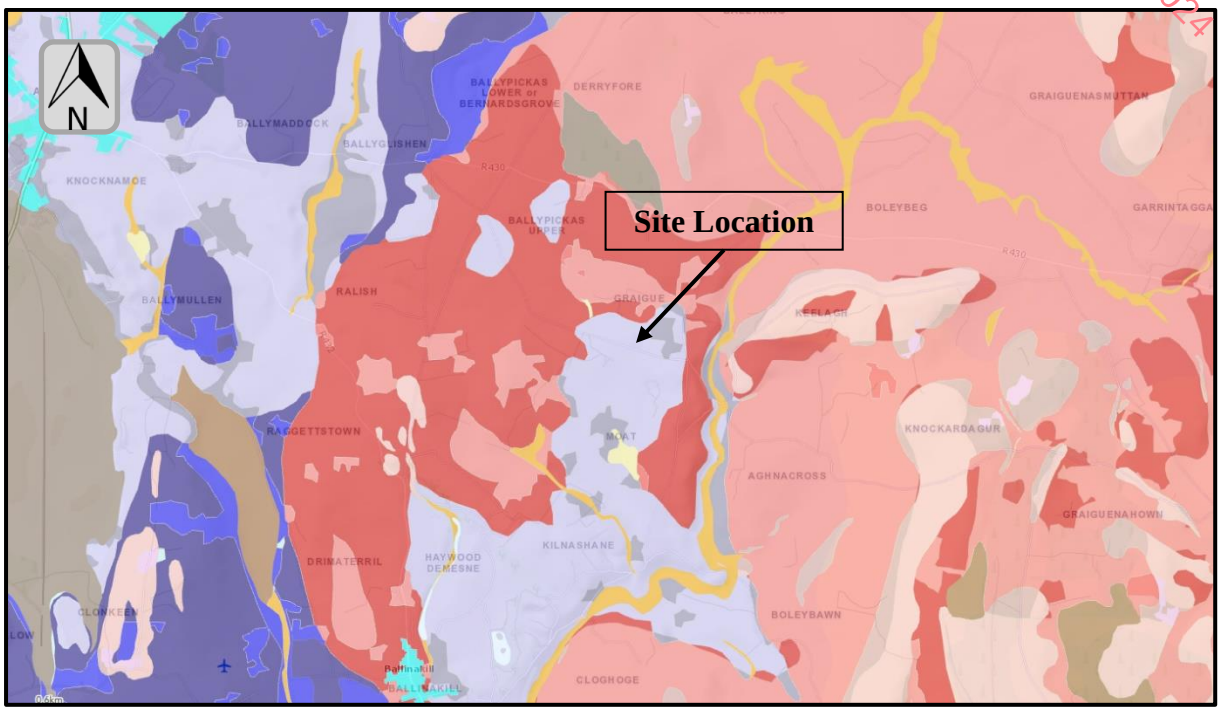


Figure 9.1: Teagasc Soils (GSI map)

The subsoil beneath the proposed site is described as Carboniferous limestone sands and gravels (GLs). The sands and gravels associated with the Carboniferous limestone were deposited by receding glaciers. The subsoils which underlie the existing farm yard are classified as glaciofluvial sands and gravels.

The sand and gravel deposits are usually loosely packed. These deposits are very common in Ireland. All glacio-fluvial sands and gravels have very high permeability.

The subsoils within a 15km radius of the site are primarily composed of Namurian /Carboniferous sandstone, shales, gravels and till. A significant portion of the subsoils within this radius have a bedrock close to the surface.

Carboniferous limestone sands and gravels are found in all directions around the proposed site, which are surrounded by Namurian shales and limestone tills to the west, north and east. Areas of Carboniferous limestone till are mainly found to the west of the site.

Conforming to the River networks in the area are alluvium subsoils. The alluvium is reshaped by water action and made up of unconsolidated soils and sediments. Smaller areas of peat are scattered in various locations.

RECEIVED: 05/06/2024

The soil where the site is located is mapped as shallow well drained mineral mainly basic soil. This is the predominant soil type within the site, whereas in a small area to the north-east, the soils are mostly mapped as shallow poorly drained mineral mainly basic.

North of the site (c. 45m) is a large area of soil described as till derived from namurian sandstones and shales, which is common in the area and is also mapped in areas east and west of the site. There are also some lacustrine type soils dotted around the landscape.

East of the site (c. 394m) and corresponding to the Owveg River are deposits of Alluvial minerals. The Owveg River is a tributary of the Nore River, which flows generally in south-eastern direction before its confluence with River Barrow.

GSI online mapping indicates that the soil underlying the site is classed as shallow and gravelly mineral complexes that are mainly basic.

REGIONAL SOILS:

Figure 9.2 below shows the regional soil types in the area surrounding the proposed site.

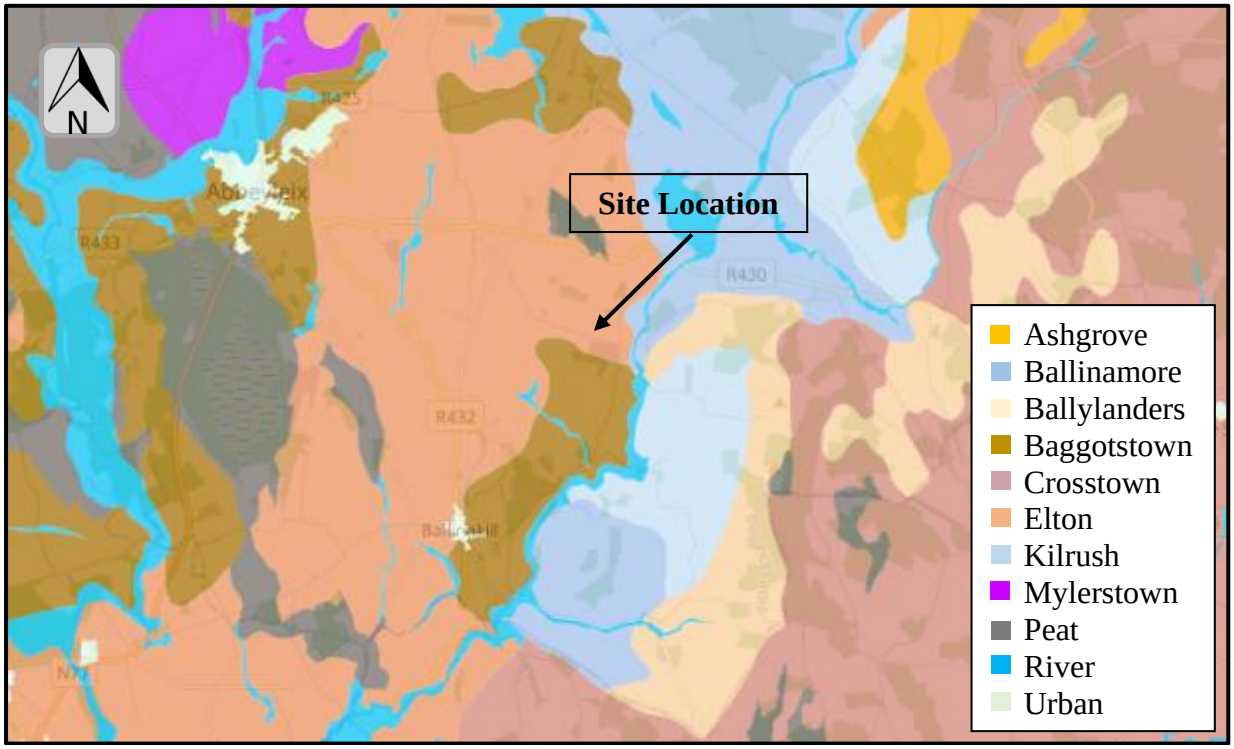


Figure 9.2: SIS Soils (EPA map)

According to the SIS Soils map, the soil underlying the proposed site is part of an Elton association with a substrate type described as fine loamy drift with limestones.

BEDROCK GEOLOGY:

Carboniferous limestone sands and gravels are found under the surroundings of the River Nore's tributaries and River Nore itself. It extends from south Laois, where the site is located, to Thomastown, County Kilkenny.

GSI and OS maps indicate the site of the proposed development is located on bedrock classified as Carboniferous siltstone **Figure 9.3**.

RECEIVED: 05/06/2024

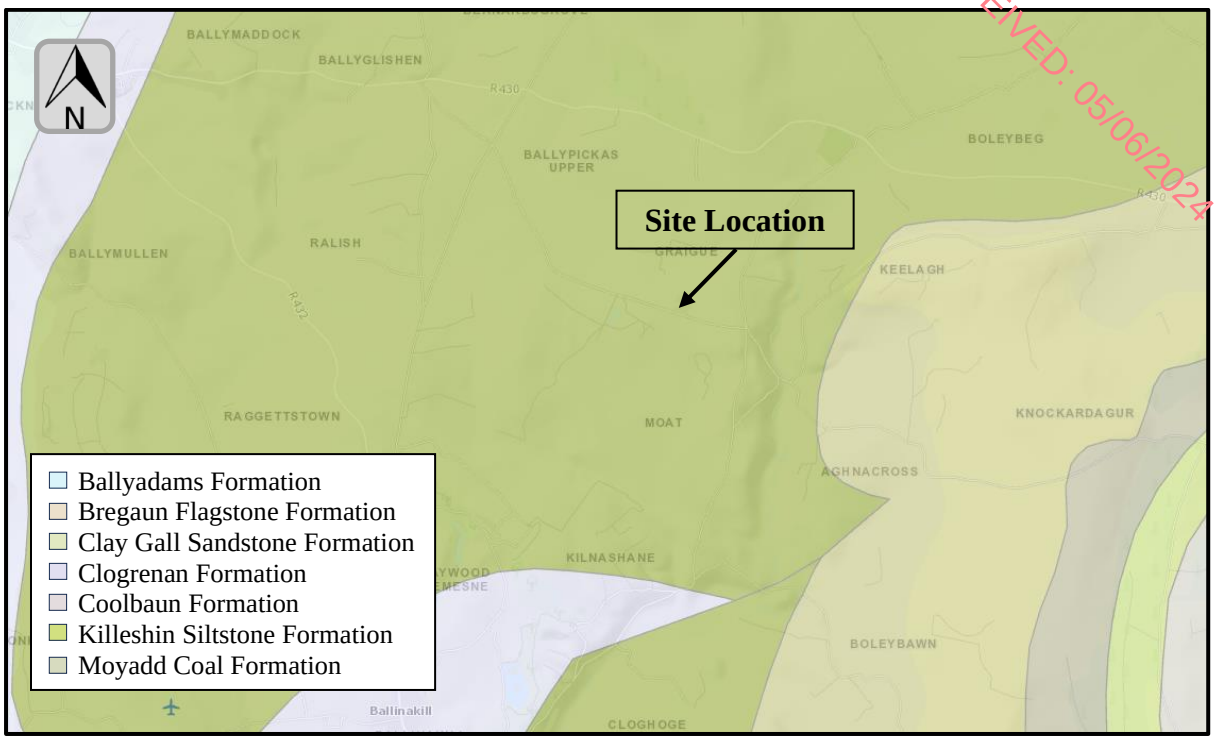


Figure 9.3: Bedrock Geology 100k (GIS map).

The site is located within the Killeshin Siltstone Formation. Its lithology is described as mainly of grey argillaceous siltstones or silty mudstones, with lesser amounts of sandstone and shale. The siltstones are poorly bedded with an irregular conchoidal fracture. The Killeshin Siltstone Formation is more prevalent to the east and south of County Laois.

9.3.2 GEOLOGICAL HERITAGE

The Irish Geological Heritage (IGH) Programme identifies and selects a complete range of sites that represent Ireland's geological heritage under sixteen themes ranging from Karst features to Hydrogeology.

The IGH Programme is a partnership between the GSI and the National Parks and Wildlife Service (NPWS) and sites identified as important for conservation are conserved as Natural Heritage Areas (NHA).

The proposed development is not located on any geological heritage site. Reference to the GSI online database confirms there are no geological heritage sites within the perimeter of the site or within a 2.0 km radius of the site.

The closest geological heritage site is located c. 4.1 km west of the proposed development. The site's name is the Abbeyleix Bog. The heritage site is located in the townlands of Tullyroe, Abbeyleix Demesne, Killamuck, Clonkeen, Granafallow, Ballymullen and Knocknamoe and is summarily described by the GSI as "an extensive area of peatland extending in a low-lying hollow, north to south, for approximately 3 kilometres south of Abbeyleix Town".

CURRENT & HISTORIC LAND USE:

RECEIVED: 05/06/2024

The available historic maps, aerial images and Laois Co. Co. online planning files were reviewed. The land in the immediate vicinity of the site and surrounding area is mainly used as agricultural land with once off housing and occasional farmyards. Agriculture and sporadic settlement have been the predominant historic land use of the area.

The proposed site is located north to a sand and gravel quarry and concrete block maker, separated by the L7794 road.

9.3.3 ECONOMIC GEOLOGY

According to the GSI's online Pits and Quarries database (2014) there are no active operational quarries in the immediate vicinity of the site. However, there are two active quarries within 10 km of the site, one of which is immediately to the south of the proposed development.

The nearest record on the GSI's database of an active quarry is c. 8.7 km north-west of the site in the townland of Boley Lower. The quarry operates under the name Shiel Sand and Gravel and is addressed at Boley, Abbeyleix, Co. Laois. Activities on the site include dry screening, washing and screening, mobile plant. Immediately to the south of the site, there is a sand and gravel quarry and concrete block manufacturer operated by Kilsaran.

9.3.4 GEOHAZARDS

LANDSLIDES:

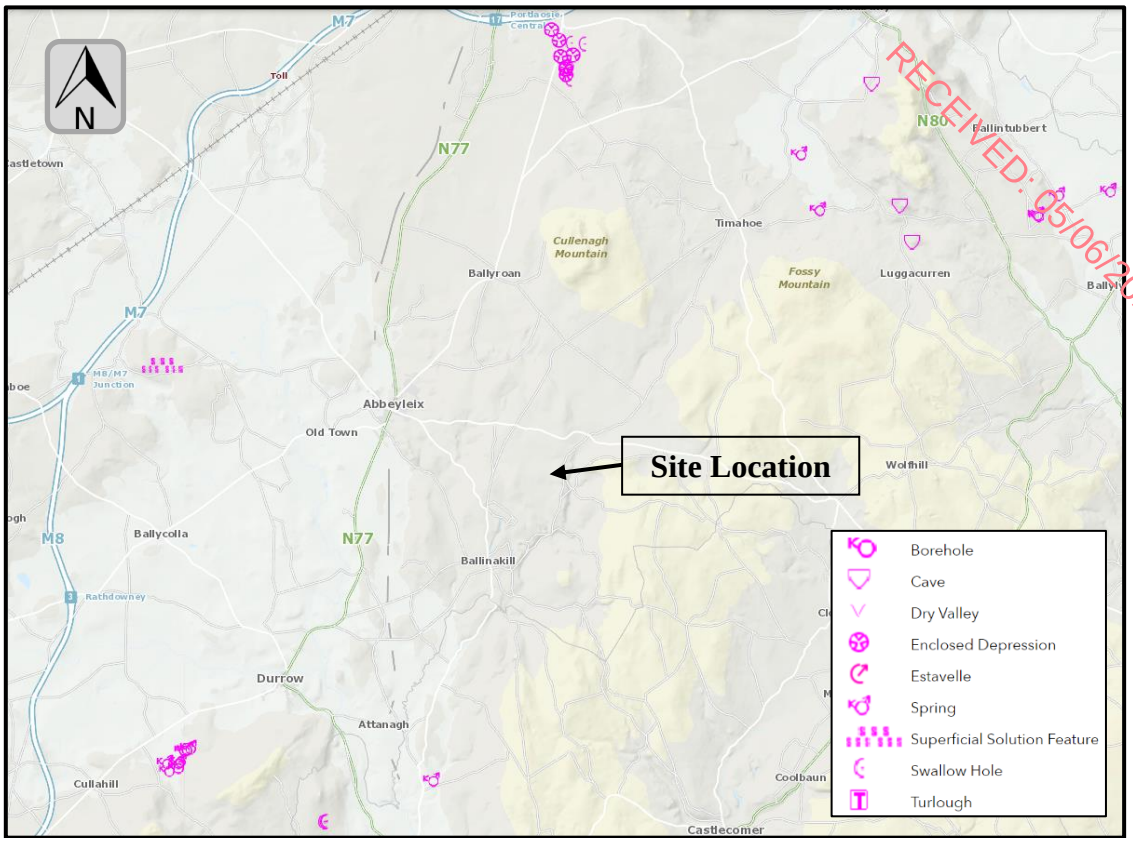
The GSI's online landslide database indicates there are no historic landslides recorded on the site or within a 5.0 km radius. The nearest recorded landslide is located c. 5.7 km north of the site and is associated with the Cullenagh Mountain.

KARST:

The GSI's karst database indicates there are no karst features mapped within 5.0 km of the proposed site. The closest identified isolated karst feature to the site is over c. 9.3 km south-west in the townland of Tinnalintan, Co. Kilkenny. **Figure 9.4** shows the Karst landform in the area.

All identified clusters of karst features are located at distances of more than 10 km. There are swallow holes and enclosed depressions to the north, south and south-west; springs to the south, south-west and north-east; superficial solution features to the north-west, and caves to the north-east.

The GSI's karst database is by no means comprehensive, and other karst features that are not mapped may be present in the area. No surface expression of karst depressions or collapse features have been observed on the site. However, such karst features may be present but not visible at surface.



RECEIVED: 05/06/2024

Figure 9.4: Groundwater Karst Data (GIS map)

9.3.5 WATER

TOPOGRAPHY:

Figure 9.5: Elevation Data (Topography map).

The topographic features of the region consist of limestone uplands.

RECEIVED: 05/06/2024

The topography of the area in which the proposed site is located is generally flat with gentle rises, the pig farm is positioned on one of these rises at an elevation of c. 178m above sea level. Error! Reference source not found. shows the topography in the surrounding area of the site. T o the east of the site, the topography falls to c. 130m along the course of the Owveg River, passing along the western foothills of the Castlecomer Plateau.

In the wider region, areas of elevation include the Cullenagh Mountain (7 km N) which rises to 317m, Fossy Mountain (9 km NE) which rises to 332m, Cullahill Mountain (17 km SW) which rises to 313m and the upland areas around Swan, Luggacurren and Wolfhill.

RIVER BASIN & NEARBY SURFACE WATER FEATURES:

The site lies within the South Eastern River Basin District (SERBD), which covers an area of approximately 13,000 km^2 and a further 1,000 km^2 of marine waters.

The SERBD encompasses all of counties Carlow, Wexford and Kilkenny, most of Waterford, Tipperary and Laois, parts of Kildare, Offaly and Wicklow and a small part of Limerick and Cork. It is bounded to the south by the Celtic Sea, the east by the Irish Sea and has borders with the Eastern RBD, the Shannon International RBD and the South Western RBD.

The main catchments are the three sister rivers (Barrow, Nore and Suir) and the Slaney. The 1,000 km2 of marine waters are off Counties Wexford and Waterford and include Waterford Estuary, where the Barrow, Nore and Suir systems flow into the sea, and Wexford Harbour, where the Slaney flows into the sea.

The SERBD is a largely rural district with many protected sites that depend on water (51% of rivers and canals have protected areas associated with them).

Water is critical to the economy of the SERBD, generating and sustaining wealth through activities such as agriculture, forestry, aquaculture, power generation, industry, services, transport and tourism (South Eastern River Basin Management Plan 2009-2015).

According to the water framework directive (WFD) the proposed site is positioned within the Nore Catchment, the Nore_SC_060 sub catchment and in the sub basin of the Owveg (Nore)_30.

The main surface water features in the vicinity of the site are the Owveg River and the Rahanavannagh, Kilnashane and Raggettstown streams.

The Owveg River is the closest surface water feature to the site (c. 394m). Other surface water features include associated streams, such as the Rahavannagh stream.

The Rahanavannagh stream is located north-east of the site (c. 800m). The stream flows east for c. 890m before it discharges to the Owveg River.

The Owveg River, which is a tributary of the Nore River, flows in a generally south-west direction for c. 15.5 km until the confluence of the two rivers.

The River Nore then continues for several km before it meets the River Barrow, merging the two catchments. From this confluence, the river flows mostly in a southwards direction to Waterford Harbour. **Figure 9.6** shows some of the surface water features in the area.

RECEIVED: 05/06/2024

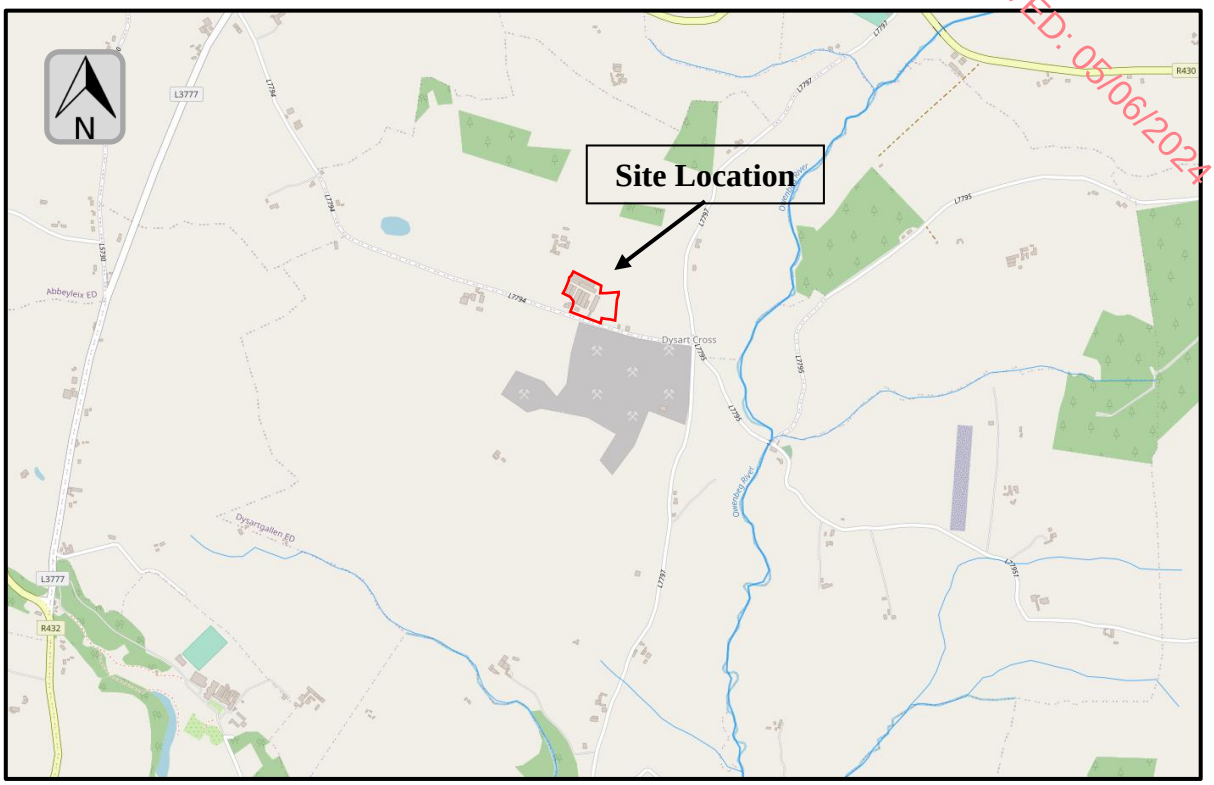


Figure 9.6: Surface Water Features (EPA map).

SURFACE WATER BODY STATUS, PRESSURES & WATER QUALITY:

For the purposes of the Water Framework Directive (WFD) the water quality 'status' of the nearby surface water bodies has been categorised (2010-2022). In addition, the 'risk' of each water body not achieving 'good status' has also been assessed. The status and risk of the nearby surface water features are shown in **Table 9.1** below.

Table 9.1: Status and risk of nearby WFD surface water bodies.

River Water Body	Water Body Type	Status (2010-2022) Q values	Risk
Owveg	River	'Good'	'Not at risk'
Nore	River	'Moderate'	'At risk'

The confluence of the River Owveg and the River Nore occurs between the EPA monitoring stations RS15O010400 Br E of Attanagh (c. 2.9km u/s of confluence) and RS15N011380 NE of Ballyconra (u/s of Glanbia) (c. 1.5 km u/s of confluence). The upstream monitoring location determined water quality to be in a good status, while the downstream monitoring location determined water quality to be in a moderate status.

EPA River Quality Surveys states the following for the Owveg River "The Owveg (Nore) is again in Good ecological condition throughout when surveyed in 2022."

However, relative to River Nore, it states that: "The 2022 biological water quality results for the River Nore main channel are most disappointing, with 12 of the 19 sites assessed found to

be in unsatisfactory condition. Only at the uppermost site (Station 0080) was there a slight improvement in Q-value recorded, while declines in ecological condition was found to have occurred at nine sites. This includes a drop from High to Good ecological condition at Poorman's Bridge (Station 0900), which was the only site where Q4-5 was recorded in 2019. Eight sites from Threecastles Bridge (Station 1700) downstream dropped from Good to Moderate ecological condition, resulting in all sites surveyed along the channel downstream of this point recorded as unsatisfactory in 2022."

RECEIVED: 05/06/2024

The Owveg is not indicated as being a salmonid protected river (S.I. 293: European Communities (Quality of Salmonid Waters) Regulations, 1988) on the EPA'S Catchment website, however, the River Nore is.

SITE DRAINAGE:

All dirty yard areas (i.e. runs between buildings etc.) discharge to the slurry tanks underlying the pig houses.

Clean yards refer to hardstanding surfaced areas to which animals do not have access, from which water would percolate to the groundwater table.

Stormwater from roofs and clean yards is collected by the surface water drainage network. Surface water collected on site is directed to stone soakaways in the centre (SA2) and south-west (SA1) of the site, and to a soil percolation area on the north-western boundary (SW1).

Based on the topography of the site (i.e. gently sloping to the south), it would appear that the ground water flow is toward the Owveg River. However, because of the complexities of groundwater flow direction, with a possibility of karstic features, it is possible that underground drainage and groundwater flow do not simply follow surface topography.

The clean roof rainwater falling on the proposed buildings would be connected to the existing surface water drainage network and discharge to the soakaway at the centre of the farm (SA2). All soiled water is / would be diverted to the nearest slurry tank.

FLOOD RISK:

A preliminary assessment of the risk of flooding at the site was undertaken as part of this EIAR. GSI have developed a Surface Water Flooding map during the winter 2015/2016 flood event. According to this map, the nearest surface water flooding to the development site was in the small unnamed lake located c. 565m to the north-west.

The Catchment Flood Risk Assessment and Management (CFRAM) Programme was developed to meet the requirements of the EU Floods Directive 2007/60/EC. Has created flood risk and hazard maps for these areas which are available online at (www.floodmaps.ie). In order to assess the flood risk to the site, the Office of Public Works (OPW) indicative flood mapping website was consulted.

The proposed development is not situated within the flood plain of the Owveg River and would not alter the flood characteristics of this waterbody during high flow **Figure 9.7** and **Figure 9.8**.

Figure 9.7: National Indicative Fluvial Map – Present (Medium Probability).

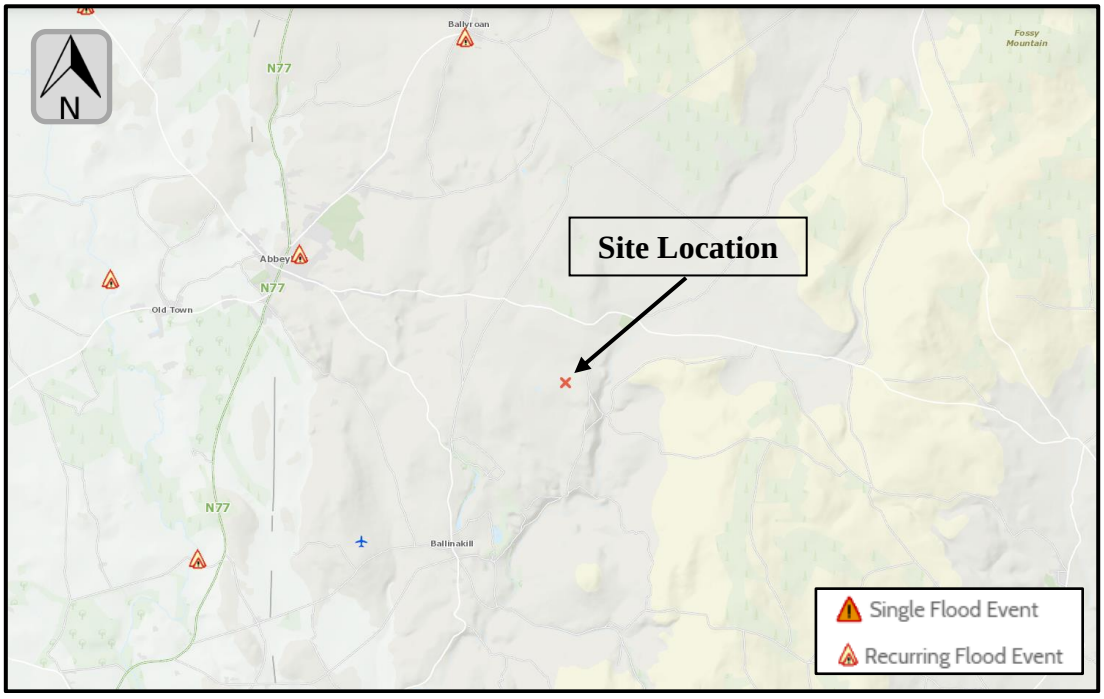


Figure 9.8: Past Flood Events (OPW map).

The nearest flood zones delineated by the OPW are c. 5.3 km north-west of the site on the Ballyroan River, a tributary of Nore River in Abbeyleix town, and c. 6.3 km west of the site on the Nore River in Abbeyleix Demesne townland.

According to the OPW, there have not been recorded any other flood events in the area surrounding the site. The nearest recorded recurring flood events are in Abbeyleix town and along the Nore River.

RECEIVED: 05/06/2024

The alluvial deposit maps (Quaternary sediments) from the Geological Survey of Ireland (GSI) were consulted to assess the extent of any alluvial deposits in the vicinity of the proposed development site.

Alluvial deposits can be an indicator of areas that have been subject to flooding in the recent geological past. Alluvial deposits do occur east of the site and correspond to the Owveg River (**Figure 9.9**).

In summation, based on the collated mapping above, flood risk to the site is considered to be 'Low'. There are no mapped flood zones or no recorded flood events within or in the immediate vicinity of the site.

There is no perceivable conveyance or discharge mechanism based on the local topography that would permit floodwater to directly inundate the site.

In short, the proposed development would not be expected to result in an adverse impact to the hydrological regime of the area or to increase flood risk elsewhere and is therefore considered to be appropriate from a flood risk perspective.

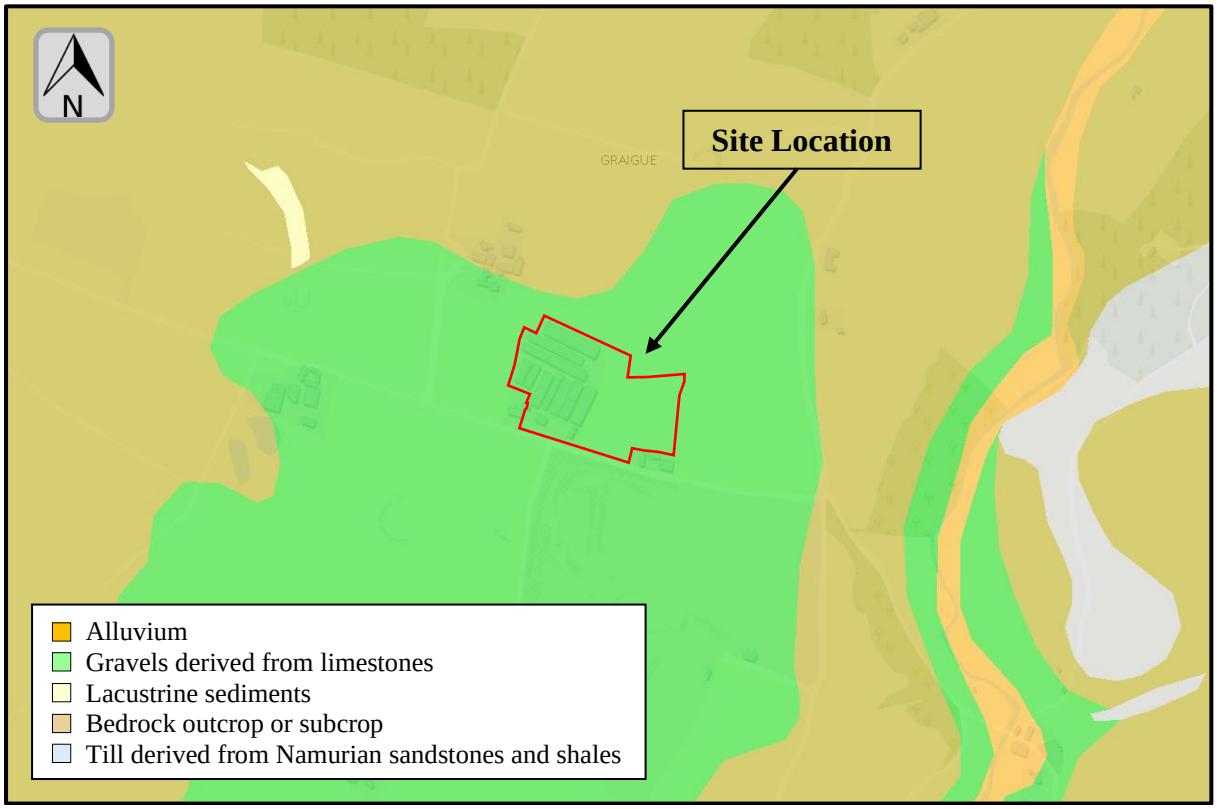


Figure 9.9: Quaternary Sediments (GSI map).

WFD GROUNDWATER BODY STATUS:

The EU Water Framework Directive (2000/60/EC) (WFD) establishes a framework for the protection, improvement and management of surface and groundwater. The overall aim for groundwater was to achieve at least 'good quantitative status' and 'good chemical status' by 2015, or at the latest by 2027, as well as preventing deterioration in those waters that have been classified as 'good' status.

The EC Environmental Objectives (Groundwater) Regulations 2010 (S.I No. 9 of 2010) as amended by Environmental Objectives (Groundwater) (Amendment) Regulations 2016 (S.I. No. 366 of 2016) give effect to the criteria and standards to be used for classifying groundwater in accordance with the requirements of the WFD.

RECEIVED: 08/05/2024

The Killkenny-Ballynakill Gravels groundwater body (GWB) underlies the proposed development site and covers an area c. 63.5 km^2. The GWB is classified as being poorly productive bedrock except for local zones.

Elevation within the GWB ranges from c. 45m along the margins of River Nore to c. 183m in the most northern area of the GWB, where the development is located. Rivers flows are predominantly south-eastwards, to the confluence with River Barrow.

The groundwater body is large and with varied topography, hence the subsoil thickness varies widely. From available data, depth to bedrock ranges between c. 80 and over 700 m. It is particularly thick in the southern area where Kilkenny town is located.

No Groundwater description has been carried out by GSI for this particular GWB. Therefore, no information is readily available on the hydrogeological and chemical properties of this groundwater body.

GROUNDWATER LEVELS & FLOW DIRECTION:

The site is underlain by Killeshin Siltstone Formation, muddy siltstone and silty mudstone, which is generally thought to have low bulk permeability. However, the subsoil where the development site is located is highly permeable.

According to the GSI Groundwater data viewer, the area where the proposed site is located contains two boreholes (Borehole Names: 2317NEW041 and 2317NEW042). The depth to bedrock of the most recent borehole, drilled in 1971, is cited as 33.5m, and this would be expected to correspond closely with the depth to the groundwater table.

Based on topography and position of surface water features, shallow groundwater flow beneath the site would be expected to flow east toward the Owveg River, while deeper, regional groundwater flow would be expected to flow south to a more downstream section of the Owveg River. Boreholes within the locality cite depths to bedrock of c. 0.2-33.5m.

In general, flow directions are expected to approximately follow the local surface water catchments.

GROUNDWATER/ AQUIFER/ VULNERABILITY:

Groundwater Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities.

All land area is assigned one of the following groundwater vulnerability categories:

- Rock near surface or karst (X)
- Extreme (E)
- High (H)
- Moderate (M)
- Low (L)

These categories indicate the likelihood of groundwater contamination and help to ensure that a groundwater protection scheme is not unnecessarily restrictive on human activities.

RECEIVED: 05/06/2024

Where the subsoil thickness is less than 3.0 m, the vulnerability is rated as Extreme (the highest risk situation). Where the subsoil thickness is greater than 3.0 m, the vulnerability is rated as High, Moderate or Low (depending on the permeability and thickness of the subsoil).

The GSI's National Groundwater Vulnerability map indicates that the proposed site is located within an area with a groundwater vulnerability rated as High.

The vulnerability of the groundwater within much of the site is interpreted as being high due to the high permeability of the gravel subsoil (**Figure 9.10**).

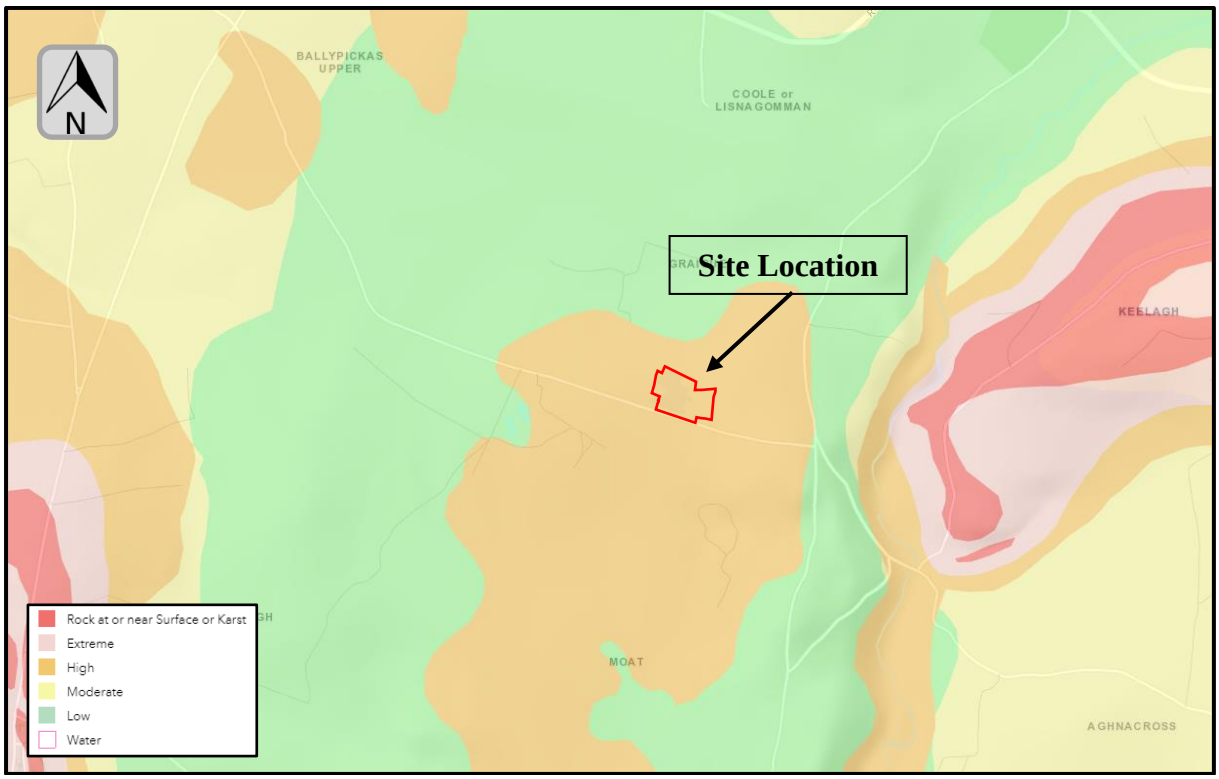


Figure 9.10: Groundwater Vulnerability (GIS map).

The pig farm has been established at this location since 1973. Over the decades, the piggery has constructed several buildings and slurry tanks. In that time there have been no evidence of groundwater contamination. Groundwater is monitored by the site.

In Ireland, the Geological Survey (GSI) classifies aquifers in terms of nine different categories which can be used to define the relative value of aquifers.

The classification system is based on the UNESCO-IHP system and on progressive developments within the GSI in consultation with the Irish hydrogeological community.

Different aquifers have differing abilities to store and transmit water. This means that the chances of obtaining large new groundwater supplies would vary with location. In risk terms, the environmental consequences of, for example, a groundwater pollution incident, would also vary.

RECEIVED: 05/06/2024

GSIs aquifer classification map indicates that the site of the proposed development is situated on a bedrock aquifer, which is classified as a Poor Aquifer, which is generally unproductive except for local zones (Pl).

The groundwater flow is through fractures and fissures in the bedrock (secondary flow) and groundwater yields available from the limestone and shale rocks within the succession are generally unproductive, except for local zones (**Figure 9.11**).

The proposed site is located on a regionally important gravel aquifer.

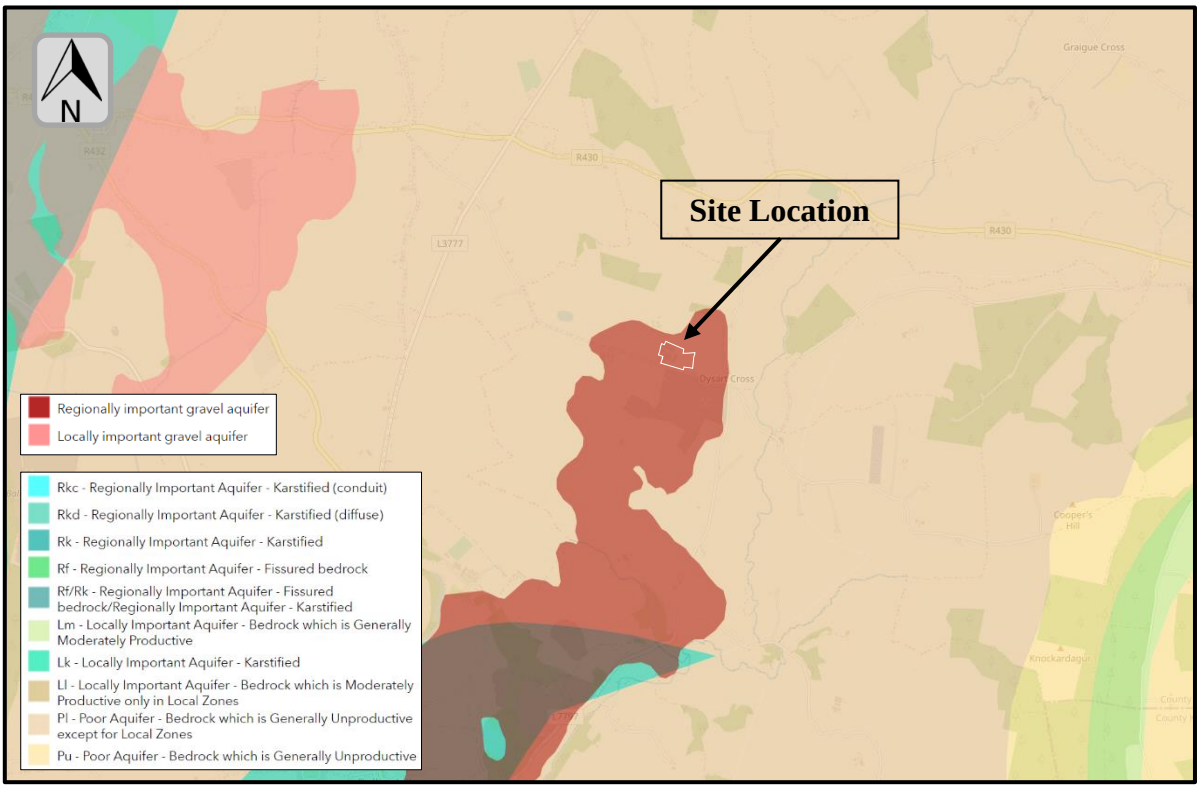


Figure 9.11: Groundwater Resources – Aquifer (GIS map).

The site is not located within or in the vicinity of a surface or groundwater source protection area.

There is a drinking water protection area c. 2.7 km north-west of the proposed site. The designated area is generally at the same altitude of the site at c. 180m above sea level. The area covers c. 1.3 km^2 and is part of the Ballyroan public water supply.

Other drinking water protection areas within 10 km from the site include Swan PWS (c. 6.5 km east), Fermoyle PWS (c. 6.4 km south-west), Kyle & Orchard Springs (c. 8.5 km north-east) and Durrow PWS (c. 9.6 km south-west).

There are also several known springs and groundwater wells in the region, the closest cluster south-west of the site in Ballinakil town (**Figure 9.12**).

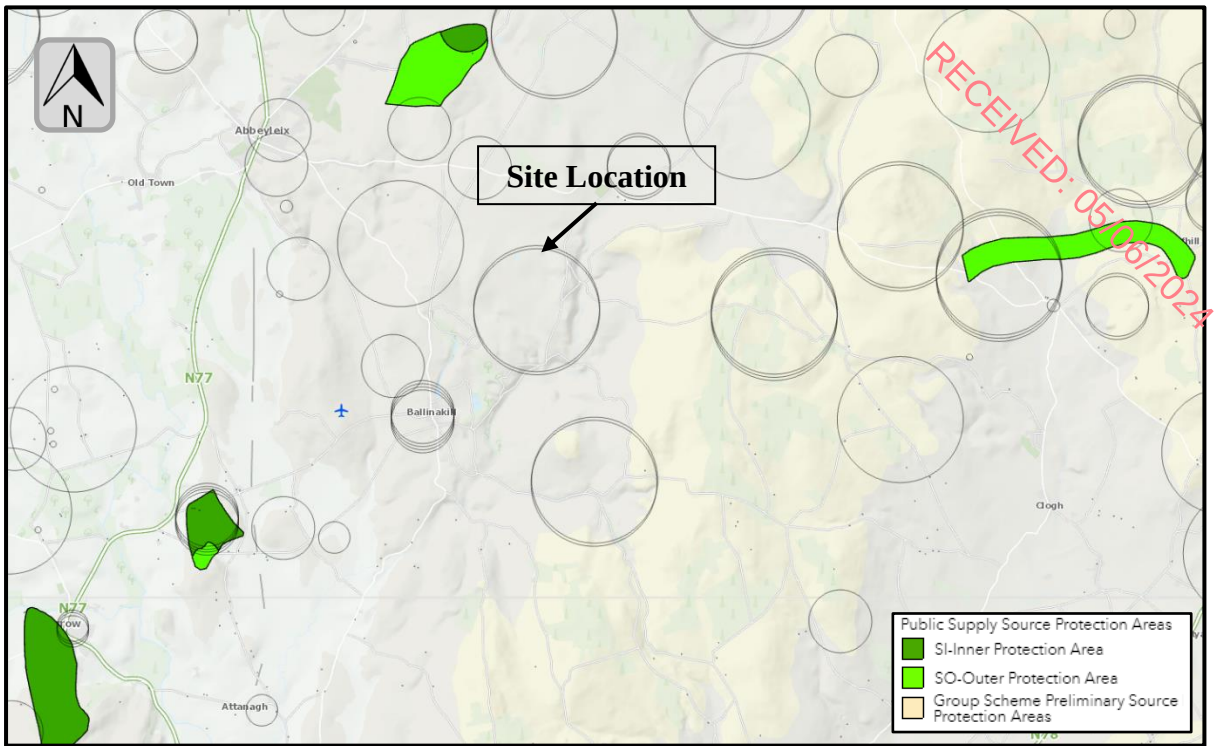


Figure 9.12: Source Protection Areas and Well & Springs (GIS map).

GROUNDWATER ABSTRACTION:

Water needs for the current piggery are provided through a connection to the Ballypickas Group Scheme, supplemented from an existing borehole at the site. These sources would also be used to supply water and services to the proposed buildings.

The estimated amount of water currently used at the farm is c. 22,499 m3/year and the expansion of the development is not expected to significantly alter the amount of water used at the site. Therefore, no impact is anticipated upon the demand on the groundwater resources of the area or upon other abstraction processed locally.

Groundwater recharge in the area of the site is c. 487 mm/y, which is considered to be highly permeable and vulnerable.

GROUNDWATER QUALITY:

Under Condition 6.4 of the site's EPA IE licence (P0710-03), the licensee shall ensure that groundwater monitoring well sampling equipment is available/installed on-site and is fit for purpose at all times. The sampling equipment shall be to Agency specifications. Schedule C.6.1 states that the well at southern end of site beside site entrance, GW-1, is to be monitored annually for Nitrate, Total Ammonia, Faecal coliforms and Total coliforms.

Annual Environmental Reports (AER) from 2018-2021 state that results from groundwater analysis carried out at monitoring point GW-1 indicate that there have not been any exceedances related to any parameter monitored. There are no thresholds set on ambient groundwater monitoring at GW-1 under the sites licence.

DESIGNATED SITES & GROUNDWATER DEPENDENT TERRESTRIAL ECOSYSTEMS:

RECEIVED: 05/09/2024

There are three known protected groundwater dependant terrestrial ecosystems (GWDTEs) within 10.0 km of the proposed development site.

The nearest sites of ecological importance are the River Barrow and River Nore SAC which is 276m south-east of the site, Lisbigney Bog SAC which is 4.96 km south-west, River Nore SPA which is 5.33 km south-west and Ballyprior Grassland SAC which is 13.1 km north-east.

River Barrow and River Nore SAC is described as having multiple habitats, including alluvial forests and oak woodlands present in/near Abbeyleix, and would be influenced by groundwater.

Lisbigney Bog SAC, despite being referred to as a bog, is described as actually being a wetland dominated by fen vegetation.

Ballyprior Grassland SAC is described as a high quality grassland, with an abundant cover of grasses and herbs with a diverse spectrum of species.

This SAC, however, falls within the River Barrow Catchment, while the site is located within the River Nore Catchment.

River Nore SPA is described as a long linear site that includes the river channel and marginal vegetation. For a large part of its course, the River Nore traverses Carboniferous limestone plains.

The Site is an SPA under the E.U. Birds Directive of special conservation interest for the Kingfisher, listed on Annex I of the E.U. Birds Directive.

9.4 IMPACTS

9.4.1 CONSTRUCTION PHASE

The construction phase holds a number of activities which could potentially impact on the soils, geology and water environment. Potential construction phase impacts are detailed in the following sections.

9.4.1.1 Soil Removal

It would be necessary to create some excavation on the site for pad foundations and to accommodate new slurry tanks beneath the proposed buildings. These excavations would be c. 1.2-2.5 m deep.

Suitable fill, in most cases hardcore or non-hazardous building rubble would be used to screen the bottom of the excavated area prior to the installation of the concrete floor and mass concrete walls.

The areas outside the tank would be backfilled with suitable fill and concrete footing / foundations would be poured to accommodate the steel structure of the building.

There would be no permanent removal of soil and subsoils from the proposed development site. During the site levelling and excavation phase it is expected that a large amount of soil and subsoil would be disturbed.

RECEIVED: 05/06/2024

It is proposed to re-use all of the excavated soils and subsoils on the site for levelling and landscaping. The excavations would extend into the natural subsoils that exist on the site, but not on made-ground. Excavation of bedrock should not be required.

The removal and disturbance of soils and subsoils during the construction phase may also temporarily increase the risk to groundwater as the protective soil/subsoil layer is removed and the vulnerability of the groundwater to surface contaminants is increased.

Given the short period of time it would take to finish the excavation phase of the project, followed by backfilling and reinstatement, there should only be a *slight to moderate temporary impact* on groundwater vulnerability.

9.4.1.2 Bedrock Excavation

The excavation and construction of the proposed development would take place within the natural subsoils of the site. Bedrock excavation would not be required.

9.4.1.3 Vehicular Movement & Soil Compaction

Soil compaction can occur due to movement of construction and maintenance traffic on the site. The majority of the areas to be trafficked are existing hardcore yard areas. Similar hardcore surfaces would be installed surrounding and leading to proposed structures. As the area would be small, this is considered to be a *negative slight long-term impact* on the soil and *in-situ* earth materials. Construction traffic occurring outside of planned road and yard areas would be minimal and any compaction of soils would be considered to be short term and not significant.

9.4.1.4 Accidental Hydrocarbon Leakage / Spillage from Mobile Plant & Equipment

Possible contamination of soil, subsoils, surface water and groundwater by accidental leakage or spillage of hydrocarbons from mobile plant and associated equipment has the potential to occur during the construction phase.

Because of subsoil depth and the high permeability of the glaciofluvial sands and gravels subsoil beneath the site, groundwater is considered to have high vulnerability and the contamination of the underlying groundwater is likely to occur in the event of an accident / spill.

Any uncontrolled spillages/leaks would likely infiltrate through the subsoils and aquifer. Depending on the magnitude of any uncontrolled leakages or spillages, an accidental hydrocarbon spillage would have a *negative moderate short-medium term impact* on soil quality and groundwater quality.

It is noted that impacts would likely be very localised due to the limited size and connectivity of the aquifer beneath the site. Such an event may impact upon the viability of the underlying aquifer as the source of potable water for the animals at the farm.

9.4.1.5 Sediment Laden Run-off

RECEIVED: 05/06/2024

The construction of the proposed development would involve stripping and removal of some portion of topsoil and earthworks to facilitate the construction of the proposed buildings. There is potential for erosion of temporarily exposed soil during the excavation stage and consequently the generation of run-off with high levels of silt / sediment.

There are no drainage ditches in the area of the proposed construction activities. All rainwater (excluding that falling on roofs and clean yard areas) percolates to ground. In the event of sediment contamination of rainwaters, the sediment would be deposited to the surface of existing soils within the construction site.

It is expected that there would be very little run-off from uncovered soils on site given the limited time that soils would be exposed.

There would be *no impact* on surface water bodies (e.g. Owveg River).

9.4.1.6 Spillage of Concrete / Cement Material

The spillage of concrete/cement material poses a potential risk to surface water and groundwater quality as this material is alkaline and corrosive. During the construction phase, this risk may be realised during the construction of buildings and equipment washdown.

As stated above with regard to sediments, cement material from a spill would be entrained within soils as rainwaters percolate to groundwater. In the event of a spill, there would be a *negative long-term significant* impact on the composition of the soil in the small area underlying the spill. However, this would have a similar effect to overlying soils with hardcore.

Such a spill would increase the alkalinity of the underlying groundwater. However, it is likely that there would be a degree of dilution with groundwater and percolating rainwater. Depending on the magnitude of any spills, the release of such cement material into nearby surface water would have a *negative slight-moderate short-term impact* on groundwater quality.

9.4.1.7 Pumping of Groundwater Ingress to Excavations

It is not anticipated that there would be any need for significant pumping of groundwater from excavations during the construction phase as the excavations are generally to a depth of c. 1.2-2.5m only.

Some very localised pumping may be required to prevent ingress of any minor flows of shallow perched groundwater encountered. This will be discharged to the adjacent field to percolate back into the groundwater. Such pumping of groundwater can lower groundwater levels but, as there are only two poor yielding groundwater abstractions recorded in the area, the impact on groundwater levels would be *negative temporary and slight*.

9.4.2 OPERATIONAL PHASE

During the operational phase of the proposed development, there is a potential for impact on soils, geology and water. Potential operational phase impacts are detailed in the following sections.

RECEIVED: 05/06/2024

9.4.2.1 Storage & Recovery of Slurry

Pig slurry produced at the site has the potential to negatively impact on the water quality in the surrounding environment if not collected, stored and recovered appropriately.

The slurry from each building currently housing pigs on the site is stored in slurry tanks beneath the buildings. The proposed buildings would also be fitted with slurry tanks of sufficient capacity.

From previous planning applications related to the piggery, it has been determined that the current slurry storage capacity of the piggery's slurry tanks is c. 8,689 m^3.

The volume of all slurry currently produced at the site within 26 weeks by the existing amount of pigs is c. 5,363 m^3 which is below the available storage capacity of c. 8,689 m^3. An additional 3,608 m^3 of storage capacity would be provided by new proposed tanks for the new buildings.

The volume of all slurry produced at the site is not expected to increase as a result of the proposed development.

Manure would be provided to local farmers to be used as fertilisers in their own farmlands.

9.4.2.2 Storage of Soiled Wash water

Between pig batches, the existing and proposed pig pens would be "washed down". The soiled wash water from this activity would be collected in the nearest slurry tank.

9.4.2.3 Spreading of Slurry & Soiled Wash-water:

The soiled wash water is mixed in the slurry tanks with the pig slurry, as would be the case in the proposed buildings.

The proposed development contains no proposal to landspreading of pig slurry. However, manure is, and would continue to be, distributed to local farmers for application to lands held by third parties in the area. The transport and spreading of the manure would be managed in compliance with the Nitrates Regulations (S.I. No. 113 of 2022).

Therefore, there would be no significant impact to soils, groundwaters and surface waters if carried out in accordance with good practice.

9.4.2.4 Foul Water

Currently wastewater from the existing office/tool shed and staff toilet on the site discharges to groundwater via a septic tank system. It is not proposed to have any other on-site facilities.

9.4.2.5 Accidental Leakage / Spillage of Hydrocarbons

Possible localised contamination of soils, subsoils, groundwater by accidental leakage or spillage of hydrocarbons from vehicles, other machinery or on-site fuel tanks may occur during the operational phase.

Condition 3.3 of the sites IE licence requires that all tank, container and drum storage facilities are appropriate to the material contained and are bunded. It is not considered likely that there would be a significant risk of leaks or spillages of hydrocarbons during the operation of the proposed development.

RECEIVED: 05/06/2024

It is unlikely, other than in exceptional circumstances or prolonged uncontrolled releases, that there would be significant contamination of the Owveg River.

9.4.2.6 Flood Risk

The current surface water drainage network on the site that discharges to ground is expected to have sufficient capacity to accommodate any new storm-water produced from the proposed development.

Overall, it is assessed that there would be no increased risk of flooding on the site itself or downstream of the site arising from the proposed development. Thus, the impact would be a neutral long term imperceptible impact and no further mitigation is required.

9.4.2.7 Water Usage

The water for the proposed development would come from a borehole already installed on the site. This borehole is currently supplying the water needs of the piggery. The potential increase in groundwater abstraction would not be expected to cause a significant demand on the groundwater resources of the area and would not be expected to impact upon other abstractions processes locally.

9.4.2.8 Disruption of Groundwater Flow Paths

Subsurface structures have the potential to impact on groundwater flow regimes if they are built in the aquifer's flow path. Theoretically, groundwater mounding can occur where large impermeable structures are placed perpendicular to groundwater flow paths.

The depth of the proposed excavations is unlikely to penetrate to bedrock. Taking this into account there would be a *neutral slight impact* on the groundwater flow paths.

9.4.2.9 Soil Sealing

The proposed developments would cover an floor area of 6288 m^2, in addition to the existing c. 1.69 hectares farm hub. The soil within the area of the proposed developments is currently scrubland, farmyard and hard standing. This area of soil would be effectively sealed.

This sealing effect can impact on natural exchanges occurring between soils and the atmosphere which influence the natural function and associated biodiversity of soils. This would have *a negative slight permanent impact* on the soil.

9.4.3 "DO-NOTHING" SCENARIO

Should the proposed development not be built, the farm would continue current pig farming operations at the site and the immediate area where the proposed development would have taken place would remain as farmyard.

9.5 MITIGATION MEASURES

RECEIVED: 05/06/2024

This section describes a range of mitigation measures designed to avoid, reduce or offset any potential adverse impacts identified. The main objective of the mitigation measures is to avoid any potential adverse impacts in the first instance, and where this is not possible then to reduce the effects of any impacts on the receiving environment.

Many of the mitigation measures below have been based on CIRIA (Construction Industry Research and Information Association, UK) technical guidance on water pollution control and on currently accepted best practice.

9.5.1 CONSTRUCTION PHASE

9.5.1.1 Construction Management

In order to reduce the impacts on the soils, geology and water environment a number of mitigation measures would be adopted as part of the construction works on site as follows:

- The construction works contractor would adhere to standard construction best practice, taking cognisance of the Construction Industry Research and Information Association (CIRIA) guidelines "*Control of Water Pollution from Construction Sites; guidance for consultants and contractors*" 2001, "*Control of Water Pollution from Construction Sites – Guide to Good Practice*", 2002, and the 2016 guidelines published Inland Fisheries Ireland, "*Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters*";
- All construction plant machinery and equipment would be maintained in good working order and regularly inspected;
- Existing topsoil would be retained on site to be used for the proposed development. Topsoil would be stored in an appropriate manner on site for the duration of the construction works and protected for re-use on completion of the main site works;
- Top-soiling and landscaping of the works would take place as soon as finished levels are achieved, in order to reduce weathering and erosion and to retain soil properties;
- Stockpiled material would be covered/dampened during dry weather to prevent spreading of sediment/dust;
- A temporary site compound would be used for the storage of all machinery and plant when not in use, the re-fuelling of plant and the storage of all associated oils and fuels for plant;
- Handling, transport and storage of fuel and chemicals would be controlled e.g. oil and fuel stored on site would be stored in designated areas. These areas would be bunded and located away from any surface water drainage. Refuelling of construction machinery would be undertaken in designated areas located away from surface water drainage;
- Where construction plant shows signs of hydrocarbon leakage, site personnel would cease the operation of the item in plant in question and notify the Project Manager. Any defective plant would be kept out of service until the necessary repairs are undertaken;
- Spill kits shall be kept in these areas in the event of spillages;
- Controls for storage of any other potentially polluting materials/chemicals on-site e.g. any chemicals used on site would be required to be stored in designated bunded areas and the construction manager would be responsible for ensuring that a copy of all relevant material safety data sheet for each product is available at the site office;
- Any uncured concrete works would be supervised at all times, and would be scheduled outside of periods of expected heavy rainfall;

- The wash-out of Ready-Mix Truck drums would not be permitted onsite, in the environs of the site, or at a location which could result in a discharge to surface water;
- Surplus uncured concrete would be returned to the batching plant where possible;
- Wheel wash facilities to prevent soil and mud being tracked onto the adjoining roads would be provided.

RECEIVED: 05/06/2024

9.5.1.2 Controls on Damage to Underlying Geological Materials

The disturbing of soils and subsoils is an unavoidable impact of the development. One of the primary mitigation measures already employed at the preliminary design stage has been the minimisation of volumes of subsoil and bedrock that would be excavated.

It is proposed that all of the excavated subsoils removed during construction would be re-used on site in the form of landscaping. Any subsoils that cannot be re-used on-site will be treated, recycled or disposed of where suitable using a licenced waste contractor. Specialist machinery (such as tracked machinery) would be used to minimise compaction of the subsoils.

9.5.1.3 Control and Re-use of Potentially Contaminated Material On-site

It is not anticipated that any contaminated materials would be produced during construction of the proposed development.

Should any material appear to be contaminated, samples would be analysed by an appropriate testing laboratory.

All potentially contaminated material would be either left *in situ* and characterised through laboratory testing; or segregated and stockpiled in a contained manner and characterised through laboratory testing. Any contaminated material would be appropriately disposed of or treated using a licensed waste contractor and in accordance with the Waste Management Regulations, 1998.

9.5.1.4 Control on Sources of Fill and Aggregates

All fill and aggregate imported for use on the proposed development site would be sourced from reputable suppliers. All suppliers would be vetted for:

- Aggregate compliance certificates/declarations of conformity for the classes of material specified for the project;
- Environmental Management status;
- Regulatory and Legal Compliance status of the Company.

9.5.2 OPERATIONAL PHASE

In compliance with the sites EPA IE licence, the existing facility has an Environmental Management System, which would be updated to incorporate the proposed development. Good housekeeping practices would be observed throughout the site during the operational phase.

RECEIVED: 05/06/2024

9.5.2.1 Storage & Landspreading of Slurry By-Product

The following measures would be undertaken to assist in minimising the volume and nutrient load of slurry generated.

- Pigs would be fed a low protein diet to requirements only (i.e. pig class / stage dependent rations), minimising nitrogen and ammonia content;
- Pigs do not digest phosphorous or fibre well. Feedstuffs which optimise the digestibility in pigs would be used where possible;
- Drinkers (bowl drinkers) would be maintained in good working order such that leaks are prevented;
- Separation of 'clean' runoff from roofs and clean hardstanding area from soiled wash waters to minimise volumes of soiled water to be managed;
- All slurry / wash water mix would be land spread in accordance with the *European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2022.*

9.5.2.2 Treatment & Monitoring of Storm-water

As indicated previously, it is proposed that only rainwater from roofs and clean hardstanding areas would be collected and diverted to the existing surface water drainage network. Visual inspection of surface waters would occur weekly, as required under the sites IE licence.

Chemical and fuels would continue to be required to be adequately bunded as part of ongoing management of the site under the existing IE licence. It is also a requirement that spill clean-up materials would be available onsite in the event of a spill.

All soiled wash water would be diverted and collected in the slurry tanks.

9.5.2.3 Foul Water

Soiled water would be directed to slurry tanks. The existing and proposed tanks would be maintained in good working conditions.

9.5.2.4 Flood Risk

Due to the fact that there is no perceivable flood risk and that there is an adequate surface water drainage network in place that would accommodate the new development, the flood risk remains low. As a result of this it is unnecessary to propose any mitigation measures.

9.6 RESIDUAL IMPACTS

The predicted residual impacts of the proposed development are described in **Table 9.2** and **Table 9.3** below in terms of quality, significance and duration. The relevant mitigation measures are detailed and the corresponding residual impacts are determined, which take into account of these mitigation measures

RECEIVED: 05/06/2024

Table 9.2: Summary of Predicted Construction Phase Impacts

Activity/ Source	Environmental Receptor	Impact/Effect Description	Quality	Significance	Duration	Mitigation	Residual Impact
Earthworks	Soils	Natural soil excavation for building foundations	Negative	Slight	Temporary	Material will be reused on site where possible	Negative slight
Earthworks	Soils	Vehicular movement and soil compaction.	Negative	Slight	Long term	Specialist machinery (such as tracked machinery) will be used to minimise compaction of the subsoils.	Negative Slight
Storage of potentially polluting materials	Soils / Bedrock	Potential leak or spillage from vehicles/machinery or construction related liquids on site resulting in soil/bedrock contamination	Negative	Moderate	Short term	Good housekeeping during construction and proper handling, storage and disposal of any potentially polluting substances. Designated and bunded storage areas will be used and maintained. Designated refuelling areas will be used. Spill kits retained on-site.	Imperceptible
Earthworks	Surface Water	Erosion of exposed soils/subsoils and entry of sediment laden run-off to nearby surface water	Neutral	Imperceptible	Temporary	Stockpiles of topsoil/soils will be covered/dampened during dry weather to prevent spreading of sediment/dust. Top-soiling and landscaping of the works will take place as soon as finished levels are achieved.	No effect
Earthworks/ Excavations	Groundwater in the Pl aquifer	Temporary removal of part of the protective soil/subsoil cover thus increasing groundwater vulnerability to contamination	Neutral	Slight-moderate	Temporary	Excavations would be backfilled as soon as is possible to prevent any infiltration of potentially polluting compounds to the subsurface and the aquifer.	Imperceptible
Hydrocarbons from construction vehicles/ machinery/ equipment	Groundwater in the Pl aquifer	Potential accidental leakage or spillage of hydrocarbons from vehicles/machinery resulting in contamination	Negative	Slight-moderate	Short-medium term	Oil and fuel will be stored on-site in designated bunded areas located away from any surface water drainage. Refuelling of construction machinery will be undertaken in designated areas located away from surface water	Negative Slight

RECEIVED: 05/06/2024

Activity/ Source	Environmental Receptor	Impact/Effect Description	Quality	Significance	Duration	Mitigation	Residual Impact
						drainage. All machinery will be inspected at the start of each work shift for signs of leaking hydrocarbons. Parking areas will be inspected on a daily basis for evidence of hydrocarbons leaking from machinery. Spill kits will be kept on-site.	
Cement material of other potentially polluting substances	Soils	Potential leakage or spillage of cement or other potentially polluting substances resulting in soil contamination	Negative	Significant	Long term	Any uncured concrete works would be supervised at all times, and would be scheduled outside of periods of expected heavy rainfall. Surplus uncured concrete would be returned to the batching plant where possible	Negative slight
Cement material of other potentially polluting substances	Groundwater in the Pl aquifer	Potential leakage or spillage of cement or other potentially polluting substances resulting in groundwater contamination	Negative	Slight-Moderate	Short term	Any uncured concrete works would be supervised at all times, and would be scheduled outside of periods of expected heavy rainfall. Surplus uncured concrete would be returned to the batching plant where possible	Negative slight

RECEIVED: 05/06/2024

Table 9.3: Summary of Predicted Operational Phase Impacts

Activity/Source	Environmental Receptor	Impact/Effect Description	Quality	Significance	Duration	Mitigation	Residual impact
Oil/Hydrocarbons from Vehicles. Machinery	Soils/groundwater	Accidental leakage/spillage of hydrocarbons resulting in localised contamination of soils/subsoils	Negative	Not Significant	Medium term	Chemical and fuels would be adequately bunded. Spill clean-up materials would be available onsite	Imperceptible
Storage/recovery of Slurry/Wash-water	Soils/groundwater and surface water	Accidental leakage of slurry and wash-water from tanks resulting in localised contamination of soils/subsoils/surface water.	Negative	Moderate	Short term	Separation of 'clean' runoff from soiled wash waters to minimise volumes of soiled water to be managed. Slurry and wash water mix would be land spread in accordance with Nitrates Regulations	Imperceptible
Made ground	Soils	Soil sealing	Negative	Slight	Permanent	Made ground will be limited in extension	Slight
Water usage	Groundwater	Increase in resource demand	Negative	Not signifcant	Permanent	Appropriate water management	Not significant
Surface water drainage	Site/downstream areas	Increased flood risk	Negative	Imperceptible	Long term	Adequate surface water drainage network in place. No further mitigation is required	Imperceptible

9.7 REFERENCES

RECEIVED: 05/07/2024

Environmental Protection Agency, 1999. Waste water Treatment Manuals - Treatment Systems for Small Communities, Business, Leisure Centres and Hotels. Available online: https://www.epa.ie/publications/compliance--enforcement/waste-water/wastewater-treatment-manuals---treatment-systems-for-small-communities-busines.php Accessed June 2023.

Conry, M.J., De Coninck, F., Bouma, J., Cammaerts, C. and Diamond, J.J., 1972, January. Some brown podzolic soils in the west and south-west of Ireland. In *Proceedings of the Royal Irish Academy. Section B: Biological, Geological, and Chemical Science* (pp. 359-402). Royal Irish Academy.

Environmental Protection Agency, 2004. Landspreading of Organic Waste – Guidance on Groundwater Vulnerability Assessment of Land. Available online: https:// www.epa.ie/publications/compliance--enforcement/waste/EPA_landspread_organic_waste_guide.pdf Accessed June 2023.

Environmental Protection Agency, 2009. Code of Practice: Waste Water Treatment and Disposal Systems Serving Single Houses. Available online: https://www.epa.ie/publications/compliance--enforcement/waste-water/2009-code-of-practice-wastewater-treatment-systems-for-single-houses.php Accessed June 2023.

European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2022 (S.I. No. 113 of 2022). Available online: https://www.irishstatutebook.ie/eli/2022/si/113/made/en/pdf Accessed June 2023

Geological Survey of Ireland, July 2004. Ballyglass, Groundwater Body: Summary of Initial Characterisation (1st Draft). Available online: https://www.gsi.ie/en-ie/programmes-and-projects/groundwater/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx Accessed June 2023.

Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency, 2022). Available online: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf Accessed June 2023.

Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (Institute of Geologists of Ireland, 2013). Available online: http://igi.ie/assets/files/Codes%20and%20Guidelines/IGI%20Enviro%20Impact%202013.pdf Accessed June 2023.

EPA online map viewer. Available at: https://gis.epa.ie/EPAMaps/ Accessed June 2023.

Coller, D.W., 1984. Variscan structures in the Upper Palaeozoic rocks of west central Ireland. *Geological Society, London, Special Publications*, *14*(1), pp.185-194.

Drew, D.P., 2008. Hydrogeology of lowland karst in Ireland. *Quarterly Journal of Engineering Geology and Hydrogeology*, *41*(1), pp.61-72.

Environmental Protection Agency's online mapping viewer. Available at https://gis.epa.ie/EPAMaps/Water Accessed June 2023.

Geological Survey of Ireland's online mapping viewers; Available at https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228 Accessed June 2023.

Teagasc: The Irish Soil Information System: http://gis.teagasc.ie/soils/map.php Accessed June 2023.

RECEIVED: 06/06/2024

SECTION C - MATERIAL ASSETS

RECEIVED: 05/06/2024

This section of the Environment Impact Assessment Report deals with material assets that would potentially be affected by the proposed development of an extension to an existing piggery and all ancillary site works and services at Graigue, Co. Laois.

Material assets are grouped into:

Material Assets**:** **Utilities & Traffic** including electricity, gas, foul sewer, telecommunications and traffic.

Material Assets: **Natural & Other Resources** including mineral resources, land and energy.

Material Assets are generally considered to be the physical resources in the environment which may be either of human or natural origin. The object of the assessment of these resources is to identify the impact of the development on individual enterprises or properties and to ensure that natural resources are used in a sustainable manner in order to ensure availability for future generations.

Agricultural enterprises interact, to a large extent, with the natural environment in terms of climate, aid quality, soil, hydrology and hydrogeology. Some domestic animals, such as horses and milking cows, may be impacted by traffic-generated noise.

Resources required for the proposed development include existing land, fill material which would have to be sourced from quarries and electricity required for the operation of the proposed development.

RECEIVED: 09/08/2024

10.0 MATERIAL ASSETS – UTILITIES & TRAFFIC

10.1 INTRODUCTION

This section outlines the utilities that would potentially be affected by the proposed development during both the construction and operational phases. Material assets are generally considered to be the physical resources in the environment, which may be either of human or natural origin.

The objective of the assessment of these resources is to identify the impact of the development on individual enterprises or properties and to ensure that natural resources are used in a sustainable manner in order to ensure availability for future generations.

Economic assets of human origin, i.e. utilities are considered in this section. Economic assets of natural origin are addressed in other sections of this EIAR, namely: *Land - Soils, Geology and Hydrogeology; Archaeological, Architectural and Cultural Heritage and Material Assets - Waste Management/Natural resources and Agriculture*. The purpose of this section is to assess the impacts of the proposed development on the existing utility network, which includes the following infrastructure:

- Electricity;
- Water;
- Wastewater;
- Natural Gas;
- Telecommunications;
- Traffic.

10.2 METHODOLOGY

A desktop study was undertaken to assess the potential impact of the proposed development on the utilities of the area.

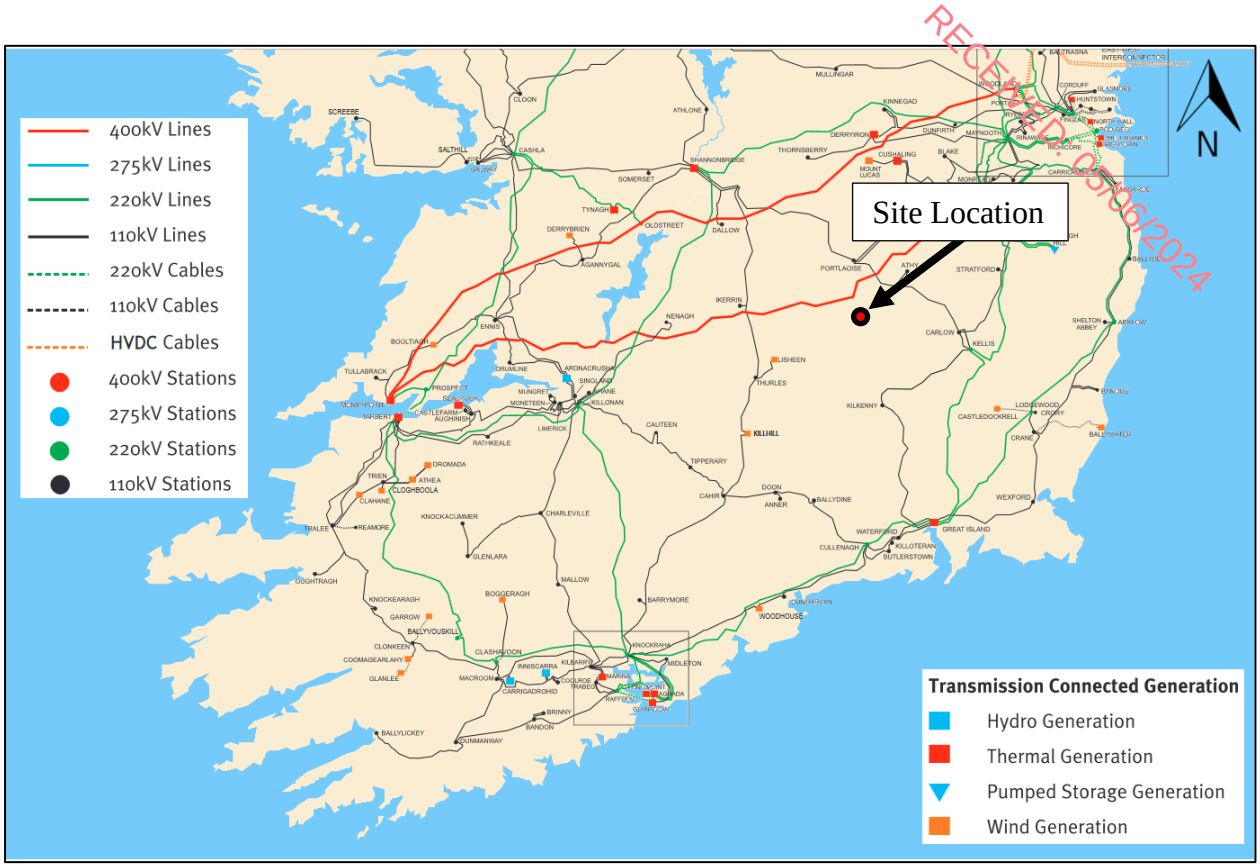
10.3 DESCRIPTION OF EXISTING ENVIRONMENT

10.3.1 ELECTRICITY

The proposed development would be connected to the electrical mains supply. There is a number of power line systems within the vicinity of the site.

One of the two 400 kV power line systems in Ireland running from Ireland's largest electrical power generation station the Moneypoint station near Kilrush, County Clare, to the Dublin area runs from west to east only a few kilometres north of the site.

Electricity supply and transmission is available throughout the county on the low (38kV, 20kV, and 10kV) and high transmission networks. High voltage transmission within the county is available at 110kV. There is one 110kV station at Portlaoise. The closest power generation station is the wind powered Lisheen station in County Tipperary (**Figure 10.1**).



RECEIVED 05/06/2024

Figure 10.1: Irish Electrical Grid Map.

10.3.2 WATER

Water needs for the current piggery are provided through an existing groundwater well at the site and through the mains supply. These sources would also be used to supply water and services to the new proposed buildings. The site currently uses c. 22,499 m^3 of water per year and it is not anticipated to significantly increase as a result of the proposed development. Further information regarding the calculation of water usage at the site is included in the Description of Development Section.

The potential increase in groundwater abstraction would not be expected to cause a significant demand on the groundwater resources of the area, and would not be expected to impact upon other abstractions locally.

Groundwater recharge in the area of the site is c. 487 mm/y, which is considered to be highly permeable and vulnerable. The site is not located within a surface or groundwater source protection area.

10.3.3 WASTEWATER

There is no municipal sewer system in the area of the farm.

Under Condition 3.8 of the site's EPA IE licence (P0710-03), the licensee shall provide and maintain a wastewater treatment plant at the installation for the treatment of sanitary effluent

RECEIVED: 08/01/2024

arising on-site according to the EPA's Code of Practice Wastewater Treatment and Disposal Systems Serving Single Houses.

There is a septic tank present at the site, servicing the staff toilet and facilities. The septic tank is in place for the disposal of domestic sewage from the site. The septic tank is constructed of pre-cast concrete and has a capacity of 4,500 litres. All wastewater generated by the sinks, toilets, etc. in the staff accommodation/office building is discharged to the septic tank system.

10.3.4 GAS

The site does not currently use gas nor do the proposed developments include the integration of any gas services.

Figure 10.2: Gas Network of Ireland.

Gas Networks Ireland has responsibility for developing, maintaining and operating the natural gas transmission and distribution networks in Ireland. The region in which the site is not directly serviced by a major gas network line. The nearest gas line is at Portlaoise, north of the site (**Figure 10.2**).

10.3.5 TELECOMMUNICATIONS

The county broadband services have improved significantly over the past number of years. The area has a number of broadband, phone and television channel providers, including Digiweb®, Eir®, pure-telecom®, Sky®, Virgin® and Vodafone®.

RECEIVED: 05/06/2024

The Government's 2012 National Broadband Plan National Broadband Plan, which will provide basic broadband services in areas that cannot be commercially served, and the Metropolitan Area Networks (MANs) plan should provide fibre-based connectivity in over 90 towns across Ireland, including Portlaoise.

According to the Irish governments national broadband plan, high speed broadband has already been made available to c. 77% of Irish premises and significant additional investment is expected over the coming years.

10.3.6 TRANSPORT NETWORK

The proposed development site is located in the townland of Graigue, 3.1km north-east of Ballinakill town centre, 4.9km south-east of Abbeyleix town centre and 15.1km south of Portlaoise.

The site is accessed by local road L7794 (speed limit set at 80 km/hr), which connects to the L7797 c. 410m to the east and to the L3777 c. 1.54km to the west. Both of these local roads link to the R430.

The nearest motorway is M8, which is part of the road network that connects Dublin to Cork, and is accessed by N77 that services Abbeyleix town c. 4.9 km to the north-west of the proposed development.

The nearest Irish Rail station is located in Portlaoise, c. 15.5 km north of the site, and is part of the railway network that connects Dublin to Cork.

Bus Éireann and a number of private operators provide daily long distance express services as well as local bus services within the county. Long distance express bus services in the county serve Dublin, Cork and other counties. At a more local, rural level, the National Transport Authority funded Local Link Rural Transport Programme services, which are managed by Local Link Laois Offaly aimed at addressing rural social exclusion and the integration of rural transport services with other public transport services.

10.3.7 TRAFFIC

The site is accessed by local road L7794 (speed limit set at 80 km/hr), which connects to the L7797 c. 410m to the east and to the L3777 c. 1.54km to the west. Both of these local roads link to the R430. The site is c. 178m above sea level on an area that is sloped down to the south.

The road is straight for c. 410m to the north-west and 190m to the south-east from the site access point and there is a sightline of c. 310m to the north-west and 160m to the south-east along the road from the entrance. The entrance to the site complies with the NRA visibility guidelines. The gateway area is surfaced with concrete and services a hardcore road that extends to the main part of the piggery.

While there would be increased vehicle movements during the construction phase of the development, this would be for a limited period of time only and would be minimal. Traffic movements during construction would be expected to consist of deliveries of building materials / plant equipment and vehicle movements from sub-contractors.

RECEIVED: 05/09/2024

During the operational phase of the project traffic movements to and from the site should not increase as animal numbers at the site will be the same as the existing numbers. Operational traffic movements would be expected to involve deliveries, collections and staff movement.

The Average Daily Traffic generated by the pig unit in full production, as built, is 10 vehicles. This consists of staff cars, feed delivery vehicles, pig sales, manure transport from the site and service personnel. AADT figures include out and return journeys.

The estimated traffic movements would be for the most part the same as the traffic movements associated with the existing piggery farm at the site. Therefore, there would be no significant increase in traffic volumes due to the proposed expansion of the farm. The majority of HGV journeys would occur during the change-over periods between batches.

It is not anticipated a significant impact on the L7794 road, along which the site is located, nor on the wider road network as a result of the proposed development.

10.4 IMPACTS

10.4.1 CONSTRUCTION PHASE

Electricity and water would be required during construction activities. The development site would be connected to the local electricity grid network system and the sites own groundwater supply. Given the scale and temporary nature of construction works, the electrical demand on the local electrical network would be considered insignificant and would not be anticipated to impact upon local power supply.

Facilities including toilets, showers and a canteen are already provided at the site which would easily accommodate the extra persons on site during the construction phase.

Telecommunications requirements during the construction phase would be provided using mobile phones/broadband. There would be no anticipated impacts to the local telecommunications system.

The construction works contractor would liaise with the relevant utilities provider prior to works commencing, with ongoing consultation throughout the proposed development. The proposed development would connect to existing farm services. Where new services would be required, the construction works contractor would apply to the relevant utility provider and adhere to the requirements outlined in the connection permit/licence.

10.4.2 OPERATIONAL PHASE

Following site clearance and excavations, works would commence on the installation of underground utilities to the site required for electricity.

There would be a minor additional demand for electricity for the proposed development, which would have no significant impact upon the utility. The Applicant has recently installed 100kVa of solar panels which will generate 22% of the total annual electricity requirement of this pig farm. This will help reduce the Carbon footprint of the production process of this farm and improve its sustainability credentials. There would be no significant additional demand upon

RECEIVED: 05/09/2024

the group water scheme supply and there would be no alteration to the existing operational staffing at the farm or demand to the onsite wastewater treatment system.

10.4.3 POTENTIAL CUMULATIVE EFFECTS

The proposed development is located within an agricultural landscape, with sparse residential properties located to the east and west of the site along local roads.

The area also supports a number of other small-scale agricultural holdings. The site is in an area designated as structurally weak in the Laois County Development Plan 2021 – 2027. The site is not located in a primary or secondary amenity area of the county. There would be no significant impacts upon agricultural properties or non-agricultural properties due to the proposed extension of the farm.

The proposed development is for the construction of 4no. fattening houses and 1no. farrowing house and it is not proposed to increase animal stocking numbers at the farm. Therefore, it is not considered that there would be an increased demand on water and traffic volumes that could result in significant cumulative impacts during the operational phase of the development. However, a slight increase in the demand for electrical utilities is likely to occur.

It is considered that groundwater and electrical utilities in the area have adequate capacity to accommodate the estimated requirements of the proposed development, during both the construction and operational phases, and therefore there would be no significant cumulative impact upon local utilities. No significant cumulative traffic impacts are anticipated.

10.5 AVOIDANCE, REMEDIAL & MITIGATION MEASURES

10.5.1 CONSTRUCTION PHASE

The Contractor would be obliged to put measures in place to ensure that there are no interruptions to existing services unless this has been agreed in advance with the relevant service provider.

All works in the vicinity of utilities apparatus would be carried out in ongoing consultation with the relevant utility company or local authority and would be in compliance with any requirements or guidelines they may have.

Where new services or diversions to existing services are proposed, the Contractor would apply to the relevant utility company for a connection permit where appropriate and would adhere to their requirements.

10.5.2 OPERATIONAL PHASE

The proposed development would be serviced by existing utilities, with the capacity to accommodate the proposed development. Therefore, no mitigation measures are necessary.

The development would require power during the operational development for normal day-to-day operations. The estimated power requirement would not be considered significant in the

RECEIVED: 05/06/2024

overall context of the proposed development and would not be anticipated to significantly impact upon the local power supply.

Water demand during the operation of the development is expected to be similar to existing water usage and would not be anticipated to have a significant impact on the regional groundwater supply.

10.5.3 "DO-NOTHING" SCENARIO

Should the proposed development not take place, there would be no changes or impacts upon utilities including the national power grid, local water supply and telecommunications.

10.6 RESIDUAL IMPACTS

Given the nature of the proposed development and following the implementation of mitigation measures it is considered that residual impacts would be imperceptible.

10.7 REFERENCES

Environmental Protection Agency (2022) *Guidelines on the information to be contained in Environmental Impact Assessment Reports*.

Gas Networks Ireland, available at: https://www.gasnetworks.ie/home/. Accessed June 2023.

Laois County Development Plan 2021 – 2027. Available at: https://laois.ie/wp-content/uploads/Volume-1-Written-Statement-of-Adopted-LCDP-2021-2027-including-Ministerial-Direction-amendments.pdf Accessed July 2023.

Environmental Protection Agency Licence public access information, Available at: http://www.epa.ie/licensing/iedipcse/ Accessed July 2023.

EPA Unified GIS Application, Available at: https://gis.epa.ie/EPAMaps/ Accessed July 2023.

Myplan.ie Viewer. Available at: https://viewer.myplan.ie/ Accessed July 2023.

RECEIVED: 05/06/2024

11.0 MATERIAL ASSETS – NATURAL & OTHER RESOURCES

11.1 INTRODUCTION

This section of the EIAR outlines the potential impacts on natural and other resources of the proposed development and all ancillary site works and services at Ballinakill, Co. Laois.

The proposed development is to carry out an extension to an existing piggery with no intensification of use and all ancillary site works and services.

11.2 METHODOLOGY

A desktop study was undertaken to assess the potential impact of the proposed development on the natural and other resources of the area. This included a review of available data on the Geological Survey Ireland Spatial Resources, Teagasc Subsoil Mapping and EPA Unified GIS Application Mapping websites.

11.3 DESCRIPTION OF THE ENVIRONMENT

The area in the immediate vicinity of the proposed development is rural in nature, with much of the land in agricultural use. A network of utilities associated with residential houses, agricultural and commercial operations are all available in the general hinterland.

11.3.1 LAND USE AND SOIL

Following construction of the proposed development, the total surface area of the proposed buildings would cover an area of 6,288 m^2. The existing structures at the site cover an area of 7,664 m^2 with the overall existing farm hub covering an area of approximately 1.69 ha. Following completion of the proposed development, the farm operation would cover an area of 2.7 ha within an owned land area of 3.2 ha.

The land within c. 1 km of the site is predominantly used for pasture and there is a sand and gravel quarry and concrete block manufacturer to the south. There are some areas of land occupied by forest to the east and alluvial deposits along the Owveg River. There is also a patch of non-irrigated arable land to the north-west.

On a larger scale, the most frequent land uses in the region are still pastures and agricultural lands, with frequent patches of transitional woodland scrubs and coniferous forests. Urban areas constitute a minority of the land-use cover. The majority of the urban fabric in the region is located in Abbeyleix. This is composed of discontinuous urban fabric.

Other land cover within 15km of the proposed site includes continuous urban fabric, mineral abstraction sites, industrial and commercial units, wetlands, sport and leisure facilities and road and rail network.

According to the Geological Survey of Ireland's online mapping tool the soil underlying the majority of the site are classed as shallow and gravelly mineral complexes that are mainly basic.

RECEIVED: 05/09/2024

A detailed description of the existing soil environment is provided in the Land – Soils, Geology and Hydrogeology section.

11.3.2 ECONOMIC MINERALS

There is one operational quarry within the immediate vicinity of the site. Four operational quarries are located within 15 km of the proposed development site, as detailed in the table below.

Table 11.1: Operational Quarries Within 15 km of the Proposed Development.

QUARRY NAME	QUARRY TYPE	APPROX. DISTANCE FROM PROPOSED DEVELOPMENT
Kilsaran	Sand and Gravel	Immediate vicinity
Shiel Sand and Gravel	Sand and Gravel	8.7 km north-west
Killeaney Quarry	Crushed Rock	11.4 km north-west
Farnans Quarry	Crushed Rock / Dimension Stone	12.2 km east

GSI online web mapping indicates the following mineral localities within the vicinity (5.0 km) of the proposed development:

- Area of Sandstone, 1.8 km north of the site; (Non Metallic)
- Area of Limestone, 3.7 km west of the site; (Non Metallic)
- Area of Limestone, 3.7 km north-west of the site; (Non Metallic)
- Area of Limestone, 3.8 km north-west of the site; (Non Metallic)
- Area of Limestone, 3.8 km north-west of the site; (Non Metallic)
- Area of Shale, 4.0 km north of the site; (Non Metallic)
- Area of Coal, 4.5 km south-east of the site; (Non Metallic)
- Area of Coal, 5.0 km north of the site; (Non Metallic)

11.4 IMPACT & MITIGATION

Overall, the proposed development would have a minor negative impact on natural and other resources. Any disruption to services and existing transport networks would be minimal and of a temporary nature during the construction phase of the development.

11.4.1 LAND & SOIL

In total, the proposed piggery would occupy an estimated 1 hectare of existing farmyard within the lands operated by the applicant. The proposed development would result in a permanent loss of agricultural pastureland and soil within the footprint of the proposal.

11.4.2 ECONOMIC MINERALS

It is considered that the proposed development would have no significant impact on mineral resources in the vicinity of the area.

RECEIVED: 05/06/2024

11.4.3 RAW MATERIALS REQUIRED

Construction material, when needed, would be sourced from nearby sources such as local quarries where practical. The amount of raw materials needed is not expected to place any stress on natural resources.

11.5 RESIDUAL IMPACTS

Given the nature of the proposed development and following the implementation of mitigation measures as outlined in previous sections, it is considered that residual impacts would be imperceptible.

11.6 POTENTIAL CUMULATIVE IMPACTS

It is considered that the main potential cumulative impacts would be a slight increase in traffic volumes. Although, no significant cumulative traffic impacts are anticipated.

11.7 DIFFICULTIES ENCOUNTERED IN COMPILING INFORMATION

No difficulties were encountered during the assessment of potential impacts of the proposed development on natural or other resources.

11.8 REFERENCES

Environmental Protection Agency Licence public access information, Available at: http://www.epa.ie/licensing/iedipcse/ Accessed June 2023.

Teagasc Subsoil Mapping. Available at: http://gis.teagasc.ie/soils/map.php Accessed June 2023.

Environmental Protection Agency (2022). *Guidelines on the information to be contained in Environmental Impact Assessment Reports*.

Gas Networks Ireland, available at: https://www.gasnetworks.ie/home/. Accessed June 2023.

Laois County Development Plan 2021-2027. Available at: https://laois.ie/wp-content/uploads/Volume-1-Written-Statement-of-Adopted-LCDP-2021-2027-including-Ministerial-Direction-amendments.pdf Accessed June 2023.

Environmental Protection Agency Licence public access information, Available at: http://www.epa.ie/licensing/iedipcse/ Accessed June 2023.

EPA Unified GIS Application, Available at: https://gis.epa.ie/EPAMaps/ Accessed June 2023.

Myplan.ie Viewer. Available at: http://www.myplan.ie/viewer/ Accessed June 2023.

GSI online mapping. Available at: https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228 Accessed June 2023.

RECEIVED: 05/06/2024

SECTION D – ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

This section of the EIAR examines the impacts of the proposed development on archaeology, architecture and cultural heritage.

Archeologically important sites, buildings of historic, artistic or architectural interest and sites of cultural heritage form part of the landscape of County Laois. As part of the scope and examination of alternatives phases of this development, every effort has been made to avoid known Archaeological, Architectural and Cultural Heritage sites.

This section of the EIAR examines the impacts of the development on known sites (which could not be avoided) or potential sites which have come to light during the field survey of the proposed development.

RECEIVED: 05/06/2024

12.0 ARCHAEOLOGICAL, ARCHITECTURAL & CULTURAL HERITAGE

12.1 INTRODUCTION

This chapter of the Environmental Impact Assessment Report (EIAR) assesses the archaeological, architectural and cultural heritage effects of the proposal to carry out an extension to an existing piggery and all ancillary site works and services in Graigue, Ballinakill, Co. Laois (**Figure 12.2**).

The purpose of the chapter is to provide an archaeological, architectural and cultural heritage assessment of the receiving environment, to identify the likely and significant effects on the receiving environment and to propose ameliorative measures to mitigate these effects.

The assessment involved a desk study and risk assessment based on information in EIAR sections and was carried out by Panther Environmental Solutions Ltd., in support of a planning application to Laois County Council.

12.1.1 DEFINITION OF ARCHAEOLOGICAL, ARCHITECTURAL & CULTURAL HERITAGE

The term 'cultural heritage' is broadly used to describe any combination of archaeological, architectural and cultural heritage features.

- Archaeological heritage comprises objects, monuments, buildings or landscapes that generally pre-date AD1700.
- Architectural heritage, also referred to as built heritage, comprises structures, buildings, their settings and contents that generally post-date AD1700.
- Cultural heritage also comprises less tangible aspects of heritage such as folklore and cultural associations.

12.2 LEGISLATIVE FRAMEWORK & POLICY

12.2.1 LEGISLATIVE CONTEXT

Ireland has ratified several international and European conventions on the protection of cultural heritage, principally:

- UNESCO World Heritage Convention 1972;
- Charter for the Conservation and Restoration of Monuments ad Sites (Venice) 1964;
- European Convention on the Protection of the Archaeological Heritage (Malta Convention) 1992;
- European Convention on the Protection of the Architectural Heritage (Grenada Convention) 1985;
- EIA Directive.

RECEIVED: 05/09/2024

National legislation protecting cultural heritage comprises:

- National Monuments Act 1930, amended 1954, 1987, 1994 and 2004;
- Heritage Act 1995;
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999; and
- Planning and Development Act 2000 (as amended).

In addition to standards and guidelines relating to the preparation of EIAR's, the following cultural heritage guidelines were consulted as part of this assessment:

- Frameworks and Principles for the Protection of the Archaeological Heritage (1999), Department of Arts, Heritage, Gaeltacht & the Islands;
- Policy and Guidelines on Archaeological Excavation (1999), Department of Arts, Heritage, Gaeltacht & the Islands;
- The Heritage Council, 2000. Archaeology & Development: Guidelines for Good Practice for Developers, The Heritage Council;
- Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes (2005), National Roads Authority; and
- Guidelines for the Assessment of Architectural Heritage Impacts of National Roads Schemes (2005), National Roads Authority;

Architectural Heritage Protection Guidelines for Planning Authorities (2011), Department of Arts, Heritage, Gaeltacht & the Islands.

12.2.2 PLANNING POLICIES

The Laois County Development Plan 2021-2027 contains policies of relevance to archaeology, architecture and cultural heritage. **Table 12.1** compiles relevant policies present in the Built and Cultural Heritage Chapter. Relevant policies are not restricted to that particular Chapter.

Table 12.1: Policy Objectives for Archaeological Heritage.

Policy Objective	Description
AH 1	Manage development in a manner that protects and conserves the integrity and character of archaeological heritage of the county which avoids adverse impacts on sites, monuments, settings, features or objects of significant historical or archaeological interest and secure the preservation in-situ or by record of all sitesand features of historical and archaeological interest.
AH 2	Support the preservation or conservation of historically significant street patterns, building lines and plot widths in its towns and villages as well as the preservation of features such as town walls, historic revetments, and public realm features such as granite kerbing, historic drinking fountains, cobbles, vent pipes whether or not they benefit from protection in their own right.

RECEIVED: 05/06/2024

Policy Objective	Description
AH 3	Protect the intrinsic value, character, integrity and settings of monuments and places in the Record of Monuments and Places (RMPs) and any forthcoming statutory register and protect Zones of Archaeological Potential against inappropriate development.
AH 4	In areas of archaeological potential, where groundworks are proposed, ensure thatall works are undertaken to the highest standard and the resultant information made publicly available. Developers will be required to have regard to Archaeology and Development: Guidelines for Good Practice for Developers (ICOMOS, 2000) in planning and executing development in sensitive areas. The Council favours the preservation in-situ of archaeological remains, where areas of archaeological potential are located in town centres or villages, preservation of archaeological remains by record will be considered.
AH 5	Encourage, where practicable, the provision of public access and signage to sites identified in the Record of Monuments and Places under the direct ownership,guardianship or control of the Council and/or the State.
AH 6	Work closely with the relevant State bodies to deliver the conservation objectives of the Rock of Dunamase and redevelopment of Fort Protector to secure funding for the preservation and development of these culturally important sites.
AH 7	Require visual impact statements for developments within the area around the Rockof Dunamaise in order to assess the potential impacts of development in the area.
AH 8	Work with stakeholders including the OPW, the Heritage Council, the Arts Council, local communities, Bord Failte and businesses to support the development of heritage and cultural tourism in County Laois.
AH 9	Work with stakeholders including the OPW, the Heritage Council, the Arts Council, local communities, Bord Failte and businesses to support the development of heritage and cultural tourism in County Laois.
AH 10	Protect where appropriate industrial heritage structures or elements of significance identified in the Laois Industrial Archaeology Survey by adding them to the Record of Protected Structures during the lifetime of the Development Plan.

12.3 METHODOLOGY

The assessment of archaeological, architectural, and cultural heritage effects is based on a desk-top study of relevant archaeological, architectural and cultural heritage sources. The following were the principal desk-based sources consulted:

National Monuments
Under the National Monuments Act 1930 (as amended), archaeological sites in the ownership or guardianship of the State or a local Authority and sites under Preservation Orders are designated as National Monuments. Such sites are offered the highest level of protection under Irish legislation.

Record of Monuments & Places and Sites & Monuments Record
The Record of Monuments and Places (RMP) was established under Section 12 of the 1994 National Monuments (Amendment) Act. The statutory RMP is a list of archaeological monuments known to the National Monuments Service, and is based on the earlier Sites and

Monuments Record (SMR) files housed at the National Monuments Service. The record is updated on a constant basis.

RECEIVED: 05/01/2024

Excavations Bulletin and Excavations Database

The Excavations Bulletin is a published annual directory and an on-line database (www.excavations.ie) that provides summary accounts of all the excavations carried out in Ireland – north and south – from 1969. The on-line database has been compiled from the published Excavations Bulletins from the years 1970-2010, with additional online-only material from 2011 onwards, and is updated on a constant basis.

Laois County Development Plan 2021-2027

Each City and County Development Plan is compiled in accordance with the requirements of the Planning and Development Act 2000 (as amended) and contains lists of national monuments, recorded monuments, a Record of Protected Structures (a list of buildings which cannot be materially altered or demolished without grant of permission under the Act) and Conservation Areas and Architectural Conservation Areas (to protect and enhance the special character of an area). The Laois County Development Plan 2021-2027 sets out the policies and objectives of the Council in respect of archaeology, architecture and cultural heritage in Chapter 12 of the Plan. The Laois Heritage and Biodiversity Strategy 2021-2026 adopted by Laois County Council was also consulted.

National Inventory of Architectural Heritage

The National Inventory of Architectural Heritage (NIAH) is an ongoing survey within the Department of Culture, Heritage and the Gaeltacht. The work of the NIAH involves identifying and recording the architectural heritage of Ireland, from AD1700 to the present day and includes country houses, churches, mills, bridges and other structures of note. As well as a survey of buildings and structures, the NIAH has also carried out a survey of historic gardens and designed landscapes. The objective of the latter is to better understand the extent of the countries historic gardens and designed landscapes. The National Inventory of Architectural Heritage (NIAH) has conducted a field survey which has listed a number of historic gardens in County Laois such as Heywood Gardens near Ballinakill.

Cartographic Sources

Information gathered from cartographic sources is fundamental to the identification of archaeological and architectural heritage sites, including cultural landscapes e.g. demesne landscapes, which, based on the level of landscape change, are now often identified from cartographic records alone. The earliest Ordnance Survey maps date to the late 1830s and early 1840s, but much change has occurred in the use and treatment of the landscape in the intervening years, particularly during the second half of the 20th century, making these a valuable resource in tracing the development of a study area.

Aerial Photographs

Aerial photographs are a useful aid in identifying archaeological monuments that are not visible at ground level. Variations in the way plants grow can indicate sub-surface remains and can indicate the location of subsurface monuments such ranging from enclosures to deserted villages. No LiDAR imagery for the area of the site is available.

Toponomy Sources

A townland name may preserve information relating to its archaeology, history, folklore, ownership, topography or land use. Most placenames were anglicised by the Ordnance Survey,

RECEIVED: 05/06/2024

which begun in the 1830's. Despite some inaccuracies in translation, the Gaelic, Viking, Anglo-Norman and English origins of placenames are generally recognisable. The Placenames Database of Ireland website (wwww.logainm.ie) hosts online bi-lingual placename research and archival records for townlands. P. W. Joyce's (1910) *The Origin and History of Irish Names of Places*, is also an invaluable source for townland name meanings.

12.3.1 IMPACT ASSESSMENT CRITERIA

The impact assessment undertaken in this chapter is based on the methodologies presented in the Environmental Protection Agency (EPA) *Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)*, published May 2022.

A potentially significant effect in terms of archaeology, architecture and cultural heritage is described as an effect to a potential feature/area of archaeological, architectural or cultural heritage that could be significant without mitigation measures being implemented e.g. potential sub-surface archaeological remains.

12.4 DESCRIPTION OF EXISTING ENVIRONMENT

12.4.1 SITE DESCRIPTION

The piggery facility is situated in a rural setting in Graigue townland, predominantly under pasture. It is located on local road L7794 approximately 3.1 km northeast of Ballinakill town and 4.9 km south-east of Abbeyleix town, in Co. Laois, less than 3 km north-west of the county boundary with Kilkenny. The site is accessed by local road L7794 (speed limit set at 80 km/hr), which connects to the L7797 c. 410m to the east and to the L3777 c. 1.54km to the west. Both of these local roads link to the R430 (**Figure 12.1**).

Graigue townland is situated in the Dysartgallen Electoral Division and the townland's eastern boundary is partly delineated by the River Owveg - with topography rising to 187m OD with a maximum height of 178m at the site, which is relatively flat.

The pig farm has been established at this location since 1973. Over the decades, the piggery has constructed and demolished several buildings, under several planning applications. The most recent planning application was granted in 2006, under planning reference 06/918.

The proposed buildings would be situated to the east of existing facilities in lands under the ownership of the applicant. The field boundaries are mostly thick mature hedgerows and treelines. There is no physical barrier separating the area of the site and the land to the north.

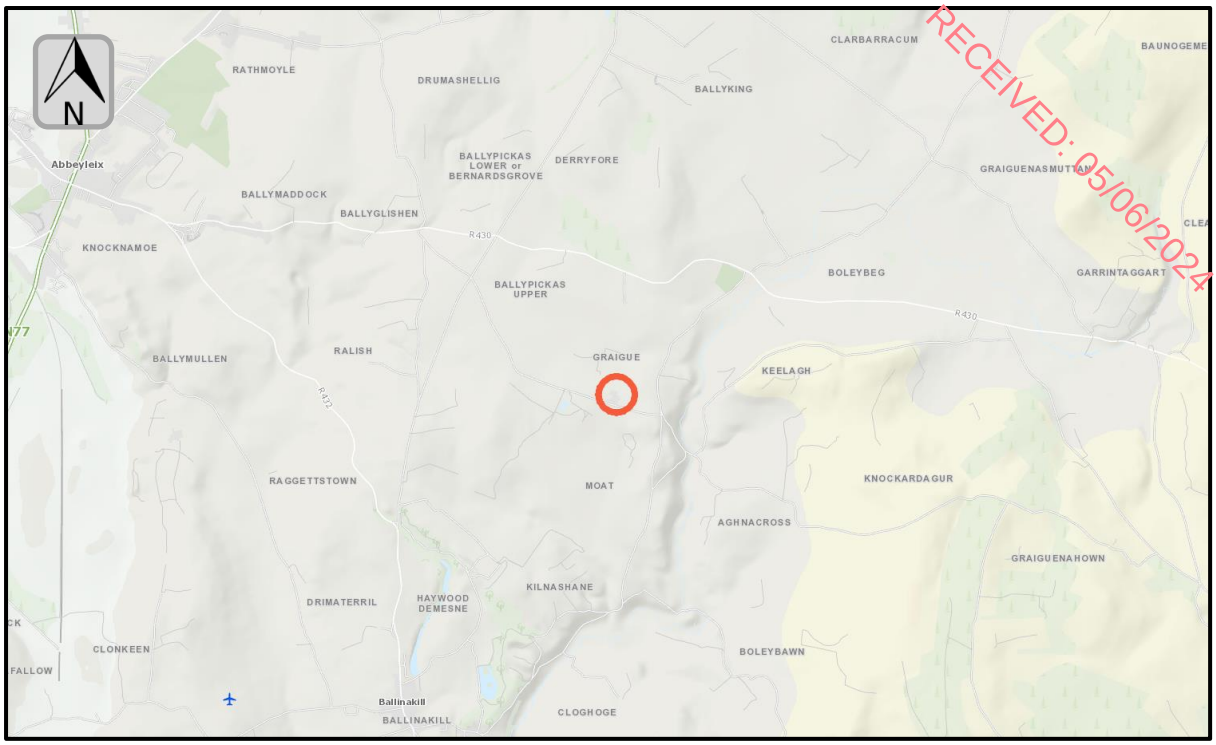


Figure 12.1: Location of site (circled red) within wider context (OSI Map Public).

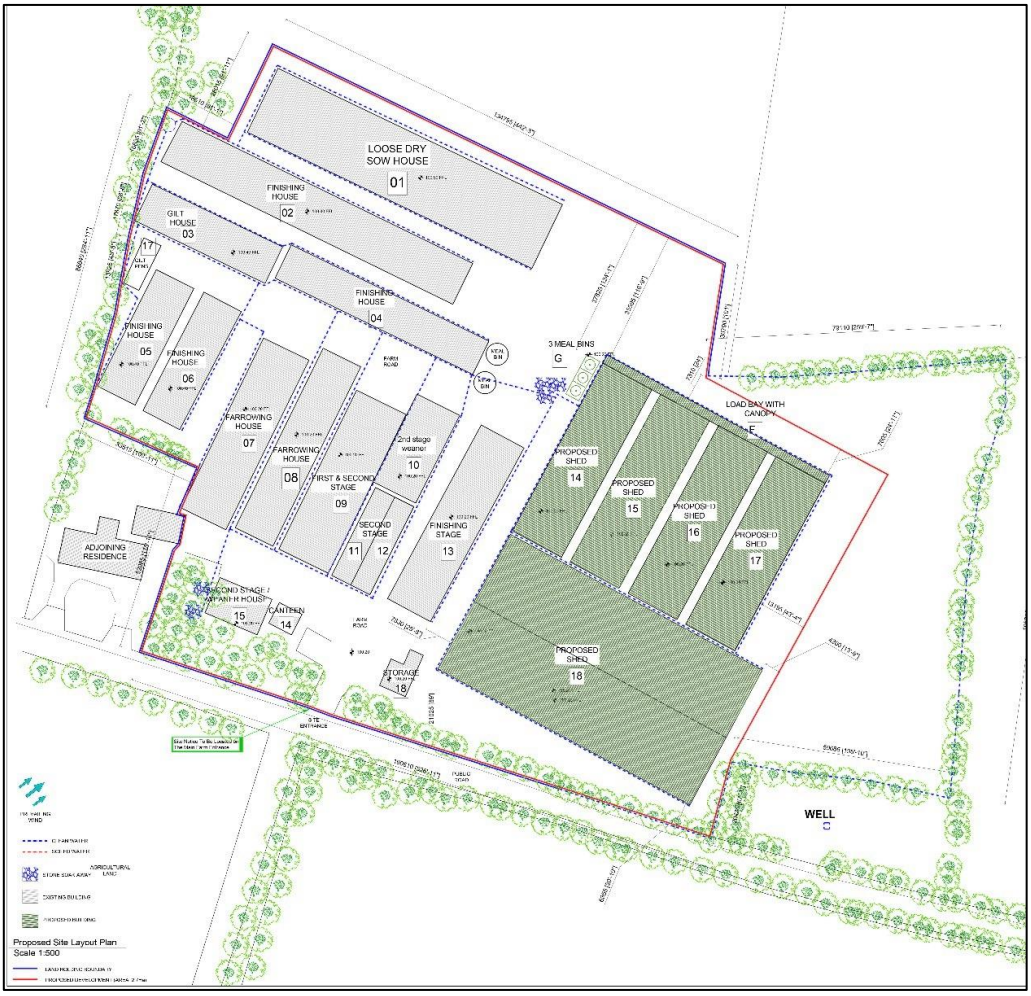


Figure 12.2: Proposed site layout plan (*site boundary in red*).

RECEIVED: 05/06/2024

12.4.2 ARCHAEOLOGICAL & HISTORICAL BACKGROUND

Prehistoric Period (7000BC-500AD)

There are no definitely dated prehistoric monuments within 1km of the proposed piggery extension. There is one enclosure (LA030-013) located within 1 km of the site that could date to any period in history, including the prehistoric period. Another enclosure (LA030-011004) is located within 1 km of the site, but is associated with a graveyard and, therefore, it is likely to be more recent.

Historic Period (500AD onwards)

Early Medieval Period (c.500AD-1100AD)

The introduction of Christianity to Ireland occurred during the 5th century A.D., and secular settlement during this era is represented by the ringfort, alternatively referred to as 'rath' 'lios' or 'dún' - to indicate an earthen bank and exterior ditch enclosing a central area - or 'cashel' to indicate a stone-walled enclosure. Usually circular or sub-circular and often sited on raised ground, there are over 45,000 currently identified in Ireland, making this the most common site type in the country. Smaller, 'univallate' examples were homesteads for lower ranks of society, while larger bi- or tri-vallate examples were used by lords or wealthy landowners.

A number of ringforts are located in the wider landscape and indicate a high rural population during the period supported by the fertile nature of the area. There is a ringfort within 1km of the proposed piggery extension listed in the townland of Moat (LA030-010), which is the closest recorded archaeological monument to the site.

Medieval Period to Late Medieval (c.1100AD-1650AD)

Much of the archaeological evidence in the wider area dates to the medieval period. The late medieval period dates from the mid-12th century to the mid-16th century. This is a time of much change in Ireland, with the invasion of Anglo-Normans at Wexford in 1169, the introduction of the first parliament and coinage and the 12th century reform of the church. It is also the period of castle building, from early motte-and-bailey castles of timber construction, to great Anglo-Norman stone castles and later tower houses. Virtually all sites within 1 km of the proposed piggery extension could be dated to this period.

Early Modern Period (c.1650AD-c.1850AD)

Country houses were to become dominant features of the cultural settled landscape in the early modern period, and several country houses with ancillary outbuildings and gate lodges set in demesne landscapes, were established in this part of Co. Laois. No evidence of such buildings within 1 km of the site have been recorded. There are, however, structures that could be dated to this period, such as the graveyard (LA030-011002) located to the south-east of the site.

12.4.3 CARTOGRAPHIC ANALYSIS

Analysis of historic mapping shows how landscapes evolve. Comparing successive historic maps can show how archaeological and architectural sites have been created, altered or

RECEIVED: 05/06/2024

removed over a period of time. The following historic maps were consulted, of which relevant extracts are presented below.

- Down Survey map of Co. Laois (Queens), 1656-58 (**Figure 12.3**);
- Down Survey map of Barony of Cullenagh, 1656-58 (**Figure 12.4**);
- First edition Ordnance Survey 6" map, 1844 (**Figure 12.5**);
- Revised Ordnance Survey 25" map, 1905 (**Figure 12.6**), and
- Revised Ordnance Survey 6" map, c. 1935 (**Figure 12.7**).

Down Survey Maps 1656-58

The Down Survey is a mapped survey carried out between 1656 - 1658 under the direction of Sir William Petty that recorded land confiscated from Irish Catholics to facilitate Cromwellian settlement. The survey recorded townland boundaries, their areas and proprietors with precision throughout Ireland. The resultant maps contain other detail, such as on roads, rivers, towns, churches, castles, houses and fortifications, as well as topographic and landuse detail.

The Down Survey map of County Laois (Queens) (**Figure 12.3**) and the map of the Barony of Cullenagh (**Figure 12.4**) depict Ballinakill (Ballinekill) and Abbeyleix (Abbyleix). However, the east of the Cullenagh Barony, where Graigue townland is located, is depicted as "*unforfeited lands*", suggesting that it was already in Protestant owners' hands. The more detailed Down Survey map of the Dysartgallen Civil Parish is not available. Abbeyleix Bog is depicted on both maps and appears as "Grealaght Bog" in the map of Cullenagh Barony.

Figure 12.3: Down Survey map of County Laois (Queens), 1656-58.

RECEIVED: 05/06/2024

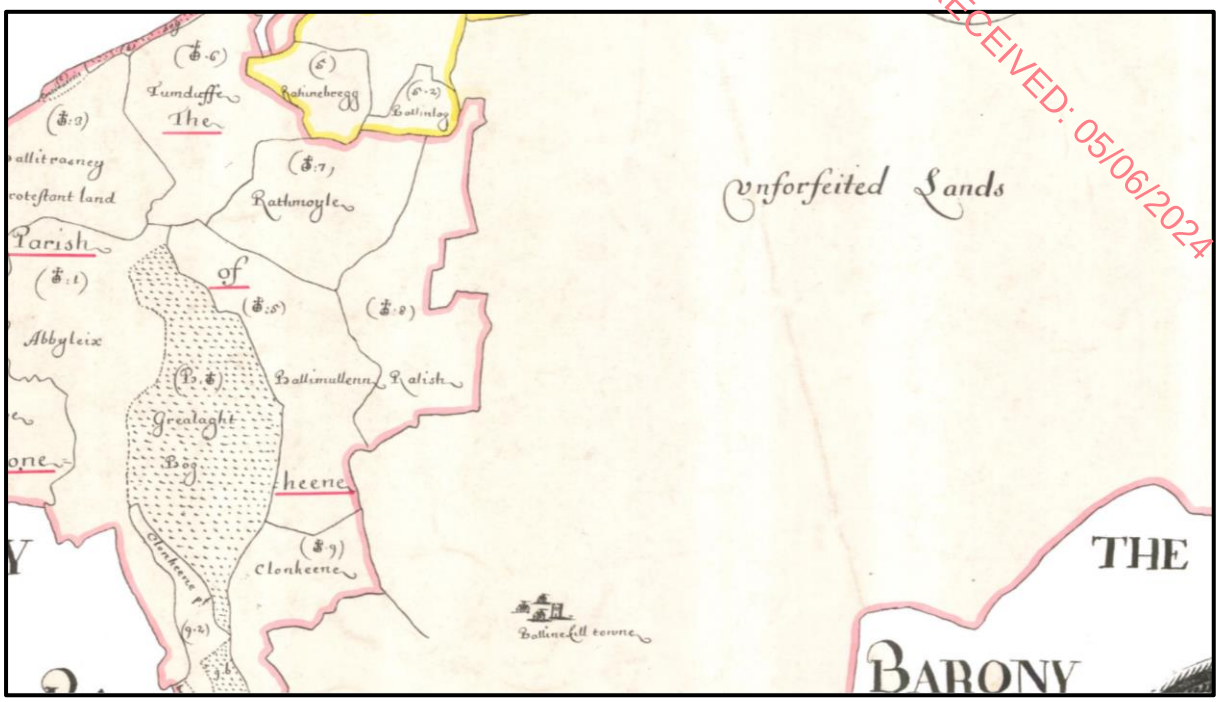


Figure 12.4: Extract from Down Survey map of Barony of Cullenagh, 1656-58.

Ordnance Survey Maps

The first ever large-scale survey of Ireland was undertaken by the Ordnance Survey between 1829 and 1842, producing highly accurate maps at different scales. The 1st edition 6-inch OS map was surveyed in 1840 and published in 1844 and is the first map to the show the existing piggery in any detail (**Figure 12.5**).

The farm, on the 1st edition 6-inch OS map, is represented by a farm holding with no clear access from the public road. This road, aligned on field boundaries, is still present, running to the south of the current piggery access road. No buildings were depicted within the farmyard, the existing ones located along the local road. Graigue townland's boundaries are marked in red.

The 25-inch OS map was surveyed in 1903 and published 1905 (**Figure 12.6**). Graigue townland's boundaries are marked in dotted lines, which align with the local road L7794. Relative to the previous map, the 1905 map depicts a farmyard complex closely north-west of the site.

The last historic 6-inch edition OS map was published in 1935 (**Figure 12.7**). It shows a similar situation.

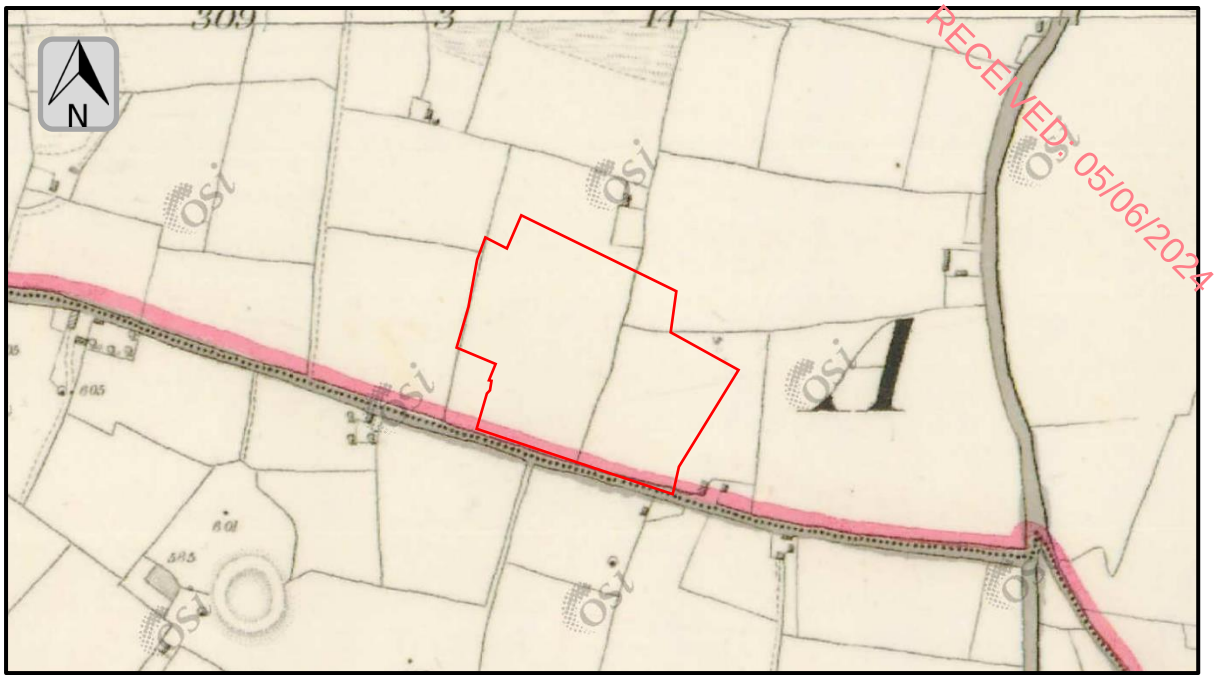


Figure 12.5: Extract from first edition 6-inch Ordnance Survey map, published 1844, showing approximate piggery area (*in red*).

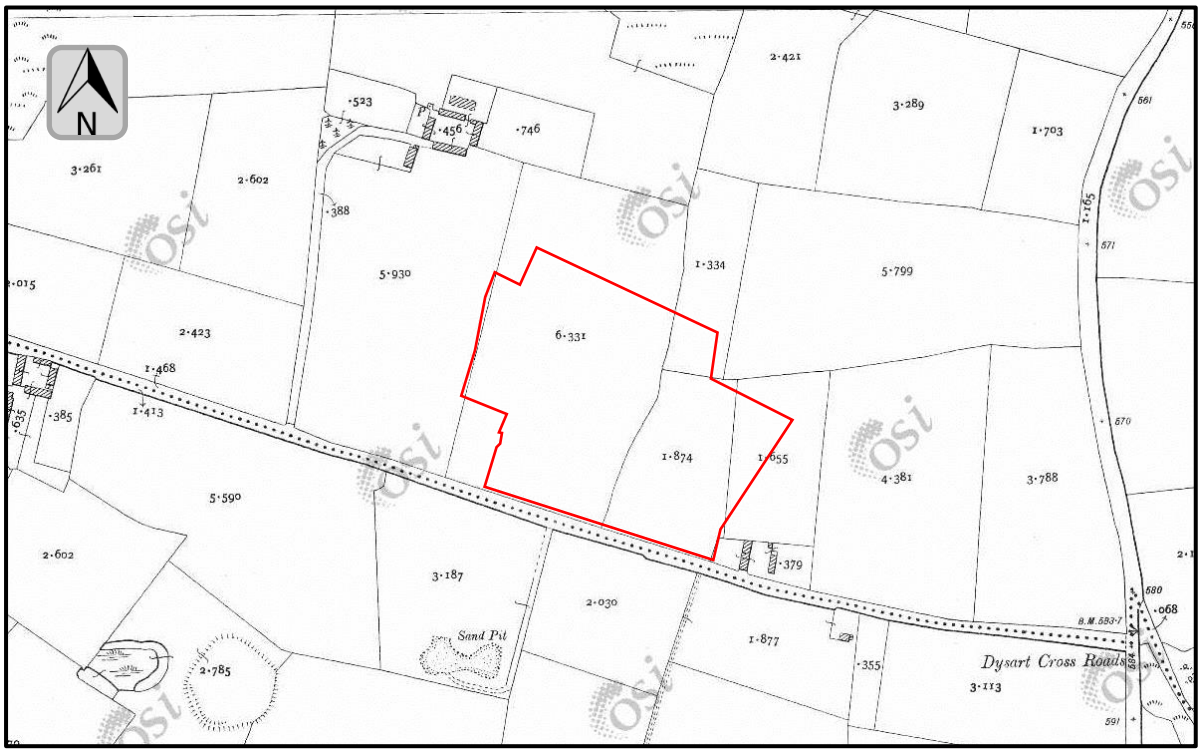


Figure 12.6: Extract from revised 25-inch Ordnance Survey map, published 1905, showing approximate piggery area (*in red*).

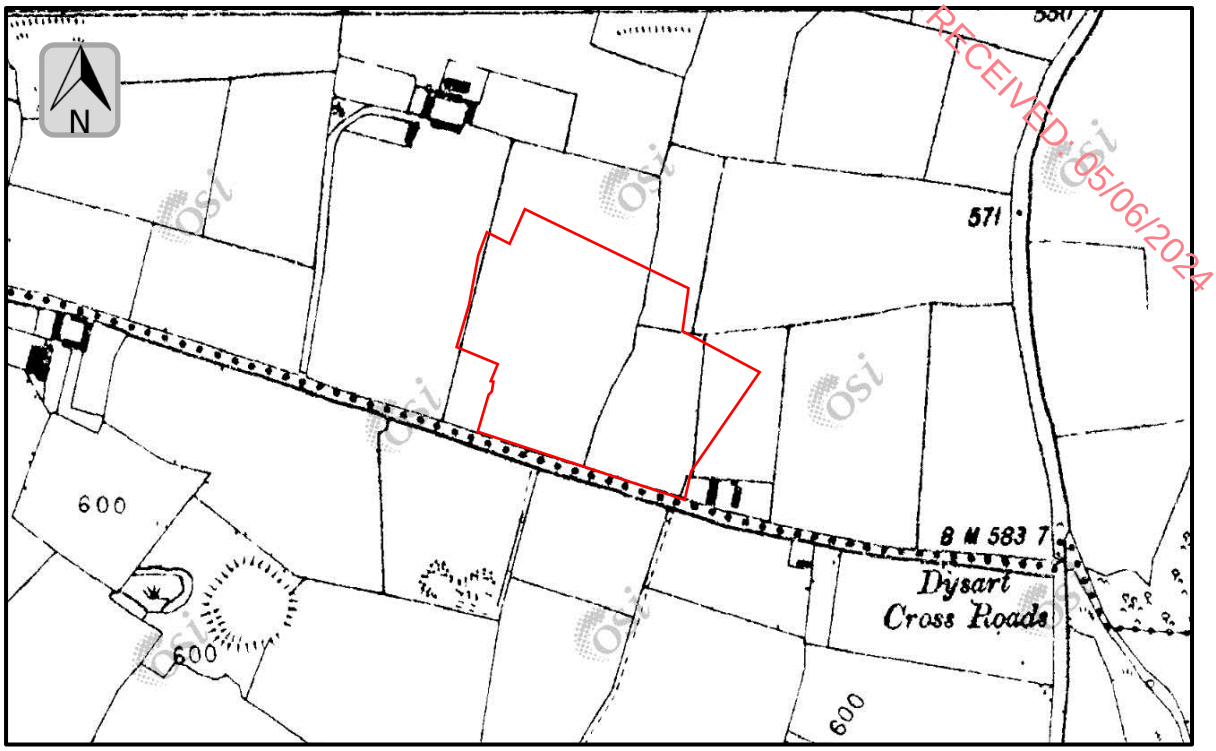


Figure 12.7: Extract from revised 6-inch Ordnance Survey map, published 1945, showing approximate piggery area (*in red*).

12.4.4 AERIAL PHOTOGRAPHS

The following aerial photographs available on the Ordnance Survey of Ireland (OSi) website, Geohive, were consulted: Aerial 1995, Aerial 1999, Aerial 2004, Aerial 2005 and Aerial 2013.

The successful detection of archaeological sites through aerial photography varies depending on several factors, including the position of the sun, the type of crop growing and the amount of rainfall in a growing season. In some years, such as during the drought of 2018, sites were clearly visible, while in others the same site would be undetectable from the air.

A piggery has existed at the proposed development site since 1973. Therefore, the OSI historical 6-inch and 25-inch maps provide no indication of ever having existed any development at the site. However, all consulted aerial photographs show the development with a similar layout as the existing site layout.

Archaeological monuments from both historical maps and aerial photographs can be seen, such as a ringfort (LA030-010) located to the south-west of the site.

12.4.5 TOPONOMY

The townland name, Graigue, is a placename anglicised from the Irish *An Ghráig*, hamlet (www.loganim.ie; accessed 27/06/2023).

RECEIVED: 05/06/2024

The archives of the Placenames Database of Ireland contain documentation on research results of the Branch. The archive has traced the placename Graigue back to 1549, when it was referred to as Graige and since that time the placename has been recorded under a range of spellings (www.logainm.ie/en/12466; accessed 27/06/2021). Alternate spellings include the reference to *Graig* (1567), *Ballekesheland* (1593), *Grage* (1607) and *Loughnabranagh* (1838).

12.4.6 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

According to the excavations database (www.excavations.ie; accessed 27/06/2023), no previous licensed archaeological work has been carried out at the proposed piggery extension, in the townland of Graigue. No excavation licence was held for Graigue relating to the existing footprint and the grant of planning under any previous planning reference.

12.4.7 ARCHAEOLOGICAL HERITAGE

National Monuments

No National Monument either in the ownership or guardianship of the State or of Laois County Council is located in proximity to the existing piggery facility in Graigue.

Record of Monuments and Places (RMP)

Two archaeological monuments, a ritual site (LA030-047001) and a cross (LA030-047002), are located in the border between Graigue and Moate townlands, as recorded in the Record of Monuments and Places (RMP). The closest monument, however, is a ringfort site (LA030-010) located c. 196m south-west of the existing piggery facility. RMP sites within a 2km radius of the piggery facility are indicated on **Figure 12.8** and listed in **Table 12.2**.

Table 12.2: RMP sites within a 2km radius of the proposed development site.

RMP No.	Site Type	Townland	ITM Reference	Prox. & Direction
LA030-010	Ringfort - rath	Moat	648085, 683038	196m SW
LA030-047001	Ritual site - holy tree/bush	Graigue/Moat	648691, 683066	222m E
LA030-047002	Cross	Graigue/Moat	648691, 683075	223 E
LA030-011003	Cross	Aghnacross	649005, 682714	673m SE
LA030-011001	Church	Aghnacross	649006, 682712	675m SE
LA030-011004	Enclosure	Aghnacross	649018, 682710	685m SE
LA030-011002	Graveyard	Aghnacross	649028, 682701	700m SE
LA030-013	Enclosure	Moat	648725, 682450	725m SE
LA030-014	Moated site	Aghnacross	649176, 682298	1.1 km SE
LA030-015	Enclosure	Aghnacross	649538, 682528	1.2 km SE
LA024-045	Ringfort - rath	Boleybeg	649200, 684420	1.4 km NE
LA024-044	Ringfort - rath	Lisnagomman	648604, 684660	1.4 km N
LA030-009	Moated site	Cappanashannagh	647012, 682461	1.4 km SW

RMP No.	Site Type	Townland	ITM Reference	Prox. & Direction
LA030-021003	Ford	Moat	648898, 681438	1.7 km SE
LA030-021001	Castle - unclassified	Moat	648965, 681420	1.8 km SE
LA030-021002	Castle - motte and bailey	Moat	648925, 681382	1.8 km SE
LA030-008	Castle - motte	Haywood Demesne	646766, 681998	1.9 km SW
LA030-019	Architectural fragment	Haywood Demesne	647028, 681757	1.9 km SW
LA030-012	Kiln - lime	Kilnashane	647719, 681990	1.3 km SW
LA030-048	Metalworking site	Cloghoge	647918, 681126	2.0 km S

RECEIVED: 05/06/2024

Figure 12.8: RMP sites (*red dots*) and proposed zones of notification (light pink) in relation to the proposed piggery extension (*in red*).

12.4.8 ARCHITECTURAL & CULTURAL HERITAGE

National Inventory of Architectural Heritage

No sites listed in the National Inventory of Architectural Heritage (NIAH) are sited to the proposed piggery extension. Nine structures are listed within 2km, all belonging to an 18th century Georgian Gothic summerhouse, to the south-west of the proposed piggery extension. NIAH sites within a 2km radius of the proposed piggery extension are listed in **Table 12.3**.

RECEIVED: 05/06/2024

Table 12.3: NIAH sites within a 2km radius of the proposed development site.

NIAH Reg	Name	Townland	Rating	Prox. & Direction
12803006	Heywood House	Haywood Demesne	Regional	1.8 km SW
12803007	Heywood House	Haywood Demesne	Regional	1.8 km SW
12803004	Heywood House	Haywood Demesne	Regional	1.9 km SW
12803005	Heywood House	Haywood Demesne	Regional	1.9 km SW
12803008	Heywood House	Haywood Demesne	National	1.9 km SW
12803009	Heywood House	Haywood Demesne	Regional	1.9 km SW
12803013	Heywood House	Haywood Demesne	Regional	1.9 km SW
12803001	Heywood House, Tower Crossroads	Haywood Demesne	Regional	2.0 km SW
12803002	Heywood House	Haywood Demesne	Regional	2.0 km SW

The Garden Survey of the National Inventory of Architectural Heritage (NIAH) also lists Haywood House. The Garden Survey is a desk-based assessment of the condition and survival of garden and landscape features at the site, and as such limited details are provided. Landscape features recorded in association with Haywood House by the Survey include the formal garden, surrounding woodlands and parkland.

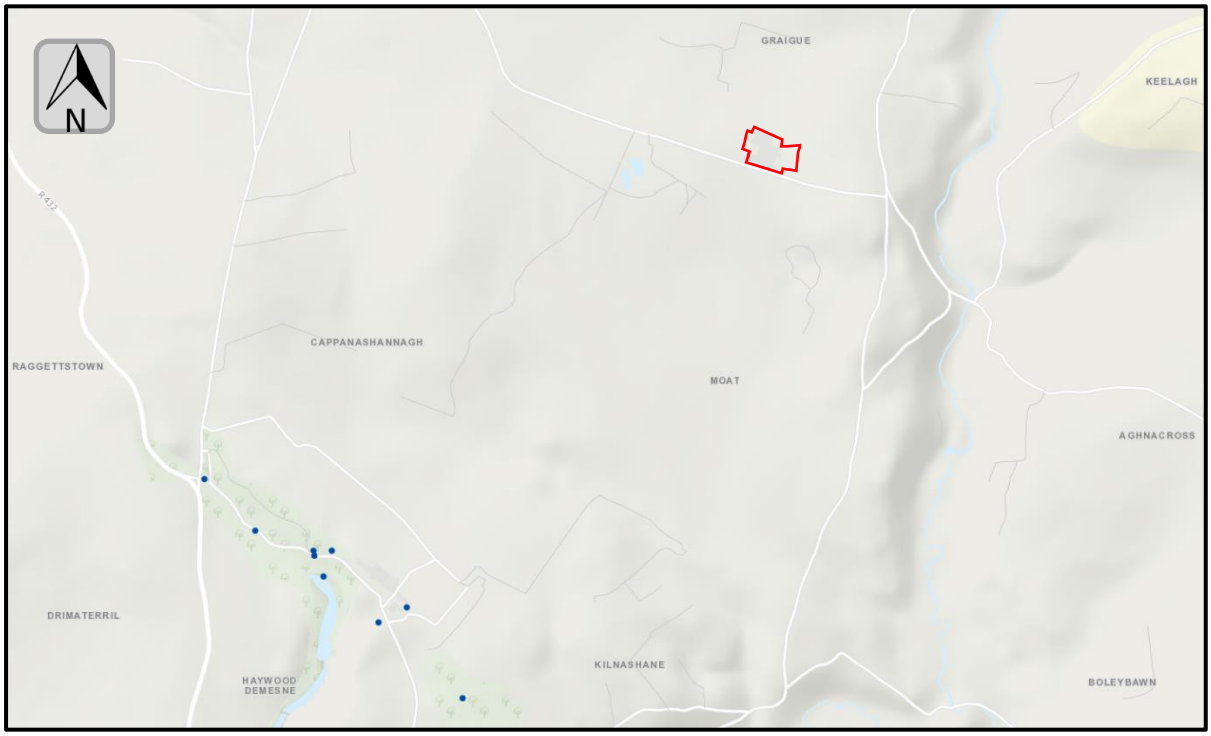


Figure 12.9: NIAH sites (blue dots) in relation to the proposed site (outlined in red).

RECEIVED: 05/09/2024

12.4.9 INVENTORY OF ARCHAEOLOGY, ARCHITECTURE & CULTURAL HERITAGE & FEATURES, INCLUDING AREAS OF ARCHAEOLOGICAL POTENTIAL

No recorded archaeological monument, or potential unrecorded archaeological monument, and no structure listed in the NIAH has been identified in the proposed piggery extension. As per the site layout plan, part of the southern boundary of the proposed piggery extension is bordering L7794 road, which is aligned with the townland boundary.

Though not regarded as monuments, townland boundaries are an important cultural and social element in the Irish landscape. It is thought that the locations of some have their origins in prehistory. Others have their origins in the early medieval period. The townland boundary between Graigue and Moat is aligned with the L7794 local road, which is bordered by the southern boundary of the proposed site marked with a hedgerow. The existing hedgerow boundaries date prior to the mid-19th century as they are depicted in the 1st edition 6-inch OS map (**Figure 12.5**).

Co. Laois has over 200 recorded ringforts and is particularly rich in areas than run from south-west to north-east of the county. Their presence indicates a high rural population in the early medieval period. However, a number of these structures have no surface trace. Though no surface trace of archaeological monuments was noted from desk-based research, it is not possible to entirely rule out the occurrence of subsurface archaeological monuments existing in the area of the piggery extension, particularly given the proximity to ringfort sites LA030-010.

12.5 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

A full description of the proposed development and all works to the existing piggery is detailed in **Chapter 2** of the EIAR.

12.6 IMPACTS

12.6.1 CONSTRUCTION PHASE

Potential Direct Impacts

The proposed piggery extension will not directly affect any known recorded monuments or any recorded structures of architectural or built heritage interest. The closest recorded monuments are located to the south-west of the site (LA030-010) in the townland of Moat and to the east of the site in the townland boundary (LA030-047001 and LA030-047002). No other monuments have been recorded for the townland of Graigue.

The proposed piggery extension will have a *direct, permanent and negative effect* on any unknown sub-surface archaeological features that may be present across the site.

Potential Indirect Impacts

No indirect effects on archaeological, architectural and cultural heritage have been identified.

RECEIVED: 05/06/2024

12.6.2 OPERATIONAL PHASE

Potential Direct Impacts

No potential direct impacts are anticipated in respect of the proposed development at the existing Tulleka Trading ULC piggery facility during the operational phase. New pig houses will be erected in previously undeveloped ground to the east of the existing facility. These will be screened from public view by filling the gaps in the hedgerow and treeline in the southern boundary of the site. The townland boundary, aligned with the L7794 road, is bordered by this site boundary and is not expected to be negatively impacted from any alterations arising from either construction or operational phase. Supplemental planting along the southern boundary of the site, as recommended by the Landscape and Visual Assessment in Section 7, would aid in maintaining the character of the boundary between Graigue and Moat townlands.

Potential Indirect Impacts

No indirect effects on archaeological, architectural and cultural heritage have been identified.

12.6.3 "DO-NOTHING" SCENARIO

There will be no effects on archaeology, architecture and cultural heritage if the existing farm is not developed and expanded.

12.7 MITIGATION MEASURES

Mitigation measures are required to be undertaken in compliance with national policy guidelines and statutory provisions for the protection of archaeological and architectural heritage, including the National Monuments Act 1930 (as amended), the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999 and the Planning and Development Acts 2000 (as amended).

12.7.1 PRE-CONSTRUCTION PHASE

Avoidance of Impact

Avoidance of direct effects on the archaeological, architectural and cultural heritage resource identified in relation to the proposed piggery extension is the preferred mitigation option.

In order to better ascertain the archaeological potential of the footprint of the proposed extension area, geophysical survey followed by targeted test trenching is recommended. If archaeological monuments are identified at this stage, their preservation *in-situ* should be considered during the planning phase.

Geophysical Survey and Archaeological Test Excavation

It is recommended that pre-construction geophysical survey and archaeological test excavation be undertaken to address the sub-surface archaeological potential of the proposed development site. Pre-construction archaeological test excavation will target the areas of archaeological

RECEIVED: 05/06/2024

potential identified by the geophysical survey. Archaeological testing should be undertaken well in advance of the construction phase. This will allow a satisfactory timeframe in which the mitigation measures can be undertaken and the results assessed without causing construction delays.

This work must be carried out under licence in accordance with Section 26 of the National Monuments Act 1930 (as amended), and with a method statement agreed in advance with the National Monuments Service (Department of Culture, Heritage and the Gaeltacht) and the National Museum of Ireland. The results of this investigation will determine whether redesign to allow for preservation *in-situ*, full archaeological excavation and/or monitoring are required. The investigation report will include mitigation proposals for dealing with the discovery of archaeological deposits and material during development.

It is envisaged that the following will apply:

i. Should investigation yield evidence of archaeologically significant material or structures, preservation in situ may be recommended. Strategies for the in situ preservation of archaeological remains are conducted in consultation with the statutory authorities, and may include avoidance, if possible, of the remains during construction, or preservation through redesign.

ii. Should investigation yield evidence of archaeologically significant material or structures that cannot be preserved in situ, archaeological excavation and recording, to full resolution, is recommended.

iii. Should archaeological features or material be uncovered, adequate funds to cover excavation, fencing (if required), post-excavation analysis and reporting, and conservation work should be made available.

12.7.2 CONSTRUCTION PHASE

Archaeological Monitoring

The extent of further archaeological monitoring at the construction phase will be informed by the results of pre-construction geophysical survey and archaeological testing.

It is envisaged that the following will apply:

i. In the event of archaeological features or material being uncovered during the construction phase, it is crucial that machine work cease in the immediate area to allow the archaeologist to assess, excavate and record any such material.

ii. Should archaeological features or material be uncovered during the construction phase, adequate funds to cover excavation, fencing (if required), post-excavation analysis and reporting, and conservation work should be made available.

iii. This work must be carried out under licence in accordance with Section 26 of the National Monuments Act 1930 (as amended), and with a method statement agreed in advance with the National Monuments Service (Department of Arts, Heritage and the Gaeltacht) and the National Museum of Ireland.

RECEIVED: 09/09/2024

12.7.3 OPERATIONAL PHASE

There are no direct physical archaeological, architectural and cultural heritage impacts to recorded heritage assets to be resolved at the operational phase of the development. Once the development has been completed, including the resolution of any archaeological material that may have been exposed, there is no need for further monitoring of the project.

12.8 RESIDUAL IMPACTS

Residual impacts are the degree of environmental change that will occur after the proposed mitigation measures have taken effect. No residual impacts are envisaged as all archaeological, architectural and cultural heritage issues will be resolved at the construction stage of the proposed development.

12.9 DIFFICULTIES ENCOUNTERED IN COMPILING INFORMATION

No difficulties were encountered in compiling information for this report.

12.10 REFERENCES

Electronic Sources

www.excavations.ie	Summary of archaeological excavations
www.archaeology.ie	DoCHG website listing RMP sites and NIAH sites
www.logainm.ie	Placenames database
www.downsurvey.tchpc.tcd.ie	Down Survey maps
www.buildingsofireland.ie	NIAH website listing recorded architectural sites
https://dcenr.maps.arcgis.com	LiDAR data https://webapps.geohive.ie Aerial imagery
https://www.laois.ie	County Development Plan
https://www.epa.ie	EIAR Guidelines 2022

Cartographic Sources

Down Survey maps, 1656-58

Ordnance Survey of Ireland 6 and 25 inch maps, 19th and 20th centuries

SECTION E – INTERACTIONS & INTER-RELATIONSHIPS

RECEIVED: 05/06/2024

In line with requirements of EC Directive 85/337/EC (as amended) and the Planning and Development Regulations 2001, any interactions/inter-relationship between the various environmental factors was also taken into account as part of the EIAR scoping and assessment.

Where a potential exists for interaction between two or more environmental topics, the relevant specialists have taken the potential interactions into account when making their assessment and where possible complementary mitigation measures have been proposed. An overview of these potential interactions is provided in **Table 13.1**, with the main interactions or inter-relationships discussed in **Sections 13.1 to 13.13** below.

RECEIVED: 05/06/2024

13.0 INTERACTIONS AND INTER-RELATIONSHIPS

Table 13.1: Summary of Potential Interactions/Inter-Relationships.

Receptor / Source	Human Beings	Air	Noise	Landscape & Visual	Biodiversity	Water	Soils	Climate	Material Assets	Cultural Heritage
Human Beings		✓	✓	✓	✓	✓	✓	✓	✓	✓
Air	✓		*x*	*x*	✓	*x*	*x*	✓	✓	*x*
Noise	✓	*x*		*x*	✓	*x*	*x*	*x*	✓	*x*
Landscape & Visual	✓	*x*	*x*		*x*	*x*	*x*	*x*	*x*	✓
Biodiversity	✓	✓	✓	✓		✓	*x*	✓	*x*	*x*
Water	✓	*x*	*x*	*x*	✓		✓	*x*	*x*	*x*
Soils	✓	✓	*x*	✓	✓	✓		*x*	✓	✓
Climate	✓	✓	*x*	*x*	✓	*x*	*x*		*x*	*x*
Material Assets	✓	✓	✓	*x*	✓	*x*	*x*	*x*		✓
Cultural Heritage	✓	*x*	*x*	✓	*x*	*x*	*x*	*x*	✓	

RECEIVED: 09/08/2024

13.1 AIR & SOILS

Excavations and earth moving operations during construction works may generate quantities of dust, which have the potential to impact upon air quality in the vicinity of the proposed development. Consequently, an impact upon air quality has the potential to impact upon human health, cause dust nuisance and cause disturbance to fauna (further discussed in **Section 5.6**).

The extent of dust generation depends on the nature of the construction dust (soils, sands, gravels, silts etc.) and the construction activity. The potential for dust dispersion depends on the local meteorological conditions such as rainfall, wind speed and wind direction.

Mitigation measures to control dust emissions would be implemented, which would include good working practices, dust suppression measures and the undertaking of reinstatement works as soon as practicable.

13.2 AIR & CLIMATE

The proposed development has the potential to impact upon air quality and climate of the area through air emissions, including potential greenhouse gases, arising from the rearing of pigs and exhaust fumes from traffic.

The greenhouse gases, methane and ammonia, would be generated from the digestive processes and slurry of the pigs. The greenhouse gases potentially released to the atmosphere from the proposed development would be typical of the industry and would be anticipated to have no significant impacts on air quality or climate in the regional context. There would be no increase in pig numbers as part of the proposed development.

There would be a small increase in traffic during the construction phase, however, this would not be considered significant given the transient nature of works. The operation of the proposed development would result in c. 10 traffic movements a day at the site.

The estimated traffic movements would be similar to the traffic movements associated with the existing piggery at the site when operating at full capacity. Therefore, traffic associated with the development would not be considered to have a significant impact upon air quality or climate of the area.

13.3 AIR, HUMAN HEALTH & BIODIVERSITY

An adverse impact on air quality has the potential to impact upon human health, cause dust nuisance to humans and fauna and has the potential to adversely impact upon flora by blocking leaf stomata, interfering with photosynthesis, respiration and transpiration processes. The risk to air quality as a result of the proposed development would not be considered significant, both at the local community level and on a broader national/global scale.

During the construction phase of the development, there would be potential for dust emissions, which could impact upon the communities and residents on the roads to the site and flora in the surrounding area. The potential impact of dust would be temporary, given the temporary

RECEIVED: 05/03/2024

nature of construction works. Dust control would be an integral part of construction management practices, with mitigation measures implemented where required, including sweeping of roads and hardstand areas, appropriate storage and transport of material and dust suppression measures where required.

Odour is another aspect of air quality with the potential to impact upon human beings, in the context of nuisance. The high standard of design of the proposed pig houses, coupled with continued good housekeeping practices currently in place at the site, would serve to ensure the effective control odour and air emissions, and mitigate the risk of environmental impact and nuisance to sensitive receptors associated with the site.

It should be noted that an important interaction exists between air quality and flora, whereby vegetation can play an important role in acting as an air purifier by absorbing carbon dioxide and giving out oxygen. It would therefore be anticipated that potential carbon dioxide emissions generated through pig respiration and discharged via vehicle exhausts would be somewhat mitigated by vegetation in the environs of the site.

The proposed development would generate ammonia emissions to atmosphere. Emissions of ammonia to atmosphere is undesirable from an ecological point of view, as it can have toxic, eutrophic and acidifying effects on certain ecosystems. In particular, the presence of high ammonia levels in peatland ecosystems has been found to inhibit the growth of certain moss species, allowing sedge and grass species to outcompete. It is not anticipated that the proposed development would result in an increase of ammonia emissions as it is not proposed an increase in pig numbers. The proposed development has incorporated design measures which limit the potential for the generation of ammonia emissions to atmosphere. These design measures include the depth of manure holding pits, ventilation design and surface area of manure exposed beneath the slats.

13.4 NOISE, HUMAN HEALTH & BIODIVERSITY

Noise generated during the construction and operational phases of the proposed development has the potential to impact upon human beings and fauna within the vicinity of the site.

During the construction phase, it would be anticipated that there would be an impact, for a limited period of time, on local residences and commercial dwellings within close proximity to the proposed development. Control and mitigation measures to reduce the potential for noise are outlined in **Section 6.0** Noise. Given the transient nature of construction works and provided the recommended control and mitigation measures are implemented, noise from construction would not be considered to pose a significant impact upon human beings, or upon fauna, in the area.

No significant additional noise impact would be anticipated during the operational phase of the proposed development. During the normal operation of the ventilation system, noise is predicted to be inaudible at the nearest noise sensitive locations.

While noise occurring during the construction phase of the development may disturb fauna in the area, high noise levels would be intermittent and would only occur over brief periods of the planned 6 month construction works. Noise from the operation of the farm would be typical of farm hubs in rural areas and would be unlikely to have a negative impact upon biodiversity.

RECEIVED: 09/08/2024

13.5 MATERIAL ASSETS & HUMAN BEINGS

The proposed development would be constructed within the bounds of an existing piggery farm yard and on rough agricultural grassland in the ownership of Tulleka Trading ULC. Therefore, there would be no land use change from agricultural activities at the proposed development site. The proposed development would improve the efficiency of the existing pig rearing operation, and would improve the agricultural value to the operator of the lands currently used as grassland.

During the construction phase, there would be an increase in traffic volume using the local road network. However, given the nature of activities and temporary duration of construction works, this would not be considered significant. There should be no major impact upon traffic volumes during the operational phase, as traffic volumes would be similar to the traffic movements associated with the existing piggery at the site when operating at full capacity.

The potential of the proposed development to create short-term employment during the construction phase and additional permanent employment during the operational phase would positively impact on the material assets/human beings of the region.

It is not anticipated that the proposed development would increase the abstraction and use of groundwater at the site. There are two groundwater abstractions, other than the borehole used by, within close proximity to the site, which are recorded to yield poor volumes of water. It is unlikely that the use of groundwater at the site would impact upon human beings.

Should waste be incorrectly handled or stored at the development site, it has the potential to cause an adverse impact upon human beings through nuisance, including visual, odour, pests, and pollution to groundwater and surface-water.

During the construction phase, wastes would be segregated and stored in suitably contained waste receptacles at the site compound. This would considerably reduce the potential risk of pollution to groundwater. Waste would be removed from the development on a regular basis, to avoid the accumulation of high waste volumes, which could cause nuisance. It should also be noted that given the inert nature of the majority of C&D waste types, it is unlikely that issues regarding odour or pests would arise.

Any hazardous waste generated during the construction phase would be managed in accordance with the Waste Management (Hazardous Waste) Regulations 1998 and 2000, and would be stored separately from non-hazardous waste, appropriately labelled and stored upon bunds where appropriate.

The operational phase of the proposed development would give rise to a variety of waste types, with waste management undertaken by suitably licenced waste contractors. Collections of waste / recyclables would be undertaken on a regular basis, therefore the potential for odour and pest nuisance would not be considered significant.

13.6 MATERIAL ASSETS, BIODIVERSITY, WATER QUALITY & SOILS

The proposed development would alter flora cover and the species of fauna supported due to land take, comprising of recolonising bare ground (ED3), wet grassland (GS4) and scrub (WS1)

habitats, and soil disturbance works. However, this impact would be minor, given that ED3 habitat can be considered modified and of low ecological value, given that wet grassland habitat is common in the general area, and given that replacement planting would be undertaken to compensate for the loss of WS1 habitat.

RECEIVED: 05/06/2024

Waste has the potential to impact upon water quality and biodiversity during both the construction phase and operational phase, by causing pollution to soils and water through leaching of materials, and by potentially attracting pests / vermin to the site. However, , wastes generated during the construction phase would be stored in suitably contained waste receptacles at the site compound, with the majority of the waste inert in nature, reducing the potential of pollution to soils and water.

It is not considered that there would be any significant impact upon soils and water, and thus biodiversity, due to waste management during the operational phase, given that waste would be collected by licenced waste contractors and recovered, recycled or disposed of at appropriately licenced waste facilities, which would have environmental controls in place as standard.

13.7 MATERIAL ASSETS & NOISE

The proposed development is located in a rural agricultural area, primarily dominated by pastureland. Increased noise emissions during the construction or operational phases would have the potential to impact upon livestock due to disturbance. The potential for noise associated with the proposed development on livestock would be considered low, given the temporary duration of construction works and given that no significant increase in noise emissions would be anticipated for the operation of the proposed development. Furthermore, the character of noise from the existing and proposed farms would be similar and any livestock within the immediate area of the proposed development would be acclimatised to the existing farm noise environment.

13.8 MATERIAL ASSETS & AIR

As noted above, the proposed development is located in a rural agricultural area. The proliferation of dust during construction has a nuisance value and livestock would be at risk to eye irritation from high levels of wind blowing dust particles. Given the proposed mitigation measures for dust control and dust suppression, in addition to the transient nature of construction works, the potential for dust to impact upon livestock would be considered low.

13.9 WATER QUALITY & SOILS

It is considered unlikely that there would be a potential impact on water quality during the construction phase of the proposed development due to the potential release of suspended solids during soil disturbance works. The proposed construction area contains no field drainage. Rainwater in the area percolates to ground with any suspended entrained solids being deposited on the soil surface.

RECEIVED: 05/06/2024

13.10 WATER QUALITY & HUMAN BEINGS

A deterioration in groundwater quality has the potential to impact upon human beings by adversely affecting drinking water quality. The proposed development would have the potential to impact on groundwater quality during both the construction and operational phases.

During the construction phase, the development would have a potential impact on groundwater quality due to potential hydrocarbon and uncured concrete spillages. Groundwater would be protected through the implementation of mitigation measures, which include the appropriate storage of potentially polluting substances, the regular inspection and maintenance of construction plant, the provision of spill kits onsite and supervised concrete works.

The operational phase of the development has the potential to impact upon groundwater and surface water quality through surface-water run-off emissions.

The site drains to a soakaway and potentially to the Owveg River south-east of the site. Stormwater from roofs and clean yards would discharge through the surface water collection network. This water should be uncontaminated and therefore should have no impact on surface or groundwater.

There is a septic tank present, servicing the staff toilet/facilities on site. The septic tank is in place for the disposal of domestic sewage from the site. The percolation area of the septic tank is the source of the only emission to the ground from this facility.

Slurry is stored at the site pending despatch to farmers who order a supply for landspreading purposes as an organic fertiliser on their lands.

There are two groundwater abstractions, other than the borehole used by the applicant's farm, within close proximity to the site, which are recorded to yield poor volumes of water. In the unlikely event of groundwater contamination at the site, there would be no significant risk of impacts upon human beings.

13.11 WATER QUALITY & BIODIVERSITY

The construction phase of projects has the potential to impact upon flora and fauna due to a deterioration in water quality. Risks to water quality could arise due to the potential release of suspended solids during soil disturbance works, the release of uncured concrete and the release of hydrocarbons (fuels and oils).

However, it should be noted that in the absence of any watercourses or surface waters within the vicinity of the development site, and with the nearest watercourse (Owveg River), located approximately 394m from the proposed development footprint, and given that there are no open stormwater drains or gullies into which potential run-off from construction activities could enter, the potential for construction works to impact upon surface water quality, and thus aquatic biodiversity, would not be considered significant.

It is not anticipated that the operation of the proposed development would have a significant impact upon aquatic biodiversity. No significant impact on water quality would take place due to drainage from the site. Stormwater from the site comprises of clean rainwater run-off from

RECEIVED: 05/07/2024

the roofs. Stormwater from the proposed structures would be directed to the existing stone soakaways.

There are no process effluent emissions from the site, with all animal manure stored within underground slurry tanks, awaiting collection for landspreading activities. All slurry tanks have been designed to ensure the site has sufficient storage capacity for any manure generated onsite.

The landspreading of animal manure has the potential to impact upon biodiversity, either through pollution of waterbodies or the enrichment of natural vegetation. However, manure is, and would continue to be, collected by registered contractors / farmers, for application to lands held by third parties in the area. The transport and spreading of the manure is managed in compliance with the Nitrates Regulations (S.I. No. 113 of 2022).

The spreading of manure would be undertaken in accordance with the setback distances from surface waterbodies and abstraction points specified in the Nitrates Regulations. This would minimise the risk of any pollution occurring and protected sites being impacted due to the spreading of organic fertilisers. As manure from the development is a replacement for other chemical and organic fertilisers on the current, proposed and any future potential spreadlands, it is considered that the impact of manure being used as a fertiliser would have a neutral to no significant additional impact upon the biodiversity of landspreading areas.

No adverse potential impacts upon water quality would be anticipated due to accidents and potential spills and leaks, given the absence of watercourses within the vicinity of the site, the low volume of stored chemicals onsite and given that chemicals and oils are stored upon bunds, in accordance with the site's Industrial Emissions (IE) Licence.

13.12 LANDSCAPE & VISUAL, SOILS & HUMAN BEINGS

There would be no significant effect on the visual landscape due to the proposed development, the visibility of the development would be limited to parts of the roofs and exhaust vents of the proposed buildings when viewed from the south of the site.

The character of the proposed development would be in conformance with the character of the existing agricultural environment. The proposed structures would have the same design (i.e. colour, height) characteristics as the existing buildings at the site helping to reduce any visual impact. Excavated soils would be reprofiled within the site area and allowed to naturally recolonise with local species.

Given the nature, location and design features of the proposed buildings, it is considered that the proposed development would have a non-significant Minor-Negligible effect on the level of landscape and visual impact in the area.

13.13 CULTURAL HERITAGE, SOILS & HUMAN BEINGS

Archeologically important sites, buildings of historic, artistic or architectural interest and sites of cultural heritage form part of the landscape of County Laois. Potential impacts to archaeological, architectural and cultural sites may occur during excavation and soil movements during the construction phase of the development.

RECEIVED: 03/06/2024

There are no protected archaeological, architectural or cultural heritage sites within the proposed development site or within its immediate environs. The nearest recorded monument is approximately 196m from the site, which is also the nearest visible monument. No protected structures are located within 1km of the proposed site. The majority of the proposed site would be completely disturbed during the construction phase. The cartographic evidence shows no features marked within or in the immediate vicinity of the site, while the aerial photos show no archaeological features in the vicinity.

Therefore, it is not anticipated that the proposed expansion of the farm would have any adverse physical or visual impacts upon the known cultural heritage of the area.