MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

29th April 2012

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Re: **Application by Patrick Ryan,** Reg No: P00915-01

Dear Grainne,

Please find response to your letter dated the 8th of March 2012, which requested a number of additional items to be submitted in order to determine the license application.

Request 1 ***S****creening for Appropriate Assessment*

Response
A screening for Appropriate Assessment has been completed and is attached (Attachment 1)

Request 2 *With regard to the Environmental Impact Statement (EIS) which accompanies the licence application, please clarify which planning permission application it was submitted in support of. An acknowledgement letter or equivalent from the relevant planning authority should be provided.*

Response
The EIS was submitted into Limerick County Council planning as part of planning application (Ref No. 07/2101); Details are included in Attachment 2

A new planning application (Reference No. 12/306) was submitted for the following and details are in Attachment 3:

- 3 No. Fattening houses - (Floor area c. 3 by 1531.8 m2) located on the site of, and replacement of 1 Fattening House (Floor area c. 1070.4 m2)
- 1 Feed Mill (Floor area c. 400 m2)
- Farrowing House (Floor area 653.3 m2)
- 1 Dry Sow House (Floor area 1192.4 m2)
- 1 Construction of a Farrowing Houses (floor area 653.312 m2) and replacement of existing farrowing house (Floor area 413.8 m2)
- 1 replacement of Gilt House (Floor area 258.5 m2)
- 1 new access road and, any associated site works and ancillary structures arising from the proposed developments as outlined above.

Request 3 *Clarify the current capacity on site for sow, boars, gilts, weaners and fatteners (2400).*

Response
The current site capacity of the piggery is:

- Sows (400),
- Boars (4),
- Gilts (50),
- Weaners (1000) and
- Fatteners (2400).

Request 4 *Clarify the location of any groundwater wells associated with the site, providing unique reference numbers and grid references as appropriate.*
Provide a map showing the location of any groundwater wells present.

Response
The site has one well on-site but this is used for domestic purposes for Patrick Ryan and his parent's dwellings and is shown in Figure 16 (Attachment 4). The off-site well is used to supply the piggery operation.

Request 5 *Provide a map showing the fina1, discharge locations of storm water discharge points SW1 and SW2. Submit the correct grid references for both discharge points. Provide a map showing the monitoring locations for storm water points SW1 and, SW2.*

Response
The Map attached (Figure 17) shows the final discharge locations for SW1 and SW1 and the grid references and is included in Attachment 5.

Request 6 Provide details of the current total storage capacity for slurry/manure on site (including deductions for freeboard) in cubic meters.

Response

Please find below current storage capacity for slurry/manure on site in Attachment 6

Request 7 *Provide details of the current annual usage of animal feed, electricity, heating oil and water.*

Response
The annual usage of raw materials is:

Item	**Annual Usage**	**Units**
Electricity	210,000	Kw/year
Animal Feed	5,200	Tonnes/year
Heating Oil	10,000	Litres/year
Water	15,500	m^3/year

Request 8 *Provide a unique reference number for the map depicting the site boundary.*

Response
Please find attached Drawing C001 which shows the site boundary and is included in Attachment 7.

Request 9 *Assess the potential odour impact of the installation having regard to the EPA publication 'Odour Impacts and Odour Emission Control Measures for Intensive Agriculture '. Provide a map to show all sensitive receptors (dwelling houses, etc.) within a 500 metre radius of the site, indicating the distances of receptors from the site boundary.*

Response

The operation of the intensive piggery operation has the potential to give rise to odour and noise complaints. In the past 20 years Mr Patrick Ryan and formally his parents have operated a piggery facility alongside his residence. In that time no complaint has been received by Mr Ryan from local residences, HSE (formally Health Board), Limerick County Council or others. He has always endeavoured to operate the plant to the best possible standard. Attached is an Odour Management Plan for the site and included is a map showing all dwelling within 500 meters from the site (Figure 18) (Attachment 8)

Please contact me if you require further information on the matter.

Yours sincerely

Trevor Montgomery, Post Grad Dip, BSc, Dip Mgmt, Dip Poll Ass & C,
Cert Envn Mont, Cert HSWW
Environmental and Health & Safety Consultant.

Attachment 1 Screening for Appropriate Assessment

MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Patrick Ryan

Appropriate Assessment for the proposed expansion of a piggery operation at Ballyfauskin, Ballylandeers, Co. Limerick

April 2012

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Patrick Ryan, Ballyfauskin, Ballylanders, Co. Limerick
Appropriate Assessment Screening

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1	Draft report	TM	MM			11/1/11
2	Final	MM	TM	Issued to EPA	Yes	23/3/12

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Patrick Ryan, Ballyfauskin, Ballylanders, Co. Limerick

Appropriate Assessment Screening

April 2012

Contents

1 Introduction

This is an Appropriate Assessment Screening - in line with the requirements of Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC) - of the existing and proposed expansion of piggery operation at Ballyfauskin, Ballylanders, Co. Limerick

This report was prepared in compliance with the European Communities (2002) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC - the Screening matrix and the finding of no significant effects report matrix has been taken from Section 4 and 5 (Figures 1 to 5).

1.1 Background

The site is an existing piggery operation and the proposed development will increase the capacity to 600 sows at Ballyfauskin, Ballylanders, Co. Limerick.

1.2 Survey Methods

The site was surveyed on the 22nd of March 2012. The survey on each day lasted approximately 3 hours. Weather conditions were cool and dry throughout.

The aim of the survey was to evaluate the ecological status of the site. This involved studying the types of habitats, flora and fauna present so as to determine the ecological diversity of this area. The entire site and surrounding area was walked with species and habitats recorded.

The survey method involved the following.

1. The site was walked with observations recorded.
2. The species of flora, fauna including avian species encountered were recorded.
3. Habitats were checked for evidence of mammals.

4. The diversity of habitats present was recorded.
5. Habitats were classified in accordance to the standard recommended by The Heritage Council (Fossitt 2000).

1.3 Survey Limitations

Every effort has been made to provide an accurate assessment of the situation pertaining to the site at Ballyfauskin, Ballylanders, Co Limerick at the time of the study.

1.4 Purpose and Structure of the Written Submission

The purpose of this Written Submission is to summarise the Appropriate Assessment Screening Report to be submitted to the EPA. The submission addresses the impact of the existing site and and associated infrastructure at Ballyfauskin, Ballylanders, Co. Limerick. The site is not within any protected sites.

1.5 Qualifying Species and Conservation Objectives – Scope of AA

The subject site itself is not designated under any Regional, National or European Environmental Designation. It does not therefore require assessment under the Wildlife (Amendment) Act 2000 (S.I. No. 38 of 2000) or the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997).

However the following designated areas are located in the Limerick region;

Site Code	Type of Designation	Distance from Site
Galtee Mountains (000646)	SAC	4.1 km
Glenacurrane River Valley (002035)	pNHA	6.2 km
Ballyacourty Wood (002087)	pNHA	9.5 km
Ballyroehill & Mootlestown Hill (002089)	pNHA	10.4 km
Carrigeenanronety Hill (002037)	pNHA	11.4 km
Castleoliver Woods (002090)	pNHA	12.1 km
Ballyhoura Mountains (002036)	pNHA	14.8 km

SAC	Special Area of Conservation
SPA	Special Protection Area
NHA	Nature Heritage Area

1.6 The Purpose of Appropriate Assessment

The *Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna* – the 'Habitats Directive' provides legal protection for habitats and species of European importance. Article 2 of the Habitats Directive requires the maintenance or restoration of habitats and species of interest to the EU in a favourable condition. The Directive was transposed into Irish law by the European Communities (Natural Habitats) Regulations, SI 94/1997.

Articles 6(3) and 6(4) of the Habitats Directive require an Appropriate Assessment of plans to prevent significant adverse effects on European sites, also known as SAC or Natura 2000 sites. In this particular case the purpose of Appropriate Assessment is to assess the potential impacts of a land-use plan on the conservation objectives of European sites. The assessment must determine whether the plan would have significant adverse effects upon the integrity of each site in terms of its nature conservation objectives. The integrity of the site has been defined as "*the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified*". Where negative effects are identified other options should be thoroughly examined to avoid any potential damaging effects prior to implementing the plan.

The Natura 2000 network is a European network of ecologically important sites (SPAs and SACs) that have been designated for protection under either the Habitats Directive (Council Directive 92/43/EEC) or the Birds Directive (Council Directive 79/409/EEC). The statutory agency responsible for these designated areas is the National Parks & Wildlife Service of the Department of Environment, Heritage and Local Government.

Plans can only be permitted after having ascertained that there will be no significant adverse effect on the integrity of the sites in question. Components within a plan, such as objectives or proposals, can be adjusted or removed to avoid significant adverse impacts prior to implementation. The plan may also proceed if sufficient mitigation or compensation measures are in place to ensure the overall integrity of the site.

1.7 Overview of Appropriate Assessment Process

In the preparation of this assessment reference has been made to the following documents:

European Commissions: *Managing Natura 2000 Sites. The provisions of Article 6, of the 'Habitats' Directive 92/43/EEC*

This screening should be based on any ecological information available to the authority and an adequate description of the plan and its likely environmental impacts. This should take into account any policies that will set the terms for future development. The results of the screening should be recorded and made available to the public.

In any case where, following screening, it is found that the project may have an impact on the conservation objectives of a Natura 2000 site or that such an impact cannot be ruled out, adopting a precautionary approach an appropriate assessment of the project must be carried out.

The European Commission's Methodological Guidance recommends a 4 stage approach:

Stage 1 Screening:

Determining whether the plan 'either alone or in combination with other projects' is likely to have a significant effect on a European site.

Stage 2 Appropriate Assessment:

Determining whether, in view of the site's conservation objectives, the plan 'either alone or in combination with other projects' would have an adverse effect (or risk of this) on the integrity of the site. If not, the plan can proceed.

Stage 3: Assessment of Alternative Solutions:

Where it has not been proven that measures considered will not avoid or mitigate the adverse effect on the Natura 2000 site, then an assessment of the alternatives

will be required; and if none are acceptable then stage 4 is required to be considered.

Stage 4 Assessment where no Alternative Solutions Exist and where Adverse Impacts Remain

This will involve assessment where the Plan is considered to result in adverse impacts on the Natura 2000 site and no alternative solutions remain – the imperative reasons of overriding public interest (IROPI) test must be met before authorisation, permission or adoption of the Plan is agreed. This includes the agreement of compensatory measures.

This report covers Stage 1 of Appropriate Assessment -Screening.

1.8 The Purpose of this Report

This Screening Report will be used to identify whether proposed construction of additional piggery buildings at Ballyfauskin, Ballylanders, Co. Limerick either alone or in combination with other plans or projects -is likely to have a no significant effect on a European site. This report will include recommendations, if necessary, to avoid any significant adverse effects at the earliest possible stage in decision making.

This report follows European Commission (2001) guidance which recommends that screening should:

- Determine whether the proposed development is directly connected with or necessary to the management of the site – if it is not, then no further assessment is necessary
- Describe the proposed and other plans and projects that, 'in combination', have the potential to have significant effects on a European site
- Identify the potential effects on the European site and
- Assess the significance of any effects on the European site

2.0 Brief Description of the Project

The Appropriate assessment is being submitted by Patrick Ryan as part of a request for further information by the EPA for assessment of the IPPC License application for a piggery operation.

The site is not within a SPA, SAC or NHA and the nearest protected site is a SAC, Galtee Mountains

2.1 Consultation

Consultation with the National Parks and Wildlife Service (hereafter NPWS) regarding the designated sites listed above.

2.2 European sites that may be affected

There no European sites of importance present or identified within or close to the subject site which may potentially be affected by the proposed development.

A 'sphere of influence' of 10 kilometres was assessed, this being deemed as an area which the proposed Development Plan may affect, either alone or in combination with other plans.

The location of the European sites is illustrated in Table 1 which outlines each European site, and their qualifying features, that could potentially be affected by the proposed development of additional piggery buildings at Ballyfauskin, Ballylanders, Co. Limerick.

Table 1: European & National Sites that could possibly be adversely affected by Proposed Development at Ballyfauskin, Ballylanders, Co. Limerick.

Name	Site Code	Key Features of the Site
Galtee Mountains SAC 000646	00646	Situated in east Limerick and South Tipperary, the Galtee Mountains are Ireland's highest range of inland mountains. Heath is the main habitat type with both dry heath and alpine heath found within the site. Upland Mat-grass (Nardus stricta) grassland occurs on steep slopes, particularly in the west. Blanket bog is more localised and occurs mainly at high altitudes. The north-facing cliffs are of primary importance as they support arcticalpine communities with some rare plant species. The Rare Small-white orchid (Pseudorchis albida), Mountain Rock-cress (Cardaminopsis petraea) and Alpine Saw-wort (Saussurea alpina) have been recorded from the site. These species are included in the Red Data Book and the former are legally protected under the Flora Protection Order (1987). Other typical mountain plants are also found on the site. The site also supports breeding Peregrine, a species listed on Annex I of the EU Birds Directive. Overgrazing by sheep, Afforestation and frequent burning are considered significant threats to some areas of heath and grassland.

2.3 Existing legislation, plans and proposals

2.3.1 Convention on Biological Diversity (CBD)

The protection of biodiversity is enshrined in the CBD to which Ireland is a signatory. As part of its commitment to this international treaty Ireland, as part of a wider European Union initiative, is committed to the halt in loss of biodiversity by the year 2010. The National Biodiversity Plan (Dúchas, 2002), published in 2002, states that "each local authority is to prepare a local biodiversity action plan". All Local Authorities are or have completed the process of drawing up its first Biodiversity action plan. Limerick County Council has not published a Bio-diversity plan. In addition, the Department of the Environment, Heritage and Local Government is currently preparing the second National Biodiversity Plan.

2.3.2 Limerick County Council County Development Plan 2005 – 2011 (LCC, 2005)

The Limerick County Development plan seeks to:

- Promote the conservation and enhancement of natural heritage, cultural heritage, archaeological heritage, landscape, biodiversity and the built environment as important elements of the long term economic growth and regeneration of the County.
- Due recognition shall be given to protected species under the Wildlife Act 2000 and where possible all efforts will be made to ensure that development will have minimal impact on the natural environment.

Environment

The Local Agenda 21 Partnership Fund provides for projects on the theme of Biodiversity, as it is a fundamental part of sustainable development. Control of permits and licencing for waste disposal by this section, as well as enforcement, helps protect sensitive habitats. Provision of better information for the section on the location of locally important habitats would avoid habitat damage and loss and so avoid costly clean-up bills.

- To protect natural heritage sites designated in National and European legislation.

This includes sites proposed to be designated or designated as Special Areas of Conservation (SAC), Natural Heritage Areas (NHA), Nature Reserves and Wildfowl Sanctuaries. This protection will extend to any additions or alterations to sites that may arise during the lifetime of this plan.

- To assess all proposed developments (individually or in combination with other proposals, as appropriate) which are likely to impact on designated natural heritage sites or those sites proposed to be designated.
- To consult with the prescribed bodies and relevant government agencies when assessing developments which are likely to impact on designated natural heritage sites or those sites proposed to be designated.
- To ensure that any development in or near a designated natural heritage site will avoid any significant adverse impact on the features for which the site has been designated.
- To require an appropriate environmental assessment in respect of any proposed development likely to have an impact on a designated natural heritage site, or those sites proposed to be designated.

2.3.3 National Sustainable Development Strategy

The 2002 document: 'Making Ireland's Development Sustainable' (DOEHLG, 2002) highlights "respect for ecological integrity and biodiversity" as a core theme, while the associated principle is that: "the diversity of wildlife, habitats and species should be maintained and improved". An update to this document is to be published.

2.3.4 Long-term Strategy of the Environmental Protection Agency (EPA)

In 2007 the EPA published '2020 Vision: Protecting and Improving Ireland's Environment' (EPA, 2007) and identified the protection of soil and biodiversity as one of six environmental goals.

2.4 Scoping of the study/Literature Review

There is little site specific information regarding the area as the area is primarily an area of improved agricultural grassland.

3.0 Baseline Data

3.1 Methodology

A site visit was carried out in March 2012. The site was surveyed in accordance with the Heritage Council's draft Habitat Survey guidelines (Heritage Council, 2002) and the 'Guidelines for Baseline Ecological Assessment' from the Institute of Environmental Assessment (IEA, 1995). Habitats were identified in accordance with Fossitt's 'Guide to Habitats in Ireland' (Fossitt, 2000). A species list for each habitat was compiled and target notes were made.

3.2 Constraints

The time of year for the assessment of flora is late in the plant cycle. It was therefore reasonable to expect that some floral species will not be apparent or will be difficult to identify.

3.3 Flora

3.3.1 Improved Agricultural Grassland – GA1

The proposed site is comprised of grassland that has been applied with industrial fertilisers it is species poor and is therefore of low ecological value. Typical species include those grasses that have been sowed for grazing e.g. Perennial Rye Grass *Lolium perenne,* Cock's foot *Dactylis glomerata* and a small number of tolerant plants such as Thistles *Cirsium sp.,* Doc *Rumex sp.,* Common nettle *Urtica dioica* and in wet ground Rushes *Juncus sp.*

3.4 Fauna

3.4.1 Mammals

Since a dedicated fauna survey was not carried out, the presence of various species is deduced from the existence of suitable habitat and this is shown in Table 2.

The old buildings in the surrounding area are likely to provide suitable habitat for bats, although it is not possible to determine which species without further study. All bat species are protected by law.

Areas of hedgerow with earthen banks and drainage ditches could provide a suitable habitat for Rabbits *Oryctolagus cuniculus*, Badger *Meles meles,* and Hedgehog *Erinaceus europaeus.* No droppings were recorded during the site visit. The Badger is protected under the Wildlife (Amendment) Act, 2000.

Table 2 Mammals known for which there is suitable habitat (Harris & Yalden, 2008)

	Level of Protection	**Habitat**
Otter *Lutra lutra*	Annex II & IV Habitats Directive; Wildlife (Amendment) Act, 2000	Rivers and wetlands
Whiskered bat *Myotis mystacinus*	Annex IV Habitats Directive; Wildlife (Amendment) Act, 2000	Gardens, parks and riparian habitats
Natterer's bat *Myotis nattereri*		Woodland
Leisler's bat *Nyctalus leisleri*		Open areas roosting in attics
Brown long-eared bat *Plecotus auritus*		Woodland
Leisler's bat *Nyctalus leisleri*		Woodlands and buildings
Common pipistrelle *Pipistrellus pipistrellus*		Farmland, woodland and urban areas
Soprano pipistrelle *Pipistrellus pygmaeus*		
Daubenton's bat *Myotis daubentonii*		Woodlands and bridges associated with open water
Irish hare *Lepus timidus hibernicus*	Annex B Habitats Directive; Wildlife (Amendment) Act, 2000	Wide range of habitats
Hedgehog *Erinaceus europaeus*	Wildlife (Amendment) Act, 2000	Woodlands and hedgerows
Pygmy shrew *Sorex minutus*		Woodlands, heathland, and wetlands
Red squirrel *Sciurus vulgaris*		Woodlands
Irish stoat *Mustela erminea hibernica*		Wide range of habitats
Badger *Meles meles*		Farmland, woodland and urban areas

3.4.2 Birds

Incidental recordings of birds were made and include many typical countryside species and these are detailed in table 3. No dedicated bird survey was carried out. Nearly all bird species and their nests are protected under the Wildlife (Amendment) Act, 2000.

This species is listed under the Annex I of the Birds Directive.

Table 3 – Incidental records of birds observed during the survey

Latin Name	English Name	Conservation Status
Corvus frugilegus	Rook	Green
Erithacus rubecula	Robin	Green
Starnus vulgaris	Starling	Red
Motacilla cinerea	Grey wagtail	Green
Pyrrhula pyrrhula	Bullfinch	Amber
Turdus merula	Blackbird	Green

Conservation status is derived from BirdWatch Ireland's list of Birds of Conservation Concern in Ireland (Lynas et al., 2007) where green = low concern; amber = medium concern; and red = high concern.

3.4.3 Amphibians

The Common frog *Rana temporaria* was not recorded although they could breed in the marginal areas of the drainage ditch on site. The frog is protected under the Wildlife (Amendment) Act, 2000 also the frog is also protected under Annex V of the Habitats Directive.

3.4.5 Invertebrates

A large number of insects are likely to be present in the area and all habitats present are suitable for a wide range of species. It is unlikely that protected species would be present due to agricultural practices. Hedgerows and drainage ditches present would provide suitable habitat for a variety of invertebrates supported by the tree mix present along hedgerows notably native species such as Hawthorn *Crataegus monogyna* and Ash *Fraxinus excelsior*.

4.0 Screening Matrix

4.1 Brief description of the project

The site is an existing piggery operation with plan to expand to 600 sows at Ballyfauskin, Ballylanders, Co. Limerick.

4.2 Brief description of the Natura 2000 site

There are no protected sites within 4 Kilometres of the site

4.3 Assessment criteria

- Describe the individual elements of the project (either alone or in combination with other projects) likely to give rise to impacts on the Natura 2000 site.
    - The existing piggery and proposed expansion of the piggery at Ballyfauskin, Ballylanders, Co. Limerick as the site is far from protected sites and will have a low to no impact on the protected site.

- Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:
    - size and scale;
        (a) Direct impacts
            None
        (b) Indirect
            None
        (c) Secondary
            None

- land-take;
    - Existing Piggery is in place and the expansion is in close proximity to the existing buildings.

- distance from the Natura 2000 site or key features of the site;
    - No protected sites within 4 kilometres
- Resource requirements (water abstraction etc.);
    - The existing and proposed new buildings will be serviced by off-site wells

- emissions (disposal to land, water or air);
    - The piggery operation is outside of the catchment of the municipal sewerage network. Slurry / manure generated from any permitted piggery operation are directed to slurry storage tanks under the piggery buildings. The stored slurry goes to off-site land spreading.
    - Patrick Ryan's domestic residence will be used for the disposal of domestic wastewater only which and will be treated by the present treatment system in place for domestic dwelling.

- excavation requirements;
    - Yes the proposed expansion will require new slurry storage tanks and excavation is required for foundations, drainage and external paved areas.

- transportation requirements;
    - All materials and resources required for the building and operating the piggery will be transported to the site via road.

- duration of construction, operation, decommissioning, etc.;
    - The duration of construction of the expansion will be approximately 2 to 6 months and maybe conducted over 2 to 3 years.
    - A time line for operation and decommission is not known.

- other
    - None

4.4 Describe any likely changes to the site arising as a result of:

- reduction of habitat area:
    - Yes area for the additional piggery buildings is on grassland but the habitat is of poor species diversity. A reduction in the area of grassland

habitat will occur to the order of 0.8 hectares. The habitat is of poor species diversity.

- disturbance to key species;
    - None

- habitat or species fragmentation;
    - None as the area of habitat is improved grassland which is utilised for silage production twice per year.

- reduction in species density;
    - None

- Changes in key indicators of conservation value (water quality etc.);
    - no key indicators

- Climate change.
    - None

4.5 Describe any likely impacts on the Natura 2000 site as a whole in terms of:

- interference with the key relationships that define the structure of the site;
    - The site a significant distance for any protected site and the impact will be low to none.

- Interference with key relationships that define the function of the site.
    - None

5.0 Finding of no significant effects report matrix

5.1 Name of project or plan

Patrick Ryan, Ballyfauskin, Ballylanders, Co. Limerick continued operation and proposed expansion of the piggery operation.

5.2 Name and Location of Natura 2000 sites

None within 4 kilometres

See Figures 1 to 5.

5.3 Description of the project or plan

The proposed development consists of the continued operation of the poultry operation and the construction of additional building to increase the capacity to 600 sows at, Ballyfauskin, Ballylanders, Co. Limerick.

5.4 Is this project directly connected with or necessary to the management of the sites (provide details)?

No the proposed development is not connected with any protected site and no management is required.

5.5 Are there other project that together with the project or plan being assessed could affect the sites (provide details)?

It is unlikely that the existing piggery and proposed expansion project alone or in combination with the existing or other developments would impact on protected sites.

5.6 The assessment of significance of effects

The proposed development will lead to the expansion of an existing piggery operation to 600 sows.

The proposed development does not comprise of a new development to the site but rather an expansion of an authorised development. The development will have a low impact on the area.

5.7 Explain why these effects are not considered significant.

The proposed site is comprised of agricultural grassland of low ecological value. This habitat type is representative of all agricultural land used for grazing and silage cutting in the region. The land take for the development is approximately 0.8 hectares.

The proposed development is not expected to adversely affect the integrity of any protected sites. Furthermore, the proposed development if permitted shall be required to conform to the relevant regulatory provisions for the prevention of pollution, nuisance or other environmental effects likely to significantly and adversely affect the integrity of any protected site.

5.8 List of agencies consulted.

NPWS

5.9 Response to consultation.

Consultation was held with NPWS.

5.10 Data collected to carry out the assessment

- Who carried out this assessment?
    - Trevor Montgomery & Miriam Montgomery
- Sources of data
    - Documents supplied by Patrick Ryan Patrick Ryan, Ballyfauskin, Ballylanders, Co. Limerick
    - Limerick County Council Website
    - NPWS website

5.11 Level of assessment completed

Site Visits and a desktop study

5.11.1 Where can the full results of the assessment can be accessed and viewed?

This screening report is to be submitted to EPA as part of request for additional information for determination of the proposed IPPC License.

6.0 Assessment of Likely Significant Effects

The proposed development of the existing piggery operation and the proposed expansion of an existing piggery operation at Ballyfauskin, Ballylanders, Co. Limerick are not directly connected to any protected site.

It is unlikely to impact on any development site due its location with the nearest protected site being situated over 4 km away.

7.0 Conclusion

The outcome of the screening process is that there is no need therefore to proceed to stage 2 of the appropriate assessment and ascertain the effect on site integrity or investigate mitigation measures or alternative solutions. Therefore no need for a formal appropriate assessment to be made under the EU Habitats Directive before the EPA considers the application in full.

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Appendices

Appendix 1 Figures

Figure 1 Region Map

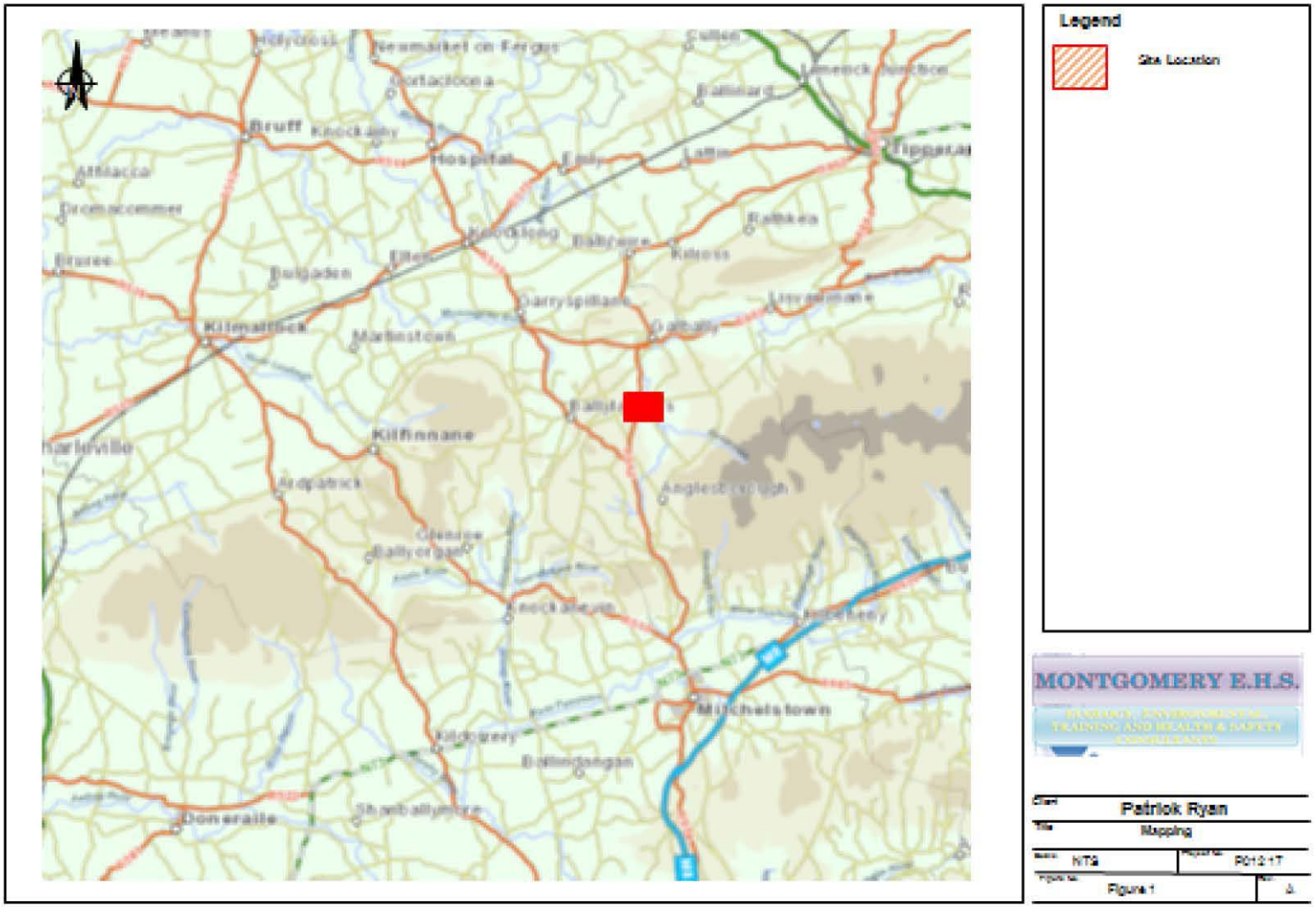


Figure 2 Local Map

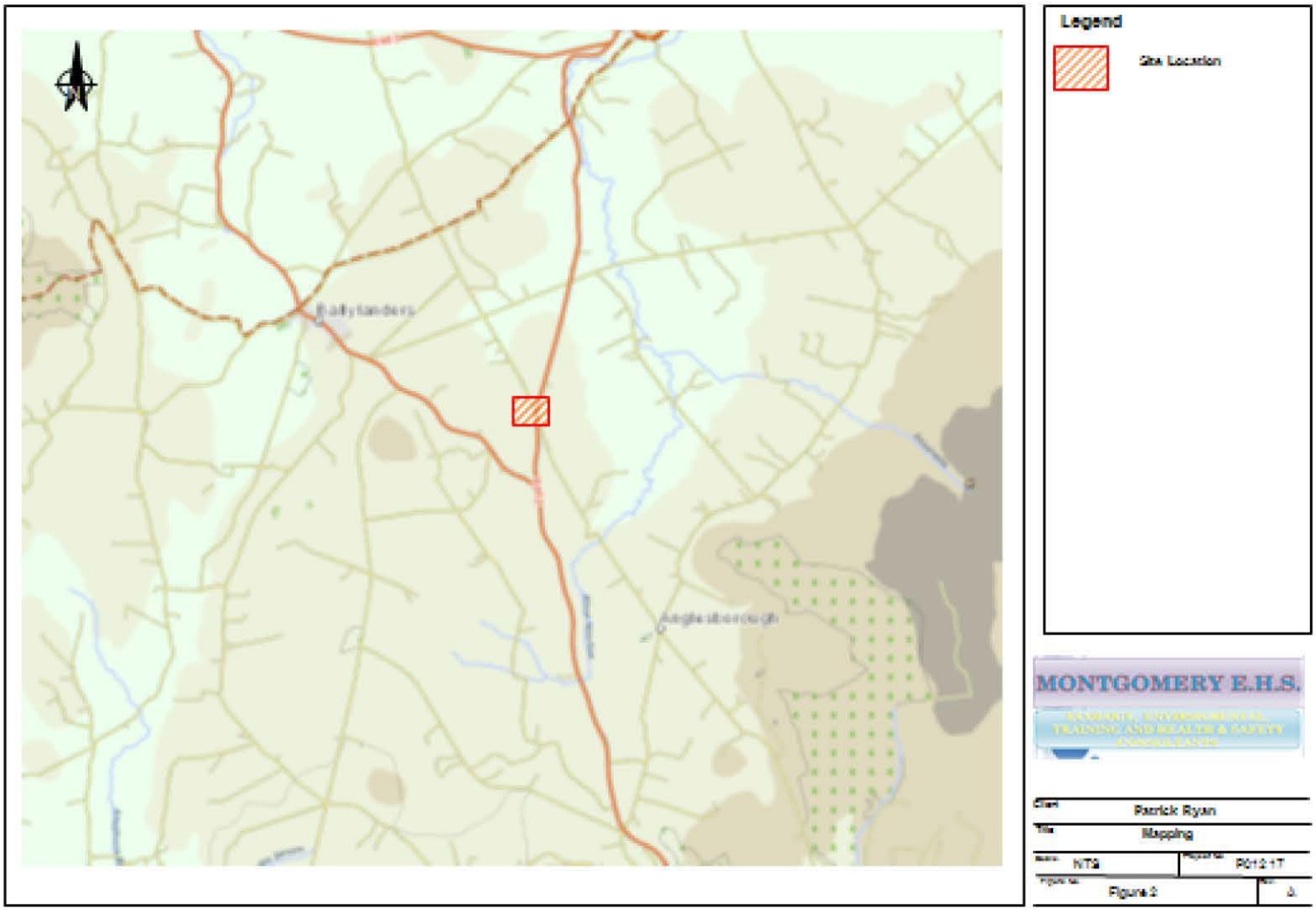


Figure 3 Aerial Photography

Figure 4 Designation Maps

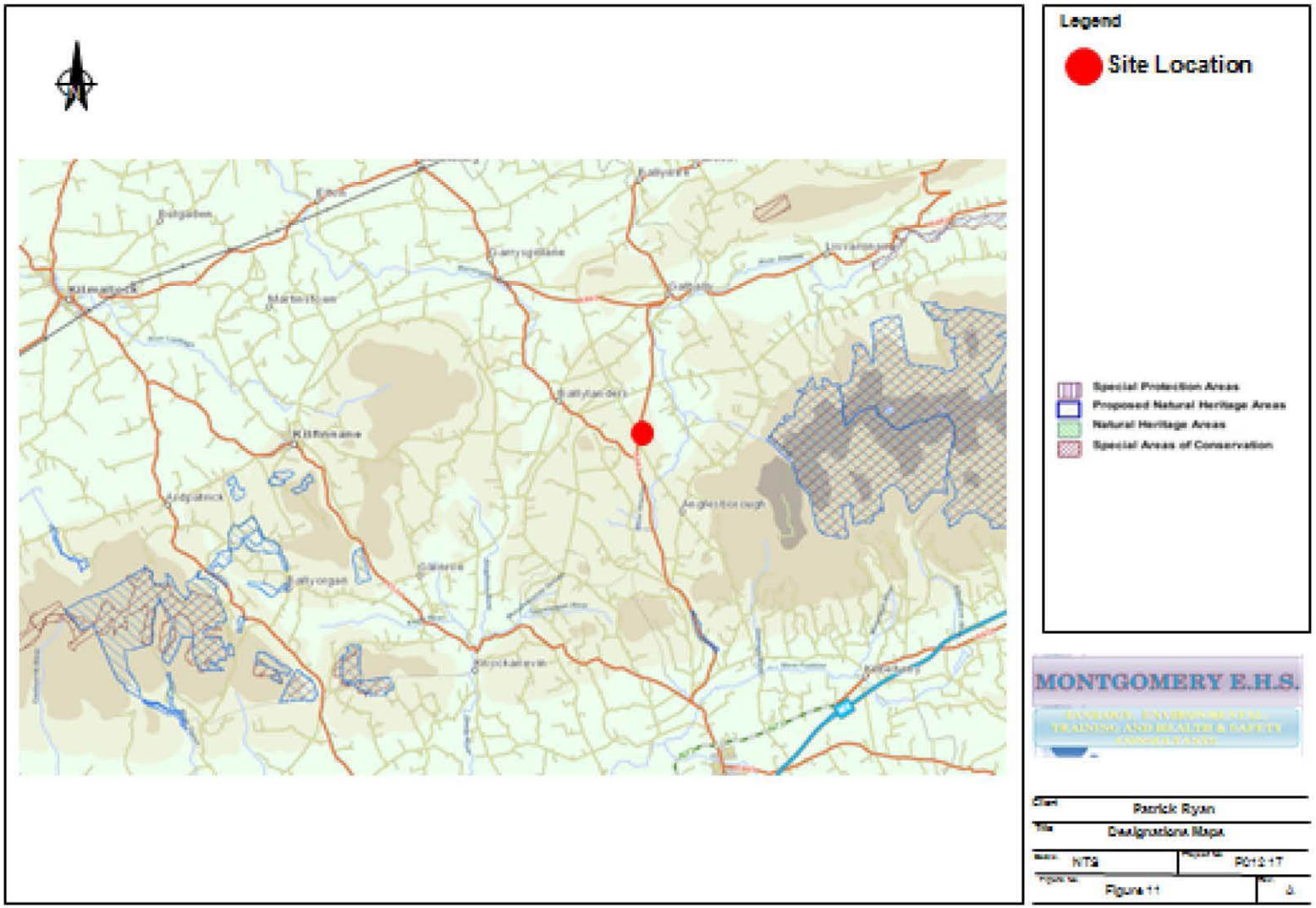
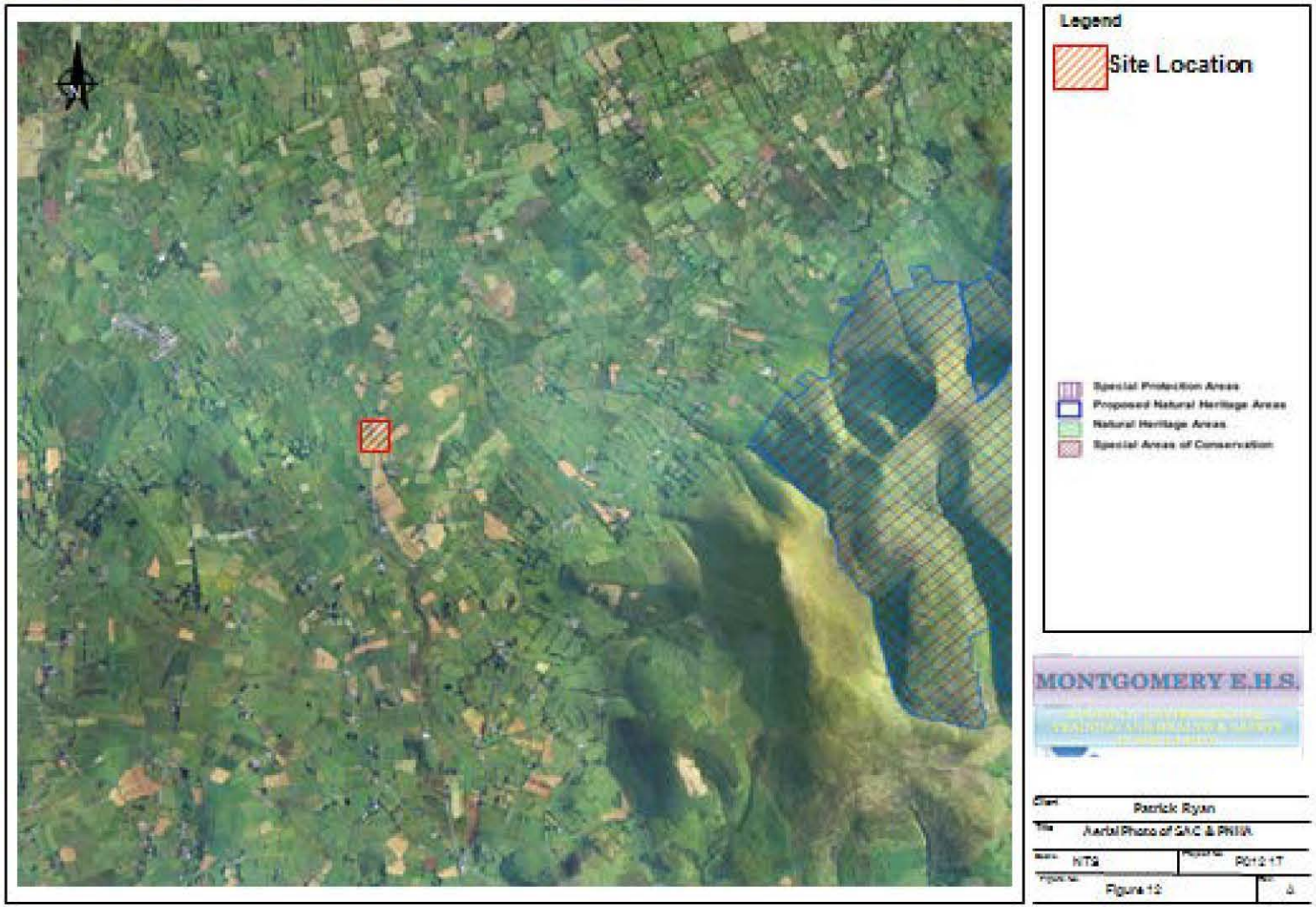


Figure 5 Designation Map

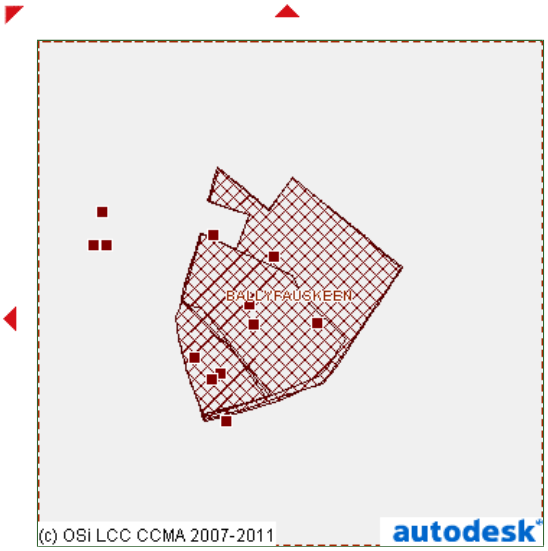


Attachment 2 Details on Planning Application (Ref No. 07/2101)

Limerick County Council
Comhairle Chontae Luimnigh

Applications on Map (12)
072101 View Details

Show Docs Revise Query



Map Width: 504 metres

Zoom In Zoom Out Reset

Aerial Photos: Show

Planning Application Details

Application Details

Planning Number:	072101
Local Authority:	Limerick County Council
Engineering Area:	5
Planner:	Kilmallock Area Planner
Applicant Name:	Patrick Ryan
Development Address:	Ballyfauskeen Ballylanders

Application Status

Date Received:	29/06/2007
Submissions By:	02/08/2007*
Due Date:	23/08/2007#
Decision:	CONDITIONAL
Decision Date (MO):	21/08/2007
Application Status:	APPLICATION FINALISED
Grant Date:	27/09/2007

* Submissions By Date Symbol Description
# In accordance with Article 31 of the Planning and Development Regulations (2001), the Council may, on occasion, issue a planning decision within 3 days of the stated due date

Application Type

Type: PERMISSION

Development Description:
the construction of a new store, cover existing open pig manure storage tank with a house for hospital pens, replace 4 no. existing pig houses with new modern design buildings. and construct a covered geomembrane lined pig manure storage basin adjacent to the pig farm

Other Information

Further Info. Requested:	n/a
Further Info. Received:	n/a
Report File Location:	n/a
Functional Area:	

Appeals to An Bord Pleanala

Number of Appeals:	0

Attachment 3 Details on Planning Application (Ref No. 12/306)

Limerick County Council

You are here : Limerick County Council > Enquiries > View Application

Representations | Submissions | Further Information | Agents | Company Information | Land Owner

Back...

View Related Documents

Planning Application: 12306

File Number: 12/306
Application Type: PERMISSION
Received Date: 20/04/2012
Validated Date:
Further Info Requested:
Withdrawn Date:
Decision Type: Decision Unavailable
Leave To Appeal:

Applicant Details

Applicant Name: Ballyfaskin Enterprises Ltd.
Applicant Address:
Phone Number:
Fax Number:

Proposed Development

Development Description: the expansion of an existing integrated sow unit to 600 sows. The development proposes to construct a new loose w entrance including access road and associated site works. The development proposes to replace two existing farrowing which comprises or is for the purposes of an activity requiring an Integrated Pollution Control Licence and an Environme
Development Address: Ballyfaskin, Ballylanders, ,
Architect Name: Montgomery E.H.S.
Electoral Division:
Social Housing Exempt:
IPC License Required: Yes
Protected Structure: No

Comments

Significant Case Flag:

Application Fee

Fees Due: 0.00
Fees Refunded:

Decision

Decision Date:
Decision:
Grant Date:
Section 47 Apply?:
Expiry Date:
Decision Description:

Appeal Details

Notification Date:
Appeal Type:
Submission Due Date :
Appeal Decision :
Withdrawn Date :
Reason :

PATRICK RYAN
BALLYFASKIN ENTERPRISES LTD
BALLYFASKIN, BALLYLANDERS, COUNTY LIMERICK

ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED EXPANSION OF A PIGGERY OPERATION

April 2012

Montgomery EHS
2 Beechwood Gardens
Newcastle West
Co. Limerick
Phone (069) 66796
Mobile (087) 239 0421
Email: trevormontgomery@hotmail.com

PATRICK RYAN

ENVIRONMENTAL IMPACT STATEMENT

This document has been prepared on behalf of and for the exclusive use of Patrick Ryan by Montgomery EHS on the basis of a submission to Limerick County Council as part of the planning process.

Conclusions and recommendations contained in this Document are based on information supplied by the Client and others. Unless expressly stated otherwise, information provided by Third Parties has not been verified by Montgomery EHS.

Montgomery EHS accept no liability or responsibility whatsoever in respect of any use of or reliance upon all or part of this Document by any third party.

Document No. ……. ES_P012_17-01

Rev	Description	Origin	Review	Changes/Amendments	MEHS Approval	Date
1	Draft	MM	TM	Draft for review	Yes	23/03/12
2	Final	MM	TM	Issued	Yes	14/04/12

CONTENTS

Figures

Tables

1 LEGISLATIVE REQUIREMENTS

1.1 INTRODUCTION

This chapter broadly describes the legislation under which Patrick Ryan proposes to expand the existing piggery operation. The planned development will require submission of a Planning Application to Limerick County Council, together with an Environmental Impact Statement.

1.2 ENVIRONMENTAL IMPACT ASSESSMENT AND PLANNING LEGISLATION

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

The developer following discussion with the planning authority is required to have an EIS carried out as part of the planning application under the following regulations:

1) EC (Environmental Impact Assessment) Regulations 1989: Article 24. Schedule. Part II 1. (d) Pig-rearing installations, where the capacity would exceed 1,000 units on gley soils or 3,000 units on other soils and where units have the following equivalents; 1 pig = 1 unit, 1 sow = 10 units
2) Planning and Development Regulations 2001 (S.I. No. 600 of2001).
    - These regulations state that even if the development is under the relevant EIA threshold the planning authority is required under article 103 to request an EIS where it considers that the proposed development is likely to have significant environmental effects.
    - Section 17: An EIS is required for " pig-rearing installations, with more than 2,000 places for production pigs (over 30 Kgs.) in a finishing unit, more than 00 places for sows in a breeding unit or more than 200 places for sows in an integrated unit;).

The documents *Guidelines on the information to be contained in Environmental Impact Statements,* 2002 and *Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements*), 2003 as prepared by the EPA, were followed in the preparation of this EIS. The guidelines state that in preparing an EIS, 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 Statement examines the potential significant impacts of the proposed expansion of the piggery operation at the Ballyfaskin, Ballylanders, Co. Limerick. The extent of the proposed scheme is described in detail in **Chapter 2**. The potential environmental impacts of the proposed scheme are addressed in **Chapters 3-14** of this volume of the report under the headings, Human Environment, Natural Environment, Material Assets and Architecture, Archaeology and Cultural Heritage.

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1.3 SCOPE OF THE ENVIRONMENTAL IMPACT STATEMENT

Scoping is an essential part of the preparation of any planning application as it ensures that all potential and important significant impacts on the receiving environment are taken into account at the earliest possible time. Scoping by its very nature will evolve with the project as design changes are made and more detailed information on environmental issues and design comes to hand. However, as an early stage tool it provides relevant information on the most important potential impacts of the project, which will have to be addressed in the Environmental Impact Statement. With regard to EPA criteria for scoping, the environmental areas that may be impacted by the proposed scheme were identified and are:

Human Beings

During scoping, particular regard was given to the potential impact of the expansion to the piggery operation on the local communities.

Natural Environment

The site of the existing piggery operation and the proposed extension is located in an area of poor ecological value. The site is not located or boarding any sensitive ecological areas including Natural Heritage Areas (NHA) Special Area of Conservation (SAC) or Special Protection Area (SPA).

The impacts on the ecology contained within 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 aspects impacted by land take for the proposed scheme and available resources such as soils, utilities etc. The development will be constructed primarily on 'greenfield' site in land currently owned by Patrick Ryan.

Architecture, Archaeology and Cultural Heritage

The site is located in an area of improved agricultural grassland, and is of low potential with regard to archaeological and other cultural heritage finds.

1.3.1 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 built.
- the “do something” scenario which compares the quality of the existing receiving environment with that of the likely environment should the proposed scheme be built.

1.4 IDENTIFICATION OF LIKELY SIGNIFICANT IMPACTS

Schedule 6 of the Planning and Development Regulations requires that projects requiring an EIS describe likely, direct and indirect significant impacts of a proposed scheme. The Environmental Impact Statement will follow the same basis. The EPA (Guidelines on the Information to be Contained in Environmental Impact Statements, 2002) defines an impact as "the degree of change in an environment resulting from a development" and continues to elaborate on impacts in terms of quality (positive, neutral or negative), significance (imperceptible, slight, moderate, significant or profound), duration (temporary, permanent, short-term, medium-term or long-term) and type (cumulative, indeterminable, irreversible, residual, synergistic or 'worst case').

The following factors have been considered for this Environmental Impact Statement when determining the significance of the impacts, both positive and negative, of the proposed scheme 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 change in terms of land area, number of people impacted, number and population of species affected including the scale of change resulting from all types of impacts.
- The consequence of that impact/change occurring.
- The certainty/risk of the impact/change occurring.
- Whether the impact is temporary or permanent.
- The degree of mitigation that can be achieved.

The magnitude of the impacts outlined in the chapters which follow take into account the guidelines given by the EPA and those scales used in other EIS documents for significant developments in this country. A broad outline of the scale of impacts is given in **Table 1.1**.

Where mitigation in the form of design measures have been suggested throughout the evolution of the Environmental Impact Statement, these have been incorporated into the scheme design as far as is possible from an engineering perspective.

Table 1.1: General Criteria used to Quantify the Potential Impacts of the Proposed Scheme

Degree of Impact/Significance Level		Definition of Impacts
Profound	Significant Impact	An impact, which obliterates sensitive characteristics.
Major		An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Moderate		An impact that alters the character of the environment in a manner that is consistent with existing and emerging trends.
Slight		An impact, which causes noticeable changes in the character of the environment without affecting its sensitivities.
Not significant	Neutral or Imperceptible Impact	An impact which does not change the quality of the environment, is capable of being measured but without noticeable consequences and causes changes in the character of the environment which are not significant or profound.

2 SITE LAYOUT AND CONSTRUCTION

This Environmental Impact Statement (E.I.S.) has been prepared by Mr. Trevor Montgomery, of Montgomery EHS with the assistance of persons and bodies referred to hereafter. This E.I.S. has been prepared after an Environmental Impact Assessment (E.I.A.) of the proposed development in accordance with the Planning and Development Acts 2000 - 2006, Planning & Development Regulations 2001-2006 and the Protection of Environment Act 2003.

This E.I.S. forms part of a planning application to Limerick County Council on behalf of Mr. Patrick Ryan, Ballyfauskeen Enterprises Ltd, Ballyfaskin, Ballylanders, Co. Limerick for permission to demolish two No. existing pig houses and remove 3 No. pre-fabricated weaner houses, and to construct a new loose welfare friendly dry sow house, 3 no. fattening houses, a new farrowing house, a feed mill, new site entrance including access road and associated site works. the development proposes to replace two existing farrowing houses, an existing fattening house and a gilt house at ballyfaskin, ballylanders, co limerick (National Grid Reference: R 78891 23469).

This E.I.S. will also form part of a submission to the EPA for an Integrated Pollution Prevention and Control (I.P.P.C.) Licence on behalf of the applicant Mr. Patrick Ryan.

This existing farm, and site of the proposed development i.e. the subject site, is located on c. 2.6 Ha, in the townlands of Ballyfaskin which is approxametely 3.0 km north east of Ballylanders.

2.1 DESCRIPTION OF DEVELOPMENT.

The application relates to a proposed integrated 600 sow pig production unit finishing c. 17,500 pigs per annum, at 105 to 110 kg. live weight. As a result of the breeding programme and the high health status of the pigs on this farm, some of the gilts bred and reared on this farm may be sold to other pig farms as replacement breeding stock. It is the intention of the applicant to operate the farm with the uppermost regard for environmental protection while at the same time implementing modern management methods on the farm.

This farm currently operates with a maximum capacity for a 400 Sow unit. At present Mr. Ryan finishes 100% of the pigs on this farm. Planning Permission was granted to Mr. Ryan for development on this farm by Limerick Co. Co. in 2009, for the extension of farrowing house D and replace existing farrowing house E and associated site works.

It is the intention of the applicant to continue to operate the farm with the uppermost regard for environmental protection while at the same time implementing modern welfare and environmentally friendly management processes on the farm. Modernisation/consolidation is an essential part of viable sustainable pig production. The structures for which permission is being sought incorporate modern design concepts in the areas of animal welfare, insulation, ventilation and environmental protection in the operation of the farm.

Improvement in production efficiencies in the breeding herd and performance in the grower/finisher pigs are dependant on provision of adequate top quality housing and welfare in tandem with modern feeding and ventilation systems and top quality genetics.

Mr. Ryan proposes to construct the following:

- 3 No. Fattening houses. - (Floor area c. 3* 1531.8 m2) located on the site of, and replacement of 1 Fattening House (Floor area c. 1070.4 m2)
- 1 Feed Mill (Floor area c. 400 m2)
- Farrowing House (Floor area 653.3 m2)
- 1 Dry Sow House (Floor area 1192.4 m2)
- 1 Construction of a Farrowing Houses (floor area 653.312 m2) and replacement of existing farrowing house (Floor area 413.8 m2)

- 1 replacement of Gilt House (Floor area 258.5 m2)
- 1 new access road and, any associated site works and ancillary structures arising from the proposed developments as outlined above.

Permission for this proposed development is being sought to,

- To allow this farm operate as a fully independent, integrated pig unit
- Provide adequate space for all piggery to ensure maximum performance and efficiency, and to achieve target sale weights.
- Improve the management washing routines within the unit, thus reducing washing time and water usage.
- To ensure the efficient use of all inputs such as labour, machinery etc., and to avoid the inefficiencies with regard to the transport of pigs between farms and the associated division of machinery and labour.

The total area of the site existing site is 1.2 Ha and the proposed development incorporating existing and proposed areas is 2.6 Hectares. The proposed will be situated adjacent to the existing piggery operation and approximately 25m from the road along the site's boundary.

Patrick Ryan's site at Ballylanders, Co. Limerick is located within the town land of Ballyfaskin, northeast of Ballylanders town centre and north of the R513 as shown on Figure 1.

The proposed development will be constructed on the existing site, at grid reference R 78891 23469 (O. S. Map no.73). The site is located in a rural farmland area, approximately 3km northeast of the town of Ballylanders.

The piggery complex is situated alongside a regional road (R 662) which runs along the north of the site in an north northly direction and which connects to the R512 to the south. To the north of the site is Ballyfaskin Cross Roads which intersects a local road and the R662.

The nearest dwelling house is the developer's, at a distance of approximately 30m north of the site. The next dwelling house is approximately 40m from the site. The area is extremely rural and not highly populated. The site of the proposed development is currently used for silage cutting and existing piggery buildings.

The site boundary is marked by a combination of hedgerowes and fencing. The complex is situated on a flat ground and it is largely shielded from view from all directions due to the trees characteristic of the topography.

However every effort will be made by the developer to further obscure the complex from the surrounding locale, if necessary, by a combination of a further hedgerow, native trees, fencing or soil embankement.

The proposed development will not severely impact the landscape of the area and will blend with the existing agricultural units on the site.

The proposed development would have a capacity to increase the number of sows from 400 to 600. The maximum height of the proposed buildings would come from the Mill which would be approximately 18.3 meters to apex.

The site boundary is marked by hedgerows with fencing in some parts. The existing entrance is located at the northern boundary and has been considered unsuitable for the proposed and existing piggery operation, as indicated in the Site Layout Plan (Figure 5 and T001).

Drainage:
Uncontaminated yard and roof runoff are diverted via the surface water gullies to a drain and piped into the site drainage ditch and the same will apply to the new and modified buildings.

Foundation:
The proposed and modified buildings will be in part constructed on top of underground slurry storage tanks but the Mill building will be constructed on an impermeable concrete foundation, to be laid by the developer or a hired subcontractor.

Buildings:
The Buildings will be installed by an approved contractor. The buildings will be insulated.

Roofing:
The roofing will be an insulated timber construction, with an aluminium surface.

Underground Slurry Tanks:
The proposed slurry storage tanks of varying capacity will be situated underground and below the buildings with the exception of the Mill. The tanks construction will conform to the Department of Agriculture, Food and Forestry's Specification No. 123 "Minimum Specification Slatted Livestock Units: Reinforced Concrete Tanks" DAFF, 1994.

Feed Silo:
On completion of construction works, feed silos (approx. 7.6m high, 3.0m diameter) will be installed and will be placed in the Mill and adjacent to some of the piggery building.

See Figures 5 and 6 and C001 to C007 for a description of the location of proposed development.

Construction works are expected to occur over a duration of approximately five months. The extra traffic and noise generated will be only temporary. Complaints are not expected from those living in and travelling through the area.

3 ALTERNATIVES

3.1 EXAMINATION OF POSSIBLE ALTERNATIVES

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.

3.2 Alternative Sites

A review of Patrick Ryan's owned property reveals that this is the only feasible available site for the construction of a number of piggery buildings and access roads.

Acquiring property further away from the existing piggery operation has been ruled out as:

- Land would be expensive to acquire
- Construction costs would be more expensive as the proposed expansion of the piggery operation would be connected into the existing infrastructure, thus avoiding duplicate costs of constructing a new feeding, water and heating systems, electrical infrastructure and access.
- Operation costs would be more expensive as addition feed silos and pumping distances would be greater and electricity infrastructure would have to come from existing National Grid as opposed to existing on site electrical infrastructure.

3.3 Alternative Layouts

The layout of the site was considered for the proposed development to minimise the operational cost of the development and consider animal welfare. However, the footprint of the proposed development is subject to a number of physical constraints. The site of the extension is restricted to land already in the ownership of Patrick Ryan.

The proposed location is considered the best viable option due to the avoidance of disturbance of the pigs during delivery and collection. The proposed location will aid the screening of the proposed buildings with the existing hedgerows retained where possible.

4 INTERACTIONS AND INTER-RELATIONSHIPS

In line with requirements of EC Directive 85/337/EC (as amended) and the Planning and Development Regulations 2001, the interactions/inter-relationship between the various environmental factors was also taken into account as part of the Environmental Impact Statement 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.

Table 4.1 shows a matrix of significant interactions likely to occur from the proposed development. The boxes marked with a dot in **Table 4.1** indicate that a potential relationship exists between the two environmental factors. The level of interaction between the various topics will greatly vary but the table allows the interactions to be recognised and further developed where necessary. The table is constructed on the basis that an environmental subject has a potential inter-relationship both during the construction and operational phases of the proposed scheme. Summary details on the interactions are provided in **Table 4.2.**

To fully explain what is meant by an inter-relationship or interaction between environmental topics an example is provided. Noise can interact with a number of environmental aspects. Noise issues primarily feature under the heading of Human Environment and most of the standards and guidelines on noise relate exclusively to human beings. However, noise can impact on terrestrial fauna such as birds and material assets in the form of commercial livestock and so it must be taken into account as part of the agricultural and ecological assessment also.

Table 4.1: Interaction/Inter-Relationship Matrix - Potential Significant Interaction in the Receiving Environment

	HUMAN BEINGS	AIR	NOISE	LANDSCAPE	FLORA AND FAUNA	WATER	SOILS	CLIMATE	MATERIAL ASSETS
HUMAN BEINGS		•	•	•	•		•	•	
AIR				•	•	•	•	•	•
NOISE					•				•
LANDSCAPE					•	•	•	•	
FLORA AND FAUNA						•	•		•
WATER							•	•	
SOILS									
CLIMATE									•
MATERIAL ASSETS									

The following are the interactions anticipated from the proposed scheme.

Table 4.2.: Summary of Potential Interactions / Inter-relationships

Subject	Interaction with	Interactions / Inter-relationships
Air	Human Beings	In terms of the proposed development, dust (both during the construction phase) and its impact on the communities and residents adjacent to the piggery buildings will be the main issue. During the operational phase odour will be the main air quality issue.
	Flora and Fauna	Vegetation can act as a purifier for air in absorbing CO_2 and giving out oxygen. Dust coating vegetation would affect normal respiration during construction.
	Water	No Interactions / Inter-relationships
	Soils	Dust from exposed soils during construction could cause deterioration of air quality in the immediate vicinity of the development.
	Climate	Local heating of air in the buildings could cause microclimate change in those areas.
	Material Assets	No Interactions / Inter-relationships
Noise	Human Beings	Sensitive receptors located close to the proposed extension may experience some increase in noise particularly during the construction stage.
	Flora and Fauna	Construction proposals could result in significant noise disturbance which may impact on the fauna and avifauna currently using the area.
	Material Assets	No Interactions / Inter-relationships
Landscape	Human Beings	The proposed development will have a minor appearance in the landscape of the area.
	Flora & Fauna	A small loss of hedgerow will occur as important wildlife corridors for animals. Improvement of the remaining hedgerow will be conducted post development.
	Water	No Interactions / Inter-relationships
	Soils	Movement of significant quantities of soil from one area to another can affect the appearance of the landscape. This will be necessary as part of the construction when material is removed from the construction zone.
	Material Assets	No Interactions / Inter-relationships
Flora and Fauna	Human Beings	There will be minor impact on the fauna and flora of the area as they suffer habitat loss and dislocation due to the proposed scheme.
	Water	During construction there is a minor risk of disturbance to drainage channels. This will require special precautions to avoid disturbance of sediments with consequent effects on fauna.
	Soils	Stabilisation methods for soft soil areas could alter the pH balance with consequent change in flora cover and species of fauna supported.
	Climate	No Interactions / Inter-relationships
	Material Assets	Land take will result in a loss of habitat and local loss of range for terrestrial fauna.

Water	Human Beings	No Interactions / Inter-relationships
	Soils	Surface water runoff waters could cause deterioration of water quality of streams.
	Material Assets	No Interactions / Inter-relationships
Soils	Human Beings	Dust from exposed soils during the construction period can cause dust nuisance if not properly mitigated.
	Material Assets	Extraction, movement and placing of soils will have an energy input requirement.
Climate	Human Beings	No Interactions / Inter-relationships
	Material Assets	No Interactions / Inter-relationships
Material Assets	Human Beings	Current land-use will be permanently altered including the loss of ecological habitat and farmland.

PART II – ENVIRONMENTAL IMPACTS

This section of the Environmental Impact Statement describes the likely significant Environmental Impacts arising from the proposed extension to the piggery operation at Ballyfaskin, Ballylanders, Co. Limerick. Where possible, design measures have been included to reduce or eliminate possible impacts but 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 Statement deals with the potential effects of the proposed scheme on human beings.

These effects have been grouped into:

- Community Impact- the direct or indirect impact of the scheme on the population living or working in the general vicinity of the proposed piggery expansion at Ballyfaskin, Ballylanders, Co. Limerick.

- Air Quality Impacts – the impact of emissions generated by the proposed piggery expansion at Ballyfaskin, Ballylanders, Co. Limerick.

- Noise and Vibration Impacts - the impact of noise and vibration generated by the scheme on noise and vibration levels in the general vicinity.

- Landscape and Visual Impacts – the impact of the scheme on the aesthetic aspect of the landscape.

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 on human beings in relation to effects on the natural environment are considered in **Section B** while the impacts of effects on material assets and architecture, archaeology and cultural heritage are considered in **Sections C and D** respectively.

5 AIR QUALITY AND CLIMATE

5.1 INTRODUCTION

The air quality study identifies, describes and assesses the impact of the proposed extension to the piggery growing operation on air quality and climate. Particular attention has been given to sensitive receptors, such as residential areas adjacent to the site 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 document - Guidelines on the Information to be contained in an Environmental Impact Statement (2002).

5.2 METHODOLOGY

5.2.1 Baseline Monitoring

5.2.1.1 Total Suspended Particles (Dust)

Dust generation, dispersion and deposition from operation and construction activities are typically considered an environmental nuisance for sensitive receptors in the vicinity of a development. The potential sources of dust in the proposed development during the construction and operation phases are from trafficking and strong winds in dry conditions, (leading to suspension of dried soil particles from the proposed extension to the piggery operation). Earthworks during the extension construction are also a potential source of dust pollution.

As there are no set limits for dust deposition in Ireland, the TA Luft guidelines are referenced. TA Luft is the German Government technical instructions on air quality and referenced by the Irish EPA. Dust deposition monitoring using Bergerhoff-Gauges would be the recommended standard method meeting TA-Luft (1986) requirements. No monitoring was conducted at Patrick Ryan's piggery operation as it would be considered that there is a minor risk of deposited dust level exceeding the TA Luft levels.

5.2.1.2 Odours

An Odour Management plan is for Patrick Ryan piggery operation and is presented and accompanies the EIS. Mr Ryan operation in summary Mr Ryan is committed to operating the existing facility to best practice. The proposed redevelopment of the piggery will have the best available water and feeding systems and following construction of this industry. Mr Ryan plans to modernise the existing buildings with the same water and feeding systems in the next 5 years or so. The key factors for odour management from a piggery operation are:

- Avoiding the build-up of slurry or manure on concrete around buildings;
- Removal and disposal of dead animals;
- Drain maintenance;
- Bedding cleanliness;
- Management of drinking systems, with particular emphasis on frequently checking to avoid spillage;
- Stocking density;
- Insulation of the buildings and the long term maintenance of that insulation;
- Ventilation and heating system;
- Type of heating;
- Composition of the feed, particularly its oil and fat content and its protein content.

Mr Ryan has never received any complaint directly in relation to his piggery from a local resident, Local Authority, EPA, HSE, etc. In previous planning application there has never been complaints to the planning authority in relation to odours.

As part of the Odour management plan Mr Ryan is committed to doing whatever is necessary to avoid complaints and if necessary is committed to the installation of odour abatement technology such as bio-scrubber or bio-filters. Mr Ryan's piggery operation has a good record with Bord Bia audits and other audits such as Entegra (UK) audit.

Although odour generated in the operation may be more detectable at certain times, as partly influenced by prevailing weather conditions, the townland and surrounding townlands are well accustomed to occasional odour from this type of operation. This in mind however, odour levels generated are not expected to cause a significant nuisance in the surrounding area, as the operation will be management to the best possible level. Attached as part of the planning application is an odour management plan covering all aspects of the current and proposed expanded operation.

5.3 DESCRIPTION OF BASELINE AIR QUALITY

5.3.1 Site Location

The location of the proposed development at Patrick Ryan's piggery operations is at Ballyfaskin, Ballylanders, Co. Limerick. The site is located 3 km to the south east of Ballylanders, Co Limerick, approximately 25km southeast of Limerick City. The village of Killfinnane is located to the south, approximately 3 km north from the proposed development. The townland of Ballyfaskin is situated south of Knockaunnacurraha, to the north the townland of Ballyduff. The site is west of Inchacoomb and to the east is Curraghturk, as shown in Figure 1, 2 & 3.

5.3.2 Existing Sources of Air Emissions

This facility with its existing piggery has an existing impact to air quality as a result of emissions from combustion of fuel to heat the buildings. The town of Ballylanders is located approximately 3 km north east of the proposed site for Patrick Ryan's piggery operation. The main source of air pollution would arise from domestic and commercial fuel combustion. Emissions from oil combustion include mainly carbon monoxide, nitrogen oxides, sulphur dioxide and particulates as well as greenhouse gases. .

5.4 IMPACTS

5.4.1 Dust

Dust levels generated by the development, both in the construction and operational phase, would be negligible. Minimal levels of dust will be generated, during the construction phase. Such dust will only be evident on the site and will not impact on dwellings and other buildings in the vicinity of the site, which are situated far enough from the operation so as not to be effected by any dust generated. Regular washing of the yard areas and periodic rainfall will also mitigate any dispersal of dust generated by site traffic. During the operational phase thorough cleaning of the buildings between batches will ensure that the emission of dust will not be an issue An adequate ventilation system employed in the buildings will ensure no nuisance of dust within the buildings. Any dust dispersed around the yard areas as a result of the ventilation systems in the buildings will be cleaned up regularly and will not cause any problems off site.

5.4.2 Odour

Routinely the various buildings are cleaned out between batches approximately every 16 to 24 weeks, and the cleared out. Wash water generated from the cleaning of the buildings will be stored in the underground tanks for each building. The underground tanks will be covered with propose or existing buildings and certified by a qualified engineer.

5.5 MITIGATION MEASURES

5.5.1 Dust

During the operational and construction phase of the piggery facility all efforts will be made to ensure no dusting occurs. Top soil will be removed off-site and stored appropriately if there is an excess following construction.

5.5.2 Odour

The Odour Management plan is Mr Ryan statement of intent on how odours will be managed from the proposed and existing site.
The following measures will ensure little or no impact from odour on the surrounding environment: Good practice in terms of:

- Piggery buildings temperature control
- Carcass storage and removal from site
- Thorough cleaning out of the buildings between batches
- Regular yard cleaning
- Strict adherence to good land spreading practice

No complaints of odour or dust have been received in relation to the existing piggery operation; therefore the commissioning of an expanded piggery capacity is not expected to cause a nuisance in the surrounding locality.

In the event that an odour nuisance is occurring from the pig slurry, the mitigation measure will be the use of a masking agent, which is a chemical component in an open-air spray specifically designed to mix with the fugitive odour. These masking agents typically have pleasant odours designed to “mask” the unpleasant odour.

5.6 CONSTRUCTION IMPACTS AND MITIGATION

It is proposed to use local source rock and concrete for the supply of rockfill and processed aggregate. The facility roads are constructed of rock fill and topped with fine aggregates.

5.6.1 Impacts

Construction activities e.g. excavation, earth moving etc. 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 factors such as rainfall, wind speed and wind direction.

The issue of construction dust dispersion may be exaggerated with vehicles transporting sands/gravels/soils etc. to and from the site having the potential to cause an environmental nuisance.

The effect of construction activities on air quality, in particular construction dust, will not be significant following the implementation of the proposed mitigation measures outlined below. The main environmental nuisance associated with construction activities is dust.

5.6.2 Mitigation

It is proposed to adhere to good working practices and dust mitigation measures to ensure that the levels of dust generated will be minimal and are unlikely to cause an environmental nuisance.

- Hard surface roads shall be swept to remove mud and aggregate materials from their surface.
- Any un-surfaced roads shall be restricted to essential site traffic only.
- All vehicles exiting the site shall make use of a wheel washing facility, prior to entering onto public roads, to ensure mud and other wastes are not tracked onto public roads. This water will be collected into one of the existing wash water tanks
- Public roads outside the site shall be regularly inspected for cleanliness, and cleaned as necessary.
- Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind.
- Diesel engines of plant machinery and trucks shall be properly maintained so that they do not discharge excessive quantities of visible smoke likely to result in a local nuisance.

5.7 MONITORING

There is no proposed monitoring for dust at the piggery operation. If any complaints are received a follow-up investigation will be initiated, as soon as feasible and all results made available to the Local Authority and EPA for Inspection.

Routine odour surveys will be completed by an appointed person following the EPA Air Guidance on Odour Assessment (AG5) will be initiated and these reports will be retained on-site.

In the event that dust or odour from the proposed development is creating an environmental nuisance. An ambient dust deposition survey will be carried out by an air quality specialist and mitigation measures will be developed to eliminate the nuisance. In the event of Odour nuisance an investigation following the EPA Air Guidance on Odour Assessment (AG5) will be initiated

6 NOISE

6.1 INTRODUCTION

Any sound, which can cause nuisance or a deterioration of amenities or quality of life, is examined in this chapter. Noise is a feature of most structural developments particularly during the construction phase. This will be the case during the construction of the proposed expansion of the piggery operation. Noise on a daily basis will result from regular operation of checking the stock, water and feed systems and deliveries.

An appraisal of the potential impacts from noise generated by the proposed expansion to the piggery operation on the surrounding environment was carried out by Montgomery EHS. The study identifies, describes and assesses the impact of the proposed extension in terms of noise. The assessment focuses particularly on noise impacts on residential locations (sensitive receptors) in the vicinity of the proposed development.

6.2 METHODOLOGY

Baseline noise information for this study was collected through a noise survey conducted in accordance with ISO 1996 '*Acoustics: Description and Measurement of Environmental Noise*'. Noise levels during the operational phase of the development were predicted using ISO 9613 '*Acoustics: Attenuation of Sound during Propagation Outdoors.* Operating noise limits have been set using the Integrated Pollution Prevention & Control Licence conditions.

The noise survey results are presented in terms of the following three parameters:

- LAeq is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.
- LA10 is the sound level that is exceeded for 10% of the sample period. It is typically used as a descriptor for traffic noise.
- LA90 is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.

The "A" suffix denotes the fact that the sound levels have been "A-weighted" in order to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to $2x10^{-5}$ Pa.

6.2.1 Baseline Noise Survey

A baseline noise survey was conducted as part of this noise assessment at locations adjacent to the proposed extension and its nearest noise sensitive locations. The survey was carried out on the 8th March 2012 and measurements were made over intervals of 30 minutes during the day and 30 minute night time monitoring. Noise measurements were made at the locations described in **Table 6.1**. These locations are also shown in **Figure 13.**

Table 6.1: Description of Noise Monitoring Locations during Baseline Survey

Map Reference	Description
1	Existing entrance
2	Entrance to Patrick Ryan parents' house
3	Ballyfaskin Cross Roads
4	Local Access road to Patrick Ryan House

6.2.2 Noise Criteria

Typical conditions for sites, licensed by the Environmental Protection Agency (EPA) in order to control noise from the site are outlined below. These conditions stipulate operating noise levels that should not be exceeded at any noise sensitive location surrounding the site. The following sound pressure limits are set down by the EPA.

Daytime	55dB $L_{Aeq\ 15mins}$
Night time	45dB $L_{Aeq\ 15\ Mins}$

Daytime is normally defined as 08:00 to 22:00 hours and night time is usually defined as 22:00 to 08:00 hours. The noise criteria outlined above are also in line with the World Health Organisation (WHO) guidelines for community noise. These guidelines recommend a noise level of 55dB L_{Aeq} within outdoor living areas in order to avoid serious annoyance during daytime and evening and a level of 45dB L_{Aeq} outside bedrooms during night time periods in order to avoid sleep disturbance.

These noise level limits will also be used as the target criterion for the operation of the expanded piggery operation.

6.3 DESCRIPTION OF EXISTING ENVIRONMENT

6.3.1 Existing Noise Levels

The noise climate in the vicinity of the existing site is relatively low. The operation of the existing piggery operation involves site transport traffic (cars, delivery and collection trucks), feed and water system, etc., which at present do not contribute to any significant noise levels at the nearest noise sensitive locations surrounding the site.

Noise levels measured at the nearest noise sensitive locations to the site, located within along the road leading to the site. The movement of vehicles along the road were the main noise contributors within this area.

6.3.1.1 Baseline Survey Results

The baseline survey carried out as part of this Environmental Impact Statement has indicated that noise levels are within the EPA typically IPPC Licence guidance levels of 55dB L_{Aeq} for noise during the daytime and 45dB L_{Aeq} during the night time period at noise sensitive properties. The results of the baseline noise survey are summarised in **Table 6.2**.

Table 6.2: Existing Day time Noise Levels Measured During Baseline Survey

Location	Time	L_{Aeq}	L_{A10}	L_{A90}	Survey Description	Notes
1	09:27	51	65	45	Measurement taken at road	Cars passing on main road and site noise
2	10.08	52	63	46	Measurement taken at road	Cars on road main noise source
3	10.52	47	59	44	Measurement taken at road	No major noise sources
4	11.34	47	58	43	Measurement taken at road	Vehicles audible from road

Table 6.3: Existing Night Time Noise Levels Measured During Baseline Survey

Location	Time	L_{Aeq}	L_{A10}	L_{A90}	Survey Description	Notes
1	23:31	42	54	39	Measurement taken at road	Cars moving but not on road
2	00.08	41	53	38	Measurement taken at access road	No Major Noise sources
3	00.52	44	50	39	Measurement taken at road	Vehicles audible from distance
4	01.37	40	52	36	Measurement taken at road	Vehicles audible from distance

6.4 IMPACTS

During the operational phase of the proposed expansion of the piggery operation, there is a potential for increased site traffic and operational equipment including additional feed and water systems. As the footprint of the development expands, these noise sources have the potential to increase noise levels at these nearby properties. The fact that the proposed extension moves away from the nearest residences the risk of noise complaints is low.

The main operational noise sources include:

- Site Traffic and
- Operational Equipment
- Collection of Pigs for processing

The local road is currently used by all modes of transport such as cars, tractors, heavy goods vehicles, etc. As the road surface in place is of poor condition in place and this can lead to increase noise.

6.4.1 Site Traffic and Operation Noise

Operational Noise:

- Transport - of livestock, supplies, wastes, etc.
- Operational activity - ventilation, pigs and sows (on stocking and emptying)

Again, mitigation of operational noise would involve operation during normal daytime working hours. Also, building doors will be kept closed and only opened as necessary.

The impact of noise on the surrounding environment is expected to be minimal, taking into account the remoteness of site location and the fact that no complaints of noise were made in relation to the existing development.

The unloading of feed was underway during the noise survey.

6.5 MITIGATION MEASURES

During the operation of the piggery facility, noise levels are within the EPA noise limit criteria of 55dB L_{Aeq} at the nearest noise sensitive locations. It is envisaged that the noise levels would not increase due to the fact that an additional piggery buildings on site is at further distance from the nearest noise sensitive locations.

No mitigation measures are therefore proposed during the operational phase of this development with respect to noise and vibration. In general the distance between the new boundary and properties around the site will ensure noise levels at these locations will not cause any significant impact.

In addition, good working practices will be maintained on site at all times including selection of plant equipment with a low inherent potential for noise emissions, maintenance of equipment and use of exhaust silencer where appropriate.

6.6 CONSTRUCTION IMPACTS AND MITIGATION

6.6.1 Impacts

The construction phase of the development will be short term and negative impact will be moderate but will be medium-term in nature. During the construction phase of the project, there is potential for a temporary increase in noise levels during site preparation and development. Traffic transporting fill

material to and from the site in addition to plant equipment used for developing and modifying the proposed buildings are the main potential noise sources during this phase.

The relevant British Standard for guidance on the prediction, assessment and control of construction noise and vibration is BS5228: Part 1: 1997: '*Noise and Vibration Control on Construction and Open Sites'*. While this document is not in force in Ireland, it contains a number of guidelines and recommendations that are considered appropriate and examples of good working practice for all construction contracts. These guidelines are detailed below and should form the basis of control of any potential impact to noise sensitive locations.

A certain amount of noise will be generated by:

- Transport - of constructional supplies to the site
- Site traffic - vehicles moving around the site during construction
- The construction of the housing

Considering the site levelling and foundation phase will take approximately two to three weeks and then after a few weeks for the installation of housing and associated works should only take approximately two months, the construction noise will be temporary in nature. Mitigation measures will involve carrying out construction work during normal working hours, avoiding early morning or late evening work. Neighbouring dwellings are far enough from the site so that noise should not be an issue.

Vibration
During the construction phase of the development, rock breaking may be required within parts of the site as the installation of underground slurry tanks. Any vibration impacts during this phase will be imperceptible at the nearest noise sensitive locations to the site.

6.6.2 Mitigation

In order to aid a reduction of noise impact during the construction phase reference should be made to BS5228: *Noise control on construction and open sites*, which offers detailed guidance on the control of noise from demolition and construction activities. The following mitigation measures, taken from BS5228: *Noise control on construction and open sites*, will apply:

- Machinery with low inherent potential for generation of noise and/or vibration will be used;
- Noisy equipment will be sited as far away from sensitive properties as permitted by site constraints.
- Hours of construction will be limited so that noisy activities will be minimised during unsociable hours

6.7 RESIDUAL IMPACTS

With the application of binding noise limits and hours of operation during the construction phase, along with implementation of appropriate noise control measures as outlined above, the noise impact will be kept to a minimum.

The operational phase of the development is not considered to have a negative noise impact on its surrounding environment. The noise impact resulting from the development is not predicted to contribute to any significant levels of noise at the nearest noise sensitive locations surrounding the Patrick Ryan's piggery operation.

During the operational phase of the development, noise levels are predicted to remain below the typically EPA noise level limits at the nearest noise sensitive locations. This phase is envisaged to be of minor impact in terms of noise.

6.8 MONITORING

No monitoring is proposed, however if a complaint is received in relation to noise, an investigation will be commenced following the EPA guidance on noise monitoring. The IPPC License when issued will require routine noise monitoring.

7 LANDSCAPE AND VISUAL

7.1 INTRODUCTION

An assessment of the likely landscape and visual impacts of the proposed development by Patrick Ryan to expand the existing capacity of the piggery growing operation involved the review of plans, sections and elevations of the existing, proposed scheme, various publications and reports, including other chapters of the Environmental Impact Statement, together with visits to the site and environs of the subject development.

7.2 METHODOLOGY

The 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 Guidelines on the information to be contained in Environmental Impact Statements, 2002 and Advice Notes on Current Practice (in the preparation of Environmental Impact Statements), 2003.

7.2.1 Baseline Assessment

The buildings and structures at Patrick Ryan's piggery operation are constructed in line with planning permissions received from Limerick County Council. The existing piggery buildings are closer to residential dwelling compared to the proposed piggery buildings.

Therefore the likely landscape and visual impacts of the proposed development are assessed against a baseline which acknowledges that the existing piggery buildings are closer to residential dwellings which will continue to elevate in line with the conditions of planning permissions as granted by Limerick County Council.

7.2.2 Landscape

Landscape has two separate but closely related aspects.

The first aspect is **visual impact** that is 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 impact on a view without blocking, and
- **Visual obstruction** is impact 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.

The second aspect is **impact on landscape character**, i.e. responses that are felt towards the landscape and draws 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.

7.2.3 Significance Assessment Criteria

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 Environmental Impact Statements (2002), which are set out in this volume of the Environmental Impact Statements.

7.3 EXISTING ENVIRONMENT

7.3.1 Ballyfaskin Landscape Context

The existing piggery production operation at Ballyfaskin, Ballylanders, is in an area which is relatively flat with the existing piggery buildings well screened by hedgerows. While the buildings and structures associated with the plant are visible close to the entrance. The piggery operation is well screened from residential dwellings of which is of low density.

7.3.2 Landscape Setting

Patrick Ryan's piggery operation is not visually prominent built feature in the locality and in addition there are other dwellings along the local road.

In effect, a number of agriculture and commercial operations exist in the area, including general supplies, beef and dairy farming operations. There is, therefore, amongst the rural surroundings a consistent theme of commercial and agricultural buildings. The Patrick Ryan piggery operation is not prominent and as a consequence it is not a significant influence on the landscape character of the surrounding area.

a. General Low-lying Agricultural Landscape

Rural, agricultural land with little topographic relief leads from the front to the rear of the site. The existing road (R662) is relatively flat along the boundary of the site, which aids the new access road slight lines. Much of the landscape surrounding the site is flat where levels are commonly below 160 to 175m. Throughout the area the land is farmed with fields enclosed with a varied mix of hawthorn (*Crataegus monogyna*), Sycamore (*Acer pseudoplatanus*), Ash (*Fraxinus excelsior*) and blackthorn (*Prunus spinosa*) hedgerow and fences. Pasture and grassland for silage predominates as a land use and there is little arable farming in the area. Residential property is generally dispersed along local roads.

b. Developed/Built-up Areas

Development is prominent at the town of Ballylanders with its associated commercial areas. Such development is considered part of the normal limerick landscape setting.

In addition, individual buildings and clusters of residential development are dispersed along local roads as shown in Figure 3a.

7.3.3 Landscape Planning

The Inventory of Outstanding Landscapes in Ireland, prepared by An Foras Forbatha in 1997, is the only assessment of landscape quality undertaken at a national level. At a county level, Limerick County Development Plan is the statutory development control and forward planning document pertaining to the project area. Relevant landscape and visual references pertaining to the site and its surrounds are referenced in the following description of the landscape planning environment.

7.3.3.1 Inventory of Outstanding Landscapes in Ireland

The Inventory contains no listing within a 2km radius from Patrick Ryan's Piggery Operation, Ballyfaskin and the proposed site does not fall within a listed Area of Outstanding Landscape.

7.3.3.2 Limerick County Development Plan 2010 - 2016

The Limerick County Development Plan, 2010 - 2016 as amended, contains the following relevant landscape and visual references.

Chapter 7 Environment and Heritage at **Section 7.2 Landscape and Visual Amenity** amongst other aspects considers issues relating to Trees, Tree Preservation Orders and Hedgerows and Landscape and Visual Amenity.

Under Sub-section 7.2.1 on Trees, Tree Preservation Orders and Hedgerows, the Plan sets out policies relating to enhancing tree cover within the county as follows:

Policy ENV 5: Enhancing Tree Cover	It is the policy of the Council to preserve and enhance the general level of tree cover within the county, both in the countryside at large and also in the county's towns. The Council strongly encourages the establishment of native species, in particular broadleaf species.
Policy ENV 6: Landscaping & Development	It is the Policy of the Council to ensure the adequate integration of development into the landscape by the retention of trees and landscape features and/or encouraging suitable planting.

Under Sub-section 7.2.2 on Landscape and Visual Amenity, which the sets out policies relating to Landscape Character, Views and Prospects, Landscape and Amenity Views. Under its Landscape Classification Limerick County Council has identified ten Landscape Character Zones within the county. The site and surrounding area does not fall under a landscape character zone as set out by the County Development Plan.

7.3.4 "Do-Nothing" Scenario

Should the proposed development not proceed the existing piggery operation will remain and continue to be developed under the conditions of the existing planning permission.

7.3.5 "Do-Nothing" Scenario

Should the proposed development proceed the existing piggery operation will be expanded to 600 sows capacity and will remain and continue to be developed under the conditions of the new planning permission.

7.4 CHARACTERISTICS OF THE PROPOSAL

7.4.1 Introduction

The construction of an additional new and modified piggery buildings with a capacity of 600 sows proposes to carry out a series of modifications to the site as set out in detail in **Chapter 2 Site layout and Construction** of the Environmental Impact Statement. In effect the principal landscape and visual aspect of the proposed development entails an expansion of the piggery operation.

The following assessment focuses on the proposed extension to the piggery operations

7.5 IMPACTS

7.5.1 Impact Assessment

This involved examining the location of domestic dwellings and the location of the existing and proposed piggery buildings.

In assessing the impact the construction and operational phases and are considered.

7.5.2 Construction Phase of the Piggery Buildings

The construction phase will have a relatively low landscape and visual impact. Aspects which pertain to the construction phase proper include:

- General site works,
- Vegetation removal,
- Excavations and stockpile of topsoil and subsoil, and
- Removal of buildings for upgrade
- The construction of the new buildings and feed mill.

By its very nature all this activity will take place at a relatively low level and against the backdrop of the existing piggery buildings with its various on-going activities. The final phase of the construction phase will be the erection of the new buildings.

7.5.3 Operational Phase

The nature and process by which the piggery buildings will develop is an established and on-going feature of the existing environment. Furthermore given the relatively low lying nature of the landscape, It is considered that, the proposed development will *not have major significant 'landscape' impact*.

The completed additional piggery buildings will represent a minor feature in an otherwise low lying setting of the area. The additional and modified buildings is behind the existing buildings and further away from residential dwellings. Though the feature will remain as a permanent reminder of the activity, the additional impact of the proposed new and modified piggery buildings in the longer term is considered to be of *minor impact*, due to the hedgerows, topography and colouring of the sheds.

7.5.4 Landscape Planning Impact

It is considered that the proposed development will have *no significant* landscape planning impacts. The development does not impinge on listed scenic views or prospects or on sensitive, vulnerable or designated landscapes.

7.5.5 Landscape and Visual Impact Summary

Given the nature and impact of the existing facility, it is considered that the proposed extension will not result in *major significant* overall *negative* landscape and visual impact. As a result it is considered that the proposal may be viewed as having an acceptable level of landscape and visual impact, though undoubtedly the proposal is to expand the capacity of the piggery operation

7.6 MITIGATION MEASURES

7.6.1 Landscape Treatments involving the Existing Piggery Operation and its Surrounds

Over the years Patrick Ryan has managed and improved the hedgerows around the piggery operation. While the planting is maturing and only has visual presence at proximity, it adds to the diversity of habitat and landscape structure in the immediate surroundings and with continued development will assist in visually enhancing the landscape.

In siting and designing the proposal to extend the piggery operation at Ballyfaskin, it is considered more appropriate in landscape and visual terms to incorporate the existing piggery operation feature and its setting rather than consider a new site location.

The existing piggery buildings has developed gradually over 20 years and is now as much a feature of the local landscape. The topography of the area and the hedgerows around the site results in the existing buildings being well screened from domestic dwellings in the area around the operation.

7.7 RESIDUAL IMPACTS

Following the construction of the proposed development, there will be no significant impact in an overall landscape context. The continued management of the hedgerows and the maintenance of the piggery buildings will have no significant impact in terms of landspace and visual impact.

SECTION B – THE NATURAL ENVIRONMENT

This section of the Environmental Impact Statement deals with the potential effects of the proposed scheme on the natural environment. The effects have been grouped as follows:

- **Impacts on the Terrestrial Environment including flora and fauna.**
- **Impacts on the Aquatic Environment**
- **Impacts on Soil, Geology and Hydrogeology**
- **Impacts on Climate**

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 dependant on soil composition and groundwater levels. Similarly the diversity of aquatic flora and fauna will 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 landuse and landscape patterns for the purpose of agriculture and settlement.

8 TERRESTRIAL ENVIRONMENT

8.1 INTRODUCTION

This Chapter outlines the flora and fauna currently present in the area of the proposed extension to the existing piggery operation and assesses the impact of the proposal on the terrestrial habitats and species identified. Mitigation measures have been proposed where feasible. The ecological assessment involved walking over the site to identify habitats and species of flora and fauna present in order to determining the ecological diversity of this area.

8.2 METHODOLOGY

8.2.1 Flora

The habitats present were recorded and a list of Floravascular plants, lichen and mosses was compiled. Other details noted during the assessment included recording the presence of habitats and flora species

Habitats have been classified in accordance to the standard recommended by The Heritage Council (Fossitt 2000). Plant nomenclature in this report follows Rose (2006) for vascular plants, Philips, (1980) for grasses, ferns, mosses and lichens. Attention is given to the possible presence of habitats, plant species that are legally protected under Irish and or European legislation. National Parks and Wildlife Service references to the site including maps of sites of conservation importance in the region and site synopsis were checked.

8.2.2 Birds

During the ecological assessment birds observations were recorded

- All species encountered (seen or heard) were recorded and where possible their abundance noted.
- Areas of Hedgerow within the survey area were surveyed

8.2.3 Mammals, Amphibians and Reptiles

The presence of mammals, amphibians and reptiles was surveyed by searching for direct observations and for signs of their presence such as feeding signs or dropping and dwellings.

8.2.4 Survey Limitations

The weather conditions were mild but breezy with occasional showers during the survey. It is not considered that limitations were associated with the survey of habitats and vegetation.

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. This study is a snapshot in time and should not be regarded as a complete study.

8.3 DESCRIPTION OF EXISTING ENVIRONMENT

8.3.1.1 Designated Sites

The subject site itself is not designated under any Regional, National or European Environmental Designation. It does not therefore require assessment under the Wildlife (Amendment) Act 2000 (S.I. No. 38 of 2000) or the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997).

However the following designated areas are located in the Limerick region;

Site Code	Type of Designation	Distance from Site
Galtee Mountains (000646)	SAC	4.1 km
Glenacurrane River Valley (002035)	pNHA	6.2 km
Ballyacourty Wood (002087)	pNHA	9.5 km
Ballyroehill & Mootlestown Hill (002089)	pNHA	10.4 km
Carrigeenanronety Hill (002037)	pNHA	11.4 km
Castleoliver Woods (002090)	pNHA	12.1 km
Ballyhoura Mountains (002036)	pNHA	14.8 km

SAC	Special Area of Conservation
SPA	Special Protection Area
NHA	Nature Heritage Area

8.3.1.2 Flora

GA1 Improved Grassland

The site comprised entirely of improved grassland (GA1) for silage making with some of the less well drained areas containing *Juncus sp*. The species present in greatest abundance is Perennial ryegrass (*lolium perenne*) with White clover (*Trifolium repens*), Creeping Buttercup (*Ranunculus repens*) Dock species (*Rumex sp*.), ribwort plantain (*Plantago lanceolata*) and Meadow Buttercup (Ranunculus acris) present. The areas next to the existing the piggery buildings showed signs of disturbance to the improved grassland.

WL1 Hedgerow

The field boundaries around site comprise of the native Ash (Fraxinus excelsior), Hawthorn (*Crataegus monogyna*) also present Sycamore (*Acer pseudoplatanus)*, with an understory of Bracken, Ivy (*Hedera helix*), and Hard Fern (*Blechnum spicant*).

Where boundaries earthen bank with drainage ditch and trees planted into the earthen bank.

Birds

During the walk over birds observations were recorded

- All species encountered (seen or heard) were recorded and where possible their abundance noted.
- Areas of Woodland within the survey area were surveyed by conducting of five-minute point counts.

- The birds noted during the survey are representative of those found in open countryside, hedgerow and scrub. The majority of bird activity could be heard coming from the riparian hedgerow and coniferous woodland within the site.

- The following list comprises of the bird species sighted or heard during the survey:

Bird Species identified on the site

Common name	**Scientific name**
Blackbird	*Turdus merula*
Blue Tit	*Parus caeruleus*
Bullfinch	*Pyrrhula pyrrhula*
Hooded Crow	*Corvus corone cornix*
Robin	*Erithacus rubecula*
Rook	*Corvus frugilegus*

Mammals, amphibians

- It would be expected to find Rabbits (*Oryctolagus cuniculus*) in this area however none were spotted on the day of the survey.

- Other animals that may occur, however were not spotted include Hare (*Lepus* species). In areas of long grass and good cover are likely places where a Hare's form would be found. Also fox (*Vulpes vulpes*), Badger (*Meles meles*)

- The Wood Mouse (*Apodemus sp.*) is commonly found on open land. They make their home in a tunnel system of a depth of 1 m beneath the earth.

- The common Frog (*Rana temporaria*) may be present finding habitat along drainage ditches and in the area of the wet grassland.

8.4 IMPACTS

8.4.1 Do-Nothing

Should the expansion not be built there would be no impact on the site at the existing piggery operation.

8.4.2 Do-Something

8.4.2.1 Flora

There will be a loss of plant and animal species from the proposed footprint, particularly with regard to improved grassland. The impact on site boundaries including hedgerows and trees will be negligible. It is excepted that only a small section of hedgerow will be removed as part of the construction

The site is of low ecological value with poor species diversity, improved grassland which is mowed from silage twice per year.

8.4.2.2 Designated Sites

The will be no impact on designated sites as the nearest designated site is more the 4.1 kilometres away.

8.4.2.3 Birds

No birds of conservation concern were recorded onsite. No breeding birds of high conservation concern are likely to be impacted by the proposed expansion. The site does not hold of good quality breeding bird habitat which will be lost as a result of the development.

8.4.2.4 Mammals

The proposed development will result in a loss of improved agricultural land and this is considered to be an insignificant Impact.

8.5 MITIGATION MEASURES

The nature of the proposed development is such that the loss of improved agriculture with low ecological value is of insignificant impact and no mitigation is required.

8.6 CONSTRUCTION IMPACTS AND MITIGATION

8.6.1 Impacts

Construction consists of a number of activities which have the potential to affect flora and fauna e.g. site clearance, excavation and infill.

Site clearance has the largest impact on ecology, involving the removal of pre-existing habitats and considerable soil disturbance. It will have least impact on fauna if carried out in the August-November period, avoiding the main bird and mammal breeding time.

Excavation and infill require the use of heavy machinery which has to be stored and maintained on site, but also has to gain access to the working area. This may cause damage to a wider zone of vegetation, particularly in wet weather when compaction and physical damage is likely.

8.6.2 Mitigation

As a minimum, the contractor will comply with all legislative provisions relating to hedgerow/tree removal and the protection of birds and bats and shall have regard to reducing impacts on nesting birds and breeding/roosting bats.

8.7 RESIDUAL IMPACTS

There will be a permanent loss of habitat from beneath the footprint of the proposed expansion.

9 AQUATIC ENVIRONMENT

9.1 INTRODUCTION

The abundant supplies of surface and groundwater within Ireland dictate the importance of measures to protect the aquatic environment. The intense nature of agriculture combined with the topography in County Limerick has in the past presented problems whereby the aquatic environment has suffered from the adverse effects of inadequate mitigation measures in the protection of local watercourses against water pollution from agriculture sources.

However in recent years the combination of factors such as legislation, the REPS programme, catchment management initiatives and increased local authority inspections has led to improvement in the quality of many surface waters through improved agricultural practices in terms of land spreading and waste storage.

This self-regulating approach to water management was incorporated into the planning of the proposed development, and the developer already operates the existing piggery buildings on site to this principle.

9.2 DESCRIPTION OF EXISTING ENVIRONMENT

The site has no river or water bodies but contains a small drainage ditch which drains the site and surrounding agricultural land.

9.3 IMPACTS

9.3.1 Do-Nothing

Should the extension not be built there would be no loss or changes in the drainage from the site

9.3.2 Do-Something

9.3.2.1 General

The current proposals at Patrick Ryan piggery operation will increase the flow in the drainage ditch following rainfall as previously the rainfall would have percolated or evaporated within the area of the proposed development. Such potential impacts include loss or alteration of habitats and species, increased suspended solids, alteration of the hydrology and sediment deposition typical of the area of the ditch.

9.4 MITIGATION MEASURES

9.4.1 Pollutants and Waste

To prevent chemical pollution during the operation of the piggery operation, all fuels or chemicals kept on site will be stored in bunded containers. All major refuelling and maintenance events will be undertaken away from the site. Equipment will be regularly maintained and leaks repaired immediately away from the site if possible. Accidental spillages will be contained and cleaned up

immediately. Remediation measures will be carried out in the unlikely event of pollution of adjacent watercourses in accordance with the consultant's recommendations.

9.5 CONSTRUCTION IMPACTS AND MITIGATION

9.5.1 Impacts

9.5.1.1 Loss or alteration of habitats and species

There will be a loss of improved grassland habitats and species as a consequence of the expansion of the site. During period of rainfall an increase in surface water runoff will enter the drainage ditch on-site which may alter the habitat & flora present.

9.5.1.2 Increased suspended solids

The construction works associated with expansion of the piggery operation has the potential to cause the release of sediments into watercourses notably drainage ditches on site. It is predicted that this will be a short-term as the construction phase is short

9.5.1.3 Pollutants and waste

The likely sources of chemical contamination would be from site machinery and vehicles. 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. Accidental leakage or discharge of chemicals and pollutants could cause changes in the pH of the water and could have a direct toxic impact on the fauna and flora at the location of the development and further downstream. If waters become polluted, species more tolerant to pollution can extend their distribution, thus altering the species composition of the watercourse.

9.5.2 Mitigation

9.5.2.1 Loss or alteration of habitat and species

To minimise the loss of the habitat and species, the area of construction should be kept to the minimum required. Construction should be approached from the existing piggery operation to avoid disturbing neighbouring habitats. However, since it is already a low ecological habitat, the impacts from the loss is not significant

9.5.2.2 Increased suspended solids

To minimise the amount of suspended solids released into the water column during construction, efforts should be made to minimise the area disturbed. Needless clearing and grading should be minimised and phased to limit exposure.

9.5.2.3 Pollutants and Waste

To prevent chemical pollution during the construction of the piggery buildings, the EPA guidance on storage of materials will be followed.

In addition, should contained chemical portable toilets be used, all sewage will be removed from the site to an authorised treatment works. No sewage will be discharged to watercourses.

9.6 RESIDUAL IMPACTS

Assuming all mitigation measures are put in place, there should be no residual impacts.

9.7 MONITORING

Routine (quarterly) monitoring of the drainage ditch should be conducted and will be part of the IPPC license requirements.

10 SOILS, GEOLOGY AND HYDROGEOLOGY

10.1 INTRODUCTION

This chapter outlines the environment assessment with regard to soils, geology and hydrogeology of the area. This report should be read in conjunction with the site layout plans for the proposed development and the project description sections of the Environmental Impact Statement. In the assessment, particular attention is focused on the likely presence of contaminated soils and groundwater and on sensitive receptors, such as groundwater dependent ecosystems, vulnerable aquifers or water supplies close to the site.

10.2 METHODOLOGY

This report is based on a desk study and a summary of the available and relevant data on the area:

- Geological Survey of Ireland (GSI), 1999. "Geology of the Shannon Estuary". Sheet 17. Scale 1:100,000.
- Geology of Tipperary: A Geological Description of Tipperary and adjoining parts of Laois, Kilkenny, Offaly, Clare and Limerick, with accompanying Bedrock Geology 1:100,000 Scale Map, Sheet 18
- GSI & Limerick County Council, 1998. County Limerick Groundwater Protection Scheme.
- GSI Groundwater Maps online at www.gsi.ie.
- GSI, well records database.

This environmental impact assessment was prepared in accordance with Guidelines on the information to be contained in Environmental Impact Statements (EPA 2002) and Geology in Environmental Impact Statements, A Guide by the Institute of Geologists in Ireland (IGI, 2002).

10.3 DESCRIPTION OF EXISTING ENVIRONMENT

The natural topography of the site ranges from 92 to 114 meters. The topography of the land is relatively flat with a slight drop to the back of the site towards the proposed piggery buildings.

10.3.1 Soils and Subsoils

The soils in the area occur on flat and undulating relief at elevations varying from 40 to 200 meters.

The soils that occur in the general vicinity of Ballylanders Brown Earths (in places a strong tendency towards Brown Podzolics is apparent also. The soils are well drained, of shaly loam to sandy loam texture, and more usually shaly, sandy clay loam, and of medium base status; they have been classified as). They are derived directly from Silurian Shale, from colluvium of Silurian Shale origin and occasionally from drift composed principally of Silurian Shale and of either Saale or Weichsel Age. In every case, however, there is some influence of Old Red Sandstone which occurs on the crests of the hills and mountains.

The soils occur mostly at elevations less than 800 feet, on slopes of 0 to 18°. The profile is characterised by brown to dark-brown surface horizons with a moderate, fine, crumb structure. In general these horizons overlie a reddish-yellow (B) horizon with weak, fine, sub-angular blocky structure; in certain instances, however, the (B) horizon is weakly expressed. The profile contains appreciable quantities of small shale fragments which enhance the internal drainage. Root

development is good. In their overall species composition the grasslands on this series resemble those on the Derk Series. However, Agrostis tenuis (bent-grass) and Holcus lanatus (Yorkshire fog) are generally the dominant species; Lolium perenne (perennial rye-grass) is only present in small amount, and Cirsium arvense (creeping thistle) occurs rarely. See Figure 8 & 9

10.3.2 Bedrock Geology

Well records for the rocks of Silurian age in the south-east of the county indicate eight 'good' wells (including the Ballylanders public supply) in the Inchacoomb Member and 3 in the Ballygeana Formation. A specific capacity of 35 m3/d/m was calculated for the public supply in Ballylanders. The transmissivity from a ten hour pumping test was determined as being of the order of 32 m2/d [23–64 m2/d]. The only information available for the Hollyford rock unit in the Slieve Felim mountains is the site investigation undertaken for the proposed landfill. In four boreholes, permeabilities in the top 30 m of rock ranged from 4.2 x 10-9 m/s to 8.8 x 10-5 m/s (3.6 x 10-4 to 7.6 x 10-1 m/d). A zone of higher permeability (with measured permeabilities in a fifth borehole of 1.2 x 10-4 to 1.1 x 10-5 m/s), 150-200 m wide, 12-14 m deep and 2.2 km long was delineated on the site.

In general, the permeability of Silurian rocks is relatively low. However, permeabilities in the upper few metres are often high although they decrease rapidly with depth. Local zones of higher permeability will be present, usually due to faulting. It is likely that the rocks in south-eastern Limerick will be somewhat more jointed than in the Slieve Felim mountains as they have undergone a greater degree of structural deformation. Evidence of the relatively low permeabilities is provided by the drainage density and flashy runoff response to rainfall in areas underlain by Silurian rocks.

Examination of data in the GSI well database shows that water levels in Silurian rocks are shallow, usually less than 15 m below surface, although within the Inchacoomb Member they are a somewhat deeper. This may be attributed to higher permeabilities in this rock unit but may also be a reflection of topography; the Inchacoomb Formation, being the oldest rocks to crop out in the Galty anticline, are generally topographically higher than the rest of the formation.

While groundwater in these rocks is usually unconfined, clayey till and peat sometimes confine the groundwater and artesian flowing boreholes can be encountered in low lying areas.

The Silurian rocks in south-eastern Limerick i.e. the Inchacoomb Formation and the Ballygeana Formation, are classed as locally important aquifers which are moderately productive only in local zones (Ll). See Figure 7**.**

10.3.3 Hydrogeology

10.3.3.1 Aquifer Classification

Most of the GWB comprises rocks that are Ll : Locally important aquifer which are moderately productive only in local zones. In the southeast, small areas of Devonian Kiltorcan-type sandstone are classified as Rf: Regionally important fissured aquifers. Namurian Shales in the southwest corner and thin bands of Dinantian (early) Shales in the southeast are classified as Pl: Poor aquifers which are generally unproductive except for local zones. Also, there is less than 1 km2 of karstified limestone in the SE, and tiny areas in the NE of Volcanic rocks currently classified as a Lm: Locally important aquifer which is generally moderately productive

The dominant rock unit groups in the northern part of the GWB are the Dinantian Upper Impure Limestones. In the southeastern part, Devonian Old Red Sandstones, Silurian Metasediments and

Volcanics, and Dinantian Lower Impure Limestones predominate. Namurian Undifferentiated rocks occur in the southwest and centre. There are small areas of Dinantian (early) Sandstones, Shales and Limestones, Devonian Kiltorcan-type Sandstones, and Dinantian Pure Unbedded Limestones in the southern part of the GWB. In the northeast, there are tiny areas of Volcanic rocks. **See Figure 10**

10.3.3.2 Groundwater Levels

Within the Upper Impure Limestones (in the north of the GWB), groundwater levels generally range from between 5-15 mbgl, with the majority of values less than 9 mbgl. Deeper groundwater levels of around 20 mbgl are found just east of Charleville. Water levels are closer to the surface near the northern edge of the GWB, indicating a potential discharge zone near the junction with the North Kilmallock GWB. A hydrograph from a well in this area (shown below) displays a seasonal variation of about 2 m. In the low-lying areas, subsoils are thick and the dug wells are drawing water from perched water tables within the subsoils. Groundwater is frequently confined by the subsoils in this area, although unsaturated zones do exist in some areas.

In the upland areas, groundwater is unconfined. The water table ranges from ground level to more than 20 mbgl. Most groundwater levels are between 2-12 mbgl, with a median value of about 7 mbgl. Water levels are deeper (5-17 mgbl) in the highest areas than in the rest of the GWB. Dug wells in this area are probably tapping the true water table, and are sited in areas where it is close to the surface. Compartmentalisation due to faulting is indicated by two water level measurements of 22 mgbl measured in wells in Lower Impure Limestones.

Groundwater flow is influenced by topography and most flow is of a local nature. Unconfined groundwater flow paths are short (30-400 m), with groundwater discharging to the streams. Confined flow paths may be significantly longer. Overall, the groundwater flow direction is northwards

10.3.3.3 Groundwater Quality

The hydrochemistry of groundwater beneath the site is dominated by the presence of limestone in both the bedrock and subsoils and is hard, calcium bicarbonate type water. The principle contaminants of concern arising from the production process are high pH, alkalinity and aluminium, which is soluble at high pH.

The lower and upper impure limestone aquifers that form the bulk of the GWB have a calcium-bicarbonate signature, are hard (280-360 mg/l CaCO3) and alkaline (240-290 mg/l CaCO3), with high conductivities (630-660 µS/cm). Both iron and manganese can exceed allowable concentrations, with these components coming from the shales. Hydrogen sulphide may be problematic. The bedrock strata of these aquifers are calcareous.

Groundwaters in the Namurian rocks are slightly hard and have moderate alkalinities (no data for this aquifer exist in this GWB). Both iron and manganese can exceed allowable concentrations, these components coming from the shales. Reducing conditions may occur. Hydrochemical signatures varying from Ca-HCO3 to Na/K-HCO3 and alkalinities greater than total hardness can occur. This is typical of confined waters where ion exchange has occurred. The bedrock strata of this aquifer are siliceous.

In the Old Red Sandstones and Silurian rocks, groundwaters measured in this GWB have moderate hardness (160-220 mg/l CaCO3), alkalinity (160-240 mg/l CaCO3) and conductivity (360-410 µS/cm). The groundwater has a calcium-bicarbonate signature, which is likely to have been affected by carbonate in the subsoils. The bedrock strata of these aquifers are siliceous.

10.3.3.4 Groundwater Usage

The site usage is not recorded as the site water supply is supplied by an off-site well

10.4 IMPACTS

10.4.1.1 Soils

The soils around the development have no intrinsic value.

10.4.1.2 Geology

There is no significant impact on the geology of the area during the operational phase as a result of the proposed development.

10.4.1.3 Hydrogeology

Following construction a significant proportion of subsoils will have been removed. This will potentially increase the aquifer vulnerability resulting in groundwater being more vulnerable to pollution.

There is potential to pollute groundwater as a result of leakage of leachate through the base of the underground storage tanks.

10.5 MITIGATION MEASURES

10.5.1.1 Hydrogeology

The proposed extension of the piggery operation will result in the new and modified buildings. This construction will form a barrier within which potential contaminants will be contained within the piggery buildings:

10.5.1.2 Soils

Topsoil stripped will be temporarily stockpiled before removal off site reuse.

10.5.1.3 Geology

Rock fill material will be sourced from the local quarry which lies approximately 5 km away.

10.5.1.4 Hydrogeology

Mitigation measures to prevent groundwater pollution during construction will be put in place.

Avoidance of contamination of surface water through:

- Removal of topsoil off-site preventing soil particles entering surface water.
- Bunded areas will be in place for fuels and chemicals.

10.6 IMPACTS AND MITIGATION

10.6.1 Impacts

10.6.1.1 Soils

The proposed development will require the stripping of topsoils resulting in a loss of soils over the footprint of the new buildings. There will be significant excavation due to the modification of some of the existing buildings. This is an essential part of the development and is an impact that cannot be mitigated. The construction zone will occur within existing hard standing area, minimising impact on surrounding grassland areas.

10.6.1.2 Geology

It will be necessary to import rockfill as foundation material for the proposed development.

10.6.1.3 Hydrogeology

The removal of subsoils will potentially result in an increase aquifer vulnerability making groundwater more vulnerable to pollution.

10.6.2 Mitigation

10.6.2.1 Soils

Topsoil stripped will be temporarily stockpiled before removal off site reuse.

10.6.2.2 Geology

Rock fill material will be sourced from the local quarry which lies approximately 5 km away.

10.6.2.3 Hydrogeology

Mitigation measures to prevent groundwater pollution during construction will be put in place.

Avoidance of contamination of surface water through:

- Removal of topsoil off-site preventing soil particles entering surface water.
- Bunded areas will be in place for fuels and chemicals.

10.7 MONITORING

10.7.1 Construction Phase

Measures will be taken in order to prevent contamination of groundwater

- Removal of topsoil
- Provision of bunded areas

10.7.2 Operational phase

The following monitoring will be undertaken during the lifetime of the facility:

- pH, conductivity and other water quality measurements in the site well on an annual basis

11 CLIMATE

11.1 INTRODUCTION

Climate can refer to both the long-term weather patterns in an area and also to the more localised atmospheric conditions, referred to as the microclimate. Climate has implications for many aspects of the environment from soils to biodiversity and landuse practices. This impact assessment only deals with the proposed expansion to the piggery operation.

This section deals with the existing climate in the area and how the proposed scheme may impact on the microclimate.

11.2 METHODOLOGY

The climate of the Co, Limerick Region is characterised by the frequent passage of Atlantic low pressure weather systems and associated frontal rain belts from the west during much of the winter period. Over the summer months the influence of anticyclonic weather conditions will result in drier continental air, in particular when winds are from an easterly direction, interspersed by the continuing passage of Atlantic frontal systems. Occasionally, the establishment of a high pressure area over SW Ireland will result in calm, dry conditions and in the winter these periods are characterised by the formation of low-level temperature inversions at night-time. Fog can occur in low-lying areas in the Region under these conditions of slack winds and clear skies. Prolonged dry weather conditions are relatively infrequent but should easterly continental airflows extend over the West of Ireland, drought conditions may result in the region which may last for up to 2 or 3 weeks.

The nearest Met Eireann meteorological station is at Shannon Airport and long-term measurements of wind speed/direction and air temperature for this location would be representative of prevailing conditions experienced in the vicinity of Patrick Ryan's piggery operation.

11.3 DESCRIPTION OF EXISTING ENVIRONMENT

Meteorological data from the Met Eireann station in Shannon Airport during the baseline survey has been compiled. The 2010 average monthly data has been compared to the 30-year averages for each month from Shannon Airport to determine the degree of representation of the actual meteorological conditions versus what is experienced on average at the site. This comparison is presented in **Table 11.1**.

A comparison of temperatures indicates that for each month of 2010, temperatures were on average lower that the corresponding 30-year averages by a factor of 0.7^{0}C. For total rainfall values, the January 2004 total rainfall was below the 30-year average.

Table 11.1: 2010 and 30-year average meteorological conditions from Shannon Airport

	Total Monthly Rainfall (mm)		Average Temperature (^{0}C)		Average Wind Speed (knots)	
Year	2010	mean	2010	mean	2010	mean
Jan	30.8	97.8	2.4	5.4	2.3	4.8
Feb	35.1	71.5	3.3	5.6	3.3	5.1
Mar	80.4	71.4	6.4	7.1	6	6.9
Apr	71.4	55.7	9.8	8.8	10.6	9.9
May	56.8	59.5	11.7	11.3	13.6	13.1
Jun	33.4	62.8	15.8	14	18.2	16.2
Jul	123.1	56.8	16	15.7	17.7	17.8
Aug	39.1	82.4	15	15.5	17.1	16.9
Sep	138.9	81.6	14.5	13.6	15.5	14.4
Oct	76.8	93.4	10.8	11.1	11.4	11.2
Nov	133.3	94.8	5.7	7.5	6.6	7.5
Dec	26	99	0.7	6.3	1.4	5.8
Annual	845.1	926.7	9.4	10.1	10.3	10.8

11.4 IMPACTS

11.4.1 Do Nothing Impact

If the proposed extension does not go ahead, the capacity of the piggery operation remains the same. Should this happen, emissions from the piggery buildings including all aspects of the operation would remain the same.

Do Something Impacts

If the proposed extension does go ahead there are no direct impacts predicted on microclimate as a result of the proposed extension. The extension will increase the capacity of the operation.

SECTION C – MATERIAL ASSETS

This section of the Environmental Impact Statement deals with material assets that will potentially be affected by the proposed piggery operation expansion. These assets are grouped into:

Material Assets: **Agricultural Properties** including all agricultural enterprises

Material Assets: **Non-agricultural Properties** including residential, commercial, recreational and non-agricultural land

Material Assets: **Natural or 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, air 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 includes existing land, fill material which will have to be sourced from quarries and electricity required for the purpose of powering the water, feeding, lighting and heating systems water.

12 MATERIAL ASSETS - AGRICULTURE

12.1 INTRODUCTION

The potential agricultural impact from the proposed expansion of the piggery operation was assessed. The location for the proposed extension is currently a Greenfield site and is completely within Patrick Ryan owned lands. The proposed extension will occupy an area of approximately 0.6 hectares of which are agricultural lands bounded by hedgerows and the existing piggery operation.

No additional holdings will be directly impacted through loss of land by the proposed scheme as all lands proposed for the extension are within the ownership of Patrick Ryan.

12.2 METHODOLOGY

A desktop survey and a field survey were carried out to assess the potential impact on agriculture in the area. A number of walkovers of the site, which were conducted in December 2011 and February and March 2012. These walkovers observed a number of factors including;

- The current agricultural practice taking place on the lands,
- The quality and drainage of the soils, and
- Level of management currently practiced.

The second method was a desk top survey that included statistical information from the CSO (Central Statistic Office) and mapping data both from the 50,000 Discovery Series, 2,500 Ordnance Survey mapping and Corrine landuse mapping.

12.3 DESCRIPTION OF EXISTING ENVIRONMENT

12.3.1 Limerick

There are approximately 269,133 hectares of agricultural land in Limerick of which 228,074 hectares or 84% is pasture. According to the Census of Agriculture (2000) the average farm size for Limerick is approximately 23.6 hectares, approximately 1.2 hectares bigger than the national average. There are 6,194 farms in Limerick and 37% of them are involved in specialist dairying and 52% of them involved in specialist beef farming.

12.3.2 Ballyfaskin

The site for the proposed development is situated North east of Ballylanders. The lands are relatively flat and all are under grass. The site is predominated by improved agricultural grassland. The soils are poor to moderate draining in the area.

The lands relating to the proposed extension are owned by the developer and are currently used for silage cutting twice per year.

12.4 IMPACTS

12.4.1 Do-nothing

Should the proposed extension not be built, the practice of cutting silage will continue twice per year on the site. The existing buildings will continue to be used in the current operation.

12.4.2 Do-something

A potential impact on agriculture in the area are land loss as a result of the footprint of the development is the loss of land.

Land loss: Should the proposed development receive planning permission there will be loss of lands to facilitate the extension. The lands proposed for the extension are wholly within the ownership of Patrick Ryan. However, Patrick Ryan currently cuts silage on the land.

12.5 MITIGATION MEASURES

No mitigation required as the land is of low ecological value

12.6 CONSTRUCTION IMPACTS AND MITIGATION

12.6.1 Construction Impacts

There are a number of specific issues that may impact on agriculture during the construction phase of the proposed development. These include:-

Noise: Increased noise from construction machinery has the potential to be an issue with certain sensitive livestock such as dairy cows and horses.

Traffic: There will be an increase in traffic during the construction phase of the proposed development.

Dust: The generation of dust during construction has a nuisance value and livestock are at risk to eye irritations from high levels of wind blown dust particles.

12.6.2 Mitigation

Noise: No mitigation is required, if a complaint an investigation will be commenced

Traffic: Discussions will take place with local landowners to ensure that construction traffic causes minimum interference with movements of stock and does not hinder farm operations such as silage/hay making.

Dust: Mitigation measures for construction dust are outlined in section 5.6.2. These measures will be followed.

12.7 RESIDUAL IMPACTS

No residual impacts on Agriculture are predicted.

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13 MATERIAL ASSETS – NATURAL AND OTHER RESOURCES

13.1 INTRODUCTION

This section of the Environmental Impact Statement considers the existence of and the impact on natural and other resources in the vicinity of the proposed expansion to the piggery operation. It also considers any impact on natural resources due to increased capacity.

13.2 DESCRIPTION OF EXISTING RESOURCES

13.2.1 Landuse and Soil

The proposed additional piggery buildings and modification to existing ones will occupy an area of approximately 2.6 hectares. The new buildings and new entrance road sites is currently a Greenfield site.

The soil types occurring within the footprint of the proposed extension are mostly made up of glacial till. A detailed description of the existing soil environment is provided in **Chapter 10 Soils, Geology and Hydrogeology**.

It is estimated that approximately 400m^3 of topsoil will be removed from the footprint of the proposed piggery buildings. This material will either be placed immediately and removed off site or stockpiled appropriately for later use.

13.2.2 Transport Network

The transportation of all the bulk of raw materials transported to the piggery operation is brought in by road. The site is close to the Secondary route the N662. The Local road access to the site is in moderate repair.

.

13.2.3 Utilities

The area in the immediate vicinity of the piggery operation is rural in nature, with much of the land in agricultural use. However, a network of utilities associated with building and commercial operations present including the following:

- Fuel supplies,
- Other agriculture operations

13.2.4 ESB

The site has good electrical network with 38kV and 10Kv lines in the area

13.3 IMPACTS AND MITIGATION

Overall, the proposed expansion of the piggery operation will have a minor negative impact on natural and other resources. Any disruption to services and existing transport networks will be of a temporary nature during the construction phase of the development.

13.3.1 Land and Soil

In total the expansion to the piggery operation will occupy approximately 2.6 hectares of land for the main footprint, all of which are completely within Patrick Ryan owned lands. As such, it is considered that there will be no significant impact on land or soils. Impacts on the agricultural use of land are discussed in **Chapter 12 Material Assets – Agriculture.**

13.3.2 Transport Network

The increase in the use of raw materials associated with the increase in piggery growing operation will not lead to a significant increase in traffic movements. Therefore, there will be no impact on the existing road network.

13.3.3 Economic Minerals

It is considered that the proposed expansion of the piggery growing operation will have *no significant impact* on mineral resources in the vicinity of the area.

13.3.4 Raw Materials Required

13.3.4.1 Construction of the new and modified piggery buildings

Construction material when needed will be brought in from nearby sources such as local quarry's.

13.3.4.2 Raw material inputs for increased piggery production capacity

There will be a minor increase on natural resources from the increase in use of raw materials. The usage of raw water in the operation will also increase, which is supplied from a well on lands owned by Patrick Ryan.

13.4 RESIDUAL IMPACTS

No residual impacts are predicted

SECTION D – ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL HERITAGE

This Section of the Environmental Impact Statement examines impacts of the development under the headings;

- Architecture
- Archaeology
- Cultural Heritage

Archaeological sites, buildings of historic, artistic or architectural interest and sites of cultural heritage form part of the landscape of Counties Clare and Limerick. As part of the constraint and route selection phases of this development, every effort has been made to avoid known Architectural, Archaeological and Cultural Heritage sites. This section of the Environmental Impact Statement 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 route.

ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL HERITAGE LEGISLATION AFFECTING THIS PROJECT

National Monuments Legislation (Principal Act 1930 (as Amended)

All archaeological sites have the full protection of the national monuments legislation (Principal Act 1930; Amendments 1954, 1987, 1994 and 2004). In the 1987 Amendment of Section 2 of the Principal Act (1930), the definition of a national monument is specified as:

- any artificial or partly artificial building, structure or erection or group of such buildings, structures or erections,

- any artificial cave, stone or natural product, whether forming part of the ground, that has been artificially carved, sculptured or worked upon or which (where it does not form part of the place where it is) appears to have been purposely put or arranged in position,

- any, or any part of any, prehistoric or ancient

    (i) tomb, grave or burial deposit, or

    (ii) ritual, industrial or habitation site, and

- any place comprising the remains or traces of any such building, structure or erection, any cave, stone or natural product or any such tomb, grave, burial deposit or ritual, industrial or habitation site...

Under Section 14 of the Principal Act (1930):

    It shall be unlawful...

- to demolish or remove wholly or in part or to disfigure, deface, alter, or in any manner injure or interfere with any such national monument without or otherwise than in accordance with the consent hereinafter mentioned (a licence issued by the Office of Public Works National Monuments Branch),

or

- to excavate, dig, plough or otherwise disturb the ground within, around, or in the proximity to any such national monument without or otherwise than in accordance...

Under Amendment to Section 23 of the Principal Act (1930),

A person who finds an archaeological object shall, within four days after the finding, make a report of it to a member of the Garda Síochána...or the Director of the National Museum...

The latter is of relevance to any finds made during a watching brief.

In the 1994 Amendment of Section 12 of the Principal Act (1930), all of the sites and 'places' recorded by the Sites and Monuments Record of the Office of Public Works are provided with a new status in law. This new status provides a level of protection to the listed sites that is equivalent to that accorded to 'registered' sites [Section 8(1), National Monuments Amendment Act 1954] as follows:

The Commissioners shall establish and maintain a record of monuments and places where they believe there are monuments and the record shall be comprised of a list of monuments and such places and a map or maps showing each monument and such place in respect of each county in the State.

The Commissioners shall cause to be exhibited in a prescribed manner in each county the list and map or maps of the county drawn up and publish in a prescribed manner information about when and where the lists and maps may be consulted.

In addition, when the owner or occupier (not being the Commissioners) of a monument or place which has been recorded, or any person proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such monument or place, he shall give notice in writing of his proposal to carry out the work to the Commissioners and shall not, except in the case of urgent necessity and with the consent of the Commissioners, commence the work for a period of two months after having given the notice.

Local Government Planning and Development Act

Structures of architectural, cultural, scientific, historical or archaeological interest can also be protected under the Planning and Development Act, 2000, where the conditions relating to the protection of architectural heritage are set out in Part IV of the act. This act superseded the Local Government (Planning and Development) Act, 1999, which came into force in January 2000.

The act provides for the inclusion of protected structures into the planning authorities' development plans and sets out statutory regulations regarding works affecting such structures. Under the new legislation, no distinction is made between buildings formerly classified under development plans as List 1 and List 2. Such buildings are now all regarded as 'protected structures' and enjoy equal statutory protection. Under the act the entire structure is protected, including a structures interior, exterior, attendant grounds and also the structures within the attendant grounds.

The act defines a 'protected structure' as follows:

(a) a structure, or

(b) a specified part of a structure,

Which is included in a record of protected structures, and, where that record so indicates, includes any specified feature which is within the attendant grounds of the structure and which would not otherwise be included in this definition.

'Protection', in relation to a structure or part of a structure, includes conservation, preservation, and improvement compatible with maintaining the character and interest of the structure or part;

Part IV of the act deals with architectural heritage, and Section 57 deals specifically with works affecting the character of protected structures or proposed protected structures.

…the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of—

(a) the structure, or

(b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

Section 58, subsection 4 states that:

Any person who, without lawful authority, causes damage to a protected structure or a proposed protected structure shall be guilty of an offence.

14 ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL HERITAGE

14.1 INTRODUCTION

There are no buildings/structures of architectural significance located on or adjacent to the proposed site or likely to be impacted by the proposed development. There is no evidence of any archaeological features at the site.

An assessment of the impact on architectural, archaeological and cultural heritage was undertaken to assess the impact of an extension to the existing piggery operation at Patrick Ryan's piggery operation. This chapter outlines issues with respect to the proposed development on the receiving archaeological, architectural heritage and cultural heritage environment and proposes ameliorative measures to safeguard any monuments, features or finds of antiquity.

The new piggery building and access road are located on a green field site to the east of the existing piggery building, and are located in the townland of Ballyfaskin.

14.2 METHODOLOGY

A combination of desk and field based studies were undertaken in order to assess the potential impact resulting from the proposed expansion of the piggery operation at Ballyfaskin.

14.2.1 Desk Studies

The following sources of information were consulted as part of the desk based study for this Environmental Impact Statement.

Source	Description
Record of Monuments and Places (RMP)	The Record of Monuments and Places (RMP) of the Department of the Environment, Heritage and Local Government, records known upstanding archaeological monuments, their original location and the position of possible sites.
The Topographical Files of the National Museum of Ireland (NMI)	The topographical files identify recorded stray finds held in the NMI. The archive was studied for possible finds occurring in townlands associated with the proposed development.
Documentary and Cartographic Sources	Documentary and literary references, including excavation bulletins and historic maps, were also consulted to predict likely archaeological remains surviving on site and to elucidate the development of the immediate environs of the study area. The maps consulted include, the Down Survey Map of 1656, the First Edition Map of the OS six-inch series for Limerick (surveyed in 1840-1 and published in 1844) and revisions to the OS maps for Limerick which were made in 1914.
Previous Archaeological Excavations	Excavations', an annual bulletin and web-based database (www.excavations.ie), was consulted to establish whether excavations had been carried out in the vicinity of the proposed development.

Source	Description
Development Plans	The Limerick County Development Plan (1999) and Draft 2010–2015 Plan was consulted for a list of Protected Structures if any in the vicinity of the proposed development. This document list 'sites, items and structures of archaeological, historic, artistic and scientific interest' according to the townland in which they occur, all items listed in the document are now considered as Protected Structures, they have been given increased protection under the Local Government (Planning and Development) Act 1999.

14.2.2 Field inspection

A field inspection of the site at Ballyfaskin was carried out on in March 2012 to determine the existing nature of the site. It also sought to identify any low-visibility archaeological features that might have little surface expression or areas in the study area that could have some archaeological potential or architectural merit.

14.3 DESCRIPTION OF EXISTING ENVIRONMENT

It should be noted that the information provided above is a very brief synopsis of the architectural heritage of the environs of the site. The assessment of the area is based on extensive desk and field based investigations.

A study was also undertaken of all previous archaeological excavations that occurred within the area around the Patrick Ryan piggery operation from 1970 to 2006, the only years for which this information is currently available is included in Appendix 1. Please note that these sites have been labelled on **Figure 14** according to their RMP No.

A complete list of protected structures within the Environmental Impact Statement was also compiled, based on the Record of Protected Structures included in the Limerick County Development Plan 2010-2016.

14.3.1 Section B – Archaeology

It should be noted that the information provided below is a very brief synopsis of the archaeology of the environs of the site.

14.3.1.1 Desk and Field Survey

The RMP constraints map relevant to the proposed development is sheet 073 of the Ordnance Survey six-inch series for County Limerick. The sites are numbered according to the Ordnance Survey six-inch sheet on which they are located, so that site 020 on six-inch sheet 010, is listed as LI028:020. A county code, LI for Limerick, is included. The national grid reference (NGR) is provided for each site, as is the townland in which it is located.

There is no recorded archaeological sites within the footprint of the proposed and existing piggery buildings. However there are a number of sites listed in the Record of Monuments and Places (RMP) of the Department of the Environment Heritage & Local Government which occur within 500m of the proposed development and these are outlined. Recorded RMP sites are shown on the accompanying site location map (**Figure 14**).

The site of the proposed piggery buildings will be extracted and prepared ground conditions will be suitable for construction works. These works will be conduct to ensure if any archaeological sites/finds are made the appropriate authorities will be notified prior to any additional works commencing.

14.3.2 Section C – Cultural Heritage

It should be noted that the information provided below is a very brief synopsis of the cultural heritage of the environs of the site.

Townland boundaries

Townlands are a unique feature in the Irish landscape. They are one of the oldest land divisions in the country, and their origins are undoubtedly of great antiquity, most certainly pre-Norman. The townland boundaries within the study area include:

- **Knockannacurraha** boundary which takes the form of a hedgerow and local road
- **Curraghkilbran** townland boundary which is defined by local road
- **Angleborough** boundary by hedgerow
- **Ballyduff** boundary which is define by hedgerow
- **Carraghturk** boundary which takes the form of a hedgerow and local road
- **Spittle** boundary which takes the form of a hedgerow

14.4 IMPACTS

14.4.1 Architectural Heritage Impacts

Neither the Limerick County Development Plan 2010 to 2016, list any protected structures within the footprint of proposed or modified piggery buildings.

14.4.2 Archaeological Heritage Impacts

There is no recorded archaeological site within the proposed development area but there is a site on the farm.

The proposed development area is characterised by a single type topography, namely the low-lying improved agricultural land. It is considered unlikely that subsurface archaeological features, finds and/or soils may be discovered during the construction phase of the development.

14.4.3 Cultural Heritage Impacts

There are no features of cultural heritage interest within the proposed development area and in its surrounding townlands.

14.5 MITIGATION MEASURES

14.5.1 General

The Limerick County Development Plan does not list any protected structures within the proposed area.

The developer's attention is drawn to the National Monuments Legislation (1937-2004), which states in the event of the discovery of archaeological finds or remains, the Department of the Environment, Heritage and Local Government should be notified immediately. The developer will notify if any archaeological finds or remains are found during the project.

14.5.2 Architectural Heritage

There are no recorded archaeological sites within the proposed development area

No mitigation is required

14.5.3 Archaeological Heritage

Considering the landscape around the proposed piggery buildings and access road is flat and primarily used for grazing and silage production it is not required to employ an archaeologist.

14.5.4 Cultural Heritage

The locations of the proposed piggery are such to minimise the disturbance or removal of hedgerows.

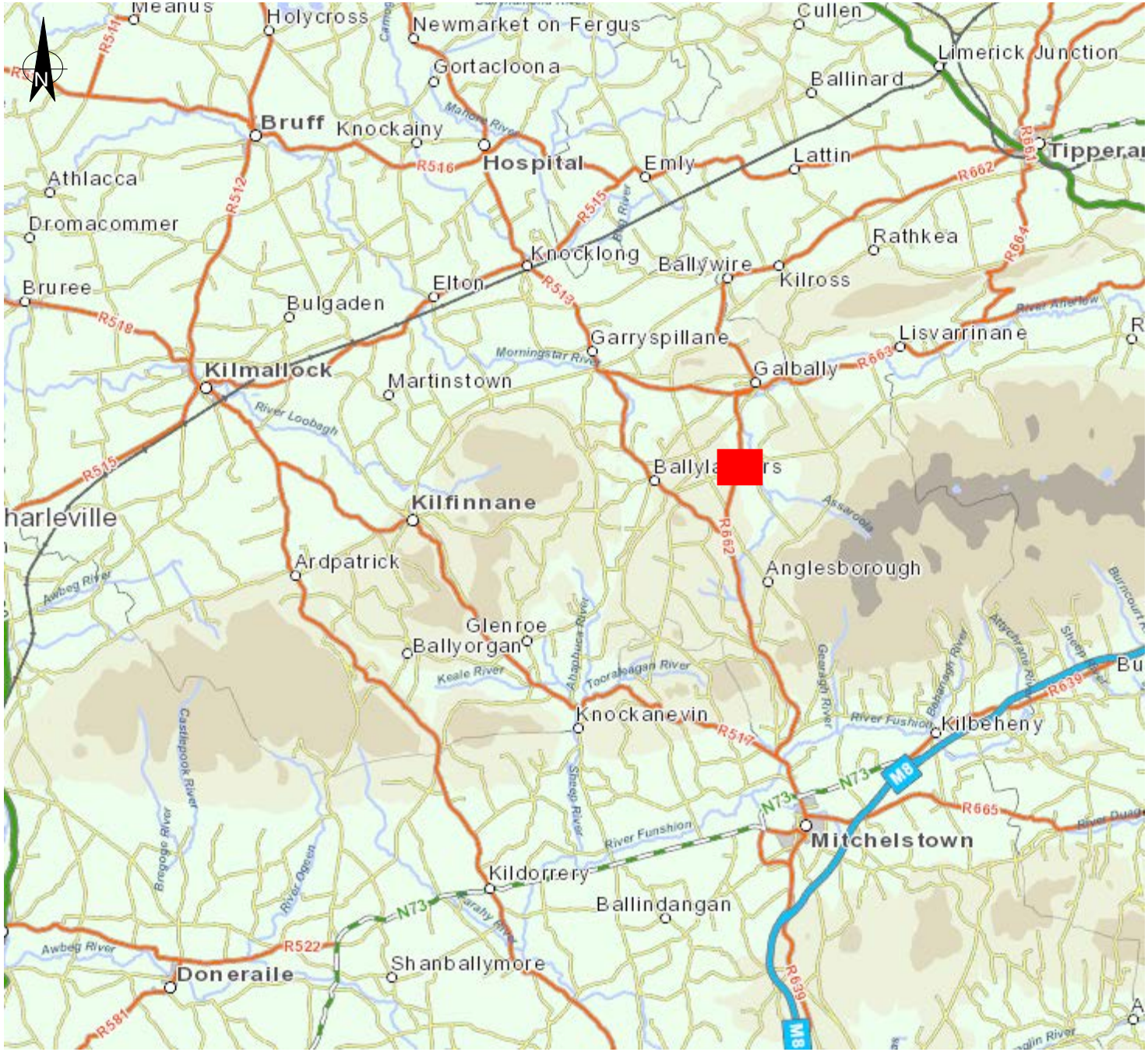
14.6 CONSTRUCTION IMPACTS AND MITIGATION

All construction work will be confined to construction area outlined in the Environmental Impact Statement and drawing C001 to C007. Any ancillary works, additional to those described here, will be identified at pre-construction stage so that appropriate mitigation measures can be put in place at the earliest possible opportunity.

14.7 RESIDUAL IMPACTS

It is not anticipated that any residual impacts will remain if the appropriate mitigation measures and procedures are put in place.

15 FIGURES



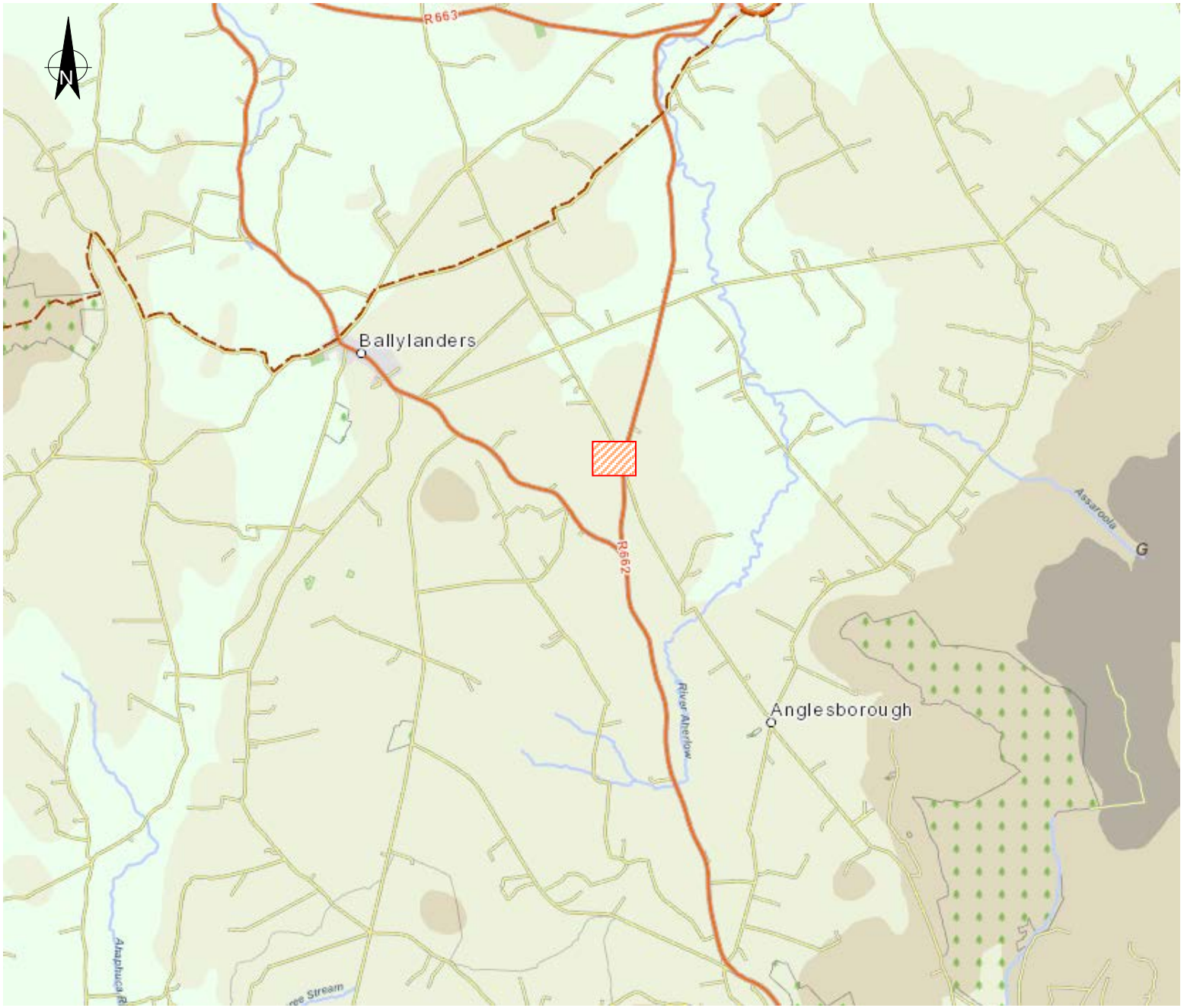
Legend

Site Location

MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Mapping
Scale. NTS	Project No. P012 17
Figure No. Figure 1	Rev. A



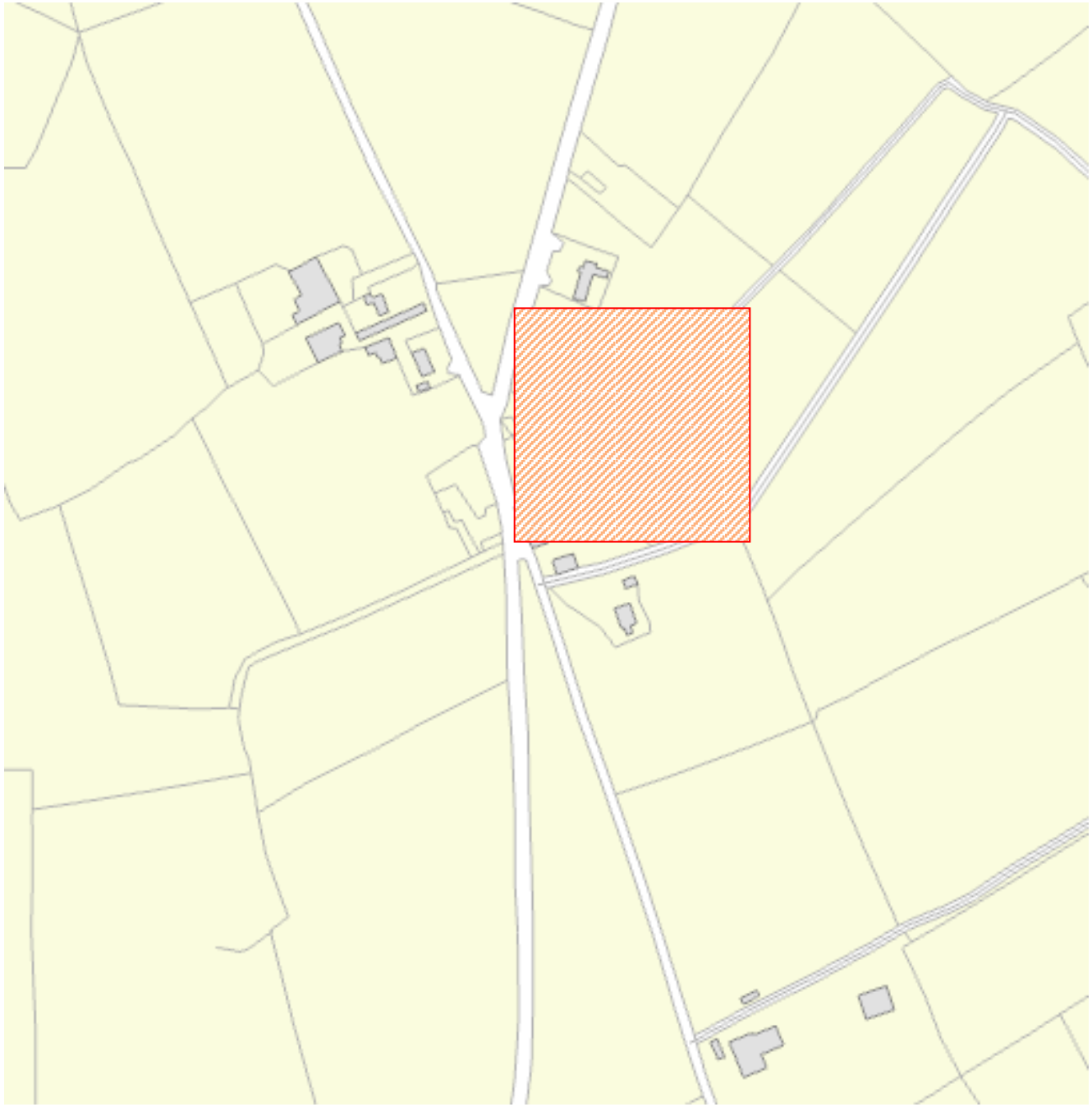
Legend

Site Location

MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Mapping
Scale. NTS	Project No. P012 17
Figure No. Figure 2	Rev. A



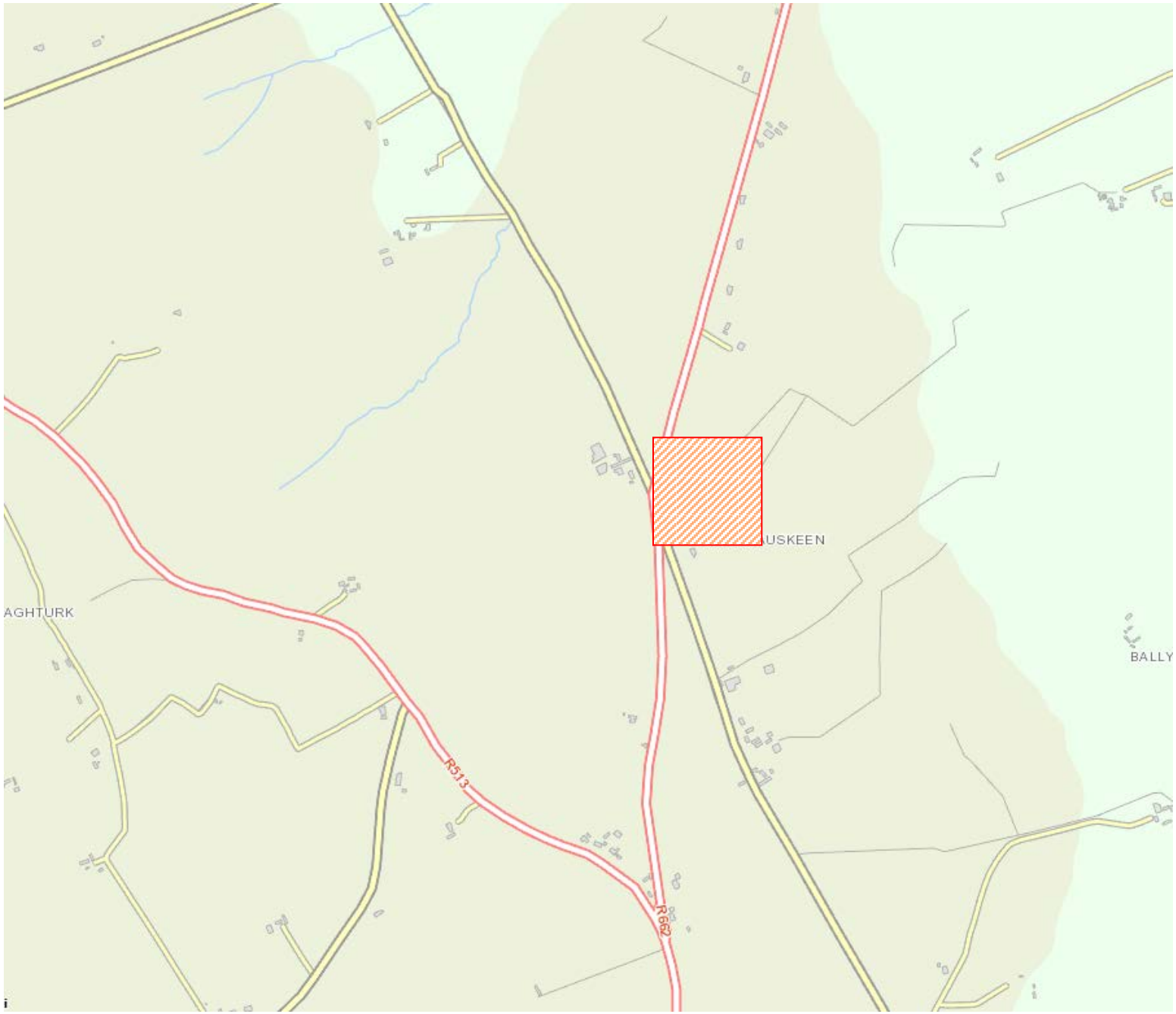
Legend

Site Location

MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Mapping
Scale. NTS	Project No. P012 17
Figure No. Figure 3	Rev.



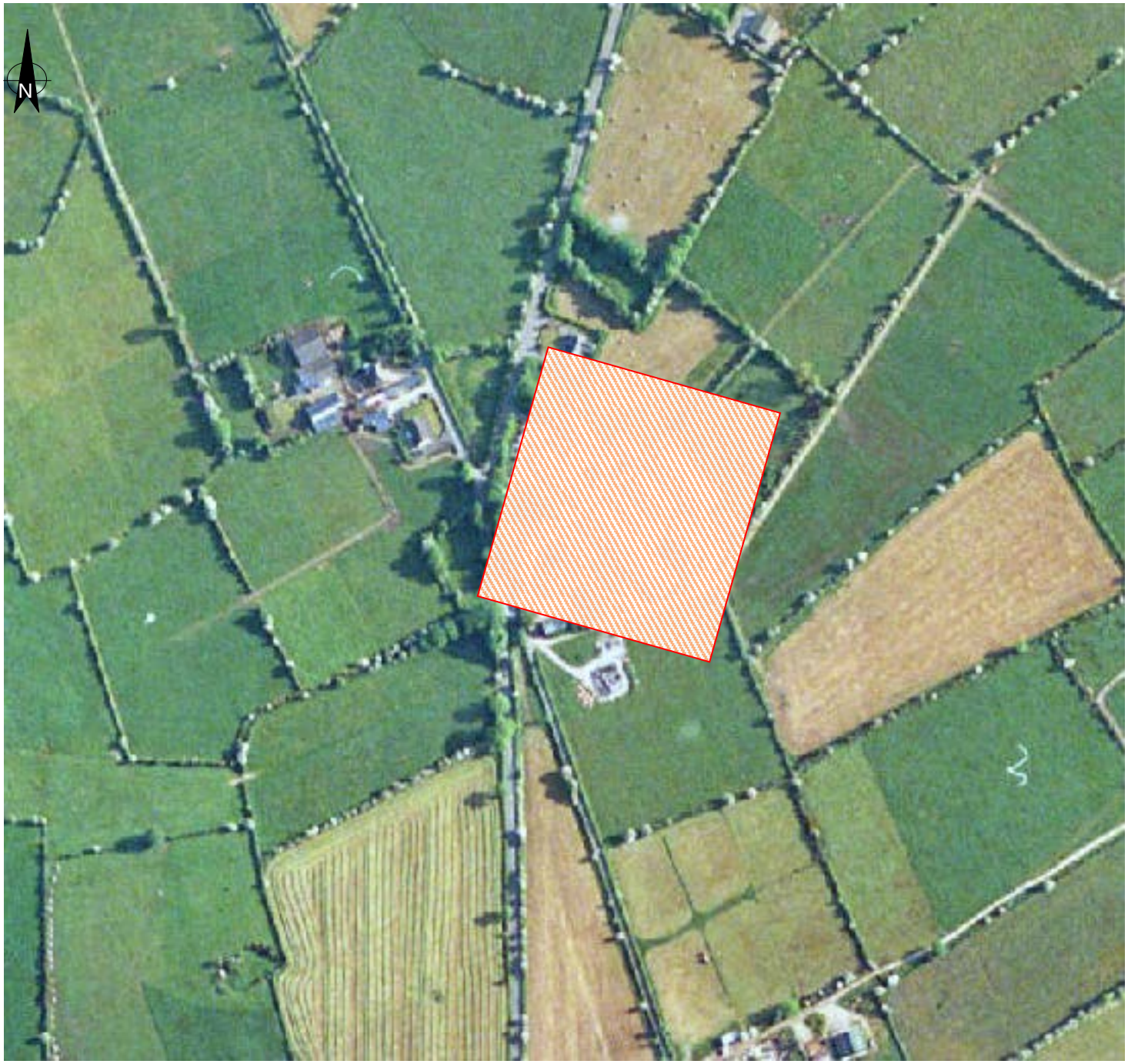
Legend

Site Location

MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Mapping
Scale. NTS	Project No. P012 17
Figure No. Figure 3a	Rev.



Legend

Site Location

MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	**Patrick Ryan**
Title	**Aerial Photography**
Scale. NTS	Project No. P012 17
Figure No. Figure 4	Rev. A

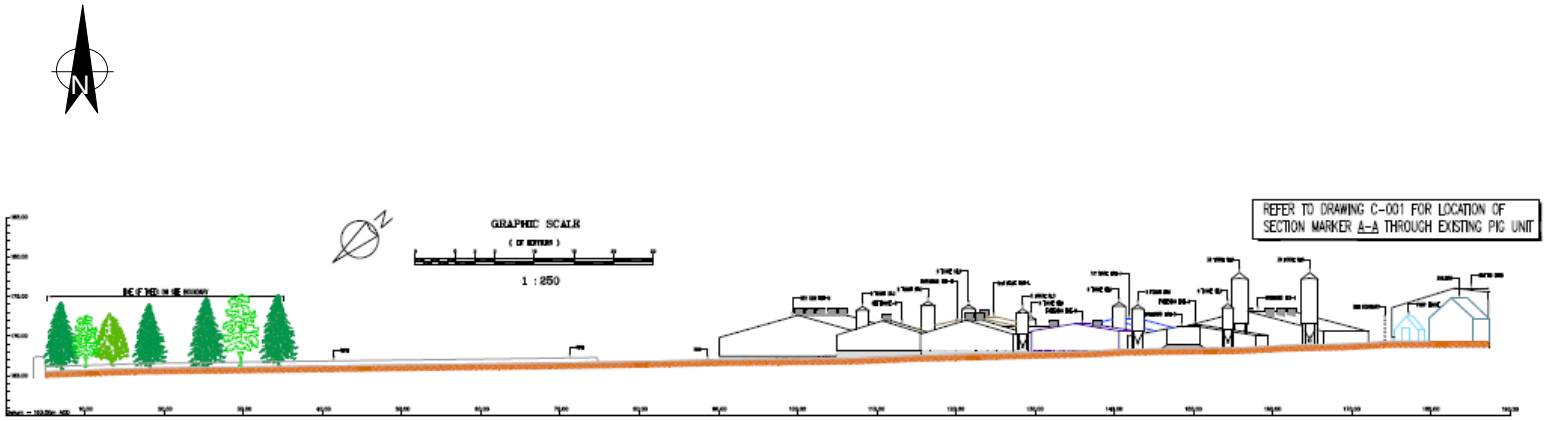
Legend

Site Location

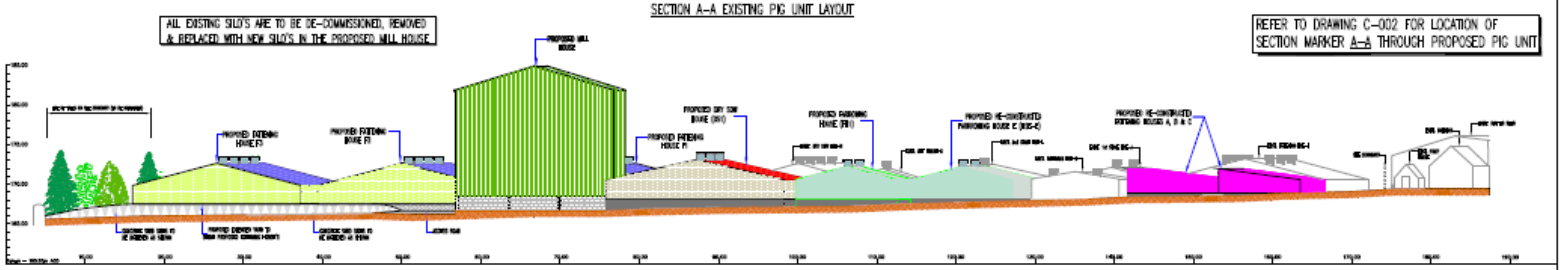
MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

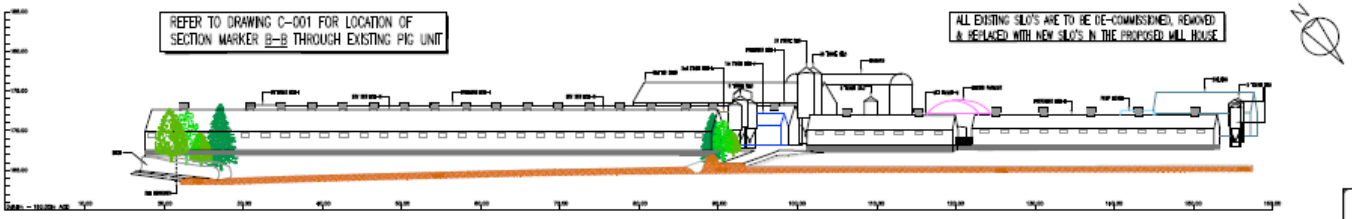
Client	Patrick Ryan
Title	Site Layout
Scale. NTS	Project No. P012 17
Figure No. Figure 5	Rev. A



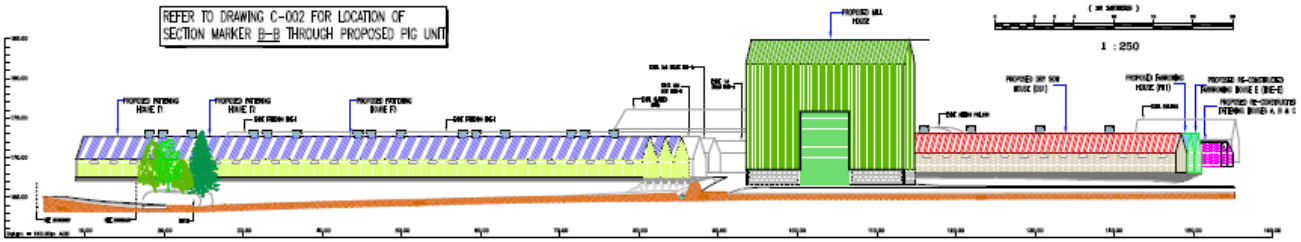
SECTION A-A EXISTING PIG UNIT LAYOUT



SECTION A-A PROPOSED PIG UNIT LAYOUT



SECTION B-B EXISTING PIG UNIT LAYOUT



SECTION B-B PROPOSED PIG UNIT LAYOUT

FOR PLANNING USE ONLY

PLANNING.

PROPOSED PHASED RE-DEVELOPMENT OF PIG UNIT, BALLYFUSKEEN, BALLYLANDERS, COUNTY LIMERICK.

EXISTING & PROPOSED SITE ELEVATIONS FOR SECTIONS A-A & B-B AS SHOWN ON DRAWINGS C-001 & C-002.

CHECKED	T. Fitzgerald		
APPROVED	Trevor Montgomery		
Date:	08/03/12	Scale:	AS SHOWN.
Dwg No.	C-007.		

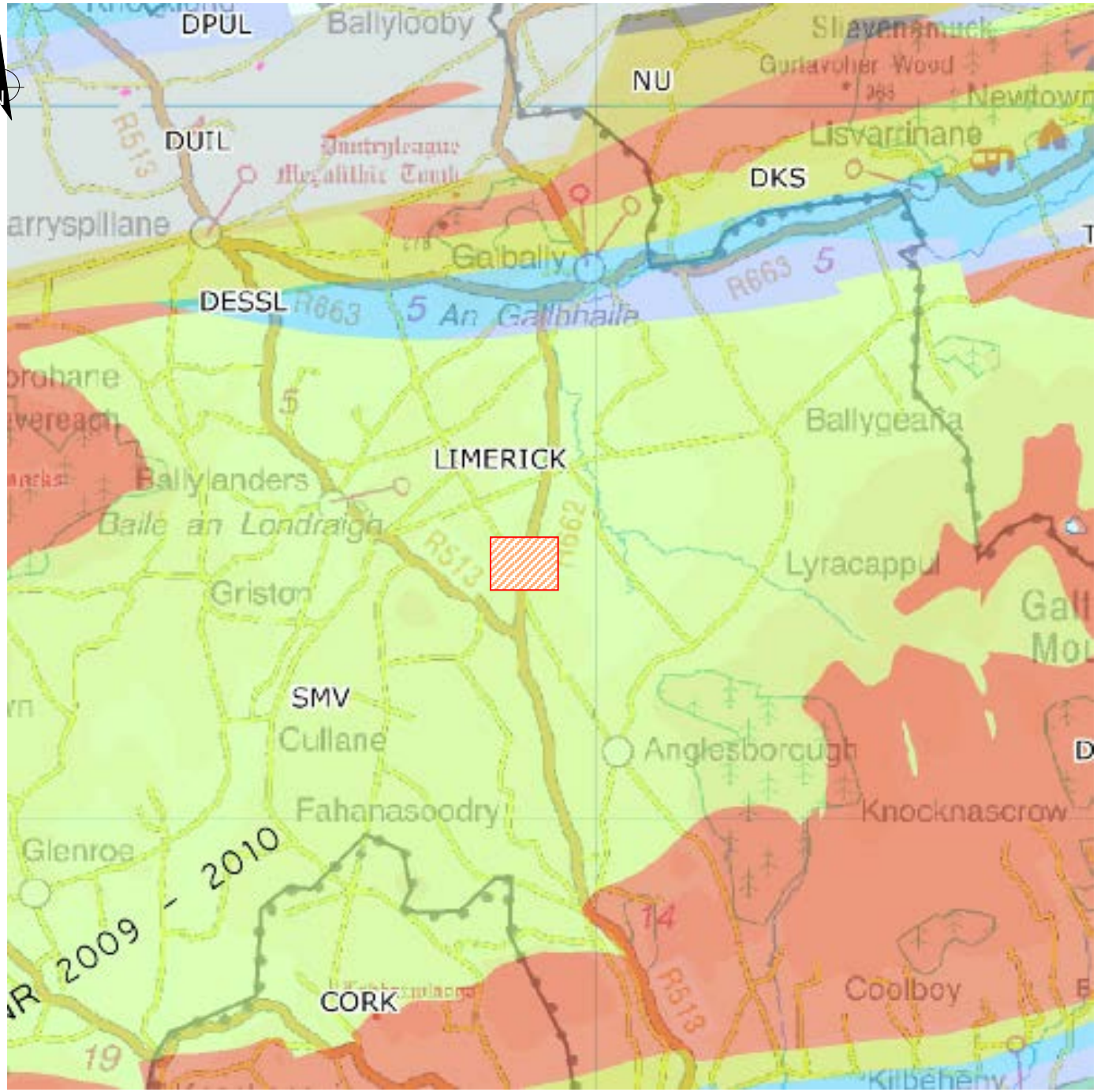
MONTGOMERY E.H.S. ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Legend

Site Location

MONTGOMERY E.H.S.
ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	**Patrick Ryan**
Title	**Site plans and Sections**
Scale. NTS	Project No. P012 17
Figure No. Figure 6	Rev. A



Legend

Legend

RBD Subsoils

- Alluvium
- Beach sands and gravels
- Bedrock outcrop and subcrop
- Esker sands and gravels
- Glaciofluvial sands and gravels
- Lake sediments
- Made ground
- Marine/estuarine silts and clays
- Marsh
- Peat
- Scree
- Till derived chiefly from Devonian sandstones
- Till derived chiefly from Lower Palaeozoic rocks
- Till derived chiefly from Namurian rocks
- Till derived chiefly from granite
- Till derived chiefly from limestone
- Till derived chiefly from metamorphic rocks
- Till derived from metamorphic rocks
- Till derived from mixed Devonian and Carboniferous rocks
- Water
- Windblown sands
- County Boundaries

Site Location

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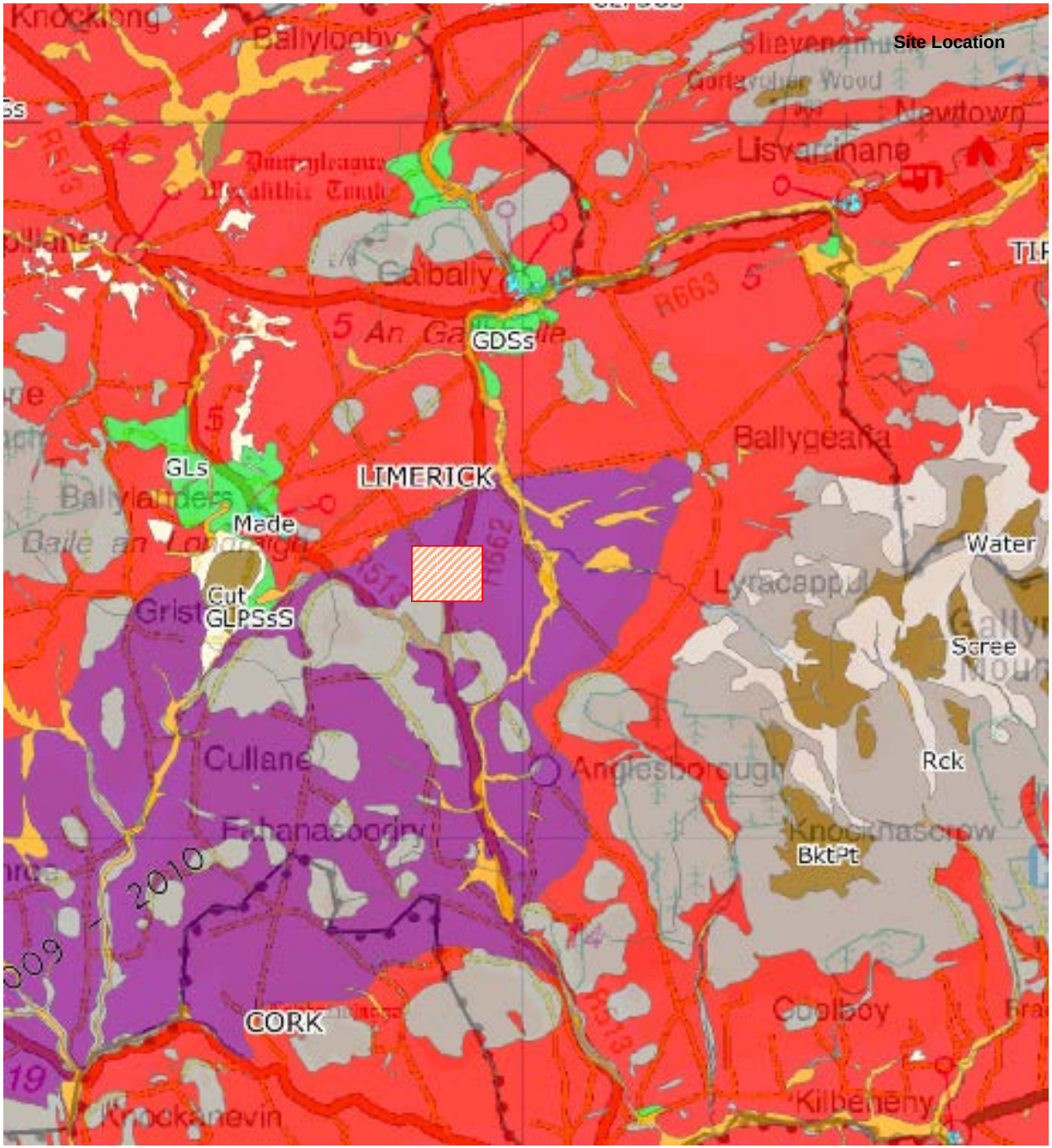
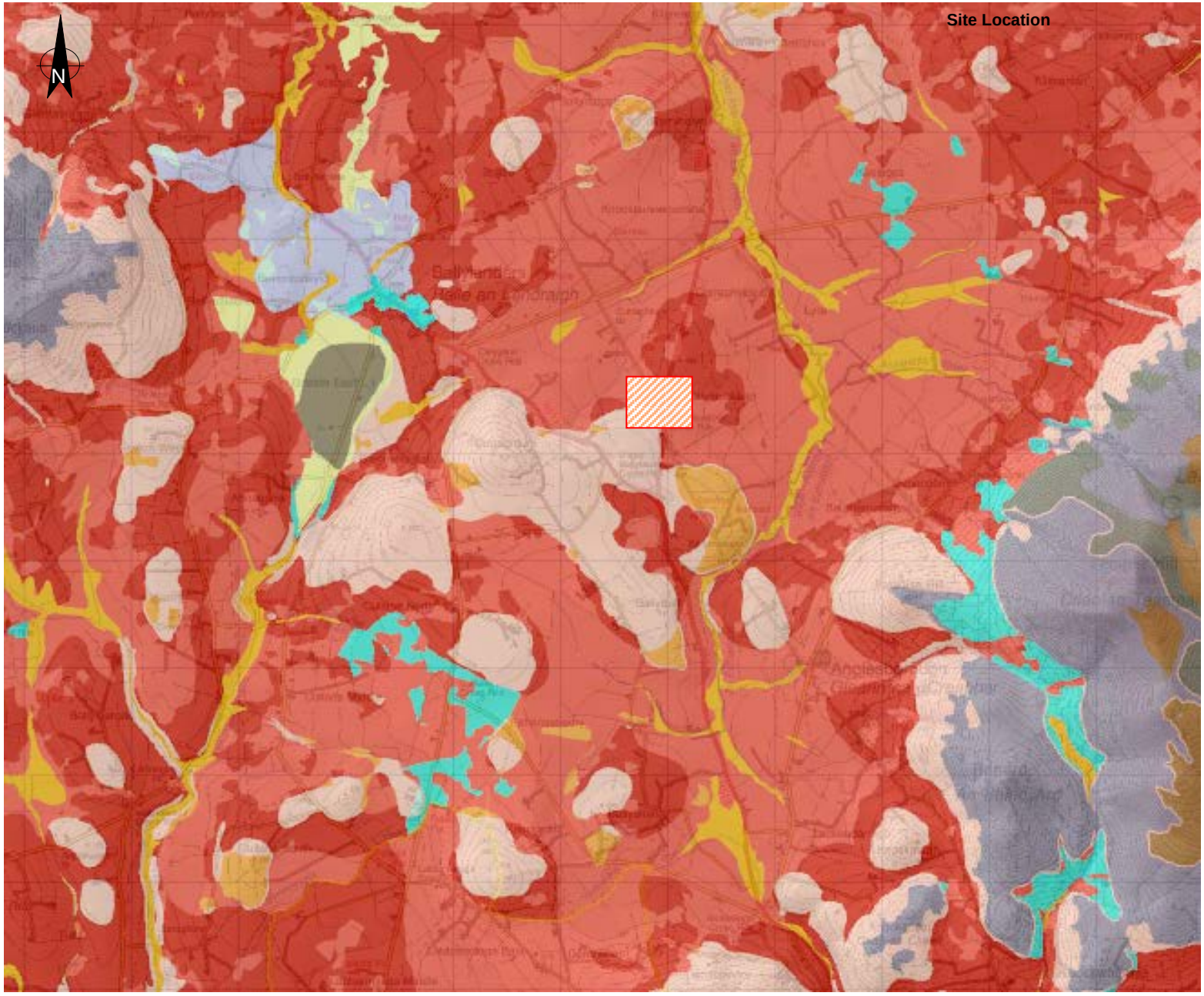
Client	Patrick Ryan
Title	Geology
Scale. NTS	Project No. P012 17
Figure No. Figure 7	Rev. A



Legend

MONTGOMERY E.H.S.
ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Sub-Soils
Scale. NTS	Project No. P012 17
Figure No. Figure 8	Rev. A



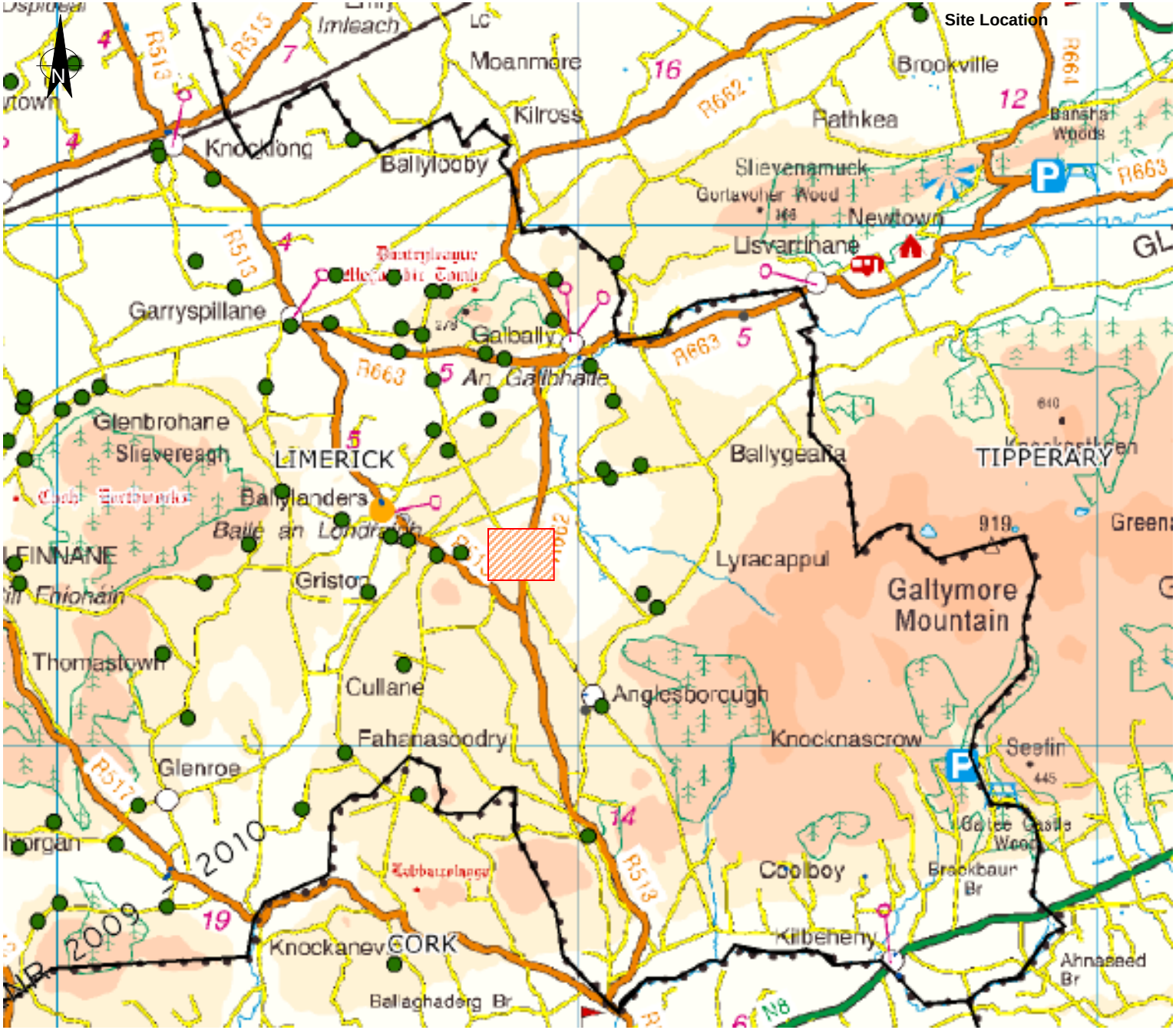
Subsoils

- A - Alluvium undifferentiated gravelly
- Ac
- BminPD - Surface water Gleys / Ground water Gleys Basic
- BminPDPT - Peaty Gleys Basic Parent Materials Basic
- BminSP - Surface or Ground water gleys - shallow
- BminSPPT - Peaty gleys - shallow
- BminSRPT - Lithosols - peats
- BminSW - Renzinas / Lithosols
- Cut - Raised Bog cutaway/cutover
- FenPT - Fen peat
- Lac
- Made
- MarSands - Beach sand and gravels
- MarSed - Marine/Estuarine sediments
- MarSeds
- RsPt - Raised bog
- Scree
- Reed Swamp / Marsh
- Water

MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Soils
Scale. NTS	Project No. P012 17
Figure No. Figure 9	Rev. A



Legend

- Wells Accuracy within 10m to 50m
- National Draft Bedrock Aquifer Map
- Rf - Regionally Important Aquifer - Fissured bedrock
- Rk - Regionally Important Aquifer - Karstified
- Rkd - Regionally Important Aquifer - Karstified (diffuse)
- Rkc - Regionally Important Aquifer - Karstified (conduit)
- Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive
- Lk - Locally Important Aquifer - Karstified
- Ll - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
- Pl - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
- Pu - Poor Aquifer - Bedrock which is Generally Unproductive
- Unclassified
- National Draft Gravel Aquifer Map
- Rg - Regionally important, extensive sand/gravels aquifers
- Lg - Locally important, sand/gravel aquifers
- No gravels present
- Not Mapped
- Source Protection Area
- SI - Inner Protection Area
- SO - Outer Protection Area
- Bedrock Faults 100k
- RBD Boundaries
- GWB Boundaries
- County Boundaries
- Watermark

MONTGOMERY E.H.S.
ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Groundwater
Scale. NTS	Project No. P012 17
Figure No. Figure 10	Rev. A

Legend

Site Location

- Special Protection Areas
- Proposed Natural Heritage Areas
- Natural Heritage Areas
- Special Areas of Conservation

MONTGOMERY E.H.S.
ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Designations Maps
Scale. NTS	Project No. P012 17
Figure No. Figure 11	Rev. A

Legend

Site Location

- Special Protection Areas
- Proposed Natural Heritage Areas
- Natural Heritage Areas
- Special Areas of Conservation

MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Aerial Photo of SAC & PNHA
Scale. NTS	Project No. P012 17
Figure No. Figure 12	Rev. A

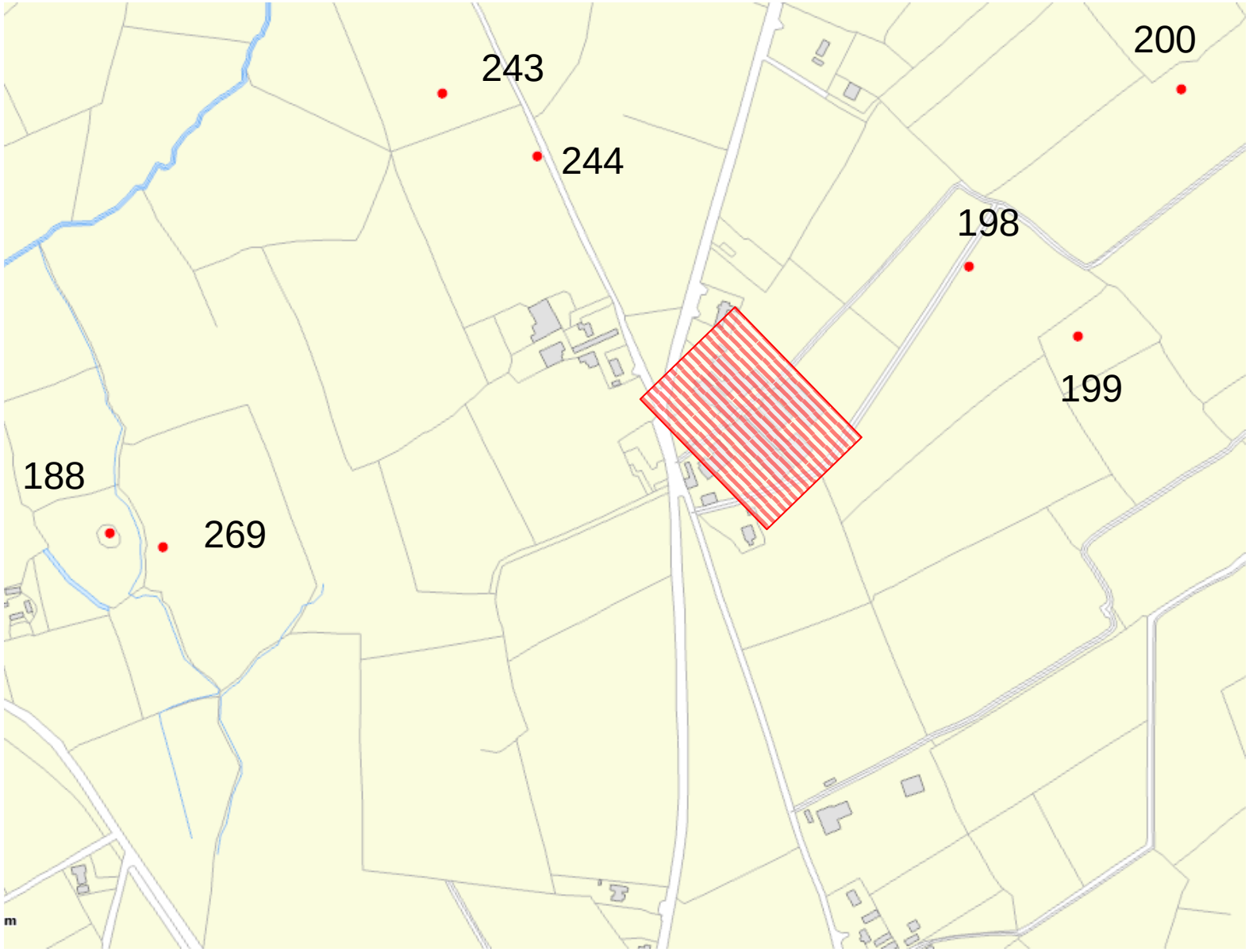
Legend

Site Location

MONTGOMERY E.H.S.

ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Noise Monitoring Location
Scale. NTS	Project No. P012 17
Figure No. Figure 13	Rev. A



Legend

Site Location

MONTGOMERY E.H.S.
ECOLOGY, ENVIRONMENTAL, TRAINING AND HEALTH & SAFETY CONSULTANTS

Client	Patrick Ryan
Title	Recorded Monuments
Scale. NTS	Project No. P012 17
Figure No. Figure 14	Rev.

ATTACHMENT 1 – ARCHAEOLOGICAL FEATURES

Record Details

SMR Number: LI049-269----

Related SMR number(s): None

Class: Barrow - ring-barrow

ITM Reference (E,N): 578402, 623291

Irish Grid Reference (E,N): 178447, 123240

Townland(s): BALLYFAUSKEEN (Coshlea By., Cullane ED)

Record of Monuments and Places: Yes

Description:

Description: We regret that we are unable to supply descriptive details for this record at present.

Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government

NATIONAL MONUMENTS SERVICE

Archaeological Survey of Ireland

Record Details

SMR Number: LI049-244----

Related SMR number(s): None

Class: Enclosure

ITM Reference (E,N): 578757, 623662

Irish Grid Reference (E,N): 178802, 123611

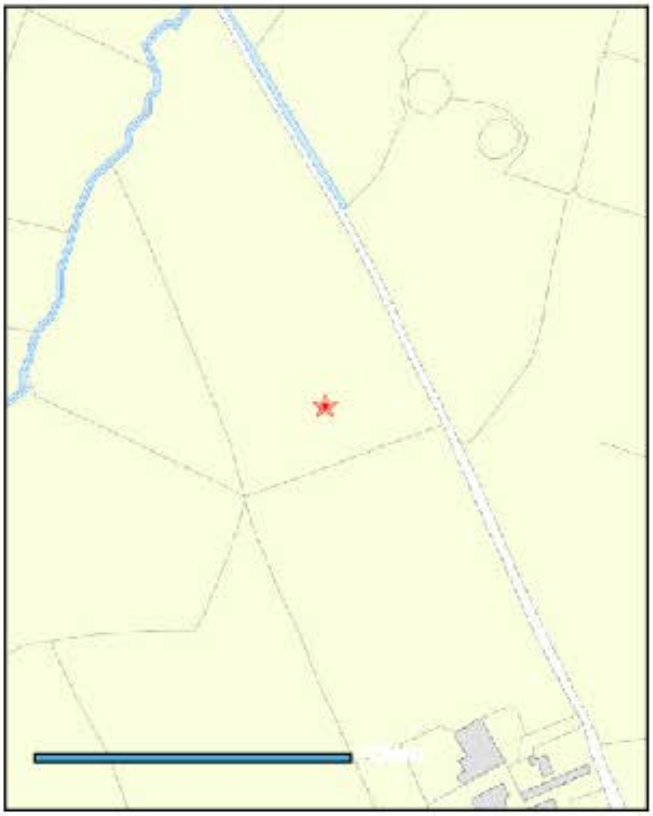
Townland(s): BALLYFAUSKEEN (Coshlea By., Cullane ED)

Record of Monuments and Places: Yes

Description:

Description: We regret that we are unable to supply descriptive details for this record at present.

Record Details



SMR Number: LI049-243----

Related SMR number(s): None

Class: Earthwork

ITM Reference (E,N): 578667, 623722

Irish Grid Reference (E,N): 178712, 123671

Townland(s): BALLYFAUSKEEN (Coshlea By., Cullane ED)

Record of Monuments and Places: Yes

Description:

Description: We regret that we are unable to supply descriptive details for this record at present.

Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government

NATIONAL MONUMENTS SERVICE

Archaeological Survey of Ireland

Record Details

SMR Number: LI049-200----

Related SMR number(s): None

Class: Enclosure

ITM Reference (E,N): 579366, 623725

Irish Grid Reference (E,N): 179411, 123674

Townland(s): BALLYFAUSKEEN (Coshlea By., Cullane ED)

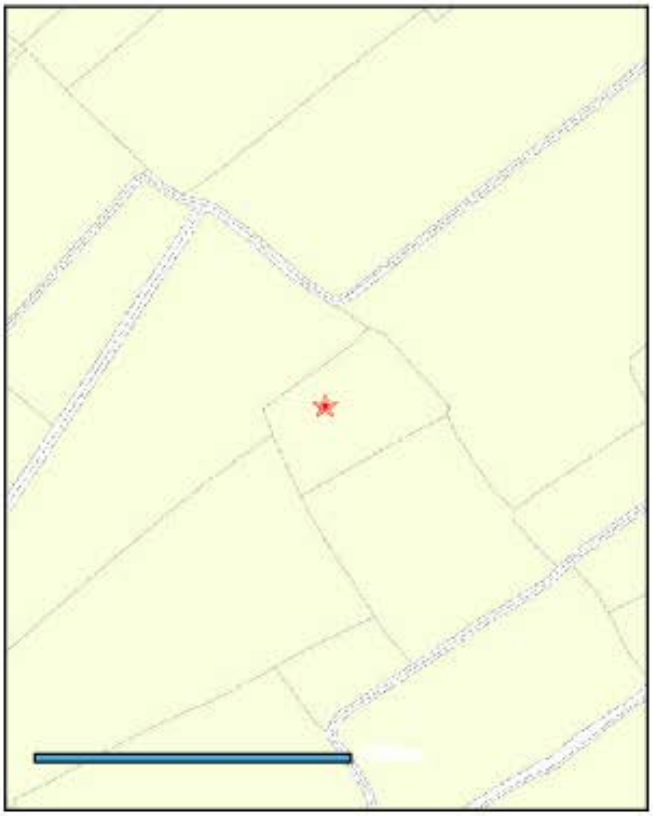
Record of Monuments and Places: Yes

(c) Ordnance Survey Ireland
Scales are approximate only

Description:

Description: We regret that we are unable to supply descriptive details for this record at present.

Record Details



SMR Number: LI049-199----

Related SMR number(s): None

Class: Enclosure

ITM Reference (E,N): 579269, 623491

Irish Grid Reference (E,N): 179314, 123440

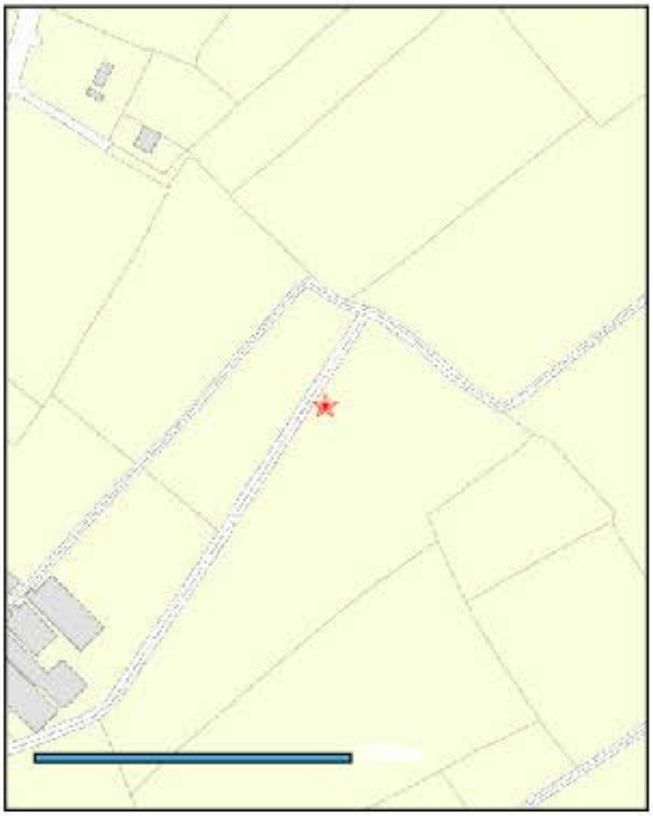
Townland(s): BALLYFAUSKEEN (Coshlea By., Cullane ED)

Record of Monuments and Places: Yes

Description:

Description: We regret that we are unable to supply descriptive details for this record at present.

Record Details



SMR Number: LI049-198----

Related SMR number(s): None

Class: Enclosure

ITM Reference (E,N): 579166, 623557

Irish Grid Reference (E,N): 179211, 123506

Townland(s): BALLYFAUSKEEN (Coshlea By., Cullane ED)

Record of Monuments and Places: Yes

Description:

Description: We regret that we are unable to supply descriptive details for this record at present.

Record Details

SMR Number: LI049-188----

Related SMR number(s): None

Class: Enclosure

ITM Reference (E,N): 578352, 623305

Irish Grid Reference (E,N): 178397, 123254

Townland(s): CURRAGHTURK

Record of Monuments and Places: Yes

Description:

Description: We regret that we are unable to supply descriptive details for this record at present.

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PATRICK RYAN, BALLYFASKIN ENTERPRISES LTD, BALLYFASKIN, BALLYLANDERS, COUNTY LIMERICK

ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED EXPANSION OF A PIGGERY OPERATION

NON TECHNICAL SUMMARY

Montgomery EHS
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PATRICK RYAN

NON-TECHNICAL SUMMARY

This document has been prepared on behalf of and for the exclusive use of Patrick Ryan by Montgomery EHS on the basis of an agreed specification for submission to Limerick County Council as part of the EIS process.

Conclusions and recommendations contained in this Document are based on information supplied by the Client and others. Unless expressly stated otherwise, information provided by Third Parties has not been verified by Montgomery EHS.

Montgomery EHS accept no liability or responsibility whatsoever in respect of any use of or reliance upon all or part of this Document by any third party.

Document No. ……. ES_P012_017-02

Rev	Description	Origin	Review	Changes/Amendments	MEHS Approval	Date
1	Draft	TM	MM	Draft for review	Yes	11/04/12
2	Final	TM	MM	Issued	Yes	15/04/12

Table of Contents

Figures

1 INTRODUCTION

This Environmental Impact Statement (EIS) for the proposed development at Patrick Ryan piggery operation at Ballyfaskin, Ballanders, Co Limerick has been prepared on behalf of Patrick Ryan by Montgomery EHS.

This proposed site is situated c. 3 km's north-east of Ballylanders, Co. Limerick

The E.I.S. relates to an application seeking planning permission for the

- 3 No. Fattening houses. - (Floor area c. 3* 1531.8 m2) located on the site of, and replacement of 1 Fattening House (Floor area c. 1070.4 m2)
- 1 Feed Mill (Floor area c. 400 m2)
- Farrowing House (Floor area 653.3 m2)
- 1 Dry Sow House (Floor area 1192.4 m2)
- 1 Construction of a Farrowing Houses (floor area 653.312 m2) and replacement of existing farrowing house (Floor area 413.8 m2)
- 1 replacement of Gilt House (Floor area 258.5 m2)
- 1 new access road and, any associated site works and ancillary structures arising from the proposed developments as outlined above.

The proposed houses are to be constructed in accordance with, and to comply with, S.I. No. 14 of 2008 EUROPEAN COMMUNITIES (WELFARE OF FARMED ANIMALS) REGULATIONS 2008.

2 BACKGROUND TO THE DEVELOPMENT

2.1 PRESENT SITUATION

This E.I.S. forms part of a planning application to Limerick County Council on behalf of Patrick Ryan, Ballyfaskin, Ballanders, Co Limerick for permission to construct new and modified piggery buildings, along with all ancillary structures, new access road and associated site works.

The applicant, Patrick Ryan currently operates and manages the existing piggery at a capacity of 400 sows.

There is 1 person employed directly at this site with additional jobs in the areas of transport, feed, etc. indirectly employed. The operation of the proposed development will be along broadly similar principles to that carried out on existing piggery buildings within the county and surrounding counties; however it will be carried out in a welfare compliant environment. This will involve the feeding, management and husbandry of the pigs and general site management.

All fattened pigs produced on this site will be sent to the one of the pig processing plants in Ireland which is:

- Dawn Pork & Bacon, Grannagh, Waterford
- Dunbia (Ballymena) Ltd Ballymena, Antrim,
- Finns Meats, Mitchelstown, Cork
- Green Pasture Meats, Drumlish, Longford
- McCarren & Co, Cavan, Co. Cavan
- Rosderra (Carrig), Roscrea, Tipperary
- Rosderra (Edenderry), Edenderry, Offaly
- Staunton Foods, Bandon, Cork
- Vion Food Group (Cookstown), Cookstown, Tyrone

The proposed development will modify existing buildings and develop new buildings and will be operated by the applicant. While this proposed expansion piggery of the operation will be managed and operated in conjunction with the existing piggery operation.

This site of the proposed development is agricultural land, owned by Mr. Patrick Ryan the owner / operator of the existing piggery buildings and forms part of his overall landholding including the site of the proposed development. This site is located just off a R662 in the town land of Ballyfaskin, Ballylanders, Co. Limerick.

2.2 NEED FOR THE DEVELOPMENT

The development of the pig meat industry is supported by government policy aimed at increasing the value of the export market. The Irish pig meat industry has achieved major success from the mid 1980's onwards in the development of an internationally competitive export orientated pig meat industry in Ireland and by 1995 the value of pig-meat exports had reached in excess of E260 million. At present pigmeat processing sector sales are valued at c. E700 million, of which E400 million is exported. Ireland represents less than 1.5% of EU production (2003). This progress was achieved with major rationalisation of the Irish Pig Industry with a reduced number of farmers with a larger number of animals, resulting in the pig industry becoming the most market led industry in Irish Agriculture.

This enterprise conforms to Irish national policy on the pig industry based on the Development Plan for the Irish Pig Industry announced by the Minister for Agriculture and Food on the 10th of July 1987, the Pig Production Group Report of 1988 and the Pig Industry in Ireland, Strategic Study, 2000. The pig industry in Ireland has been through a number of tough economic years in the late nineties. On an island basis it is essential that the present level of production be maintained, a critical mass of greater than three million pigs per annum is essential for the efficiency of the 9 processing plants remaining.

According to a recent European commission report " prospects for agricultural markets in the European Union 2004 - 2011, pig and poultry production and consumption are expected to keep growing over the medium term, with increased trade flows between the new and old member states. The meat exports have returned to a more normal situation after the extreme market conditions due to the second BSE scare, the foot and mouth outbreak in 2001 and avian influenza.

An intensive pig rearing industry has developed in County Limerick and Cork arising from the need to provide additional wealth in the area where more traditional farming practices are difficult.

Pig production in Limerick and Cork accounts for circa. €100 million annually in farm sales and 1,500 jobs in the county are directly dependent on the pig industry. On a national scale this stands at c. E 400 million, or 7% of total agricultural output, with 5,000 jobs directly dependant on the pig industry. This industry also provides a cheap source of organic fertilisers for farmers in the area.

This integrated enterprise will have a number of advantages to ensure its economic viability. It will have cost savings due to better quality buildings resulting in an improvement in herd Feed Conversion Efficiencies, i.e. less feed will be required to produce each unit of pig meat. It will also allow more efficient use of labour and other inputs, as time and expense will not be incurred transporting pigs between different sites.

Within the pig industry, the trend is towards larger scale pig farms reflecting,

1) The concentration of resources in terms of skilled labour and capital

2) Domestic and more increasingly, global pressures and

3) Economies of scale. Due to rising input costs, additional environmental and welfare requirements and the reduction in pig prices (in real terms) over this period Irish pig farmers need to improve efficiencies wherever possible.

The increase in the capacity at Patrick Ryan's piggery operation will help meet the growth in the sector description of the development.

2.3 DO NOTHING AND DO SOMETHING SCENARIOS

The Do Nothing Scenario looks at the environment, as it would be if no development was carried out. In the Do Nothing Scenario, the capacity would not be increased to 600 sows. The long term viability of the operation would have to be considered.

In the Do Something Scenario, capacity increase to 600 sows and the two piggery building and modified buildings will be constructed.

3 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION

This section outlines the likely significant Environmental Impacts arising from the proposed increase in capacity of the piggery operation to 600 from 400. Where possible, design measures have been included to reduce or eliminate possible impacts but where this has not been possible, mitigation measures have been proposed to reduce or eliminate the identified impacts.

HUMAN BEINGS

Human beings interact, to a greater or lesser extent, with all aspects of the receiving environment. Therefore, impacts on any aspect of the environment have the potential to impact on human beings. The impact of the scheme as it specifically relates to human beings is covered under the headings, *Community*, *Human Health, Air Quality*, *Noise and Vibration* and *Landscape and Visual Impacts*.

3.1 COMMUNITY

Patrick Ryan's piggery operation at Ballyfauskin Ballylanders, Co Limerick is located 3 km to the North east of Ballylanders, town and some 25km from Limerick City.

At a regional, county and district level, it was considered that there will be no negative effects on population structure or trends, or on the local settlement pattern. However, the proposed developments at Patrick Ryan's piggery operation will have positive economic benefits and ensure sustained employment over the additional 20-year period. The pig industry is a significant employer in the Limerick Region. A knock on indirect effect leading to support of local services within the community is envisaged. Potential negative visual, noise, air quality and traffic impacts on human beings have been dealt within the relevant sections of the EIS.

3.2 AIR QUALITY

The air quality impact assessment was carried out by Montgomery EHS for the proposed development.

The proposed expansion to the piggery operation was also considered in terms of dust dispersion.

The existing operation indicates that the air quality in the vicinity of the plant is good with no significant impact to air quality as a result of existing site operations.

The proposed operation will be similar to the existing operation. The proposed additional piggery operation will have dust levels within relevant guidelines and that the future site operations will not have a significant impact on air quality.

Construction activities such as excavations and earth moving may generate quantities of construction dust, particularly in drier weather conditions however; these will be of a short duration and mitigation measures will be implemented. The effect of construction activities on air quality, in particular construction dust, will not be significant. An odour management plan has been generated in order to establish the measures necessary to minimise odour.

3.3 NOISE

Montgomery EHS carried out a baseline noise survey at 4 locations in the vicinity of the proposed development in order to assess and quantify the existing noise environment. Noise levels during the operational phase of the development were then measured to assess the noise impact of the development at nearby residential locations.

The noise climate in the vicinity of the existing site is relatively low. The fact that no complaint has ever been received indicate that noise levels from the plant's current operations do not have a significant impact on the noise levels of the surrounding area, and that there will be no impact from increasing capacity of sows.

The potential noise and vibration impacts on the surrounding area from extending the piggery operation were considered for two distinct stages: the short-term impact of the construction phase and the long-term impact of the operational phase.

During the construction phase of the project, there is a potential for generation of a temporary increase in noise and vibration due to the nature of activities undertaken during site preparation and development, such as rock breaking and excavation. However, the application of noise limits on construction activities and hours of operation, along with adherence to the guidance set out in British Standard BS 5228 1997 "*Noise Control on Construction and Demolition Sites*" will ensure that noise and vibration will be kept to a minimum.

Therefore during the operation phase, it is predicted that noise levels will remain below the EPA noise level limits at the nearest noise sensitive locations.

3.4 LANDSCAPE AND VISUAL

Montgomery EHS assessed the landscape and visual elements of the proposed development. The existing piggery facility and associated infrastructure does not visually dominate the immediate landscape. The landscape itself is rural and agricultural and much of the landscape surrounding the site is low-lying with little topographic relief. Residential property is generally dispersed along local roads through increased development.

The site where the proposed development will be constructed is not visually prominent as it is the east of the existing piggery buildings. The existing hedgerows will be retained and strengthen to reduce the visual impact of the proposed development.

As such the site is neither sensitive nor vulnerable in landscape terms and in overall terms is typical of a landscape type that is widespread in the area.

Given the nature and impact of the existing facility, the proposed extension will not result in significant overall landscape and visual impact, though locally minor visual impact will arise.

Construction work will take place at a relatively low level and against the backdrop of the existing piggery operation with its various on-going activities. This impact will cease once the construction phase is complete.

NATURAL ENVIRONMENT

This section covers the potential effects of the proposed development on the natural environment. The site and the lands surrounding are not part of any ecological designation, both national and EU. The site is of low ecological value, which is improved grassland with the land utilised for silage production.

3.5 TERRESTRIAL ECOLOGY

Montgomery EHS surveyed the flora and fauna within the site of the proposed piggery development. The ballyfaskin, Ballylanders, Co. Limerick is surrounded by improved grassland for silage production and grazing of cattle. The main impact on terrestrial ecology since the operation commenced was the removal of grassed area for the existing piggery operation. No significant impacts on terrestrial ecology are anticipated increasing the capacity to 600 sows. There is poor quality of habitats within the area of the proposed piggery development which is limited to improved grassland. This habitat is generally widespread around the limerick region. The area provides a habitat for birds and mammals of local importance and the loss of habitat resulting from the development will have a slight negative impact.

3.6 AQUATIC ENVIRONMENT

An assessment of the aquatic environment surrounding Mr Ryan existing piggery operation was carried out by Montgomery EHS. The site has limited water bodies with a small drainage ditch. Surveys of the habitats and flora and fauna were carried out. None of the species of plants and animals recorded were of specific nature conservation importance or interest.

The site will only discharge clean runoff that is collected and discharge to the drainage ditch. The increasing capacity and the additional piggery buildings will mean an increase in the discharge volume to the drainage ditch. No significant impact on the ecology of the area is expected from the increase in discharge from the clean surface water to the drainage ditch.

During construction, care will be taken that no accidental spillages will pollute the surrounding water bodies. Water runoff form the construction site will also be intercepted to ensure that no suspended solids are released.

3.7 SOILS GEOLOGY AND HYDROGEOLOGY

An assessment of the soils, geology and hydrogeology at the site of the proposed development was carried out by Montgomery EHS. The soil types occurring within the footprint of the proposed piggery development are mostly made up of glacial till. The site of the proposed a number of buildings will be excavated

3.8 CLIMATE

There are no direct impacts predicted on the existing macroclimate as a result of the proposed expansion. The expansion will however increase the viability of the piggery operation thereby facilitating the continued emission of pollutants such as NOx into the atmosphere. Air quality emissions will be licensed by the EPA as part of Patrick Ryan's IPPC licence application. In setting limits for industry in an IPPC licence the EPA take account of national and EU legislative limits and guidelines for air pollutants and also Government policy in relation to Climate Change.

MATERIAL ASSETS

3.9 AGRICULTURE

The proposed piggery operation will occupy an area of approximately 2.6 ha, of which all are agricultural lands and improved grassland. Agricultural enterprises in this area and the surrounding land include dairying and drystock.

The lands proposed for the extension are wholly within the ownership of Patrick Ryan. The area is currently utilised used for silage production. This practice will discontinue if the proposed additional goes ahead and there will be a slight impact on volume of silage production due to the loss of volume of silage. Dust control measures during the construction and operation of the piggery operation will ensure that there will be no impact from dust on the surrounding lands or livestock.

3.10 NON-AGRICULTURE MATERIAL ASSETS

The development comprises of an extension to an existing piggery operation business operating for 20 years. So it would be expected to have no impact on non-agricultural materials assets such as property commercial enterprises.

3.11 NATURAL AND OTHER RESOURCES

Montgomery EHS assessed the impact on natural and other resources in the vicinity of the proposed extension to the proposed piggery operation and any impact on natural resources due to increased capacity from 400 to 600 sows. Overall, the proposed extension and increase in production rate will have some slight negative impacts on natural and other resources. There will be no significant impact on natural resources from the increase in use of raw materials for feeding and heating the additional piggery buildings. Construction materials in required will be brought from nearby sources.

ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL HERITAGE

An assessment of the impact of the piggery buildings construction on architectural, archaeological and cultural heritage was undertaken by Montgomery EHS. No recorded archaeological sites within the proposed development area were identified and therefore no known archaeological remains will be affected by the proposed development. The site of the proposed development is considered to be of low significant archaeological potential.

FIGURES

Figure 1 Region Map

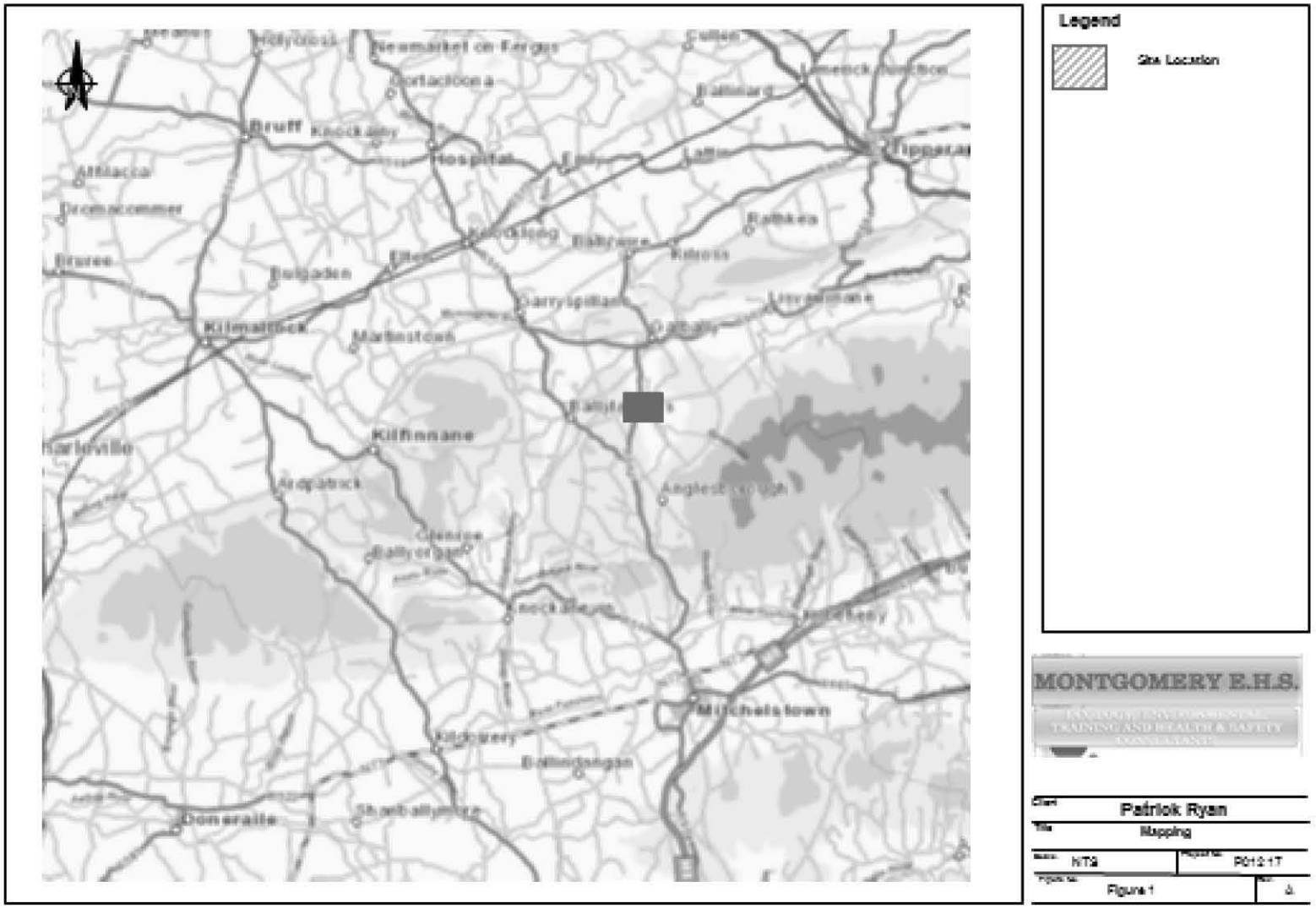
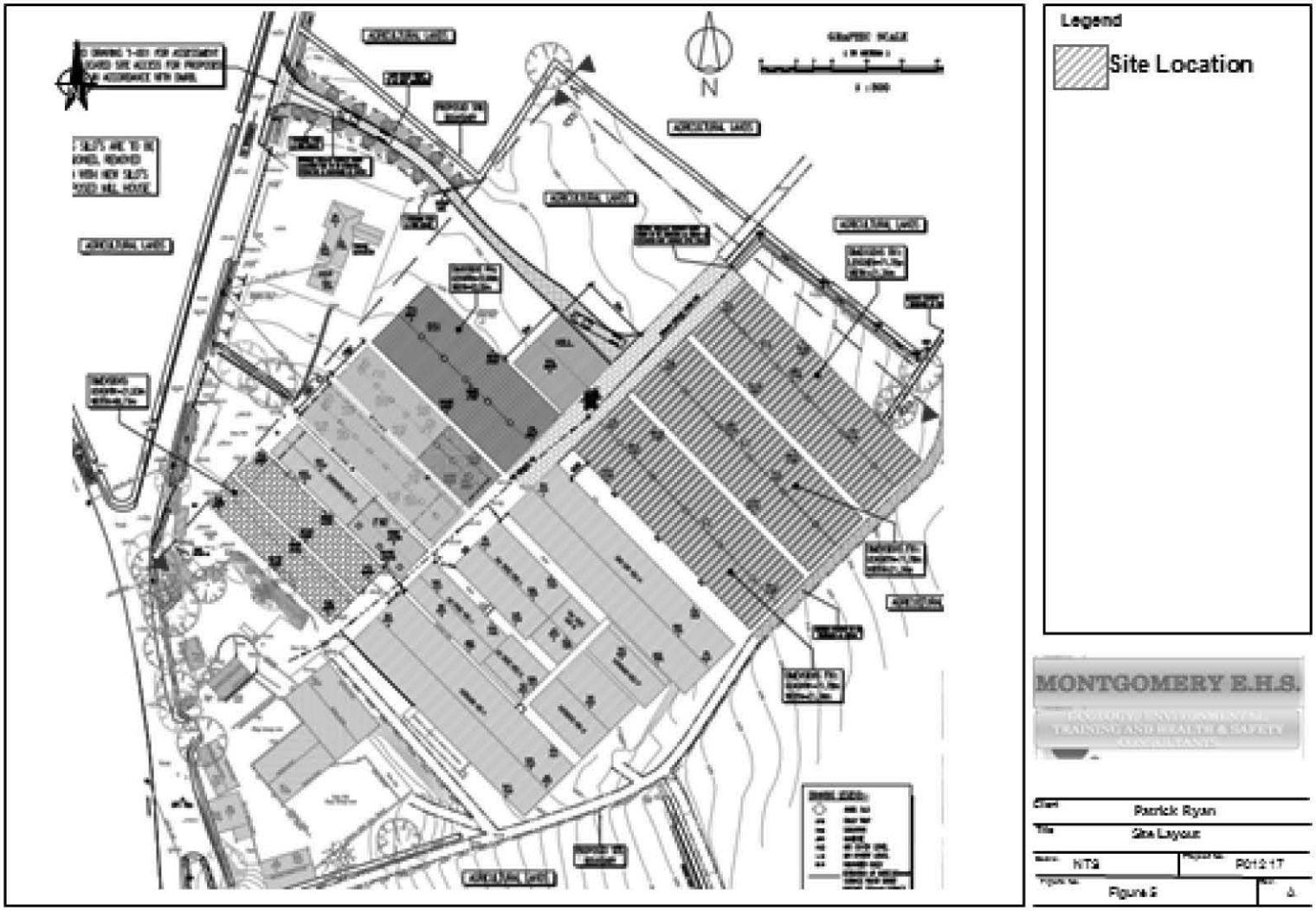


Figure 2 Local Map

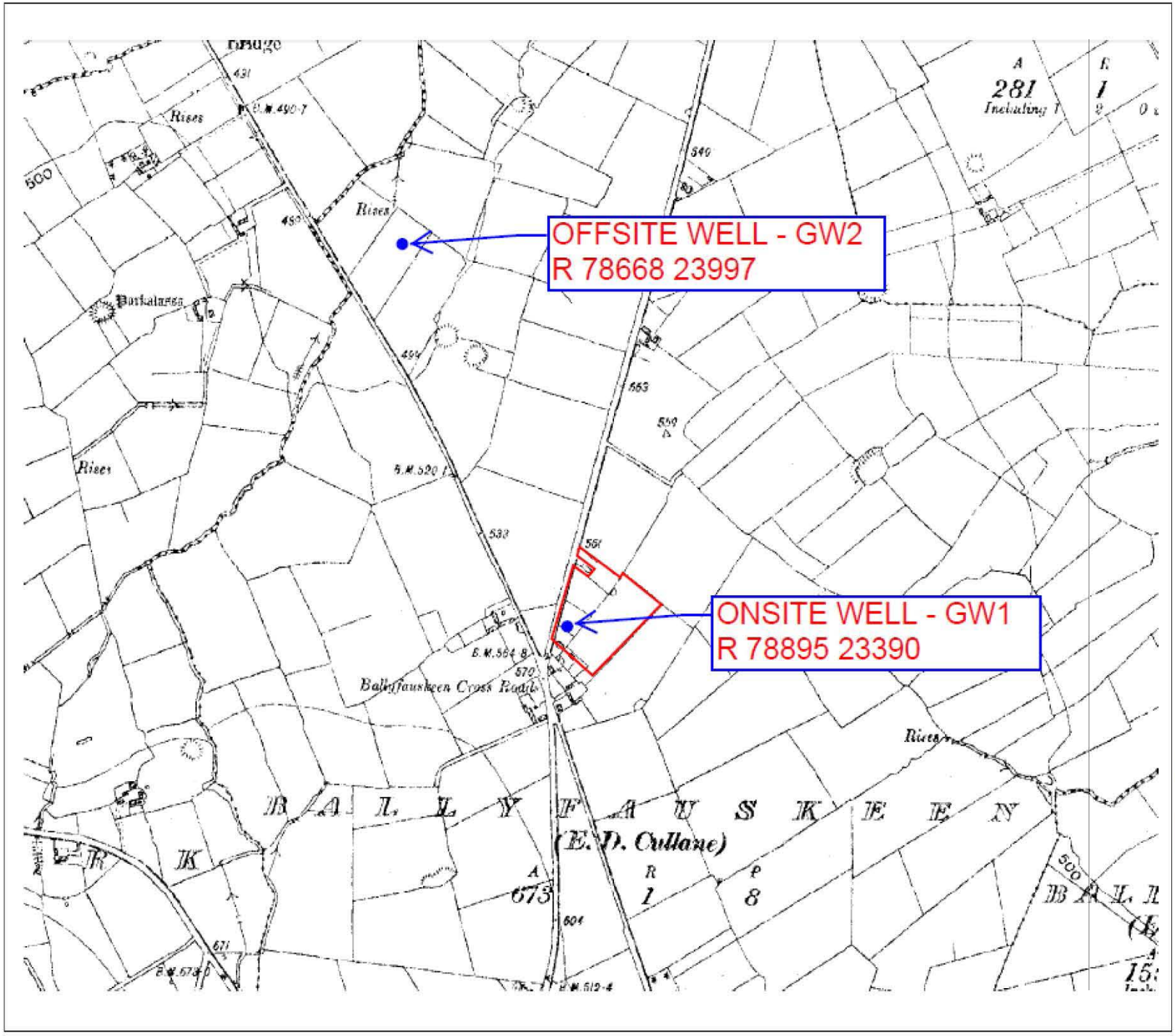
Figure 3 Site Map

Figure 4 Aerial Photography

Figure 5 Site Layout



Attachment 4 Groundwater abstraction wells – Figure 16



Legend

Site Location

Well Location

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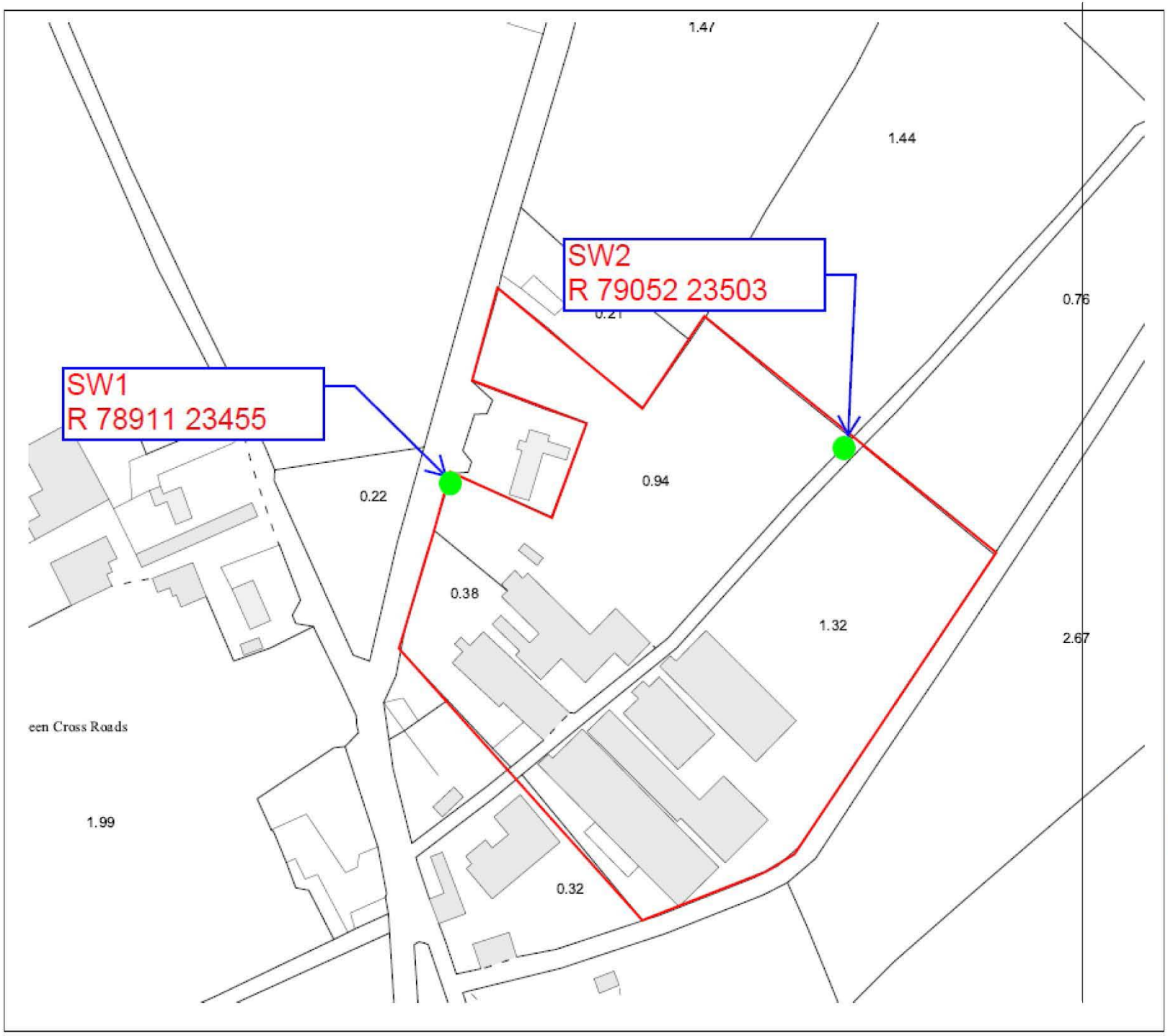
Client	Patrick Ryan
Title	Recorded Monuments
Scale. NTS	Project No. P012 17
Figure No. Figure 16	Rev.

Attachment 5 Surface water sampling points – Figure 17



Legend

Site Location

Surface Water Location

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Client	Patrick Ryan
Title	Surface Water
Scale. NTS	Project No. P012 17
Figure No. Figure 17	Rev.

Attachment 6 – Existing Slurry Storage capacity

Building	**Tank length**	**Tank Width**	**Tank Area**	**Tank Depth**	**Capacity**	**Effective Capacity (m^3)**
	m	**m**	**m^2**	**m**	**m^3**	**with 200 mm freeboard**
Fattening hse no. *a*	23.0	7.3	167.9	0.6	100.7	67.2
Fattening hse no. b	20.5	5.3	108.7	1.8	195.6	173.8
Fattening hse no. c	43.3	5.1	220.8	1.8	397.5	353.3
Farrowing hse no. *d*	12.0	12.0	144.0	0.6	86.4	57.6
Farrowing hse no. *e*	30.5	12.7	387.4	0.9	348.6	271.1
Farrowing hse no. f	14.8	13.0	192.4	0.9	173.2	134.7
Gilt hse no. *g*	18.3	11.8	215.9	0.9	194.3	151.2
Open tank no. *h*	8.7	6.6	57.4	2.5	143.6	132.1
Fattening hse no. *i*	69.2	19.9	1377.1	1.8	2478.7	2203.3
First weaner hse. *j*	30.3	11.0	333.3	0.6	200.0	133.3
First weaner hse no. *k*	15.5	11.2	173.6	0.6	104.2	69.4
2nd stage weaner hse no. *l*	29.4	17.9	526.3	1.2	631.5	526.3
2nd stage weaner hse no. *m*	16.4	11.3	185.3	1.2	222.4	185.3
Dry sow hse no. *n*	46.4	20.6	955.8	1.8	1720.5	1529.3
Fattening hse no. *0*	21.7	21.5	466.6	1.8	839.8	746.5
Fattening hse no. *p*	23.6	10.4	245.4	1.8	441.8	392.7
Total					**8278.7**	**7127.2**

Attachment 7 Site Map

10cm – SCALE WITH CAUTION AS DISTORTION CAN OCCUR

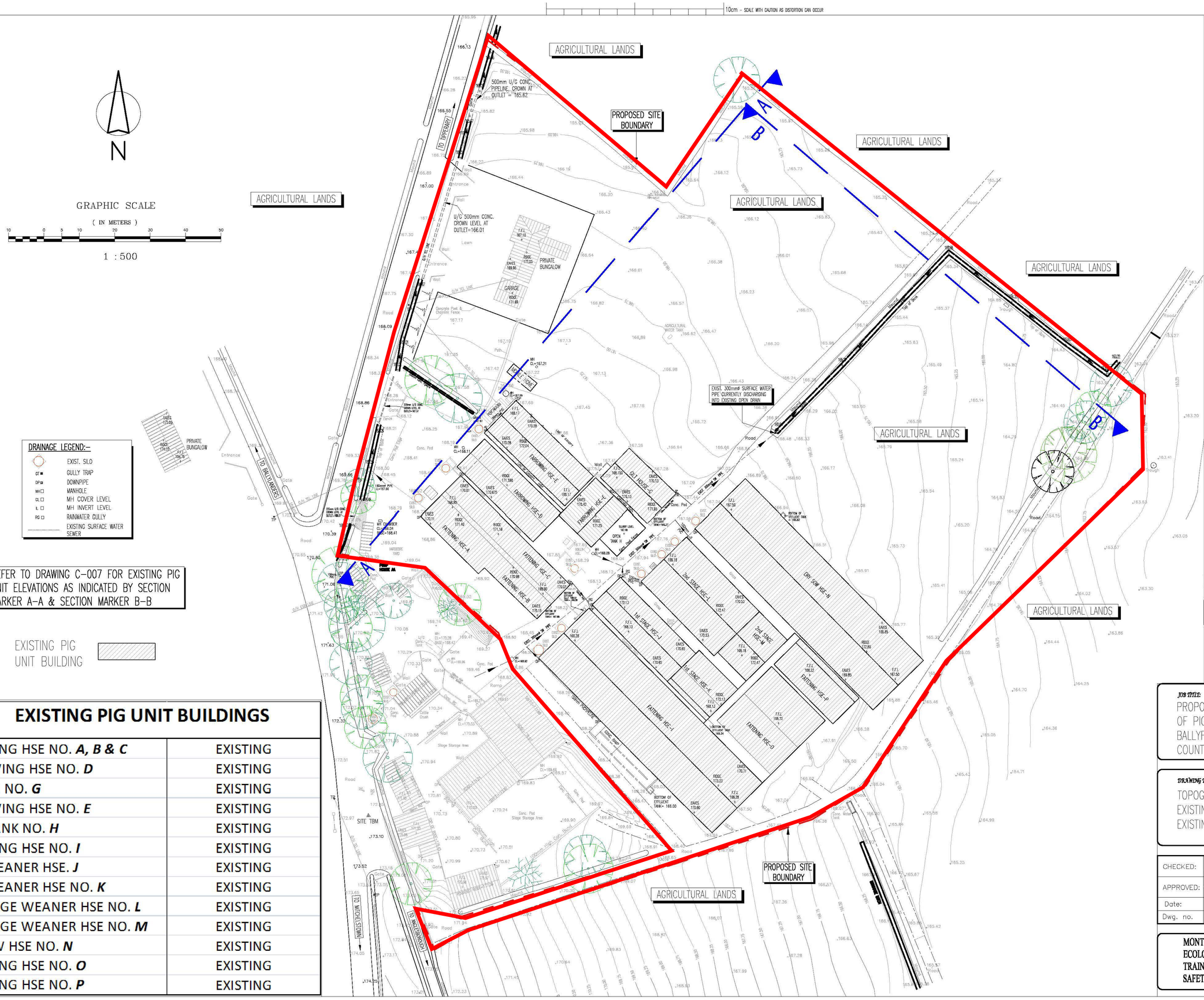
N

GRAPHIC SCALE

(IN METERS)

10 0 5 10 20 30 40 50

1 : 500



DRAINAGE LEGEND:–

- EXIST. SILO
- GULLY TRAP
- DOWNPIPE
- MANHOLE
- MH COVER LEVEL
- MH INVERT LEVEL
- RAINWATER GULLY
- EXISTING SURFACE WATER SEWER

REFER TO DRAWING C–007 FOR EXISTING PIG UNIT ELEVATIONS AS INDICATED BY SECTION MARKER A–A & SECTION MARKER B–B

EXISTING PIG UNIT BUILDING

EXISTING PIG UNIT BUILDINGS

FATTENING HSE NO. ***A, B & C***	EXISTING
FARROWING HSE NO. ***D***	EXISTING
GILT HSE NO. ***G***	EXISTING
FARROWING HSE NO. ***E***	EXISTING
OPEN TANK NO. ***H***	EXISTING
FATTENING HSE NO. ***I***	EXISTING
FIRST WEANER HSE. ***J***	EXISTING
FIRST WEANER HSE NO. ***K***	EXISTING
2ND STAGE WEANER HSE NO. ***L***	EXISTING
2ND STAGE WEANER HSE NO. ***M***	EXISTING
DRY SOW HSE NO. ***N***	EXISTING
FATTENING HSE NO. ***O***	EXISTING
FATTENING HSE NO. ***P***	EXISTING

NOTES

1. ALL LEVELS ARE RELATED TO AN ORDNANCE SURVEY SPOT HEIGHT AT BALLYFAUSKEEN CROSS ROADS, ITS ELEVATION BEING 173.1m RELATIVE TO ORDNANCE DATUM MALIN HEAD.
2. ALL LEVELS ARE RELATED TO A SITE TBM WHICH IS A HILTI–NAIL ITS ELEVATION BEING 172.94m TO ORDNANCE DATUM MALIN HEAD
3. ALL LEVELS ARE IN METRES, UNLESS OTHERWISE STATED.
4. CONTOURS ARE AT .25M INTERVALS.
5. TOPOGRAPHICAL SITE SURVEY IS TO IRISH NATIONAL GRID (ING) CO–ORDINATE REFERENCE SYSTEM CARRIED OUT BY OTHERS.

Rev.	Date	By	Description	Chd. By
PL1	28/02/12	FF	PLANNING	

DRAWING STATUS:

PLANNING.

JOB TITLE:

PROPOSED PHASED RE–DEVELOPMENT OF PIG UNIT, BALLYFUSKEEN, BALLYLANDERS, COUNTY LIMERICK.

DRAWING TITLE:

TOPOGRAPHICAL SITE SURVEY OF EXISTING PIG UNIT LAYOUT & EXISTING SITE SERVICES.

CHECKED:	*J. Fitzgerald* MIEI, ICIOB, Post Grad Dip, BSc (Hons), BEng, HC, Nat Cert, Civil Eng. Cons.		
APPROVED:	*Trevor Montgomery* Post Grad Dip, Bsc, Dip Mgmt, Dip Poll Ass & C, E.H.S Cons.		
Date:	29/02/12	Scale:	AS SHOWN.
Dwg. no.	C–001.		

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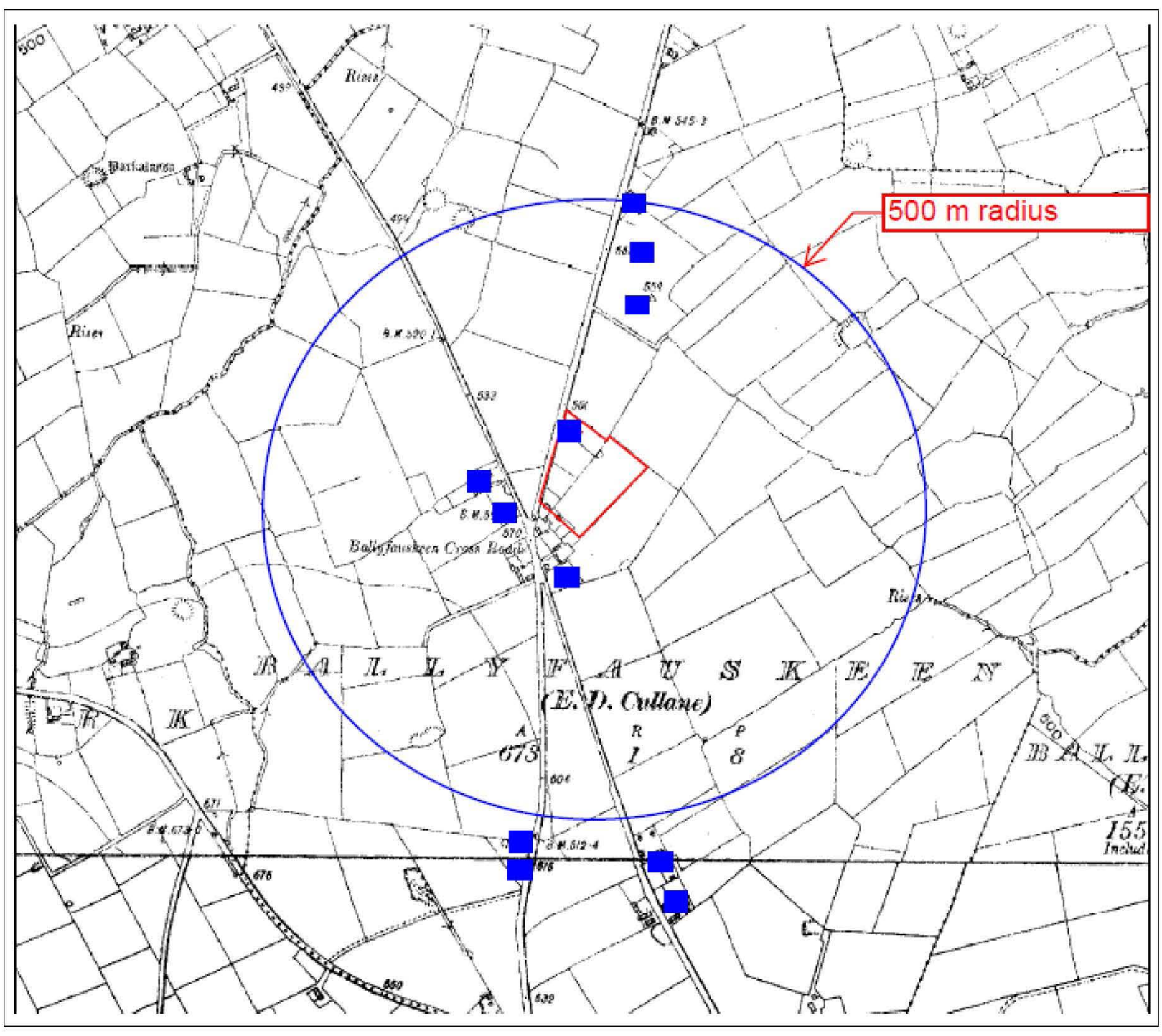
N W E S

Attachment 8 Odour Management Plan



Legend

- Site Location
- Neighboring Residences

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Client	Patrick Ryan
Title	Neighbouring Residences
Scale.	NTS
Project No.	P012 17
Figure No.	Figure 18
Rev.	

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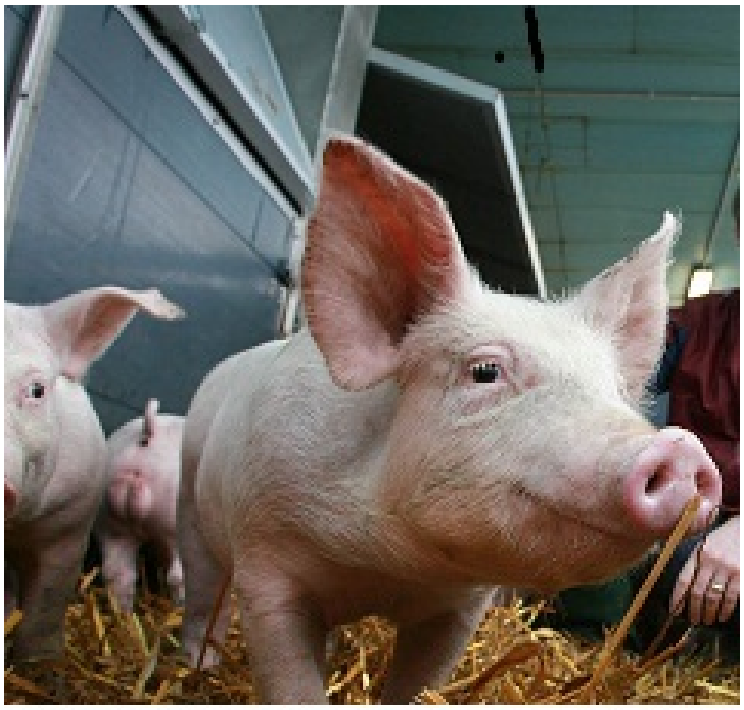

Odour Management Plan

Submitted to Limerick County Council in respect of

Proposed Expansion of Piggery Operation of Patrick Ryan, Ballyfaskin Enterprises Ltd, Ballyfaskin, Ballylanders, Co. Limerick

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PATRICK RYAN

ODOUR MANAGEMENT PLAN

This document has been prepared on behalf of and for the exclusive use of Patrick Ryan by Montgomery EHS on the basis of an agreed specification for submission to Limerick County Council as part of the EIS process.

Conclusions and recommendations contained in this Document are based on information supplied by the Client and others. Unless expressly stated otherwise, information provided by Third Parties has not been verified by Montgomery EHS.

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1.0 Introduction

This Odour Management Plan outlines the methods by which Patrick Ryan will systematically assess, reduce and prevent potentially odorous emissions from the proposed piggery operation at Ballyfaskin, Ballylanders, Co. Limerick.

The Odour Management Plan will serve to aid the decision-making process on the choice of controls, general site design, and operational practice in line with current industry best practice. The odour management plan is a working document with the specific aim of ensuring that:

- Odour is considered as part of routine inspections;
- The risk of unplanned odour releasing incidents or accidents that could result in annoyance is minimised;
- Odour is primarily controlled at source by good operational practices, the correct use and maintenance of plant, and operator training; and
- All appropriate measures are taken to prevent or, where that is not reasonably practicable, to minimise odorous emissions to air from the installation that may be considered offensive at locations outside of the installation boundary. The methodologies presented take account of Environment Agency (EA) guidance documentation, as detailed below:
    - Environment Agency Technical Guidance Note H4 – Odour Management

This Odour Management Plan addresses the impact of odour release and the control measures employed to mitigate the risk. These are supported through monitoring procedures to identify both elevated levels and review complaints should they arise. The complaints management procedure including the management responsibilities are also addressed

This document outlines the methods by which Patrick Ryan will systematically assess, reduce and where possible prevent potentially odorous emissions from his proposed piggery operation.

1.1 The Applicant

The Ryan family has been operating piggery operations on a continuous basis since the early 1990's in the area. The proposed site increases the number of sows that the site will produce on a 16 to 24 week cycle.

1.2 What standards of odour control are expected?

1.2.1 What standard of control are we aiming for?

In the case of odour, pollution is considered in terms of causing offence to the sense of smell, i.e. causing annoyance to people who live in the area or are there for some other reason, through exposure to odour.

The point at which `pollution' in the form of offence to the sense of smell is occurring, it is taken to be the point at which there is `reasonable cause for annoyance'.
The aim of the legislation is to achieve `no reasonable cause for annoyance' by persons beyond the boundary of the installation, i.e. sensitive receptors, as far as is possible using Best Available Techniques.

1.2.2 Who are sensitive receptors?

Sensitive receptors are primarily people in dwellings, hospitals, schools and similar premises, but can include people frequenting open spaces, for example, parkland. The person in control of the installation would not normally be considered to be a sensitive receptor. Persons who live in close proximity in tied housing may be sensitive receptors (consider the families of the farm workers). If such properties are rented to people who do not work on the farm, the tenants are likely to be sensitive receptors, even if they rent with the knowledge that there is an odour source nearby, or recognise that odour is a feature of the rural environment.
In any particular situation however, the interpretation of the courts will be the decisive factor.

1.2.3 What is `no reasonable cause for annoyance'?

The amount of annoyance should not be assessed only by means of the number of complaints. You should still use best practice to keep odour levels as low as reasonably possible where people live close by, even if complaints are rarely received.

The legislation requires that the amount that you spend on taking measures to reduce odour should be in proportion to the annoyance caused or potential to cause annoyance. Good practice should be adhered to at all times by all installations, but if a large number of complaints are received, or the installation is close to a built up area then you may have to expend more effort to reduce odour. BAT covers management techniques (i.e. Best Practice), as well as hardware, to control odour.

1.2.4 Standards for new installations

Patrick Ryan plans to employ BAT from the outset and this will include:

- Watering systems
- Feeding system
- Covered water storage tanks
- Feed Storage systems
- Litter storage
- Storage of carcases
- System for unloading and loading of pigs

1.2.5 Complaints

Odour complaints relating to an installation may be received directly by the Local Authority. The Local Authority will investigate the complaint and if there is found to be a breach of the planning conditions, a notice may be served, requiring the operator to address the issues or proceedings may be instigated.

1.2.6 Overarching Management Responsibility

Patrick Ryan (or Deputy) will have responsibility for ensuring that nuisances and hazards arising from the Piggery buildings due to odour are minimised. During operation of the site, meetings will be held as required and at minimum quarterly intervals for site management to discuss current and planned site operations with respect to their potential for generating odorous site emissions. Identified actions arising from the meetings and responsibilities for their completion will be recorded within the meeting minutes.

In promoting proactive management of the risks arising at the site, during active disposal of litter, Mr Ryan will obtain from recognised sources a three day forecast of meteorological conditions at the site at the start of each working week and then again in the middle of each working week. Details of the forecasted conditions will be assessed against proposed activities for the period of forecast and management/monitoring actions appropriate as required. Key data to assist Mr Ryan will be the assessment of wind speed, wind direction and potential pressure falls.

1.2.6 Temporary Odorous Activities

On occasion it is necessary to undertake temporary actions that are likely to cause potentially significant odorous emissions (e.g. storage of litter outside), Mr Ryan will contact the Local Authority and other interested parties before such actions are taken to advise them of the operation being undertaken and that any odour will be of a temporary nature. Where practicable, such actions should only proceed when the prevailing wind direction is away from sensitive receptors and appropriate odour control measures will be implemented in accordance with the Odour Management Plan.

2.0 Management of odour

2.1 General aspects of odour management

2.1.1 Overview

An Odour Management Plan gives an overview of the principles for odour reduction and containment as they relate to Mr Ryan proposed piggery operation. The piggery operation by nature means that preventing odour generation at source is rarely possible as animals are inherently odorous. However, there are many things that can be done, often at low cost, to minimise odour or to prevent it reaching neighbours.

In most cases, attention to housekeeping and good operational practices should be capable of achieving a significant reduction in the level of exposure experienced at sensitive receptors.

When the piggery operation has implemented all reasonable measures and it has not succeeded in reducing emissions to the point where the exposure of sensitive receptors (local residents) is unacceptable then the next stage of abatement technology will be considered. This will require odorous air from the piggery operation to be contained at source and extracted to an abatement system with minimum fugitive losses. Bio-filters or absorption `scrubber' systems (chemical or biological) are the most technically viable due to cost and ease of operation. The implementation of ‘bio-filters or scrubber treatment systems is considerably more expensive.

2.1.2 Using location/siting as a means of odour control

The location of the proposed development was selected to move the east of the existing piggery operation and away from the residential dwelling.

2.1.3 Complaints procedure

A procedure will be established for verifying and responding to complaints about odour as part of the site operation.
The establishment of a procedure covering complaints can:

- improve relationships with neighbours;
- Identify sources of odour and prevent future problems.

The procedure will include a response within 48 hours of receipt of a complaint, including a discussion with an explanation to the complainant.

2.2 Sources of odour

2.2.1 Livestock housing

Odour emission rates from pig houses depend upon the odour concentration within the building and the ventilation rate to the outside atmosphere. Internal odour concentrations depend upon many factors including the number of animals housed, building design and management, methods of provision of feed and drinking water, age of the animals and manure management techniques. The minimisation of odour production is addressed by Defra in Section 4 of its Code of Good Agricultural Practice (Defra, 2009).

The existing pig buildings and the proposed pig buildings are, or would be, ventilated via high speed ridge mounted fans, each with a short chimney. This method of exhaust air treatment produces improved air dispersion, especially under low wind speed conditions. Slurry is stored under slats within the houses and fugitive emissions from the housing can be expected to be minimal because of the extraction ventilation systems. Therefore, the ridge mounted chimneys would be the primary source of odour from the site.

Based upon many years of research and measurement, ADAS, in conjunction with the Silsoe Research Institute and the UK Met Office, has developed an emission ‘blueprint’ which covers odour emissions from a wide range of agricultural sources, including pig farms. Odour emissions can vary seasonally,

diurnally and throughout the growing cycle and are also affected by feeding and drinking systems and slurry and manure storage methods. These factors have been taken into account in the estimation of emissions.

The odour associated with Piggery growing tends to be related to ammonia. Hydrogen sulphide can also be present. High ammonia concentrations usually accompany high odour concentrations in pig buildings where litter is in poor condition (too wet). The presence of high ammonia is only a part of the overall odour issues.

2.2.2 Dust

An important mechanism in the release to atmosphere of odour may be the presence and subsequent emission via the ventilation system of suspended dust particles originating from bedding, feed and the pig. Odorous compounds may be adsorbed onto these particles and the particles themselves may decompose releasing volatile compounds.

2.2.3 Factors affecting the release of odour

The level of odour emissions from intensive livestock installations is dependent on a number of factors, principally:

- size of operation;
- the type of building/ventilation;
- type of operation and the rearing cycle;
- the feeding regime;
- the way in which the operation is managed;
- storage arrangements for wash water and litter;
- Land spreading practices.

The impact of those emissions on the local environment depends upon:

- proximity to local housing and other sensitive receptors;
- The nature of the local topography and prevalent weather conditions.

2.3 Aspects of odour management common to all operations

2.3.1 Selection and use of animal feed

Below gives a guide on the selection and use of piggery feeds at different stages in the rearing cycle in order to reduce nitrogen excretion. A high protein diet increases the nitrogen and sulphur content of litter, contributing to emissions of ammonia to air and potentially other odorous compounds when the litter undergoes anaerobic degradation.

The feed systems available now are significantly improved compared to the feeder installed in the existing houses at other facilities in the area.

2.3.2 Feed delivery, milling and preparation

Good housekeeping measures include:

- avoiding accumulation of waste feed;
- cleaning up spills;
- Avoiding overflow and spillage from feed and drinking systems.

The addition of odorous by-products such as whey and fish meal to feed will not be used by Mr Ryan's proposed piggery operation as these may increase the odour level of the feed (and accumulated spillages will smell more).

Mr Ryan's proposed operation avoids the purchase of finely ground feeds and long feed drops onto floors should be avoided because they increase dust emissions. As odours may be absorbed onto particulate matter and then carried out of the building via the ventilation system.

Odours arising from storage of feed is minimised by employing purpose built silos.

The delivery of the feed to the storage areas and from the storage container to the feeding station is through a closed system to minimise the generation of dust.

The piggery operation will conduct the mixing and milling of dry foodstuffs.

2.3.3 Disposal of carcasses

Carcasses will be removed frequently by a licensed contractor on at least a weekly basis to prevent odour-related annoyance and be covered to prevent access by birds or rodents using plastic bags or lidded bins where possible.

The Animal By-Products legislation specifies the requirements for carcass disposal and Ward Waste are licensed by the Department of Agricultural. The carcasses are delivered to a rendering plant for rendering.

2.3.4 Ventilation and humidity

Ventilation rates are determined by the needs of the animals and vary with season. Mr Ryan's proposed piggery will be naturally ventilated odour will be carried out of the houses with exhausted air and the exhaust rate will be highest when the outside temperature is high. This generally occurs in the summer months when the potential to cause odour annoyance is highest.

Ventilation systems should be run at the optimum rate for the number of animals present. Insufficient ventilation capacity can lead to excessively high room temperatures which increase wash water and litter decay rates and hence odour emissions.

2.3.5 Atmospheric dispersion of odours

Once odorous emissions leave the source they undergo dilution and dispersion in the atmosphere downwind of the installation. Where odours are released at height, they are likely to be more effectively dispersed than those released at a low level or, inadvertently, from open doors.

The design of ventilation systems is a specialist field but in general terms roof (apex) vents produce better dispersion of odorous releases than those positioned along the side of buildings (side wall vents).

Mr Ryan after each batch will ensure that dust deposits around the ventilation discharge points are cleared away on a regular basis to prevent excessive build-up.

2.3.6 Slurry management to prevent stagnation

In any process or operation stagnant slurry can be a source of odour. The following measures can help to ensure that dirty water (water contaminated by livestock excreta) is disposed of quickly and unintentional areas where water could accumulate and stagnate are minimised:

- Fit kerbs to concrete aprons to direct dirty water into collection tanks;
- Enclosing slurry collection systems;
- Emptying and cleaning slurry collection systems to avoid allowing anaerobic conditions to develop in settled sludge;
- Maintaining drains and concrete areas;
- Dealing quickly with dirty water generated when buildings are cleaned out at the end of the cycle.

2.4 Odour management in piggery rearing

2.4.1 Odours from piggery housing

Odours from piggery buildings come from a number of sources. They are mainly caused by the breakdown of droppings and litter. Other sources of odour are from animal feed and waste food spilt onto floors. A major means of minimising

odour emissions is through the use of good agricultural practice. Odour mitigation methods will be similar for all different piggery operations.

The UK Defra Code of Good Agricultural Practice for the Protection of Air advises that the following factors contribute to the emission of odours from piggery buildings:

- Build-up of Litter on concrete around buildings;
- Removal and disposal of dead animals;
- Drain maintenance;
- Bedding cleanliness;
- Management of drinking systems, with particular emphasis on frequently adjusting nipple and drip cups to pig eye level to avoid spillage and wet litter;
- Stocking density;
- Litter moisture content;
- Insulation of the buildings and the long term maintenance of that insulation;
- Ventilation and heating system;
- Type of heating;
- Composition of the feed, particularly its oil and fat content and its protein content.

Mr Ryan's proposed piggery operation will be a well-run operation with good housekeeping practices as listed above. There are many improvements in the feed and watering systems available for piggery operation since first built in the limerick area in the 1980's and 1990's. The proposed buildings will have installed new and improved feed and water systems.

2.4.2 Minimising odour arising from animals and the piggery buildings

Odour from litter and manure based systems may be minimised by increasing the dry matter content of the litter or manure, by both preventing spillages of water and providing a drying mechanism. New buildings should be able to meet this criterion.

2.4.2.1 Dust

Dust emissions may be a problem particularly for larger pigs. Odorous compounds may be adsorbed onto dust particles and the particles themselves may decompose releasing volatile compounds. It is therefore important to:

- Control the generation of dust within the house through management of slurry content and air quality.
- Minimise the amount of dust emitted from buildings.
- Ensure dust deposits around ventilation discharge points are cleared following the empting of each batch to prevent excessive build up. Minimising dust production through good housekeeping and animal husbandry would be cost effective, in addition to the obvious welfare benefits.
- Collect the water discharging from cleaning operations in sealed tanks.

The odour emission from a building can be dependent on particulate emission. Data published by Van Geelen suggests that removing the dust fraction from an odorous stream reduces the odour concentration by about 65%.

2.4.2.2 Litter quality

Litter quality is affected by:

- Temperature and ventilation;
- Drinker type and management;
- Feeder type and management;
- Litter material and depth;
- Condensation;
- Stocking density;
- Feed formulation and quality;
- Pig health.

The proposed house will have systems to minimise ventilation and heating requirements. The new houses ventilation will be designed to remove air moisture and thereby improving litter quality.

2.4.2.3 Drinking systems

The management of drinking systems should ensure that all litter is kept dry i.e. moisture content is less than 40%. Mr Ryan will check the operation of his proposed pig buildings on a daily basis, this includes water systems should be checked for leaks and action taken as necessary. The drinking system in the proposed houses will be new and modern in design and these system will include nipple drinkers and drip cups (operate on demand) should be used in preference to bell drinkers (always full of water) and they should be sited at the correct height to minimise spillage.

2.5 Odour and Slurry management

2.5.1 Wash water and Litter handling

Slurry handling and storage can be significant sources of odour. At Mr Ryan's proposed piggery operation every effort will be taken to reduce odour from slurry as these sources can have a substantial positive effect on the overall odour impact of the installation on local receptors. In particular, anaerobic conditions can lead to the formation of high concentrations of odorous substances within the litter which will be released during `bubbling off or when it is disturbed. The need to keep the litter dry as discussed is critical to minimising odour generating potential.

The proposed operation aims to check access area and other set-down areas kept free of wash water or litter. Minimising the surface area of material exposed will reduce the odour emission.

2.5.2 Wash water and Litter storage

When the proposed piggery operation are emptied every effort will be made to clean the houses out to the best possible condition prior to washing. This reduces the slurry nutrient and organic load. The slurry storage tanks are covered and applied on to lands off-site and covered by a nutrient management plan.

Covering or enclosing slurry storage tanks will stop or significantly reduce odour escaping to atmosphere.

Slurry or litter removed from the buildings at the end of the production cycle should be stored to avoid odour generation. The storage area should be stored away from residential areas. In Mr Ryan's proposed piggery operation the sluury will be removed and placed in a tanker for off-site recovery of the nutrient content. This avoids odours from storage of the slurry and associated issues such as runoff, dust, etc.

2.5.3 Treatment of litter and slurry

There will be no treatment of litter at Mr Ryan's proposed piggery farm and all litter will be loaded into appropriate containers.

Slurry will be applied to lands off-site without further treatment

2.6 Slurry Application to land

Odours released from animal manure spreading activities are one of the most frequent sources of odour complaint to Local Authorities. The slurry from Mr Ryan's piggery farm is low in odour as the cleaning of the piggery buildings ensures that this is maintained.

3.0 Monitoring

3.1 Monitoring Controls

The monitoring of temperature in the proposed piggery buildings will ensure that the slurry / litter prodres as little odour as possible. In addition monitoring of feed and water systems on a daily basis is critical.

3.2 Monitoring Odorous Releases

3.2.1 Olfactory Monitoring

Odour shall be monitored daily at points around the site boundary and the surrounding locality (when necessary). Locations selected for offsite monitoring are based on the prevailing wind direction (i.e. upwind and downwind locations).

At each location observations shall be made concerning odour intensity, persistence and character. Surveys shall be carried out in accordance with the monitoring protocol contained within the EPA Air guidance Note AG 5. Details will be logged following the instruction provided in the form (see Appendix A).

The odour assessor may not be subject to significant compost odour in the 30 minutes prior to the assessment and shall be compliant with the requirements laid down in the Olfactory Survey procedure. This is to ensure that monitors are not suffering from odour fatigue and will be sensitive to piggery odours.

Wherever possible, odour assessor will be chosen from office or home based employees that are unlikely to suffer from adaptation to odour. Adaptation to odour process whereby a person gets used to (adapts to) an odour and so may be unable to detect an odour. All staff responsible for assessing odour will receive appropriate and adequate training from the site management on the odour inspection procedure. Each assessor carrying out odour assessments will be initially accompanied by a more experienced member of site management to ensure that the nature and offensiveness of any odours detected are being perceived similarly.

Assessor will be instructed to avoid strong food or drinks for at least one hour beforehand and those members of staff who have a cold, sore throat or sinusitis will not be used to carry out odour assessments.

3.3 Monitoring Pathways

3.3.1 Meteorological Conditions

Weather forecasts would be monitored (e.g. web based services) to enable potential contingency actions to be implemented.

The site will be equipped with a basic weather station providing logging of wind speed and direction to help the management of the site in accordance with local weather conditions.

Monitoring Requirements

- Rainfall
- Pressure
- Temperature
- Humidity
- Wind speed and
- Wind direction

All recorded continuously

3.4 Monitoring Impacts

Monitoring of impacts shall be achieved by recording and monitoring complaints. Complaints may be reported directly to site or via Local Authority or the EPA (24hr complaint reporting system).

Complaints records shall include:

- Date & time,
- Nature of complaint,
- Locality of complaint,
- Name of complainant (if available),
- A summary of investigation, actions taken and outcome.

3.5 Record Keeping

In addition to record keeping of piggery operation as required by planning permission, IPPC License and good practice, daily records shall be maintained and include the following details:-

- Results of inspections and olfactory monitoring carried out by site personnel;
- Weather conditions including wind speed and wind direction;
- Operational problems including date, time, duration, prevailing weather conditions and cause of problem;
- Complaints received including address of complainant (if available); and
- Details of corrective action taken and any subsequent changes to operational procedures.

4.0 Management Responsibilities and Review

The control of odour will be managed according to good practice.

It will be the responsibility of Mr Ryan (or designated responsible person) to ensure that the operation procedure and practices is adhered to at the site. This includes ensuring that the odour control measures detailed in above.

Mr Ryan(or designated responsible person) will be supported by an external consultant, Bord Bia Inspector, Local Authority personnel, etc. The Compliance Manager is responsible for

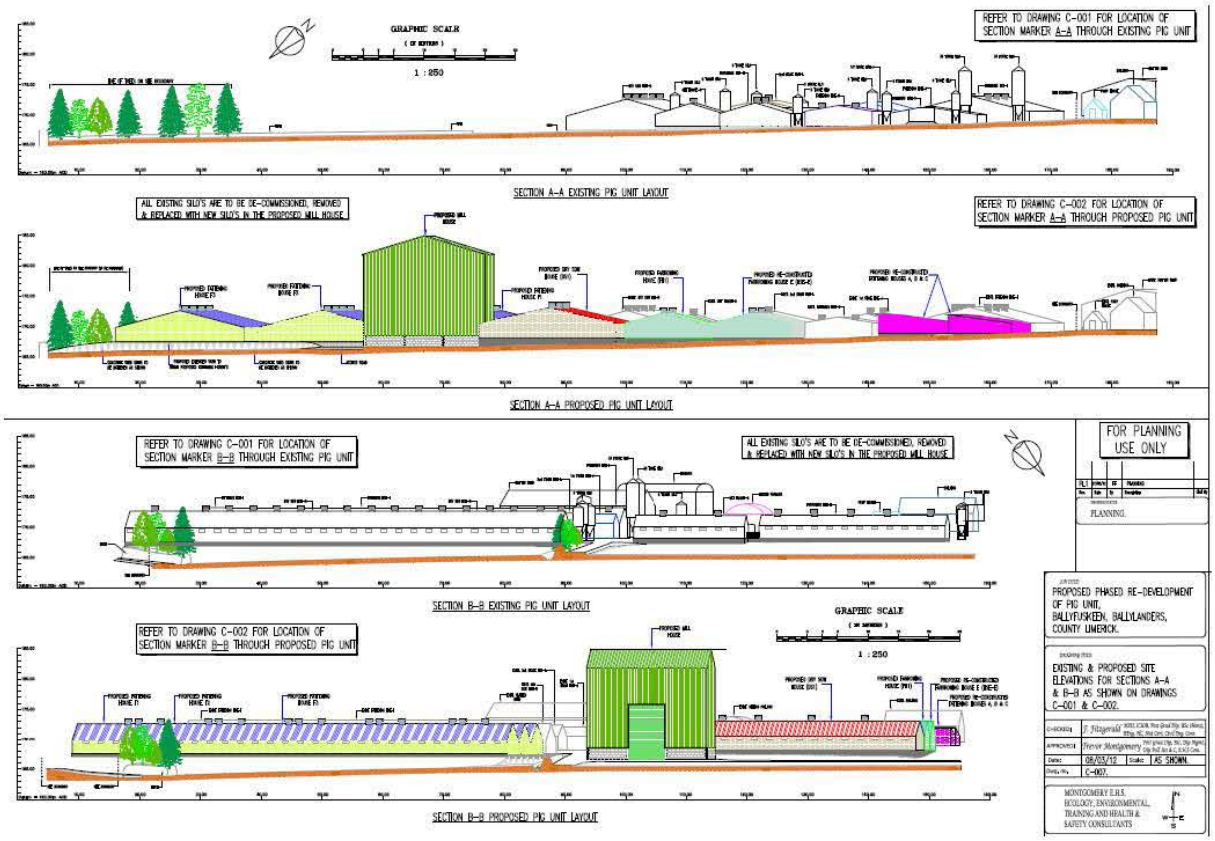
monitoring, auditing and evaluation of site performance, which will include ensuring good compliance.

Odour control measures will be reviewed through internal audits as part of the monitoring and reporting of the operation procedures.

5.0 Figures

Figure 1 – Patrick Ryan's proposed piggery operation

Figure 2 – Patrick Ryan's proposed piggery operation



6.0 Odour Sources and Actions Taken to Minimise Odours

Odour Related Issue	Potential Risks and Problems	Actions taken to minimise odour and odour risks at Poultry Farm
Manufacture and selection of feed	• Milling and mixing of compound feeds. • The use of poor quality and odorous ingredients. • Feeds which are 'unbalanced' in nutrients, leading to increased excretion and litter moisture and emissions of ammonia and other odorous compounds to air.	• No on-site milling and mixing. • Feed specifications are prepared by the feed compounder's nutrition specialist. • Feed is supplied only from accredited feed mills, so that only approved raw materials are used.
Feed delivery and storage	• Spillage of feed during delivery and storage. • Creation of dust during feed delivery.	• Feed delivery systems are sealed to minimise atmospheric dust. • Any spillage of feed around the bin is immediately swept up. • The condition of feed bins is checked frequently so that any damage or leaks can be identified.
Ventilation system	• Inadequate air movement in the house, leading to high humidity and wet litter. • Inadequate system design, causing poor dispersal of odours.	• The ventilation system is regularly adjusted according to the age and requirements of the flock. • The ventilation system is designed to efficiently remove moisture from the house.

Odour Related Issue	Potential Risks and Problems	Actions taken to minimise odour and odour risks at Poultry Farm
Litter management	• Odours arising from wet litter (see above). • The use of insufficient or poor quality litter. • Spillage of water from drinking systems. • Disease outbreaks, leading to wet litter.	• Controls on feed and ventilation (see above) help to maintain litter quality. Additional controls include:- • Use of nipple drinking systems which minimise spillage. • Insulated walls and ceilings to prevent condensation. • Concrete floors to prevent water ingress. • Stocking density at optimal levels to prevent overcrowding. • Use of a health plan, with specialist veterinary input used as necessary.
Carcass disposal	• Inadequate storage of carcasses on site. • On-site disposal of carcasses by incineration.	• Carcasses are placed in sealed containers immediately after they are removed form the house. • Use of a purpose-designed incinerator which is approved by Animal Health.
House Clean Out	• Creation of dust associated with litter removal from houses. • Use of odorous products to clean houses.	• Litter is carefully placed into trailers positioned at the entrance to each house. When full, the trailer is covered. • Only approved and suitable products are used.
Used litter	• Storage of used litter on site. • Transport of litter and applications to land.	• There is no storage of used litter outside the houses at any time. • Litter is transported in covered trailers. • Most of the litter is used for power generation, any which is land-spread is under the control of a separate farming business. A written agreement is in place.
Dirty water management	• 'Standing' dirty water during the production cycle or at clean out. • Applications of dirty water to land.	• Areas around the house are concreted and remain clean during the production cycle. • At clean-out, dirty water is directed to underground tanks for storage. It is then spread onto land, under the control of a separate farming business. A written agreement is in place.

7.0 References

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International Environmental Symposium, May 29 - 31, pp170-178 in Environment Agency R&D Technical Report P4-079/TR/2 Best Available Techniques for Assessment and Control
of Odour pp. 202-213.

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Scottish Executive - Code of Practice on Assessment and Control of Odour Nuisance from Waste Water Treatment Works, April 2005.

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Verein Deutscher Inegieure (VDI) 3940 – PART 2 Measurement of Odour Impact by Field Inspection – Measurement of the Impact Frequency of Recognisable Odours Plume Measurement, February 2006.

Appendix 1 Odour Investigation Field Record Sheet

General	Your Reference	Site Licence No.	Assessment by	Date of Assessment
			Your name: (other Investigator(s) present):	

Pre-Assessment Preparation	Observer is free from medical conditions (cold, sore throat, sinus trouble)?	Observer abstinence (30 min) from smoking, flavoured drinks, scented toiletries and deodorisers?	Reason for odour assessment – Complaint verification; routine; other (specify).	Map – Has a map showing assessment locations been attached?	Weather Conditions Note 3 (record wind info on page 2):
	Yes No	Yes No		Yes No	

Notes (the ranking systems in these notes must be used when completing the field observations table overleaf)

Note 1: Observation point Sensitivity (assuming detectable, if not then 0)

1 Remote (no housing, commercial/industrial premises or public area within 500m of observation point)
2 Low sensitivity (no housing, commercial/industrial premises or public area within 100m of observation point)
3 Moderate sensitivity (housing commercial/industrial premises or public area within 100m of observation point)
4 High sensitivity (housing, commercial/industrial premises or public area within area of observation point)
5 Extra sensitive (complaints arising from residents, business and users of public areas within area of observation point)

Note 2: Wind Strength

0	Calm	Smoke rises vertically
1	Light air	Direction of wind shown by smoke drift, but not wind vanes
2	Light Breeze	Wind felt on face; leaves rustle, ordinary vane moved by wind
3	Gentle Breeze	Leaves and small twigs in constant motion
4	Moderate Breeze	Raises dust and loose paper; small branches are moved
5	Fresh Breeze	Small trees in leaf begin to sway
6	Strong Breeze	Large branches in motion; umbrellas used with difficulty against the wind
7	Near Gale	Whole trees in motion; inconvenience felt when walking against wind
8	Gale	Twigs break off trees; progress generally impeded
9	Strong Gale	Slight structural damage occurs (chimney pots and slates removed)

Note 3: Weather Conditions

Precipitation – dry, rained recently, drizzle, raining, foggy
Temperature – cold, cool, warm, hot

Note 4: Odour Persistence

0 No Odour
1 Intermittent (detected intermittently during the period of assessment)
2 Persistent (detected throughout the period of assessment)

Note 5: Odour Intensity

0 No Detectable Odour
1 Faint Odour (barely detectable, need to stand still and inhale facing into wind)
2 Moderate Odour (easily detectable while walking and breathing normally, possibly offensive)
3 Strong Odour (bearable but offensive – might make clothes / hair smell?)
4 Very Strong Odour (unbearable, difficult to remain in area affected by odour)

Odour Source Investigation (Post Odour Survey)	Start Time:	Do any of the odours experienced on-site match in character those recorded during the off-site survey?	List areas Inspected:	What relevant activities were occurring on-site during the off-site odour assessment?
	Finish Time:	Potential on-site odour sources identified:		

	Observer Location		Wind (nd = if not detectable)			Time		Odour Rating		Odour Description Comments
Parameter	Name of household / commercial site (describe so that location can be easily identified again by a third party)	Sensitivity (1-5) Note 1	Direction from which wind blows	Orientation (Observer Vs facility)	Strength Note 2	Start Time (24hr clock)	Period of observation	Odour Persistence (0-2) Note 4	Odour Intensity (0-4) Note 5	Description of any odours, other source(s) of odours etc, (Also note variable weather conditions etc)
Thresholds that could indicate nuisance	---	≥ 3	---	Down-Wind Approx DW or not detectable etc	---	---	---	1 or 2	≥ 2	**Guide-** A location where the score meets or exceeds all the threshold values may be deemed subject to nuisance/significant impairment, particularly if the observations are supported by public complaints on impact, frequency and duration of odours.
Field observations										
Brief details of any meeting with local residents/complaints received during assessment (include names/addresses/telephone numbers etc):										