Planning and Environmental Consultants

Ecological Impact Assessment

Proposed Housing Development at Murrevagh, Mulranny, Co. Mayo

DOCUMENT DETAILS

Client:	**Mayo County Council**
Project Title:	**Proposed Housing Development at Murrevagh, Mulranny, Co. Mayo**
Project Number:	**200813**
Document Title:	**EcIA**
Document File Name:	**EcIA – F –2021.06.21 - 200813**
Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

Planning and Environmental Consultants

Rev	Status	Date	Author(s)	Approved By
01	Final	2021.06.21	JOS	JOS

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APPENDICES

1. INTRODUCTION

1.1 Background

MKO has been commissioned to conduct an Ecological Impact Assessment (EcIA) of a proposed residential housing development at Murrevagh, Mulranny, Co. Mayo.

The EcIA includes an accurate description of all aspects of the proposed development during construction and operation. The development is permanent, and no decommissioning is proposed. It then provides a comprehensive description of the baseline ecological environment, which is based on an appropriate level of survey work that was carried out in accordance with the most appropriate guidelines and methodologies. The EcIA then completes a thorough assessment of the impacts of the proposed development on biodiversity. Where likely ecologically significant effects are identified, measures are prescribed to avoid or minimise or compensate for such effects.

1.2 Statement of Authority

A baseline ecological survey was undertaken on the on the 26th of January 2021 by Julie O'Sullivan (B.Sc., M.Sc.) of MKO. This report has been prepared by Julie O'Sullivan (B.Sc., MSc.). Julie is an experienced ecologist with over 5 years' professional ecological consultancy experience.

1.3 Relevant Guidance

In addition, the guidelines listed below were consulted in the preparation of this document to provide the scope, structure and content of the assessment:

- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018) (amended 2019).
- Draft Revised guidelines on the information to be contained in Environmental Impact Statements (EPA, 2017).
- Environmental Impact Assessment of National Road Schemes –A Practical Guide (NRA, 2009).
- Guidelines for assessment of Ecological Impacts of National Road Schemes, (NRA, 2009).
- Environmental Assessment and Construction Guidelines (NRA, 2006).

2. DESCRIPTION OF PROPOSED DEVELOPMENT

2.1 Site Location

The proposed residential housing development is located in Mulranny, Co. Mayo (grid reference: L84013 96751), approximately 400m east of Mulranny Village. The site is accessed via the N59 roadway to the south of the site.

The site location is shown in Figure 2.1 along with the nearby EU designated sites.

2.2 Characteristics of Proposed Development

The proposed development will consist of the following:

1) Construction of 16no. new 2 storey dormer scale dwelling units – comprising of 8no. 2 bed (4 person) dormers and 8no. 3 bed (6 person) dormers.

2) Provision of community space, shared communal and private open space, site landscaping, site services and all associated site development works.

The proposed site layout drawings are included with the application documentation, and Appendix 2.

The surface water network has been designed in line with sustainable urban drainage best practice and the surface water will discharge to the public stormwater network. A number of Sustainable Urban Drainage Systems (SuDs) measures have been incorporated into the surface water drainage infrastructure proposed for the site. Surface water runoff from the site will be collected and directed towards a Graf Ecobloc Attenuation tank to reduce peak flow and duration of a flow event.

It is proposed to flow all the surface water collected through a petrol interceptor before discharging to the public surface water network to ensure a level of treatment is provided to the surface water. A silt trap and Class 1 petrol interceptor (Klargester NSBE or similar designed) will be installed in accordance with EN858.

The rate of discharge from the proposed development will be controlled using a Hydrobrake. A Hydrobrake optimum outflow control and Hydro international up-flo filter filtration system will be used within manholes.

It is proposed to discharge the wastewater from the proposed development to the existing manhole public wastewater network. The wastewater layout has been designed in accordance with Irish Water's latest standard details and codes of practice. Irish water have confirmed that there is capacity for the proposed development to connect to the public foul water supply (Reference No: CDS21001644, included as Appendix 1). The proposed development will comply with all Irish Water requirements prior to connections.

2.2.1 Best Practice and Environmental Control Measures

The following best pest practice mitigation and environmental control measures have been incorporated into the proposal:

Site Set-up

- 2.5m high hoarding will be erected around the boundaries of the development site. All works will be located within the confines of this fencing
- A site compound will be established within the site boundary. The exact location of the site compound will be established by the contractor.
- Access routes will be clearly marked / identified. Access during construction to any working areas will be restricted to land within the outlined works area.

Pollution Prevention

- Surface water generated from the works during construction will be routed towards settlement tanks prior to controlled discharge to the public surface water network. There will be no direct discharge to surface waters.
- The works are set back 10m from the Murrevagh River, which lies outside the western boundary of the site. A silt fence will be placed along this watercourse in advance of construction works.
- In the event of encountering groundwaters during excavation, the excavation will be de-watered using a pump equipped with a silt bag on the outlet if necessary, to capture any silty material prior to subsequent natural percolation to ground. Alternatively, this water will be tankered off site if required.
- All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off site.
- Vehicles will never be left unattended during refuelling. Only dedicated trained and competent personnel will carry out refuelling operations and plant refuelling procedures shall be detailed in the contractor's method statements.
- Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment.
- All fuels, lubricants and hydraulic fluids will be stored at the site compound. The storage area will contain a small bund lined with an impermeable membrane in order to prevent any contamination of the surrounding soils and vegetation.
- Potential impacts caused by spillages etc. during the construction phase will be reduced by keeping spill kits and other appropriate equipment on-site.

Measures to avoid the release of cement-based material during construction

- No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and pre-cast elements for culverts and concrete works will be used.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site;
- Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Use weather forecasting to plan dry days for pouring concrete;
- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event;

Measures to avoid effects associated with the disposal of wastewater

- A self-contained port-a-loo with an integrated waste holding tank will be used at the site compounds, maintained by the providing contractor, and removed from site on completion of the construction works;
- No wastewater will be discharged on-site during either the construction or operational phase.

Waste Management

- All waste will be collected in skips and the site will be kept tidy and free of debris at all times.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or recycling.
- All construction waste materials will be stored within the confines of the site, prior to removal from the site to a licenced waste facility.

Environmental Monitoring

- The contractor will assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures prescribed in this document are adhered to. Any environmental incidents or non-compliance issues will immediately be reported to the project team.

Disturbance Limitation Measures

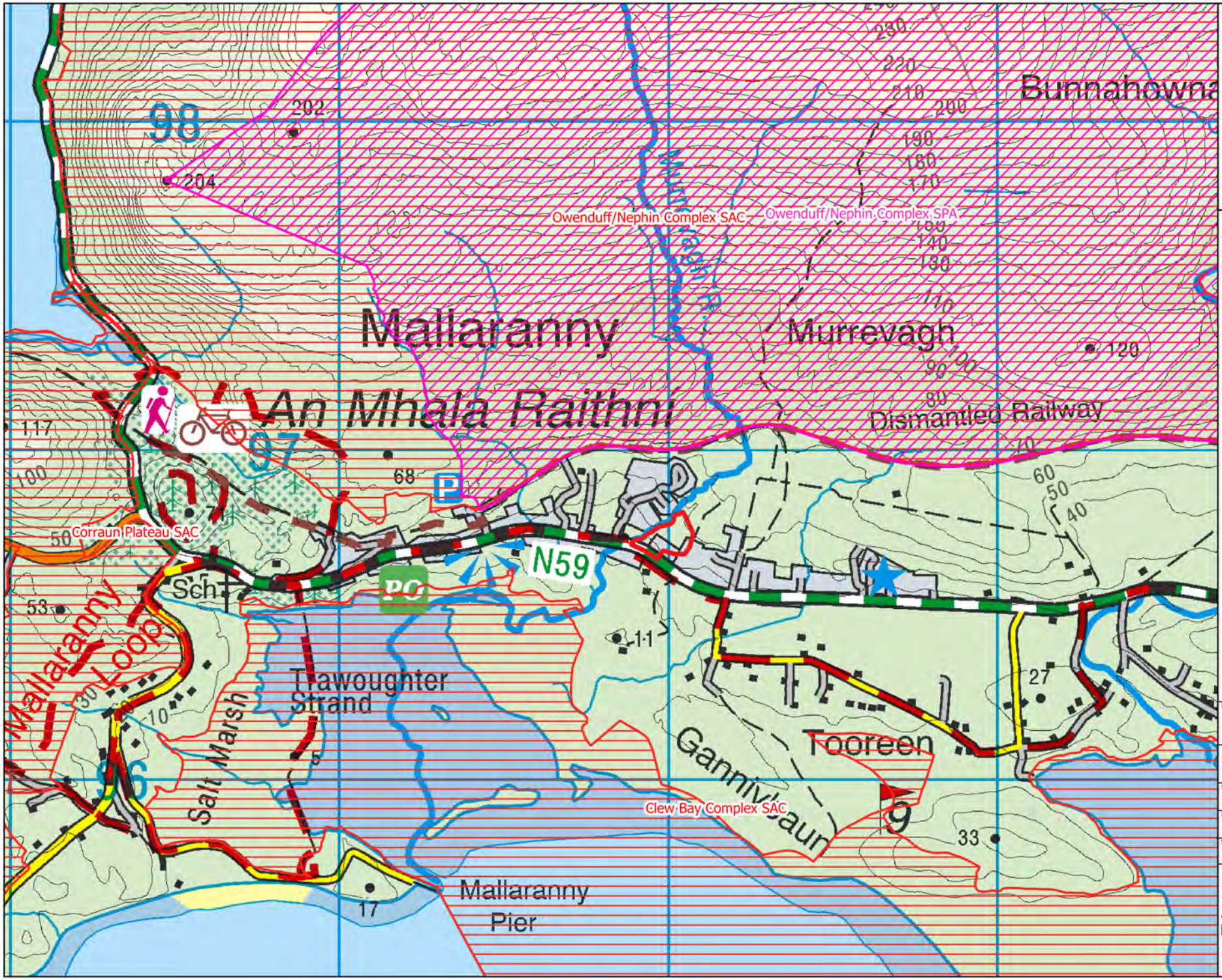
- All plant and equipment for use will comply with Statutory Instrument No 359 of 1996 "European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1996".
- Plant machinery will be turned off when not in use.
- Operating machinery will be restricted to the proposed works site area.
- Construction works will be limited to daylight hours and artificial lighting to facilitate works will not be permitted.
- 2.5m high hoarding will be erected around the boundaries of the development site. All works will be located within the confines of this fencing.

Vegetation Clearance

- Any scrub clearance will be undertaken in line with the Wildlife Act 1976-2019.

Biosecurity

- Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Rhododendron, Japanese Knotweed, Giant Rhubarb etc.) by thoroughly washing vehicles prior to entering the site.
- Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.



Map Legend

- Site boundary

Designated Sites

- Special Area of Conservation (SAC)
- Special Protection Area (SPA)

N

Drawing Title: Site Location

Project Title: Mullranny Housing Development

Drawn By	Checked By
JOS	PR
Project No.	Drawing No.
200813	Figure 2.1
Scale	Date
1:15000	19.02.21

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3. METHODOLOGY

The following sections describe the methodologies followed to establish the baseline ecological condition of the proposed development site and surrounding area. Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM, 2019).

3.1 Desk Study

A comprehensive desk study was undertaken to inform this ecological impact assessment. This study includes a thorough review of available information that is relevant to the ecology of the site of the proposed development. This information provides valuable existing data and also helps in the assessing the requirement for additional ecological surveys.

The following list describes the sources of data consulted:

- Review of online web-mappers: National Parks and Wildlife Service (NPWS), Environmental Protection Agency (EPA)
- NPWS records (data request)
- Review of the publicly available National Biodiversity Data Centre web-mapper
- Records from the NPWS web-mapper and review of specially requested records from the NPWS Rare and Protected Species Database for the hectads which overlap with the study area

3.2 Field Surveys

3.2.1 Multi-disciplinary ecological walkover survey

A multi-disciplinary ecological walkover survey was undertaken in accordance with NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (NRA, 2009). This survey provided baseline data on the ecology of the study area and assessed whether further more detailed habitat or species specific ecological surveys were required. The multi-disciplinary ecological walkover survey comprehensively covered the entire study area.

Habitats were classified in accordance with the Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000). Habitat mapping was undertaken with regard to guidance set out in 'Best Practice Guidance for Habitat Survey and Mapping' (Smith et al., 2011).

Plant nomenclature for vascular plants follows 'New Flora of the British Isles' (Stace, 2010), while mosses and liverworts nomenclature follows 'Mosses and Liverworts of Britain and Ireland - a field guide' (British Bryological Society, 2010).

The walkover survey was designed to detect the presence, or suitable habitat for a range of protected faunal species that may occur in the vicinity of the proposed development.

During the multidisciplinary survey, a search for Invasive Alien Species (IAS), with a focus on those listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2011), was also conducted.

The walkover survey was undertaken on 26th of January 2021. Although the ecological survey was not undertaken within the optimal time of year to undertake a habitat and flora survey (Smith et. al, 2011) all habitats were readily identifiable at the time of the visit.

3.2.2 Badger Survey

A badger survey was carried out in line with the TII/NRA (2009) guidelines (*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*).

The badger survey was conducted in order to determine the presence or absence of badger signs within land ownership boundary. This involved a search for all potential badger signs as per NRA (2009) (latrines, badger paths and setts). If encountered, setts would be classified as per the convention set out in NRA (2009) (i.e. main, annex, subsidiary, outlier).

3.2.3 Otter Survey

A comprehensive search for otter was undertaken with the proposed development site and along the Murrevagh River, which flows outside the western boundary of the proposed development site, in line with the TII/NRA (2009) guidelines (*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*). The otter survey included a 10m riparian buffer of this watercourse.

3.2.4 Bat Habitat Appraisal

A walkover survey of the study area was carried out during daylight hours on the 26th of January 2021. The landscape features on the site were visually assessed for potential use as bat roosting habitats and commuting/foraging habitats using a protocol set out in BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition) (Collins, 2016). Table 4.1 of the 2016 BCT Guidelines identifies a grading protocol for assessing structures, trees and commuting/foraging habitat for bats. The protocol is divided into four Suitability Categories: *High, Moderate, Low* and *Negligible*.

The survey of the trees on site comprised a ground level inspection of the exterior of each tree in order to look for features that bats could use for roosting (including knots, fissures and cracks) and evidence of bat use, including droppings, urine splashes, fur oil staining and noises (Collins, 2016).

The survey of the buildings on site comprised a detailed inspection of the exteriors and interiors (where accessible), to look for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises (Collins, 2016).

3.3 Methodology for Assessment of Impacts and Effects

3.3.1 Determining Importance of Ecological Receptors

The importance of the ecological features identified within the study area was determined with reference to a defined geographical context. This was undertaken following a methodology that is set out in Chapter 3 of the 'Guidelines for Assessment of Ecological Impacts of National Roads Schemes' (NRA, 2009). These guidelines set out the context for the determination of value on a geographic basis with a hierarchy assigned in relation to the importance of any particular receptor. The guidelines provide a basis for determination of whether any particular receptor is of importance on the following scales:

- International
- National
- County
- Local Importance (Higher Value)
- Local Importance (Lower Value)

The Guidelines clearly set out the criteria by which each geographic level of importance can be assigned. Locally Important (lower value) receptors contain habitats and species that are widespread and of low ecological significance and of any importance only in the local area. Internationally Important sites are either designated for conservation as part of the Natura 2000 Network (SAC or SPA) or provide the best examples of habitats or internationally important populations of protected flora and fauna. Specific criteria for assigning each of the other levels of importance are set out in the guidelines and have been followed in this assessment. Where appropriate, the geographic frame of reference set out above was adapted to suit local circumstances. In addition, and where appropriate, the conservation status of habitats and species is considered when determining the significance of ecological receptors.

Any ecological receptors that are determined to be of Local Importance (Higher Value), County, National or International importance following the criteria set out in NRA (2009) are considered to be Key Ecological Receptors (KERs) for the purposes of ecological impact assessment if there is a pathway for effects thereon. Any receptors that are determined to be of Local Importance (Lower Value) are not considered to be Key Ecological Receptors.

3.3.2 Characterisation of Impacts and Effects

The proposed development will result in a number of impacts. The ecological effects of these impacts are characterised as per the CIEEM 'Guidelines for Ecological Impact Assessment in the UK and Ireland (2018). The headings under which the impacts are characterised follow those listed in the guidance document and are applied where relevant. A summary of the impact characteristics considered in the assessment is provided below:

- **Positive or Negative.** Assessment of whether the proposed development result in a positive or negative effect on the ecological receptor.
- **Extent.** Description of the spatial area over which the effect has the potential to occur.
- **Magnitude** to size, amount, intensity and volume. It should be quantified if possible and expressed in absolute or relative terms e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population.
- **Duration** is defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes. For example, five years, which might seem short-term in the human context or that of other long-lived species, would span at least five generations of some invertebrate species.
- **Frequency and Timing.** This relates to the number of times that an impact occurs and its frequency. A small-scale impact can have a significant effect if it is repeated on numerous occasions over a long period.
- **Reversibility.** This is a consideration of whether an effect is reversible within a 'reasonable' timescale. What is considered to be a reasonable timescale can vary between receptors and is justified where appropriate in the impact assessment section of this report.

3.3.3 Determining the Significance of Effects

The ecological significance of the effects of the proposed development are determined following the precautionary principle and in accordance with the methodology set out in Section 5 of CIEEM (2018).

For the purpose of EcIA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local (CIEEM, 2018).

When determining significance, consideration is given to whether:

- Any processes or key characteristics of key ecological receptors will be removed or changed

- There will be an effect on the nature, extent, structure and function of important ecological features
- There is an effect on the average population size and viability of ecologically important species.
- There is an effect on the conservation status of important ecological habitats and species.

The EPA draft guidelines on information to be included in Environmental Impact Statements (EPA, 2017) and the *Guidelines for assessment of Ecological Impacts of National Road Schemes*, (NRA, 2009) were also considered when determining significance and the assessment is in accordance with those guidelines.

The terminology used in the determination of significance follows the suggested language set out in the Draft EPA Guidelines (2017) as shown in Table 3-2 below.

Table 3-1 Criteria for determining significance of effect, based on (EPA, 2017) guidelines

Effect Magnitude	Definition
No change	No discernible change in the ecology of the affected feature.
Imperceptible effect	An effect capable of measurement but without noticeable consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight effect	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate effect	An effect that alters the character of the environment that is consistent with existing and emerging trends.
Significant effect	An effect which, by its character, its magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound effect	An effect which obliterates sensitive characteristics.

3.4 Limitations

The information provided in this document accurately and comprehensively describes the baseline ecological environment; provides an accurate prediction of the likely ecological effects of the proposed development; prescribes mitigation as necessary; and, describes the residual ecological impacts. The specialist studies, analysis and reporting have been undertaken in accordance with the appropriate guidelines. No significant limitations in the scope, scale or context of the assessment have been identified.

4. DESK STUDY

4.1 Designated Sites

The potential for the proposed development to impact on sites that are designated for nature conservation was considered in this Ecological Impact Assessment.

Special Areas of Conservation (SACs) and Special Protection Areas for Birds (SPAs) are designated under EU Habitats Directive and are collectively known as 'European Sites'. The potential for effects on European Sites is fully considered in the Appropriate Assessment Screening Report (AASR) that accompanies this application and is discussed also in this EcIA. No European Sites were identified as being within the Zone of Likely Impact in the AASR.

Natural Heritage Areas (NHAs) are designated under the Wildlife (Amendment) Act 2000 and their management and protection is provided for by this legislation and planning policy. The potential for effects on these designated sites is fully considered in this EcIA.

Proposed Natural Heritage Areas (pNHAs) were designated on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. However, the potential for effects on these designated sites is fully considered in this EcIA.

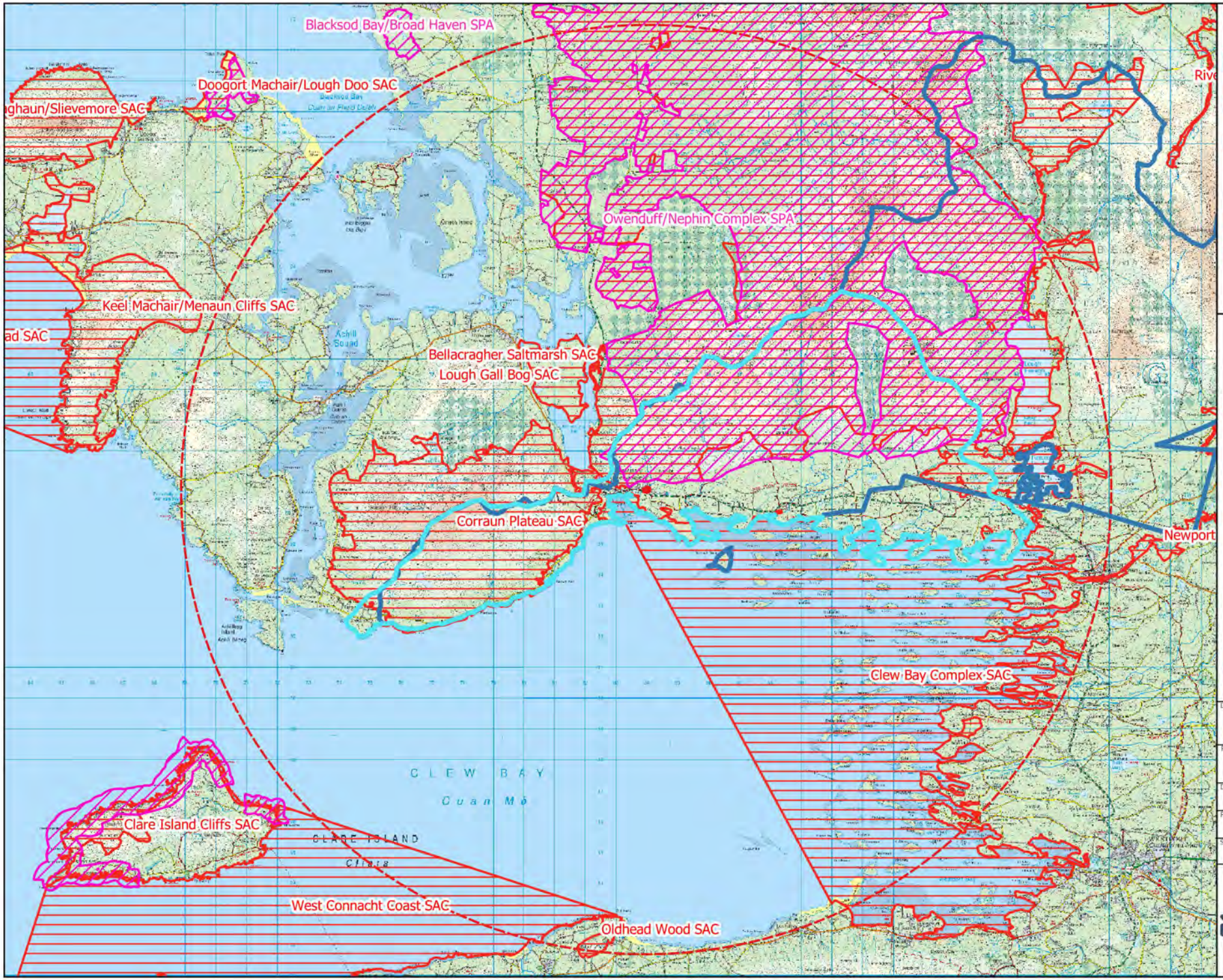
The following methodology was used to establish which nationally designated sites have the potential to be impacted by the proposed development:

- Initially the most up to date GIS spatial datasets for all nationally designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie) on the 13/04/2021. The datasets were utilized to identify Designated Sites which could feasibly be affected by the proposed development.
- All nationally designated Sites within a distance of 15km surrounding the development site were identified. In addition, the potential for connectivity with nationally designated Sites at distances of greater than 15km from the proposed development was also considered in this initial assessment. In this case, no potential connectivity with sites located at a distance of over 15km from the proposed development was identified.
- A map of all the EU designated sites and nationally designated Sites within 15km is provided in Figure 4.1 and 4.2 respectively.
- The site synopses for these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- Catchment mapping was used to establish or discount potential hydrological connectivity between the site of the proposed development and any nationally designated Sites. The hydrological catchments are also shown in Figures 4.1. & 4.2.
- Table 4.1, provides details of all relevant nationally designated Sites as identified in the preceding steps and assesses which are within the likely Zone of Impact.
- Where potential pathways for Significant Effect are identified, the site is included within the Likely Zone of Impact and further assessment is required.

Table 4-1 Identification of Nationally Designated sites within the Likely Zone of Impact

Designated Site	Likely Zone of Impact Determination
Natural Heritage Areas (NHA)	
Sraheens Bog NHA Distance: 13km	This NHA is located approximately 13km west of the proposed development site. There will be no direct effects as the proposed development is located outside the designated site. No pathway for indirect effect on this designated site exists. There is no hydrological connection between the proposed development site and this NHA. All surface water and wastewater will discharge to the existing public services network and there is no potential for deterioration in groundwater. **This site is not within the Likely Zone of Impact and further assessment is required.**
Proposed Natural Heritage Area (pNHA)	
Owenduff/Nephin Complex pNHA Distance: 207m	This pNHA is located approximately 207m north of the proposed development site. There will be no direct effects as the proposed development is located outside the designated site. This designated site is upgradient of the proposed development site and is designated for upland habitats. No pathway for indirect effect on this designated site exists. **This site is not within the Likely Zone of Impact and further assessment is required.**
Clew Bay Complex pNHA Distance: 232m	This pNHA is located approximately 232m south of the proposed development site. There will be no direct effects as the proposed development is located outside the designated site. No pathway for indirect effect on this designated site exists. All surface water and wastewater will discharge to the existing public services network and there is no potential for deterioration in surface water quality. **This site is not within the Likely Zone of Impact and further assessment is required.**
Corraun Plateau pNHA Distance: 486m	This pNHA is located approximately 486m north-west of the proposed development site. There will be no direct effects as the proposed development is located outside the designated site. This designated site is upgradient of the proposed development site and is designated for terrestrial upland and peatland habitats. No pathway for indirect effect on the terrestrial habitats for which the site has been designated exists. No pathway for indirect effect on this designated site exists. **This site is not within the Likely Zone of Impact and further assessment is required.**
Lough Gall Bog pNHA Distance: 3.2km	This pNHA is located 3.2km north-west of the proposed development site. There will be no direct effects as the proposed development is located outside the designated site. This site is designated for terrestrial upland and peatland habitats. No pathway for indirect effect on the terrestrial habitats for which the site has been designated exists. **This site is not within the likely zone of impact and no further assessment is required.**

Designated Site	Likely Zone of Impact Determination
Bellacragher Saltmarsh pNHA Distance: 3.6km	This pNHA is located 3.6km north-west of the proposed development site. This designated is located entirely outside the boundary of the proposed development site and no pathway for direct effect exists. This site is designated for coastal/marine habitats and is located in a separate hydrological catchment. No pathway for indirect effect exists. **This site is not within the likely zone of impact and no further assessment is required.**
Corraun Point Machair/Dooreel Creek pNHA Distance: 13.7km	This pNHA is located 13.7km north-west of the proposed development site. This designated is located entirely outside the boundary of the proposed development site and no pathway for direct effect exists. This site is designated for coastal habitats and is located in a separate hydrological catchment. No pathway for indirect effect exists. **This site is not within the likely zone of impact and no further assessment is required.**
Oldhead Wood pNHA Distance: 13.9km	This pNHA is located 13.9km south-west of the proposed development site and is located on the opposite side of Clew Bay. This designated site is located entirely outside the boundary of the proposed development site and no pathway for direct effect exists. This pNHA is designated for a terrestrial woodland and heath habitats. No pathway for indirect effect on the terrestrial habitats for which the site has been designated exists. **This site is not within the likely zone of impact and no further assessment is required.**


Blacksod Bay/Broad Haven SPA
Doogort Machair/Lough Doo SAC
Owenduff/Nephin Complex SPA
Keel Machair/Menaun Cliffs SAC
Bellacragher Saltmarsh SAC
Lough Gall Bog SAC
Corraun Plateau SAC
Newport
Clew Bay Complex SAC
CLEW BAY
Cuan Mó
Clare Island Cliffs SAC
CLARE ISLAND
Cliffs
West Connacht Coast SAC
Oldhead Wood SAC
Map Legend
Red line boundary
15km Buffer
Malranny Groundwater Catchment
Owengarve Sub-catchment
Designated Sites
Special Area of Conservation (SAC)
Special Protection Area (SPA)
N
Microsoft product screen shots reprinted with permission from Microsoft Corporation
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Ordnance Survey Ireland/Government of Ireland
Drawing Title
EU Sites Within 15km
Project Title
Mullranny Housing Development
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Project No.
200813
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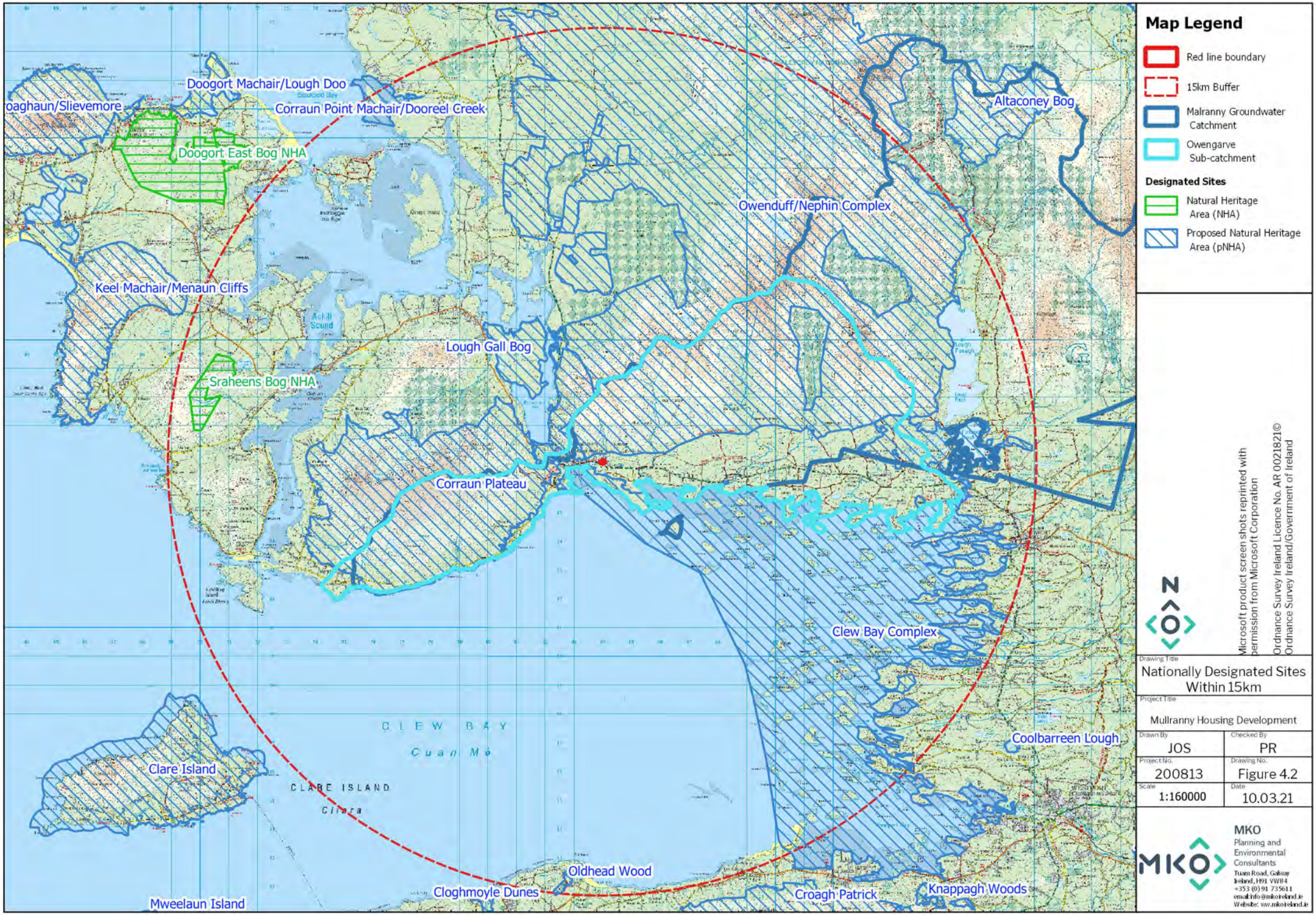
Doogort Machair/Lough Doo
oaghaun/Slievemore
Corraun Point Machair/Dooreel Creek
Doogort East Bog NHA
Altaconey Bog
Owenduff/Nephin Complex
Keel Machair/Menaun Cliffs
Lough Gall Bog
Sraheens Bog NHA
Corraun Plateau
Clew Bay Complex
Coolbarreen Lough
CLEW BAY
Cuan Mó
Clare Island
CLARE ISLAND
Clára
Oldhead Wood
Cloghmoyle Dunes
Croagh Patrick
Knappagh Woods
Mweelaun Island
Map Legend
Red line boundary
15km Buffer
Malranny Groundwater Catchment
Owengarve Sub-catchment
Designated Sites
Natural Heritage Area (NHA)
Proposed Natural Heritage Area (pNHA)
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Drawing Title
Nationally Designated Sites Within 15km
Project Title
Mullranny Housing Development
Drawn By
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Checked By
PR
Project No.
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Figure 4.2
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4.2 New Flora Atlas

A search was made in the New Atlas of the British and Irish Flora (Preston *et al*, 2002) to investigate whether any rare or unusual plant species listed under Annex II of the EU Habitats Directive, The Irish Red Data Book - 1 Vascular Plants (Curtis, 1988) or the Flora (Protection) Order (1999, as amended 2015) had been recorded in the relevant 10km squares in which the study site is situated (L89). Each hectad contains 100 whole one kilometre squares containing terrestrial habitats. Species of conservation concern are given in Table 4-2.

Table 4-2 Species listed designated under the Flora Protection Order or the Irish Red Data Book within Hectad L89

Common Name	Scientific Name	Status
Pipewort	*Eriocaulon aquaticum*	Near threatened
Least bur-reed	*Sparganium natans*	Near threatened

4.3 Bryophytes

A search of the NPWS online data map for bryophytes (NPWS, 2020) was also undertaken on the 11/03/21. The Flora Protection Order (FPO) protected bryophyte ribbed extinguisher-moss (*Encalypta rhaptocarpa*) has been recorded within the wider area of the proposed development site. The location of this record is vague, with a record from the general area of Mulranny recorded in 1909. This species has not been found in follow up surveys carried out in 2003.

Encalypta rhaptocarpa is a species of base rich rock crevice's at moderate to high altitudes and of calcareous dune slacks. At its only known current site in Ireland this species grows on crumbling near horizontal basalt rock on an open slope near the summit of a hill at 450m altitude. There is no suitable habitat for this species within the proposed development site.

4.4 Habitats

The available NPWS Article 17 habitats datasets were reviewed. There were no records for any EU Annex I habitats recorded within or in close proximity to the proposed development site.

The closest recorded Annex I habitats are Dry Heath (4030) and Active Blanket Bog (7130) 147m and 190m north, respectively.

Annex I coastal and marine habitats occur in excess of 340m south-west of the proposed development site, along the shoreline of Clew Bay and include Atlantic Salt Meadow (1330), Tidal Mudflats and Sandflats (1140), Embryonic Shifting Dunes (2110) and Large Shallow Inlets and Bays (1160).

4.5 NPWS Records

National Parks and Wildlife Service (NPWS) online records were searched to see if any rare or protected species of flora or fauna have been recorded from hectad L89. An information request was also sent to the NPWS scientific data unit requesting records from the Rare and Protected Species Database on the 5th of March 2021. A response was received on the 9th of March 2021. Table 4-3 lists the rare and protected species records obtained from the NPWS during this study.

Table 4-3 Records for rare and protected species, NPWS.

Common name	Scientific name	Designation
Baltic Bryum	*Bryum marratii*	Red list least concern

Common name	Scientific name	Designation
Cladonia ciliata	*Cladonia ciliata*	Habitats Directive Annex V
Reindeer Moss	*Cladonia portentosa*	Habitats Directive Annex V
Common Frog	*Rana temporaria*	Habitats Directive Annex II; Wildlife Act
Otter	*Lutra lutra*	Habitats Directive Annex II, Annex IV, Wildlife Act
Common Seal	*Phoca vitulina*	Habitats Directive Annex II & V, Wildlife Act
Grey Seal	*Halichoerus grypus*	Habitats Directive Annex II & V, Wildlife Act

Annex II, Annex IV, Annex V – Of EU Habitats Directive, WA – Irish Wildlife Acts (1976-2017), Red Data List (Curtis and McGough 1988), BoCCI Red List – Birds of Conservation Concern in Ireland (Population for which the species is red listed in brackets),

4.6 Biodiversity Ireland Database

The National Biodiversity Data centre database was accessed on the 13th of April 2021 and the following information was obtained.

Table 4-44 lists the protected faunal species (excluding birds and marine mammal species) recorded within the hectad which pertains to the current study area. The database was also searched for records of Third Schedule non-native invasive species within the hectad. Table 4-5-5 lists the non-native invasive species recorded within the hectad. Table 4-6-6 lists all the protected bird species recorded within the hectad which pertains to the current study area.

Table 4-4 NBDC records for protected fauna records (excl. birds).

Common Name	Scientific Name	Status
Common Maërl	*Phymatolithon calcareum*	HD Annex V
Large White-moss	*Leucobryum glaucum*	HD Annex IV
Ribbed Extinguisher-moss	*Encalypta rhaptocarpa*	Flora Protection Order
Common Frog	*Rana temporaria*	HD Annex V, WA
European Otter	*Lutra lutra*	HD Annex II, Annex IV, WA
West European Hedgehog	*Erinaceus europaeus*	WA
Brown long eared bat	*Plecotus auritus*	HD Annex IV, WA
Leislers Bat	*Nyctalus leisleri*	HD Annex IV, WA
Nathusius's Pipistrelle	*Pipistrellus nathusii*	HD Annex IV, WA
Common Pipistrelle	*Pipistrellus pipistrellus sensu lato*	HD Annex IV, WA

Common Name	Scientific Name	Status
Soprano Pipistrelle	*Pipistrellus pygmaeus*	HD Annex IV, WA

Annex II, Annex IV, Annex V – Of EU Habitats Directive, WA – Irish Wildlife Acts (1976-2017).

Table 4-5 NBDC Records for High Impact Invasive Species.

Common Name	Scientific Name
Cherry laurel	*Prunus laurocerasus*
Giant-rhubarb	*Gunnera tinctoria*
Himalayan Knotweed	*Persicaria wallichii*
Indian Balsam	*Impatiens glandulifera*
Japanese Knotweed	*Fallopia japonica*
Rhododendron	*Rhododendron ponticum*
Salmonberry	*Rubus spectabilis*

Table 4-6 NBDC Records for Birds

Common name	Scientific name	Designation
Black headed gull	*Larus ridibundus*	BOCCI Red list
Common Redshank	*Tringa totanus*	
Eurasian Curlew	*Numenius arquata*	
Herring gull	*Larus argentatus*	
Northern Lapwing	*Vanellus vanellus*	
Red Grouse	*Lagopus lagopus*	
Twite	*Carduelis flavirostris*	
Yellowhammer	*Emberiza citrinella*	
Common Pochard	*Aythya ferina*	
Eurasian Wigeon	*Anas penelope*	
Common Goldeneye	*Bucephala clangula*	
Eurasian Curlew	*Numenius arquata*	
Eurasian Woodcock	*Scolopax rusticola*	
Tufted Duck	*Aythya fuligula*	

Common name	Scientific name	Designation
Corn Crake	*Crex crex*	BD Annex I, BOCCI Red List
European Golden Plover	*Pluvialis apricaria*	
Arctic Tern	*Sterna paradisaea*	Birds Directive - Annex I
Common Kingfisher	*Alcedo atthis*	
Common Tern	*Sterna hirundo*	
Corn Crake	*Crex crex*	
Dunlin	*Calidris alpina*	
European Storm-petrel	*Hydrobates pelagicus*	
Great Northern Diver	*Gavia immer*	
Little Egret	*Egretta garzetta*	
Little Tern	*Sternula albifrons*	
Merlin	*Falco columbarius*	
Red-billed Chough	*Pyrrhocorax pyrrhocorax*	
Red-throated Diver	*Gavia stellata*	
Sandwich Tern	*Sterna sandvicensis*	
Whooper Swan	*Cygnus cygnus*	

Annex I – Of EU Birds Directive; Red List – Birds of Conservation Concern in Ireland

4.7 Water Quality

River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive. The online EPA Envision map viewer provides access to water quality information at individual waterbody status for all the River Basin Districts in Ireland. The EPA Envision map viewer was consulted on the 9th of April 2021.

The proposed development site is located in the Owengarve hydrological sub-catchment. The Murrevagh River lies outside of the western boundary of the proposed development site, flowing in a southerly direction and discharging to Clew Bay, Approximately 400m downstream. There is no water quality data available for this watercourse on the EPA website. The ecological status of this river was unassigned in the monitoring period 2013-2018.

Clew Bay was assigned a coastal waterbody status of 'good' and was classified as 'not at risk' in the monitoring period 2013-2018. Clew Bay is a coastal water bodies that has a High-Status Objective under the Water Framework Directive and has an ecological status of 'good'. The protection and restoration of high-status water bodies is a priority under Ireland's River Basin Management Plan (RBMP).

The proposed development site is located in an area of moderate groundwater vulnerability. The site is located in the Malranny groundwater catchment and has been assigned a status of 'not at risk' in the Water Framework Directive (WFD) ground waterbody approved risk. The groundwater status of this catchment has been assigned a 'good' status in the Water Framework Directive (WFD) groundwater monitoring programme (2013-2018).

5. FIELD STUDY

5.1 Habitats Present on the Site and Surrounding Area

A dedicated habitat survey of the proposed development site was undertaken on the 26th of January 2020. The habitats recorded during the site visit are described below and a habitat map is provided in Figure 5.1.

The site slopes gently from north-east down to its southern boundary. ***Wet grassland (GS4)*** occurs in the north-east section of the site (Plate 5.1). Species recorded in this habitat including abundant Yorkshire fog (*Holcus lanatus*), soft rush (*Juncus effusus*), frequent common sorrel (*Rumex acetosa*), creeping buttercup (*Ranunculus repens*), meadow buttercup (*Ranunculus acris*), dandelion (*Taraxacum officinale* agg.), ribwort plantain (*Plantago lanceolata*), bramble (*Rubus fructicosus*), creeping bent (*Agrostis stolonifera*), hogweed (*Heracleum sphondylium),* springy turf-moss (*Rhytidiadelphus squarrosus*), stands of nettle (*Urtica dioica*), and occasional birch (*Betula* spp.). Scots pine (*Pinus sylvestris*) grows along the boundary wall of this habitat.

A mosaic habitat of ***Wet Grassland (GS4)/Recolonising Bare Ground (ED3)*** (Plate 5.2). habitat with a low vegetation height occurs in the north-east of the site on shallow soils. The species recorded in this habitat included frequent common bent (*Agrostis capillaris*), ribwort plantain (*Plantago lanceolata*), gorse (*Ulex europaeus),* tormentil (*Potentilla erecta*), mouse ear hawkweed (*Pilosella officinarum*), fescue (*Festuca* spp.), and sheep's sorrel (*Rumex acetosella*) with occasional hawkbit (*Leontodon* spp.), *cladonia* spp., heather (*Calluna vulgaris*) and devils bit scabious (*Succisa pratensis*). One individual plant of the invasive species plant *giant rhubarb* (*Gunnera Tinctoria*) was also recorded in the wet grassland habitat.

Stone walls form the field boundaries within the site and are classified as ***Stonewalls and Other Stonework (BL1).*** The boundaries along the entire north-eastern site boundary are formed of dense stands of rhododendron, which encroach into the wet grassland habitat. The southern site boundary is ***Treeline (WL2)/Hedgerow (WL1)*** habitat formed of sycamore (*Acer pseudoplatanus*), willows (*Salix* spp.), ash (*Fraxinus excelsior*), with a fuchsia (*Fuchsia magellanica*) understory.

A derelict house with surrounding agricultural sheds occurs within the centre of the site and is classified as ***Buildings and Artificial Surfaces (BL3)*** (Plate 5.3). An area of ***Mixed Broadleaved/Conifer Woodland (WD1)*** (Plate 5.4) surrounds the house and extends to the south-western corner of the site and includes the species sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), birch (*Betula* spp.), willows (*Salix* spp.), with non-native conifers including spruce (*Picea sitchensis*) and pine (*Pinus* spp.).

The shrub layer is dominated by large dense stands of the invasive species rhododendron (*Rhododendron ponticum*), bracken (*Pteridium aquilinum*), bramble (*Rubus fructicosus*), holly (*Ilex aquifolium*), gorse (*Ulex europaeus*), honeysuckle (*Lonicera periclymenum*), elder (*Sambucus nigra*) and montbretia (*Crocosmia x crocosmiiflora).* Species recorded in the ground flora of the woodland include herb Robert (*Geranium robertianum*), ivy (*Hedera helix*), creeping buttercup (*Ranunculus repens*), harts tongue fern (*Asplenium scolopendrium*), nettle (*Urtica dioica*), lesser celandine (*Ficaria verna*), soft rush (*Juncus effusus*), Yorkshire fog (*Holcus lanatus)*, sowthistle (S*onchus* spp.), creeping bent (*Agrostis stolonifera*) and foxglove (*Digitalis purpurea*).

An eroding/upland (FW1) river, the Murrevagh River, flows in a southerly direction outside the western site boundary (Plate 5.5). No drainage ditches occur within the site.

There are no Annex I habitats listed under the EU Habitats Directive present within the Proposed development site boundary. No botanical species protected under the Flora (protection) Order (1999,

as amended 2015), listed in the EU Habitats Directive (92/43/EEC), or listed in the Irish Red Data Books were recorded on the site and no suitable habitat occurs within the site. There is no suitable habitat within the development site for the Flora Protection Order (FPO) protected bryophyte ribbed extinguisher-moss (*Encalypta rhaptocarpa*) which has previously been recorded within the wider Mulranny area. This moss species is a species of base rich rock crevice's at moderate to high altitudes and of calcareous dune slacks. All species recorded are common in the Irish landscape.

Plate 5-1 Wet grassland (GS4) habitat in the centre of the site, with stonewalls forming the boundary.

Plate 5-2 Recolonising Bare Ground (ED3) /Wet grassland (GS4) mosaic habitat within the eastern section of the site.

Plate 5-3 A derelict house with surrounding agricultural sheds occurs within the centre of the site and is classified as Buildings and Artificial Surfaces (BL3).

Plate 5-4 An area of Mixed Broadleaved/Conifer Woodland (WD1) surrounds the house and extends to the south-western corner of the site.

Plate 5-5 Murrevagh river, an eroding/upland (FW1) river, flows in a southerly direction outside the western site boundary. The invasive species rhododendron is scattered along the embankment.

5.1.1 Invasive Species

The invasive species *Rhododendron* grows extensively throughout the site, forming dense stands within the heavily infested woodland habitat, growing along the river embankment to the west of the site, and forming a dense hedgerow along the eastern boundary of the site (Plate 5.6 & Plate 5.7). High numbers of seeding plants occur scattered throughout the wet grassland habitat (Plate 5.8) One individual plant of the invasive species plant *giant rhubarb* (*Gunnera Tinctoria*) was also recorded in the wet grassland habitat (Plate 5.9). A map of the location of invasive species is shown as Figure 5.2.

Plate 5-6 Invasive species Rhododendron ponticum forms dense stands in the woodland and surrounding the derelict house.

Plate 5-7 Invasive species Rhododendron ponticum forms the hedgerow along the eastern site boundary.

Plate 5-8 Invasive species Rhododendron ponticum seedling plants occur extensively throughout the wet grassland habitat.

Plate 5-9 Invasive species giant rhubarb (Gunnera tinctora) growing in wet grassland habitat in the eastern section of the site.

Map Legend

- Site boundary

habitat map 3

- Buildings and Artificial Surfaces (BL3)
- Mixed Broadleaved/ Conifer Woodland (WD1)
- Wet grassland (GS4)
- Wet Grassland (GS4)/ Recolonising Bare Ground (ED3)

Linear habitats

- Stonewalls and Other Stonework (BL1)
- Treeline (WL2)/ Hedgerow (WL1)
- Hedgerow (WL1)

N

Drawing Title

Habitat Map

Project Title

Mullranny Housing Development

Drawn By	Checked By
JOS	PR
Project No.	Drawing No.
200813	Figure 5.1
Scale	Date
1:1000	13.04.21

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Map Legend

- Site boundary
- Rhododendron ponticum stands
- Gunnera tinctora

N

Drawing Title

Invasive Species

Project Title

Mullranny Housing Development

Drawn By	Checked By
JOS	PR
Project No.	Drawing No.
200813	Figure 5.2
Scale	Date
1:1000	13.04.21

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5.2 Fauna

The walkover survey was designed to detect the presence, or likely presence, of a range of protected species, including birds, bats, otter and badger. Potential suitable habitats were investigated for signs of animal presence. The following subsections provide a breakdown of the species recorded within the proposed development boundary during the site visit and assessment.

5.2.1 Birds

A total of six bird species were recorded within or flying over the site during the field survey, including goldcrest, rook, robin, wren, chaffinch and jackdaw (Table 5-1). Bird species recorded within the site boundaries during the site visit were an assemblage of common birds that are typical of the garden and agricultural grassland habitats in the wider area of the proposed development site.

No Annex I bird species or species of conservation concern were recorded within the proposed development site during the field survey. The site is dominated by rank, rushy wet grassland and mixed conifer/broadleaved woodland habitat and does not provide supporting habitat for any bird species that are among the SCIs of any European Site. Given the lack of significant habitat for rare or protected bird species identified within the site, there is no requirement for further bird surveys at the site.

Five of the bird species observed are green-listed and are common in Ireland. One of the species observed is amber listed during the breeding season in Ireland. No Annex I bird species were recorded utilising the habitats within the site during the site visit.

Table 5-1 Bird species observed during the field visit, and current conservation status.

Common Name	Latin Name	Conservation Status
Robin	*Erithacus rubecula*	Amber (breeding)
Chaffinch	*Fringilla coelebs*	Green
Wren	*Troglodytes troglodytes*	Green
Goldcrest	*Regulus regulus*	Green
Jackdaw	*Corvus monedula*	Green
Rook	*Corvus frugilegus*	Green

5.2.2 Mammals

5.2.2.1 Bat Habitat Appraisal

The habitats within and adjacent to the site of the proposed development were assessed for suitability for bats during the survey.

With regard to foraging and commuting bats, areas of exposed open wet grassland (GS4) habitat were considered *Negligible-Low* suitability, i.e. habitat that could be used by small numbers of commuting or foraging bats (Collins, 2016).

The hedgerows, mixed broadleaved/conifer woodland, stone walls and the adjacent Murrevagh River show potential for foraging and commuting bats. These habitats are linked to the surrounding landscape via linear features such as treelines, river, hedgerows, stonewalls and roads. As such, these

habitats were classified as *Moderate* suitability, i.e. continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub (Collins, 2016).

Trees within the proposed development site were surveyed for potential roost features (PRFs). The survey of the trees on site comprised a ground level inspection of the exterior of each tree to look for features that bats could use for roosting (including knots, fissures and cracks) and evidence of bat use, including droppings, urine splashes, fur oil staining and noises (Collins, 2016). No PRFs were recorded in any of the trees surveyed, nor was any evidence of bat use recorded within the trees in the site.

Overall trees within the site provide suboptimal habitat for roosting bats and were assessed as having *Negligible-Low* roosting potential i.e. a tree of sufficient size and age to contain potential roost features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential (Collins, 2016).

A detailed inspection of buildings within the site was undertaken during daylight hours on the 26th of January 2021. An old derelict dwelling house and outbuildings lie within the south-western section of the site near the mixed woodland habitat. The exterior of the buildings was surveyed for access points, including suitable gaps around doors, open/broken windows, gable apexes, eaves and soffits as well as gaps in stonework. The majority of the interior of the dwelling house was inaccessible due to the accumulation of material inside and due to the partially collapsed roof. The interior of the sheds was inspected.

The derelict dwelling house offers suitable access points, through gaps in windows and gaps in slates. At the rear of the house the roof has partially collapsed. The house is of block construction with a slate roof and therefore may be suitable for roosting bats. No signs of roosting bats (i.e. droppings, fur oil staining, etc.) were noted from the exterior of the building. The house as assigned a *Negligible-Low* value.

The sheds were constructed of stone/concrete block with a galvanised roof. An old shipping container occurs next to the dwelling house. Due to the materials used in the construction of the outbuildings they are likely to undergo extreme temperature fluctuations, making them unsuitable for roosting bats. They are also unsuitable for use as day roosts due to the high light levels inside, with no suitable roosting spaces or dark corners evident. No signs of roosting bats (i.e. droppings, fur oil staining, etc.) were noted from the exterior or interion of the sheds and outbuildings and they were assigned a *Negligible* value.

5.2.3 Non-volant Mammals

Badger

The site was searched for signs of badger (*Meles meles*) during the walk over survey. The badger survey was carried out in line with the TII/NRA (2009) guidelines (*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*). This involved a search for all potential badger signs as per NRA (2009) (latrines, badger paths and setts).

No evidence of badger was recorded, including latrines, snuffle holes or prints and no badger setts were recorded within the development site boundary.

Otter

A comprehensive search for otter was undertaken within the proposed development site and along the Murrevagh River which lies outside the western boundary of the site, flowing in a southerly direction (NRA, 2008 and Reid, *et al* 2013). No signs of otter including holts, couches, spraints or prints were recorded during the field survey. Nevertheless, the Murrevagh River is considered to be suitable habitat for otter and is likely to be used by foraging otter on occasion.

5.2.4 Other species

The desk study did not indicate that Marsh fritillary (*Euphydryas aurinia*) have previously been recorded in the hectad in which the site is located. No evidence of other species such as Irish hare, pygmy shrew and Irish stoat, protected species under the Irish Wildlife Act 1976-2018, were recorded during the site visit but these species are likely to occur in the wider area, at least on occasion. However, these species have widespread and favourable ranges in Ireland and suitable habitats are widespread in the area. No suitable habitat for other taxa protected under the EU Habitats Directive was identified within the boundaries of the proposed development site.

5.2.1 Importance of Ecological Receptors

Table 5.1. lists all identified receptors and assigns them an ecological importance in accordance with the Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009). This table also provides the rationale for this determination and identifies the habitats that are Key Ecological Receptors.

Table 5.1. Importance of Ecological Receptors

Habitat and Geographic Importance	KER (Y/N)	Rationale
Habitats of Local importance (higher value): › Hedgerow (WL1)/ Treeline (WL2) › Mixed Broadleaved/Conifer Woodland (WD1)	**Yes**	Hedgerow (WL1)/ Treeline (WL2) and Mixed Broadleaved/Conifer Woodland (WD1) habitats may be used as ecological commuting corridors and foraging habitats for wildlife. These habitats are essential in maintaining connectivity to the wider landscape and to features of higher ecological value. These habitats are considered to be a KER.
Habitats of local importance (lower value): › Wet grassland (GS4) › Wet Grassland (GS4)/ Recolonising Bare Ground (ED3) mosaic › Stone walls and other stonework (BL1) › Buildings and artificial surfaces (BL3)	**No**	These habitats are of low biodiversity value are highly modified and are common and widespread in the local and wider landscape and are therefore not included as KERs.
Invasive species	**Yes**	The invasive species *Rhododendron* grows extensively throughout the site, within the woodland habitat and individual plants occur scattered throughout the wet grassland habitat. The invasive species plant *giant rhubarb* (*Gunnera Tinctoria*) was also recorded in the wet grassland habitat. In the absence of best practice/mitigation this species may spread into the wider environment.

Habitat and Geographic Importance	KER (Y/N)	Rationale
Water Quality and Aquatic Species Local Importance (Higher value)	**Yes**	The construction and operational phase of the proposed residential development may result in pollution to surface water. Taking a precautionary approach, the works have potential, in the absence of mitigation, to impact on water quality and downstream aquatic ecological receptors through pollutants including hydrocarbons, fuel, cement and sedimentation during the construction phase. The operational phase of the proposed project will result in the production of foul sewage and surface water runoff. If not adequately treated, there is potential for impacts on water quality in the form of deterioration of surface water.
Birds – Local Importance (Lower value)	**Yes**	Bird species recorded using the habitats within the site were an assemblage of common birds that are typical of the agricultural grassland habitat within the site and in the wider area and thus have been assigned a value of ***Local Importance (higher value)***. Hedgerow (WL1) and Mixed Broadleaved/Conifer Woodland (WD1) habitats within the site may potentially be used by nesting birds. There is potential for disturbance to nesting bird species and habitat loss due, therefore bird species are considered a KER.
Bats – Local Importance (Higher value)	**Yes**	The proposed development will require the demolition of one old dwelling house within the site, which may have the potential to support bats, given its construction materials and its proximity to woodland and riverine habitat. Bat species are therefore considered a KER.
Non-volant mammals – Local importance (higher value)	**Yes**	No significant faunal species or signs of significant mammal activity were recorded within or immediately adjacent to the proposed development site. A comprehensive search for otter was undertaken within the proposed development site and along the Murrevagh River which lies outside the western boundary of the site, flowing in a southerly direction (NRA, 2008 and Reid, *et al* 2013). No signs of otter including holts, couches, spraints or prints were recorded during the field survey. Nevertheless, the Murrevagh River is considered to be suitable habitat for otter and is likely to be used by foraging otter on occasion.
Other Fauna – Local Importance (Lower value)	**No**	Given the absence of significant faunal species occurring within the development footprint, no significant direct or indirect impacts on faunal species are considered likely as a result of the

Habitat and Geographic Importance	KER (Y/N)	Rationale
		proposed development. Other faunal species are not considered to be a KER.

6. ECOLOGICAL IMPACT ASSESSMENT

6.1 Do Nothing Impact

If the proposed residential development were not to go ahead, the site would continue to be used as low intensity agricultural lands and would likely become further infested with the invasive species *Rhododendron ponticum* or would be subject to alternative development proposals.

6.2 Impacts during Construction

6.2.1 Impacts on Habitats

6.2.1.1 Habitats of Local Importance (Lower Value)

The development will result in the loss of 0.53ha of Wet grassland (GS4), 0.05ha of Wet Grassland (GS4)/Recolonising Bare Ground (ED3) and 344m of Stonewalls and Other Stonework (BL1). All of these habitats have been assigned local importance (lower value). Loss of these habitats to the footprint of the proposal is not considered to be significant at any geographic scale. These habitats are common and widespread in the locality and have a low biodiversity value. These habitats are common in a local national and international context and no significant effects are anticipated at the County, National or International Scale.

The loss of these habitats is considered not significant and therefore no mitigation is required.

6.2.1.2 Loss of Habitats of Local Importance (Higher Value) – Mixed Broadleaved/Conifer Woodland (WD1) and Hedgerow (WL1)

The development will result in the permanent loss of 0.25ha of Mixed Broadleaved/Conifer Woodland (WD1) to the footprint of the proposed development. This habitat is of local importance (higher value). Mixed Broadleaved/Conifer Woodland (WD1) habitats may be used as ecological commuting corridors and foraging habitats for wildlife and is an essential habitat in maintaining connectivity to the wider landscape and to features of higher ecological value.

The loss of 0.25ha of this habitat represents a loss of 67% of the woodland habitat within the site. The trees to be removed on site include the species sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), birch (*Betula* spp.), willows (*Salix* spp.), and non-native conifers including spruce (*Picea sitchensis*) and pine (*Pinus* spp.).

The proposed development is set back a minimum distance of 10m from the River Murrevagh along its western boundary and all the woodland fringing the river and along the western site boundary will be retained, comprising an area of 0.12ha.

There will be a loss of 81m of hedgerow, along the eastern boundary of the proposed development. This hedgerow is formed from dense stands of the invasive species *Rhododendron ponticum* and has no biodiversity value. Loss of this habitat to the footprint of the proposed development is not considered to be significant at any geographic scale, therefore no mitigation is required. Loss of this area of hedgerow will be beneficial to the biodiversity of the site. The remainder of the treeline (WL2) and hedgerow (WL1) habitat along the southern site boundary will be retained.

There will be no additional habitat loss associated with the proposed development.

Mitigation

The development will result in the permanent loss of 0.25ha of Mixed Broadleaved/Conifer Woodland (WD1) to the footprint of the proposed development. In order to mitigate for this loss the existing woodland being retained will be enhanced and a new amenity area will be created within the northern section of the site. The total area of woodland enhancement/creation will be 0.23ha.

An area of woodland along the western site boundary, comprising 0.12ha, will be retained as part of the development. In its current state this woodland is of relatively low biodiversity value and includes many non-native tree conifer tree species, with an understory that is formed from dense thickets of the invasive species *Rhododendron ponticum*. This invasive species casts a heavy shade thus supressing the ground flora and the natural regeneration of trees and shrubs. As Rhododendron is extremely tolerant of shade it has become a particularly problematic plant of forest floors where it outcompetes native tree seedlings and prevents forest regeneration. Light exclusion by rhododendron prevents regeneration, patterns of succession, and colonisation by other plant species, thus lowering plant diversity in any community where it becomes established. Its leaves are unpalatable and likely toxic to mammals. Consequently, accumulations of toxic leaf litter and the shade cast by this plant produces a dark, sterile environment for wildlife.

The condition of this woodland will be enhanced as part of the proposed development with the removal of all *Rhododendron* from this habitat (see section 6.2.1.3 below). The eradication of *Rhododendron* from the woodland habitat will allow for succession of native species within the field and ground layer of the woodland habitat and regeneration of native tree species. In addition, this area of woodland will be interplanted and enhanced with native tree species. The landscaping planting scheme includes new woodland planting of native species recommended by the All Ireland Pollinator Plan 2021 – 2025, including the following woodland flora; bluebells, foxglove, lesser celandine, wild strawberry, ramsons, willowherb, woundworts, vetch, crocus and snowdrop. This section of woodand will be interplanted with additional tree species including nativre tree species and species chosen for their value to pollinators. Native species will include birch (*Betula* sp.), alder (*Alnus glutinosa*), Oak (*Quercus* spp.), wild cherry (*Prunus avium*), bird cherry (*Prunus padus*), crab apple (*Malus* sp.), willows (Salix spp.) and hawthorn (*Crataegus monogyna*). These native tree species will be interplanted with mix of selected pollinator species such as recommended by the All Ireland Pollinator Plan 2021-2025

The landscaping planting scheme includes the planting of new open space trees individual native trees in the amenity green space within the northern section of the proposed development site 0.11ha in size. A landscape planting scheme has been prepared for the development site as shown in Drawing 1002 (included as Appendix 2). The tree planting scheme will include native species, consistent with the objectives of the All Ireland Pollinator Plan. Native tree planting will include birch (*Betula* sp.), alder (*Alnus glutinosa*), Oak (*Quercus* spp.), wild cherry (*Prunus avium*), bird cherry (*Prunus padus*), crab apple (*Malus* sp.), willows (Salix spp.) and hawthorn (*Crataegus monogyna*).

It is proposed to retain existing hedgerow/treeline along the southern boundary of the proposed development site. Sections of hedgerow or trees to be retained will be fenced off in advance of construction works commencing. These existing hedgerows/treelines will be enhanced and interplanted with pollinator friendly, native tree species as indicated in landscape planting scheme. The interplanting with native tree species will significantly enhance hedgerows and treelines. New native tree planting is proposed along the eastern boundary to replace the existing hedgerow that is formed from Rhododendron.

New native hedgerow is also proposed for the development and will predominantly consist of (approximately 75%) of Irish grown native species such as hawthorn (*Crataegus monogyna*) (approximatley 75%) with 25% including a mix of other native species such as willow, blackthorn, hazel, holly, dog rose, broom, wild cherry, crab apple, honeysuckle and wild rose. The species and mixes will be those recommended by the All Ireland Pollinator Plan 2021-2025.

With the removal of the invasive species *Rhododendron* from the proposed development site and the enhancement of the existing woodland habitat and the creation of a new amenity area with native tree species and pollinators, a significant gain in plant species diversity will occur as part of this development. The eradication of *Rhododendron* from the woodland habitat will allow for succession of native species within the field and ground layer of the woodland habitat and regeneration of native tree species. The planting of native species in the amenity areas of the site will benefit local wildlife by providing additional feeding and breeding habitat. Species such as oak and cherry will provide berries/ fruit that will support a wide variety of wintering birds and small mammals. The use of native species and pollinators within the landscape plan will enhance the biodiversity value of the completed development.

Residual Effect

No significant effects are anticipated on habitats of local importance higher value at any geographic scale as a result of this development.

6.2.1.3 Spread of Invasive species

6.2.1.3.1 *Rhododendron*

The invasive species *Rhododendron* grows extensively throughout the site, within the woodland habitat and individual plants occur scattered throughout the wet grassland habitat. The invasive species plant *giant rhubarb* (*Gunnera Tinctoria*) was also recorded in the wet grassland habitat. In the absence of best practice/mitigation this species may spread into the wider environment.

Mitigation

Following the precautionary principle, a follow-up invasive species survey will be undertaken, by a qualified ecologist prior, to assess any changes in baseline environment since the time of undertaking the initial survey carried out in January 2021.

The following biosecurity measures be strictly adhered to:

Initial treatment

- The Rhododendron will be cut manually using chainsaws and will be fed into a chipper. The plant will be cut as close to the ground as possible, to remove above ground growth.
- Cutting will take place outside the optimal seed dispersal period (Feb/March - May) (*Edwards*, 2006). However, should works be carried out within this time any seed dispersal will be treated in subsequent years until eradication is achieved.
- The cut material will be fed through a chipper and the mulch either spread on site or bagged and disposed of to a designated waste facility. The spread mulch can impede new Rhododendron growth but can also prevent new growth of native flora. Therefore, it is recommended to spread the mulch in a thin layer and not to cover the entire forest floor in order to allow for natural regeneration of the forest species present.

Follow-up treatment

- The site will be re-surveyed in subsequent years and spray treated with herbicide. Table 3.1 details suitable herbicide treatment rates and application periods. Re-treatment will take at least 3 years post initial treatment to achieve full eradication with re-surveys and treatment proposals scheduled as necessary after this period. Sites that are susceptible to re-invasion should be re-surveyed at 5-year intervals for new seedlings. These seedlings can be removed by hand-pulling.
- Herbicide will be applied using a knapsack sprayer by a suitably qualified person wearing the necessary PPE. All chemical treatment will adhere to the specific label instructions.

- Herbicide will be mixed fresh for each day's application. Care will be taken when working close to watercourses, i.e. suitable herbicide will be used according to the label instructions.
- All machinery working in association with the Rhododendron will be thoroughly brushed down and deemed clean before leaving the site.

Table 6-1 Suitable herbicides for foliar regrowth of Rhododendron (DEFRA, UK) (Edwards, 2016)

Herbicide	Product Rate	Optimal Time of Year
2,4-D/dicamba/triclopyr (200:85:65 g l^{-1})	7.5% solution in water (maximum of 5 l ha^{-1})	July - September
Ammonium sulphamate e.g. Amcide	40% solution in water	May - June
Glyphosate (360 g l^{-1}) e.g. Roundup ProBiactive	2% solution in water plus 2% adjuvant*	March - October
Triclopyr (480 g l^{-1}) e.g. Timbrel	2.5% solution in water (maximum of 8 l^{-1})	June - September

*When near water do not use adjuvant – apply 2.5% of glyphosate solution instead. For safety information on using herbicides consult the Defra publication *Pesticides: code of practice for using plant protection products*. AFAG leaflet 202 *Application of pesticides by handheld equipment*; and the HSE leaflet *Pesticides: use them safely*. Always read the label before applying any herbicides.

6.2.1.3.2 *Giant Rhubarb (Gunnera tinctora)*

One individual Giant Rhubarb plant was recorded within the proposed development site as shown on Figure 5.2. The following biosecurity measures be strictly adhered to:

- Following the precautionary principle, a follow-up invasive species survey will be undertaken, by a qualified ecologist prior, to assess any changes in baseline environment since the time of undertaking the initial survey carried out in January 2021.
- The treatment and control of invasive alien species will follow guidelines issued by the National Roads Authority – *The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads* (NRA 2010).
- This small recently established infestation will be dealt with by grubbing out plants physically in the pre-flowering season, following recent rain as per NRA guidelines.
- Regular follow-ups will however be required to deal with seedlings or re-growth from rhizomes. As the plant is capable of regeneration from bits of rhizome, all material will be handled and disposed of in a way which does not result in the potential for further spread. Disposal of material will be by deep burial (more than 2m deep), incineration or to licensed landfill. Removal of flower spikes will aid in limiting dispersal by seed.
- Care will be taken to brush down the dumper truck and wheels prior to leaving the excavation site and again after depositing the material before moving away from the bio-secure area in order to avoid potential seed spread.

The following additional best practice Biosecurity measures will be adhered to prevent the further spread of invasive species within the site:

- Good construction site hygiene will be employed to prevent the spread of invasive species onsite.
- Good construction site hygiene will be employed to prevent introduction and spread of additional problematic invasive alien plant species (e.g. Knotweed etc.) by thoroughly washing vehicles prior to entering the site.

- Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.

Residual Effect
No significant effect. With control measures in place, there is no potential for the spread, or introduction and establishment of invasive alien plant species and therefore no residual impacts.

6.2.2 Impacts on Water Quality

A potential pathway for impact was identified in the form of deterioration in water quality, via surface water pollution. The Murrevagh River occurs outside the western boundary of the proposed development site.

Taking a precautionary approach, the works have potential, in the absence of mitigation, to impact on water quality and downstream aquatic ecological receptors through pollutants including hydrocarbons, fuel, cement and sedimentation during the construction phase.

Best practice environmental control measures have been incorporated in the design of the development and are described in the following subsections.

Mitigation

Standard best practice environmental control measures have been incorporated in the design of the development and are outlined fully in section 2.2.1 of this report. Measures are included to ensure the avoidance of impacts on water quality during the construction phase of the development.

Residual Effect

No significant effect on water quality during construction are anticipated following the implementation of the measures and best practice described above.

6.2.3 Fauna – Disturbance/habitat loss

6.2.3.1 Non-volant Mammals

The construction phase of the proposal has the potential for some localised disturbance to local faunal species. However, no significant faunal species or signs of significant mammal activity were recorded within or immediately adjacent to the proposal during the site visit.

The area in which construction works will take place is located in close proximity to an existing residential housing development adjacent to the western site boundary and is adjacent to the busy N59 national road. Local faunal species are therefore likely to be habituated to anthropogenic activity in this area.

No signs of otter including holts, couches, spraints or prints were recorded during the field survey. Nevertheless, the Murrevagh River is considered to be suitable habitat for otter and is likely to be used by foraging otter on occasion. The proposed development is set back 10m from this river and is buffered from it by existing woodland which will be retained as part of the project. Otter are predominantly crepuscular in nature and construction activity will be confined to daytime hours, thus ensuring there is no potential for disturbance related impacts. In addition, the proposed works are located in a built-up area, adjacent to a busy main road and existing residential housing developments and it is anticipated that otter are habituated to activity in the area.

Irish Wildlife Manual No 76 (*National Otter Survey of Ireland 2010/2012*) notes that the occurrence of Otter was unaffected by perceived levels of disturbance at the survey sites. It also notes that there is little published evidence demonstrating any consistent relationship between Otter occurrence and human disturbance (Mason & Macdonald 1986, Delibes et al. 1991; Bailey &Rochford, 2006). Irish Wildlife Manual No 23 (*National Otter Survey of Ireland 2004/2005*) found no significant relationship between disturbance and otter occurrence. It also states "the lowest percentage occurrence was found at the sites with the lowest recorded disturbance".

Impacts on fauna as a result of disturbance during the construction phase are not considered to be significant at any geographic scale.

Mitigation

- All works will be completed during daylight hours and there will be no requirement for artificial lighting at any stage of the proposed construction works. This will avoid any potential impacts on crespular or nocturnal species, including otter and bat species.
- Hoarding will be placed around the construction site. This will screen the site and minimise any disturbance impacts on fauna in the wider surroundings.

Residual Effect
No significant effect.

6.2.3.2 Birds

The proposed development site does not provide significant foraging, breeding or roosting habitat for birds of conservation concern or SCI species of any SCI. Given the lack of significant bird assemblages recorded within or adjacent to the site, significant impacts as a result of disturbance or displacement are not anticipated on bird species at any geographic scale. The proposed development site contains woodland, hedgerow and treeline habitat. A total of 81m of rhododendron hedgerow and 0.25ha of Mixed Broadleaved/Conifer Woodland (WD1) will be lost to the footprint of the development. These habitats may be used by nesting bird species and there is the potential for disturbance in the absence of mitigation.

Mitigation
Vegetation clearance will be undertaken outside of the nesting bird season. The protection of bird breeding habitats during the breeding season (1st March to 31st August, inclusive), is set out in the Wildlife Acts (As Amended), 1976-2017. If there is a requirement to clear vegetation during the nesting bird season, standard best practice measures will be followed, with a nesting bird survey undertaken by a suitably qualified ecologist.

The loss of potential bird nesting habitat will be mitigated with additional tree planting as outlined in section 6.2.1.2. Existing woodland within the site will be interplanted and enhanced with native tree species. The landscaping planting scheme includes the planting of individual native trees in the amenity green space within the northern section of the proposed development site 0.11ha in size.

Existing hedgerow/treeline will be retained where possible. These existing hedgerows/treelines will be enhanced and interplanted with pollinator friendly, native tree species as indicated in landscape planting scheme. New native tree hedgerow planting is proposed along the eastern boundary to replace the existing hedgerow that is formed from Rhododendron. The interplanting with native tree species will significantly enhance hedgerows and treelines and provide nesting habitat for birds.

Residual Effect
No significant effect

6.2.3.3 Bats

6.2.3.3.1 *Loss of Roosting Habitat*

Significant effect

The trees and buildings on site were surveyed in January 2021, using protocols set out in using protocols set out in BCT *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (3rd edn.) (Collins, J (ed.), 2016). Trees and buildings were comprehensively assessed during the surveys and any evidence of bats was recorded.

A detailed inspection of buildings within the site was undertaken during daylight hours on the 26th of January 2021. The derelict dwelling house offers suitable access points, through gaps in windows and gaps in slates. At the rear of the house the roof has partially collapsed. The house is of block construction with a slate roof and therefore may be suitable for roosting bats. No signs of roosting bats (i.e. droppings, fur oil staining, etc.) were noted from the exterior of the building. The house as assigned a *Negligible-Low* value. Although no evidence of bats was observed, the house could provide potential suitable habitat for roosting bats.

The sheds were constructed of stone/concrete block with a galvanised roof. An old shipping container occurs next to the dwelling house. Due to the materials used in the construction of the outbuildings they are likely to undergo extreme temperature fluctuations, making them unsuitable for roosting bats. They are also unsuitable for use as day roosts due to the high light levels inside, with no suitable roosting spaces or dark corners evident. No signs of roosting bats (i.e. droppings, fur oil staining, etc.) were noted from the exterior or interion of the sheds and outbuildings and they were assigned a *Negligible* value.

Trees within the proposed development site were surveyed for potential roost features (PRFs). The survey of the trees on site comprised a ground level inspection of the exterior of each tree to look for features that bats could use for roosting (including knots, fissures and cracks) and evidence of bat use, including droppings, urine splashes, fur oil staining and noises (Collins, 2016). No PRFs were recorded in any of the trees surveyed, nor was any evidence of bat use recorded within the trees in the site.

Overall trees within the site provide suboptimal habitat for roosting bats and were assessed as having *Negligible-Low* roosting potential i.e. a tree of sufficient size and age to contain potential roost features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential (Collins, 2016).

Following the precautionary principle, the construction phase has the potential to result in some habitat loss to local bat species, including the removal of potential bat roosting habitat through the demolition of buildings.

Best practice/Mitigation

- Following the precautionary principle, a pre-construction survey will be undertaken on all structures to be demolished, and all trees to be felled by a qualified ecologist prior to any works, to ensure there are no roosting bats present. The function of this survey will be to assess any changes in baseline environment since the time of undertaking the initial survey carried out in January 2021. The survey will include an internal roost inspection, tree roost inspection and dusk emergence survey in the optimal season.
- If bats are found to be roosting in any of the structures, a bat derogation licence will be obtained, and further mitigation prescribed by a licenced ecologist.
- A minimum of 3 bat boxes will be erected within the proposed development site to provide new roosting opportunities for bats.
- If a bat tree roost is identified, a bat derogation licence will be obtained from the NPWS, prior to felling and the felling activity will be supervised by a qualified ecologist.

- Trees with suitable potential roost features, which are proposed to be felled, will be checked by a suitably qualified arborist at the time of felling.
- Trees will be nudged two or three times prior to limb removal, with a pause of 30 seconds in between, to allow bats to wake and move.
- Rigged felling shall be used to lower the limbs and trunk carefully to ground level and cavities searched by a qualified ecologist.
- Felled trees will be left in-situ for a minimum of 24 hours prior to sawing or mulching, to allow any bats present to escape (National Roads Authority, 2006).
- Any tree felling will be undertaken outside the main bat activity period (including maternity season), i.e. between the 1st October and the 1st May in any year (Kelleher & Marnell, 2006).

The proposed development works can also provide new roosting opportunities for bats. Alternative roost sites will be provided for potential roosting bats. Bat boxes will be erected on mature trees within the survey area following best practice guidelines (Kelleher & Marnell 2006, NRA 2006). A minimum of 3 bat boxes are recommended for installation prior to any works commencing. Schwegler 1FF woodcrete bat boxes are recommended. Bat boxes will have a southerly orientation and be positioned at least 2m from the ground, away from artificial lighting from the operational phase of the development. They will be placed within the woodland habitat adjacent to the Murrevagh River along the western site boundary, to ensure they are close to existing flight paths and can avoid wide open spaces (Collins, 2016).

Residual effect

With the implementation of the prescribed mitigation measures, no significant effects are predicted.

6.2.3.3.2 Habitat Fragmentation

With regard to foraging and commuting bats, areas of exposed open wet grassland (GS4) habitat were considered *Negligible-Low* suitability, i.e. habitat that could be used by small numbers of commuting or foraging bats (Collins, 2016).

The hedgerows, mixed broadleaved/conifer woodland, stone walls and the adjacent Murrevagh River show potential for foraging and commuting bats. These habitats are linked to the surrounding landscape via linear features such as treelines, river, hedgerows, stonewalls and roads. As such, these habitats were classified as *Moderate* suitability, i.e. continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub (Collins, 2016).

There will be a loss of 0.25ha of Mixed Broadleaved/Conifer Woodland (WD1) to the footprint of the proposed development. However, there will be no loss of the woodland within a 10m buffer of the Murrevagh River along the western boundary of the proposed development site. The hedgerow/treeline along the southern site boundary will be retained and enhanced with additional planting. The retention of these habitats will ensure that continued connectivity with the wider landscape is maintained.

Mitigation/best practice

- A landscape management plan has been designed to minimise habitat loss within the proposed development site (as described in section 6.2.1.1),
- An amenity area along the northern site boundary will be planted with native tree species. A non-native hedgerow along the eastern site boundary will be replaced with native tree species.
- The hedgerow/treelines along the southern boundary and the woodland along the western boundary adjacent to the river is being retained. This area of woodland will be enhanced with additional native tree planting. All retained trees will be adequately protected from damage

- throughout the demolition and construction works. Tree protection measures will include fencing off the Root Protection Areas (RPA), and supervision of sensitive operations.
- The rhododendron hedgerow along the eastern site boundary will be removed and replaced with a native hedgerow.

The retention of existing woodland, treeline and hedgerow habitats and the additional planting using native tree species, will ensure that there will be no habitat fragmentation and connectivity with the wider landscape is maintained.

Residual effect

With the implementation of the prescribed mitigation measures, no significant effects are predicted.

6.2.3.3.3 Disturbance

Construction and operation of the proposed residential housing development will result in increased human activity, noise and lighting within the proposed development site. Therefore, the potential for disturbance to bats requires consideration. However, the proposed development is bordered by an existing residential housing development to the west, as well as busy local roads and it is likely that bat species in the area are accustomed to some levels of disturbance. In the absence of appropriate design, the development has the potential to disturb bats by illumination of commuting and foraging areas.

Best Practice

The majority of works, during the construction phase, will occur during daylight hours. Therefore, there will be no requirement for exterior lighting within the site. Where lighting is unavoidable (i.e. health and safety), low-intensity lighting and motion sensors will be used to limit illumination. Exterior lighting, during construction, shall be designed to minimize light spillage, thus reducing the effect on areas outside the proposed development, and consequently on bats i.e. Lighting will be directed away from woodland, watercourses, hedgerows and /treelines around the periphery of the site boundary to minimize disturbance to bats.

Directional accessories will be used to direct light away from these features, e.g. through the use of light shields (Stone, 2013). The luminaries will be of the type that prevent upward spillage of light and minimize horizontal spillage away from the intended lands.

Residual effect

With the implementation of the best practice measures, no significant effects will occur.

6.3 Operational Phase

6.3.1 Impacts on Habitats

There will be no further loss or fragmentation of habitats during the operational phase of the proposed development. As such, no negative effects on habitats are predicted during the operation of this residential development. No direct or indirect impacts on adjacent habitats are considered likely as a result of the operational phase of the proposed development. The proposal therefore will not have a significant impact at any geographic scale.

6.3.2 Impacts on Fauna

6.3.2.1 Disturbance to Non-volant mammals

The operational phase of the proposed development will be confined to the footprint of the development boundary. Given the absence of significant faunal species occurring within the development footprint,

no significant direct or indirect impacts on faunal species are considered likely as a result of the operational phase of the proposed development.

Local faunal species are likely to be habituated to anthropogenic activity in the area, given the proposed developments close proximity to the busy N59 national road, an existing residential housing estate to the west of the development and the residential houses neighbouring the site. Impacts on fauna as a result of disturbance during the operational phase are not considered to be significant at any geographic scale.

Mitigation

None required.

Residual Effect
No significant effect

6.3.2.2 Disturbance to Bats

The operation of the proposed development will result in increased human activity, noise and lighting within the site. In the absence of appropriate design, the development has the potential to disturb bats by illumination of commuting and foraging areas.

Mitigation

Where lighting is unavoidable, low-intensity lighting will be used to limit illumination. Exterior lighting will be designed to minimize light spillage, thus reducing the effect on areas outside the proposed development, and consequently on bats i.e. lighting will be directed away from mature trees/treelines and stonewalls around the periphery of the site boundary to minimize disturbance to bats.

Directional accessories will be used to direct light away from hedgerow/treeline features, e.g. through the use of light shields (Stone, 2013). The luminaries will be of the type that prevent upward spillage of light and minimize horizontal spillage away from the intended lands.

Any proposed lighting around the periphery of the site will be designed in accordance with the Institute of Lighting Professionals Guidance Note 08/18 Bats and artificial lighting in the UK.

- Lighting control regimes will be considered such as dimming lights at certain times, in order to reduce illumination and spill. It is also suggested that lights should be dimmed during periods of low human activity (e.g. 12am to 6am).
- Ground lighting should be considered instead of street lamps. An example of lux levels, in areas with sport flood lighting, should be below 3 lux where feasible (Bat Conservation Trust Bats & Lighting Guidance Notes). Bats prefer areas with less than 1 lux for commuting and foraging.

According to the CIBSE Lighting Guide LG6 for outdoor environment, the minimum lux level for walkways is 5lux and is in accordance with EN 12464-2:2014. See link for sample ground lighting: 954-Mini Pathway Series.pdf (light.ie). These lights feature a solid top which shields the light source from direct view and limits vertical light spillage. Their number and location should be determined to comply with the requirements of Building Regulations/Health & Safety legislation. The light fittings can provide the necessary 5 lux on the footpaths while lux levels above 2m high will remain below 1 lux, maintaining suitable habitat for bats.

Residual effect
With the implementation of the prescribed mitigation measures, no significant effects will occur.

6.3.3 Impacts on water quality during the operational phase

Significant effect

The operational phase of the proposed project will result in the production of foul sewage and surface water runoff. If not adequately treated, there is potential for impacts on water quality in the form of deterioration of surface water.

Mitigation

Standard best practice environmental control measures have been incorporated in the design of the development and are outlined in section 2 of this report. All identified potential pathways for impact on water quality are robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within section 2 of this report. The measures ensure that the operation of the proposed development does not adversely the water quality of downstream watercourses.

As outlined in Section 2.2 all foul sewage generated will be treated by the public foul water supply. It is proposed to discharge the wastewater from the proposed development to the existing manhole public wastewater network. The wastewater layout has been designed in accordance with Irish Water's latest standard details and codes of practice. Irish water have confirmed that there is capacity for the proposed development to connect to the public foul water supply (Reference No: CDS21001644, included as Appendix 1). The proposed development will comply with all Irish Water requirements prior to connections.

The surface water network has been designed in line with sustainable urban drainage best practice and the surface water will discharge to the public stormwater network. A number of Sustainable Urban Drainage Systems (SuDs) measures have been incorporated into the surface water drainage infrastructure proposed for the site. Surface water runoff from the site will be collected and directed towards a Graf Ecobloc Attenuation tank to reduce peak flow and duration of a flow event.

It is proposed to flow all the surface water collected through a petrol interceptor before discharging to the public surface water network to ensure a level of treatment is provided to the surface water. A silt trap and Class 1 petrol interceptor (Klargester NSBE or similar designed) will be installed in accordance with EN858.

The rate of discharge from the proposed development will be controlled using a Hydrobrake. A Hydrobrake optimum outflow control and Hydro international up-flo filter filtration system will be used within manholes.

Residual Effect

Given the proposed treatment of wastewater and storm water on the site during the operational phase of the development, no significant effects on water quality is anticipated.

6.4 Decommissioning Phase

The proposed residential housing development is considered to be permanent and thus there will be no decommissioning phase. Any maintenance works on the site would be likely to have similar impacts

in terms of disturbance to those associated with the construction phase of the project as detailed in previous sections.

6.5 Impacts on Designated Sites

6.5.1 Impacts on European Sites

The EPA draft Guidance 2017 states:

> *"a biodiversity section of an EIAR, should not repeat the detailed assessment of potential effects on European sites contained in a Natura Impact Statement"* but should *"incorporate their key findings as available and appropriate"*.

The potential for impact on European sites has been fully assessed in the Appropriate Assessment Screening Report (AASR) that has been prepared in support of the current application. No EU designated sites were identified as being within the zone of likely impact.

The AASR concludes as follows:

> *'It is concluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the proposed works, individually or in combination with other plans and projects, will not have a significant effect on any European Site*'.

6.5.2 Impacts on Nationally Designated Sites and Ramsar Sites

Impacts on nationally designated sites including proposed natural heritage sites (pNHAs), natural heritage sites (NHAs) and Ramsar sites are considered in this section of the report. No NHAs, pNHAs or Ramsar sites were identified as being in the likely zone of impact in the desk study.

No significant effects on nationally designated sites are anticipated.

7. CUMULATIVE IMPACT ASSESSMENT

Where the requirement for further assessment of the potential cumulative or in combination effects of the proposed development on any of the identified KERs was identified in Section 5, that assessment is provided below.

7.1 Review of other Projects

The potential for the proposed works to contribute to a cumulative impact on European Sites was considered. The online planning system for Mayo County Council was consulted on the 13/04/2021. Additional projects identified in the area include;

- Planning permission to construct sheep shed and ancillary works (i.e. concrete yard/sheep handling areas for agricultural purposes only in a new farmyard utilising existing entrance to field). Planning reference: 17261
- Planning permission to construct an extension and make alterations to existing dwelling house together with all ancillary site works. Planning reference: 19132
- Planning permission to construct an extension and make alterations to existing dwelling house together with all ancillary site works. Planning reference: 15704
- Planning permission to construct new extension to the side of the existing dwelling house along with works and ancillaries. Planning reference: 18332
- Planning permission to construct two new dormer type window to rear of property (replacing existing velux type windows). Planning reference: 166
- Planning permission to change of use of ambulance base at Mulranny amenity centre to community shop with ancillary works, siteworks and services. Planning reference: 13229
- Planning permission to change of use of the existing shop to fishmongers and retail unit. Planning reference: 17836
- Planning permission to construct 6 self-contained eco pods, with amenity and shower facility building with connection to existing public services, together with associated site works. Planning reference: 19768.
- Planning permission to construct 2 no. Dwelling houses, with connection to public sewer. Planning reference: 15476
- Planning permission essential repairs to existing 38kv line between Wewport station and Achill station. Works will include replacing existing double wood poles, stays and headgear in the townlands of Carrickaneady, Clooneshil, Drumlong, Camcloon, Derryloughan, Derrintaggart, Kiltarnagh, Shanvallyhugh, Derrada, Derrycooldrim, Carrowsallagh, Knockbreaga, Tiernaur, Rossgaliv, Rosstur, Bunnahown, Murrevagh, Mallaranny, Cois Leice, An Abhainn Dubh, Ton Re Gaoth, Poll Raithni. Planning Reference: 17872

7.2 Conclusion of Cumulative Assessment

The proposed development has been assessed, taking full consideration of the cumulative and in-combination effects acting together with effects from past, present or reasonably foreseeable projects. The proposed development will not result in any significant residual effects on any ecological receptors or Designated Sites. Therefore, there is no potential for the proposal to contribute to any potential for cumulative impacts in this regard when considered in-combination with other plans and projects. Similarly, the proposed development will not result in significant effects in relation to water quality, given the design and layout of the proposal and the best practice construction measures outlined in section 2 of this report.

In the review of the projects that was undertaken, no connection between the site, that could potentially result in additional or cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the proposed

development. Taking into consideration the reported residual effects from other plans and projects in the area and the predicted effects with the current proposal, no residual cumulative effects have been identified.

8. DEVELOPMENT CONTEXT - ECOLOGICAL PLANS AND POLICIES

8.1.1 Plans

Table 8-1 Review of plans and policies

Key Policies/Issues/Objectives Directly Related to European Sites in The Zone of Influence	Assessment of Potential Impact on European Sites
Mayo Draft County Development Plan 2021 – 2027	
NEP1: To support the protection, conservation and enhancement of the natural heritage of County Mayo, including the protection of the integrity of European sites, that form part of the Natura 2000 network, the protection of Natural Heritage Areas, proposed Natural Heritage Areas Ramsar Sites, Nature Reserves and Wild Fowl Sanctuaries (and other designated sites including any future designations).	The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts on EU designated sites or Annex listed protected species were identified when considered in conjunction with the current proposal. The proposed project will not adversely affect any nationally designated site or protected species. Existing woodland within the site will be enhanced by removal of invasive species and planting of native tree species. New amenity areas will be created and will incorporate pollinators and native tree species. Best practice and mitigation measures for the prevention of the spread of invasive species will be adhered to as outlined in section 2.2 and 6.2.1.3 of this report.
NEP2: To support the implementation of the National Biodiversity Action Plan 2017-2021, the National Pollination Plan 2015-2020 and County Mayo Biodiversity Plan 2015 - 2020 and any future editions, in partnership with relevant stakeholders, subject to available resources.	
NEP4: To conserve and enhance the county's biodiversity and ecological connectivity, identified areas of local biodiversity importance (Local Biodiversity Areas) in the towns and villages in Mayo.	
NEO4: To protect and enhance biodiversity and ecological connectivity in County Mayo, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, stonewalls, geological and geo-morphological systems, other landscape features and associated wildlife, where these form part of the ecological network. **NEO6:** To protect surface waters, aquatic and wetland habitats and freshwater and water-dependent species through the implementation of all appropriate and relevant Directives and transposed legislation and seek to protect and conserve the quality, character and features of inland waterways by controlling developments close to navigable and non-navigable waterways.	
NEO7: To seek the protection of the riparian zones of watercourses throughout the county, recognising the benefits they provide in relation to flood risk management, their protection of the ecological integrity of watercourse systems.	

Key Policies/Issues/Objectives Directly Related to European Sites in The Zone of Influence	Assessment of Potential Impact on European Sites
NEO8: To maintain, protect and where possible enhance bogs, fens and turloughs, where appropriate, in County Mayo.	There will be no adverse effects on water quality or downstream sensitive aquatic receptors as a result of deterioration in water quality. The surface water network has been designed in line with standard sustainable urban drainage best practice and surface water will discharge to the public stormwater network. Wastewater from the proposed development will discharge to the existing public wastewater network. The wastewater layout has been designed in accordance with Irish Water's latest standard details and codes of practice. Best practice pollution prevention measures will be adhered to avoid effects on water quality, as outlined in section 2.2 of this report.
NEO9: Recognise the importance of woodlands, tree lines, hedgerows, stonewalls, watercourses and associated riparian vegetation to support bat populations and where possible developments will be encouraged to retain such features.	
NEO13: To ensure the protection of trees or groups of trees protected under Tree Preservation Orders, as well as recognise the value and encourage the retention and management of other trees and woodlands, which make a valuable contribution to the character of the landscape, ecological corridors, green infrastructure, a settlement or its setting.	
NEP8: To support measures for the prevention and/or eradication of invasive species as appropriate within the county.	
NEO14: To ensure that where the presence of invasive species is identified at the site of any proposed development or where the proposed activity has an elevated risk of resulting in the presence of these species, details of how these species will be appropriately managed and controlled will be required.	
NEP19: To protect existing groundwater sources and aquifers in the county and to manage development in a manner consistent with the protection of these resources.	
NEP20: To meet our targets to achieve 'good status' in all water bodies in compliance with the Water Framework Directive and to cooperate with the implementation of the National River Basin Management Plan 2018-2021, and subsequent plans.	
NEP21: To manage, protect and enhance surface water and ground water quality to meet the requirements of the Water Framework Directive.	
Mayo county development plan 2014 – 2020	
WQ-01 - It is an objective of the Council to implement the Western River Basin District Management Plan "Water Matters" 2009-2015 to ensure the protection, restoration and sustainable use of all waters in the County, including rivers, lakes, groundwater, coastal and transitional waters, and to restrict development likely to lead to deterioration in water quality or quantity.	The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No

Key Policies/Issues/Objectives Directly Related to European Sites in The Zone of Influence	Assessment of Potential Impact on European Sites
NH-01 - It is an objective of the Council to protect, enhance, conserve and, where appropriate restore: a) Candidate Special Areas of Conservation, Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and proposed National Heritage Areas, Statutory Nature Reserves, Ramsar Sites and Biogenetic Reserves, including those listed in the Environmental Report documenting the Strategic Environmental Assessment of this plan and any modifications or additional areas that may be so designated during the lifetime of the plan. b) Natural habitats and plant and animal species identified under the Habitats Directive, Birds Directive, Wildlife Act and the Flora Protection Order, or any other relevant legislation that may be implemented during the lifetime of the plan. c) Features of natural interest and amenity, which provide a unique habitat for wildlife including ecological networks (including ecological corridors and stepping stones), riparian zones, hedgerows, stonewalls and shelterbelts. g) Surface waters, aquatic and wetland habitats and freshwater and water-dependent species through the implementation of all appropriate and relevant Directives and transposed legislation.	potential for cumulative impacts on EU designated sites or Annex listed protected species were identified when considered in conjunction with the current proposal. The proposed project will not adversely affect any nationally designated site or protected species. Existing woodland within the site will be enhanced by removal of invasive species and planting of native tree species. New amenity areas will be created and will incorporate pollinators and native tree species. Best practice and mitigation measures for the prevention of the spread of invasive species will be adhered to as outlined in section 2.2 and 6.2.1.3 of this report. There will be no adverse effects on water quality or downstream sensitive aquatic receptors as a result of deterioration in water quality. The surface water network has been designed in line with standard sustainable urban drainage best practice and surface water will discharge to the public stormwater network. Wastewater from the proposed development will discharge to the existing public wastewater network. The wastewater layout has been designed in accordance with Irish Water's latest standard details and codes of practice. Best practice pollution prevention measures will be adhered

Key Policies/Issues/Objectives Directly Related to European Sites in The Zone of Influence	Assessment of Potential Impact on European Sites
	to avoid effects on water quality, as outlined in section 2.2 of this report.

9. CONCLUSION

Taking the above information into consideration and having regard to the precautionary principle, it is considered that the proposed development will not result in the loss of habitats or species of high ecological significance and will not have any significant effects on the ecology of the wider area.

The potential residual impacts on ecological receptors will not be significant and no potential for the proposed development to contribute to any cumulative impacts on biodiversity when considered in-combination with other plans and projects was identified.

Provided that the development is constructed in accordance with the design and best practice that is described within this application, significant effects on biodiversity are not anticipated at any geographic scale.

BIBLIOGRAPHY

Birds Directive (2009/47/EC) – http://ec.europa.eu/environment/naturelegislation/birdsdirective /index _en.htm

BirdWatch Ireland websitehttp://www.birdwatchireland.ie/

DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. DEHLG, Dublin.

DoEHLG (2010). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Revision, February, 2010. Department of the Environment, Heritage and Local Government.

EC (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC.

EC (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, Office for Official Publications of the European Communities, Luxembourg. European Commission.

EC (2007a) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission. Office for Official Publications of the European Communities, Luxembourg. European Commission.

EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission, DG Environment.

EC (2018) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission.

Edwards, C. (2006). Managing and controlling invasive rhododendron. Forestry Commission Practice Guide. Forestry Commission, Edinburgh, i-iv + 1-36pp.

EPA website: http://www.epa.ie.

EPA (2010) McGarrigle *et al.*, Water Quality in Ireland 2007-2009

European Communities (Conservation of Wild Birds) Regulations, 1985, SI 291/1985 & amendments – http://www.irishstatutebook.ie.

European Communities (Environmental Impact Assessment) Regulations, 1989 to 2006.

European Communities (Natural Habitats) Regulations, SI 94/1997, SI 233/1998 & SI 378/2005 – http://www.irishstatutebook.ie.

Fossitt, J. A. (2000). A Guide to Habitats in Ireland. Dublin: The Heritage Council.

Habitats Directive (92/43/EEC).

National Biodiversity Data Centre website http://www.biodiversityireland.ie/

NPWS (2013) The Status of EU Protected Habitats and Species in Ireland. Conservation Status in Ireland of Habitats and Species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC.

NPWS of the DEHLG (2013) The Report on Status of Habitats and Species in Ireland: Technical Reports and Forms.

NPWS Protected Site Synopses available on http://www.npws.ie/en/ProtectedSites/.

NRA (2010). Guidelines on management of noxious weeds and non-native invasive plant species on national roads. National Roads Authority.

Preston C.D. et. al. (2002). New Atlas of the British and Irish Flora. Oxford University Press.

Water status data available on http://www.epa.ie and http://www.wfdireland.ie

Wildlife Act 1976 and Wildlife (Amendment) Act 2000.

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC (codified version of Directive 79/409/EEC as amended) (Birds Directive) – transposed into Irish law as European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011).

APPENDIX 1

CONFIRMATION OF FEASIBILITY LETTER FROM IRISH WATER

Connor Daly

Unit 9, N5 Business Park,
Castlebar
Co. Mayo
F23E283

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

30 March 2021

Re: CDS21001644 pre-connection enquiry - Subject to contract | Contract denied

Connection for Housing Development of 16 unit(s) at Murrevagh, Mulranny, Mayo

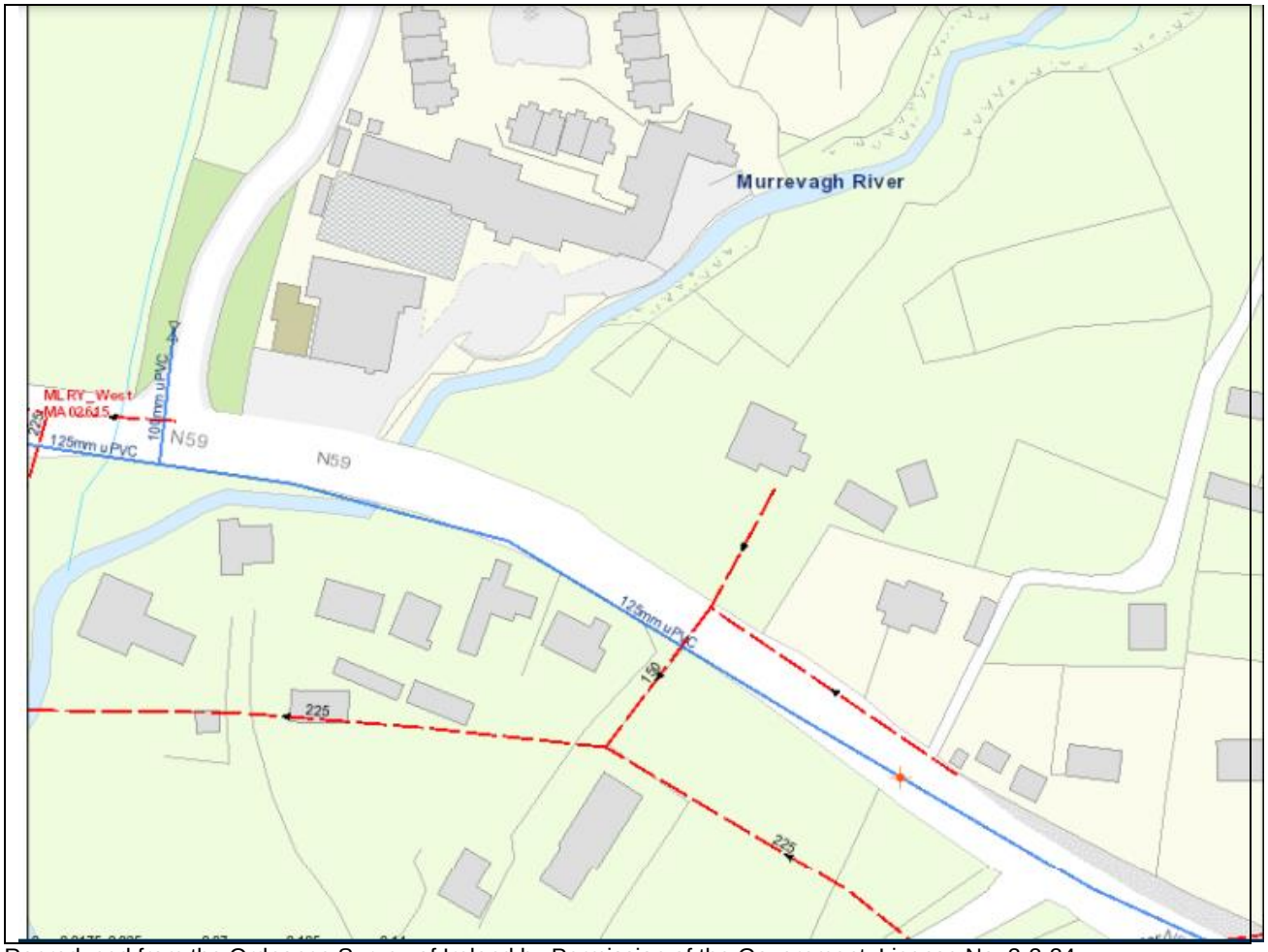
Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Murrevagh, Mulranny, Mayo (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	**OUTCOME OF PRE-CONNECTION ENQUIRY** **THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.**
Water Connection	Feasible without infrastructure upgrade by Irish Water
Wastewater Connection	Feasible without infrastructure upgrade by Irish Water
SITE SPECIFIC COMMENTS	
Water Connection	There should be sufficient access for Irish Water to operate and maintain the proposed water mains in future, the area of the proposed water main to the south of proposed houses 01 – 05 appears to have limited access. Compliance with Drawing STD-W-11, STD-W-12, STD-W-12A shall be adhered to regarding separation distances from other services, boundary walls, trees, etc…
Wastewater Connection	Again there appears to be limited access to operate and maintain the proposed foul sewer to the south of proposed houses 01 – 05. Compliance with Drawing STD-WW-05, STD-WW-06, STD-WW-06A shall be adhered to regarding separation distances from other services, boundary walls, trees, etc… Please note, there is an existing Irish Water owned 150mm dia. foul sewer crossing the site, if you believe any works will have an impact on any Irish Water assets or a diversion is required, please contact the diversions team

	at diversions@water.ie. For more information, please see go to the link below: https://www.water.ie/connections/developer-services/diversions/
The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.	

The map included below outlines the current Irish Water infrastructure adjacent to your site:



Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

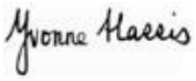
Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

General Notes:

1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**
2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at https://www.water.ie/connections/get-connected/
5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
6) Irish Water Connection Policy/ Charges can be found at https://www.water.ie/connections/information/connection-charges/
7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
9) To access Irish Water Maps email datarequests@water.ie
10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Cormac Healy from the design team by email to corhealy@water.ie For further information, visit **www.water.ie/connections.**

Yours sincerely,



Yvonne Harris

Head of Customer Operations

APPENDIX 2

DRAWINGS

(PART 8) SITE PLAN OVERVIEW

SCALE: 1 : 500

0m 50m 100m

SCALE 1:500 **NOTE: 1:500 @ A1 1:1000 @ A3**

ITM COORDINATES: 483904E, 796716N
PROPOSED SITE SUBJECT TO THIS APPLICATION OUTLINED IN RED 1.0793 HECTARES (10793m2)
16 NO HOUSING UNITS PROPOSED-14.8 UNITS PER HECTARE-DENSITY 14.8%

ADJOINING SITE OWNED BY MAYO COUNTY COUNCIL OUTLINED IN BLUE

EXISTING FLOOD ZONE WITHIN SITE

EXISTING MURREVAGH RIVER
PROPOSE RIVERSIDE WALK -SUITABLE FOR STREAMSIDE ZONE (WITHOUT FORMAL PATHWAYS SO THAT NATURAL LANDSCAPE IS UNDISTURBED)- ALONG RIVER- TO BE LINKED TO GREENWAY TO NORTH OF SITE- TO MAYO COUNTY COUNCIL DETAILS.

ENTRANCE VISIBILTY AREA IN COMPLIANCE WITH MAYO DEVELOPMENT PLAN (3M DEEP AT ENTRANCE-70M WEST SIDE- 90M EAST SIDE ALLOWING FOR TRAFFIC TO SLOW DOWN)-INSIDE VILLAGE SPEED LIMIT OF 50KM

EXISTING DERELICT HOUSE & SHEDS TO BE REMOVED

SITE NOTICE LOCATION

Green Area 01 approx 315m2
Green Area 02 approx 1436m2
Green Area 02 approx 1107m2
Green Area total approx 2852m2
Site Area approx 10793m2 therefore
approx 26%- more than min 15% (1619m2) required in development plan.

(90) Green Area note

SCALE: 1 : 500

8 no 3 Bed Dwellings- 2 no car spaces per unit provided- 16 no.
8 no 2 Bed Dwellings- 1 no car space per unit provided- 8 no
16 no Dwellings in total- 1 no car space per unit provided- 16 no.
Total of 40 no car spaces provided in compliance with table 8 of Mayo County Development plan
Min 3 no spaces included within total to be accessible. Provisions provided are in accordance with Mayo County Development plan.

On street parking selected in preference to private parking as strategy to encourage "Active Streets" in compliance with DMURS guidelines.

Secure bike parking is accommodated within sheds provided within private gardens of each unit.
1 no bike space required per pair of dwellings- therefore 8 no bike spaces to be provided in public area. Bike spaces provision in compliance with Smarter travel policy and table 7 of Mayo County Development plan

(90) Parking note

SCALE: 1 : 500

2 BED DORMER-SCHEDULE- PART 8	
HT-COMMENT	Name
2B-4P-TERRACE	02
2B-4P-TERRACE	03
2B-4P-TERRACE	04
2B-4P-END	05
2B-4P-GABLE-ENTRANCE	06
2B-4P-SOUTH-REAR-END-HANDED	10
2B-4P-SOUTH-REAR-TERRACE	11
2B-4P-SOUTH-REAR-END	14

TOTAL NUMBER OF 2 BED 4 PERSON DORMER UNITS: 8

3 BED DORMER-SCHEDULE-PART 8	
HT-COMMENT	Name
3B-6P-GABLE-ENTRANCE	01
3B-6P-SOUTH-REAR-TERRACE	07
3B-6P-SOUTH-REAR-TERRACE-HANDED	08
3B-6P-SOUTH-REAR-END	09
3B-6P-SOUTH-REAR-TERRACE	12
3B-6P-SOUTH-REAR-TERRACE-HANDED	13
3B-6P-END	15
3B-6P-DORMER	16

TOTAL NUMBER OF 3 BED 6 PERSON DORMER UNITS: 8

PART 8 DEVELOPMENT NOTES

SITE:

THE SITE IS LOCATED ON THE N59 ON THE EAST SIDE OF MULRANNY VILLAGE.
THE PROPOSED ENTRANCE IS ON THE VILLAGE SIDE OF THE EXISTING 50KM SPEED LIMIT SIGN AND NEW ENTRANCE COMPLIES WITH VISIBILITY REQUIREMENTS.

PROPOSAL:

16 NO NEW DORMER SCALE DWELLING UNITS WITH ENCLOSED PRIVATE GARDENS TO REAR. SCALE, MASSING, ARCHITECTURAL EXPRESSION AND DETAILING ARE DESIGNED TO BE IN KEEPING WITH THE TRADITIONAL HOUSES OF THE AREA. PEDESTRIAN FOOTPATHS SLOPED AS "GENTLY SLOPING PATHS" IN COMPLIANCE WITH TGD M (COMBINED IN SOME LOCATIONS WITH RAMPS & STEPS TO LIMIT SITE EXCAVATION) TO ALLOW UNIVERSAL PEDESTRIAN ACCESS BETWEEN ALL UNITS/ SITE ENTRANCE AND ON-STREET PARKING. ACTIVE FRONTAGE TO ALL STREETS PROVIDED (SET BACK FROM PATHS LESS THAN 3M & REMOVING CAR PARKING FROM FRONT GARDENS) TO ENCOURAGE PEDESTRIAN ACTIVITY IN ACCORDANCE WITH DMURS GUIDANCE. PLANTED PRIVACY STRIPS PROVIDED TO FRONTS OF DWELLINGS TO CLEARLY DELINEATE BETWEEN PUBLIC & PRIVATE DOMAIN. LEVELS SET UP SUIT SITE COUNTOURS AND MINIMISE RETAINING STRUCTURES. SPEED LIMIT WILL BE LIMITED TO 30KM/ H THEREFORE CYCLISTS AND VEHICLES CAN SHARE ACCESS ROUTE SAFELY. ON STREET PARKING PROVIDED (SUITABLE FOR DENSITIES LOWER THAN 35 DWELLINGS PER HA)-CALMS TRAFFIC-ACTS AS BUFFER BETWEEN PATHS & ROADWAY AND ENSURES GOOD LEVEL OF PASSIVE SECURITY.

UNIT FINISHES:

EXTERNAL ROOF FINISH : SLATE BLUE BLACK IN COLOUR
EXTERNAL WINDOWS & DOORS : TIMBER ALU CLAD FRAMES WITH HIGHLY EFFICIENT GLAZING (MAX 0.8W/MK) -FINISHED IN SELECTED COLOURS TO DETAIL.
EXTERNAL WALLS : GENERALLY MASONRY WITH RENDERED FINISH PAINTED TO SELECTED NEUTRAL COLOUR
DECORATIVE METAL FINISH: METAL FINISH WITH STANDING SEAM PROFILE IN NEUTRAL COLOUR TO SELECTED AREAS (DORMER WALL FINISHES AND PORCH CANOPY FASCIAS)

N

Do not scale this drawing. Use written dimensions only

- **Scales as stated are valid on the original drawing only. Written dimensions take precedence. Detail dimensions take precedence over plan dimensions.**
- **Notify architect of any dimensional discrepancies. Any modifications or deviation to be brought to the attention of the architect for review and approval.**
- **All vertical dimensions shall be taken from a "bench mark" or other similar guide established prior to the start of construction. High points, low points, irregularities in floor slab which could affect fabrication / installation, work of other trades or vendors shall be brought to the attention of Mayo County Council Architects immediately.**
- **All drawings are to be read in conjunction with other consultant's drawings**
- **All dimensions, unless otherwise stated, are given in millimetres and must be confirmed and checked by the Contractor on site.**
- **Levels are generally given in metres from a specified datum.**
- **All Levels must be confirmed and checked by the Contractor on site.**
- **Any discrepancies on this drawing are to be brought to the attention of Mayo County Council Architects immediately.**

STATUS KEY

SHARED / FOR INFORMATION
S0 WORK IN PROGRESS
S1 COORDINATION
S2 INFORMATION
S3 REVIEW / COMMENT
S4 CONST APPROVAL
D1 COSTING
D2 TENDER
D3 CONTRACTOR DESIGN

PUBLISHED
A1 PTB / FSC/ DAC
A2 CONSTRUCTION
AB AS-BUILT

Rev No.	Date	Comment

Dá is Muire Iosa

ARCHITECTS DEPARTMENT
MAYO COUNTY COUNCIL

Purpose of Issue: **PART 8 APPLICATION**

RIAI

Project No: A597	Project Title: Housing MURREVAGH, MULRANNY	Dwg Type: PART 8	Status: S0
Drawing Title: SITE PLAN- OVERVIEW		Drawing No.: 1001	Revision: /
		Scale: 1 : 500	First Issue: 21/06/21
Drawn By: CM/ MW	No. - Orig - Cat - Lvl - Type - Role - No. - Status		
Checked By: KK	A597 - MCC - PART 8 - XX - A - 1001 - S0		

MAYO.IE

21/06/2021 11:43:01 C:\Users\cmcgann\Mayo County Council\Architects Section - A597-MURREVAGH_MULRANNY\(A3)\Drawings\REVIT\A597-MCC-90-XX-M3-A-P06.rvt

PRIVATE PLANTERS: PLANTERS FORMED FRONTS OF DWELLINGS TO ENHANCE PRIVACY .

EXISTING TREES: TO BE RETAINED. TREE PROTECTION MEASURES WILL BE UNDERTAKEN IN COMPLIANCE WITH THE EIA.

NEW OPEN SPACE TREES: COMBINATION OF IRISH GROWN SPECIES SUCH AS BIRCH-*BETULA SPP*/ ALDER -*ALNUS GLUTINOSA* / OAK-*QUERCUS SPP*. GENERALLY INTERPLANTED WITH MIX OF SELECTED POLLINATOR SPECIES SUCH AS HORSE CHESTNUT -*AESULUS HIPPCASTANUM*/ JUNEBERRY-*AMELANCHIER SPECIES*/ HAWTHORN -*CRATAEGUS SPECIES*/ APPLE-*MULUS SPECIES*/ FOXGLOVE TREE-*PAULOWNIA TOMENTOSA*/ WILD CHERRY-*PRUNUS AVIUM*/ BIRD CHERRY-*PRUNUS PADUS* /JAPENESE FLOWERING CHEERY-*PRUNUS SERRULATA 'TAI HAKU'*/ PEAR-*PYRUS SPECIES*/ ROWAN-*SORBUS SPECIES*/ WILLOW-*SALIX SPECIES*/ LIME-*TILIA SPECIES*. FINAL DETAILS OF SPECIES AND MIXES TO BE CONFIRMED BY LANDSCAPE SPECIALIST IN FULL COMPLIANCE WITH ALL IRELAND POLLINATOR PLAN 2021-2025

NEW ORNAMENTAL STREET TREES: COMBINATION OF IRISH GROWN NATIVE SPECIES SUCH AS *JUNEBERRY TREE-AMELANCHIER X GRANDIFLORA 'ROBIN HILL'*/ UPRIGHT HAWTHORN -*CRATAGUS MONOGYNA 'STRICTA'*/ PILLAR CRAB -*MALUS TSCHONSKII*/ CARRERY PEAR -*PYRUS ACLLERYANA 'CHANTICLEER* / ROWAN-*SORBUS ACUPARIA VARIETIES*/ LIME -*TILIA CORDATA 'GREENSPIRE'/ TILIA X EUROAEA 'EUCHLORA*. FINAL DETAILS OF SPECIES AND MIXES TO BE CONFIRMED BY LANDSCAPE SPECIALIST IN FULL COMPLIANCE WITH ALL IRELAND POLLINATOR PLAN 2021-2025

EXISTING HEDGEROW: TO BE RETAINED/ ENHANCED AND INTER PLANTED WITH POLLINATOR FRIENDLY NATIVE SPECIES AS PROPOSED FOR NEW HEDGEROWS. FINAL DETAILS OF SPECIES AND MIXES TO BE CONFIRMED BY LANDSCAPE SPECIALIST IN FULL COMPLIANCE WITH ALL IRELAND POLLINATOR PLAN 2021-2025

SURFACE FINISH S1: GRASS: PUBLIC GRASSED AREAS: PERENNIAL WILDFLOWER MEADOW TO BE PLANTED AND MANAGED IN ACCORDANCE WITH ALL IRELAND POLLINATOR PLAN 2021-2025. NOTE THAT POLLINATOR FRIENDLY MOWING REGIME (EG 5 CUTS & LIFTS PER YEAR) TO BE ESTABLISHED.

PROTECTION OF BATS: A PRE-CONSTRUCTION SURVEY WILL BE UNDERTAKEN ON ALL STRUCTURES TO BE DEMOLISHED IN FULL COMPLIANCE WITH THE EIA. EXISTING TREES TO BE REMOVED WHERE WILL BE FELLED BY A QUALIFIED ECOLOGIST TO ENSURE NO BATS PRESENT. PROPRIETARY BAT BOXES WILL BE ERECTED ON MATURE TREES WITHIN WOODLAND HABITAT NEAR THE RIVER IN COMPLIANCE WITH EIA. BAT FRIENDLY STREET LIGHTING TO BE PROVIDED IN FULL COMPLIANCE WITH 6.3.2.2 OF EIA (*FINAL DETAILS TO BE CONFIMRED BY LIGHTING SPECIALIST- GROUND LIGHTING PREFERABLE INSTEAD OF STREET LAMPS).*

NEW NATIVE HEDGREROW: COMBINATION OF IRISH GROWN NATIVE SPECIES SUCH AS HAWTHORN -*CRATAEGUS SPEICIES* (APPROX 75%) WITH APPROX 25% MIX OF OTHER SPECIES SUCH AS WILLOW, BLACKTHORN, HAZEL, HOLLY, DOG ROSE, BROOM/ WILD CHEERY/ CRAB APPLE/ HONEYSUCKLE/ WILD ROSE/ WILD RASBERRY/ WHIN & GELDER. FINAL DETAILS OF SPECIES AND MIXES TO BE CONFIRMED BY LANDSCAPE SPECIALIST IN FULL COMPLIANCE WITH ALL IRELAND POLLINATOR PLAN 2021-2025

NEW SHRUB PLANTING: COMBINATION OF IRISH GROWN NATIVE SPECIES SUCH AS STRAWBERRY TREE-*ARBUTUS UNEDO*/ EBBINGES SILVERYBERRY-*ELAEGNUS X EBBINGIE*/ SILVERTHORN-*ELAEGNUS PUNGENS*/ PURPOSE HONEYSUCKLE-*LONICERAXPURPUSII*/ LAUUSTINUS-*VIBURNUM TINUS*/ BLACKCURRANT-RIBES NIGRUM/ REDCURRANT-RIBES RUBRUM/ BLUEBERRY-VACCINIUM CORYMOSUM.FINAL DETAILS OF SPECIES AND MIXES TO BE CONFIRMED BY LANDSCAPE SPECIALIST IN FULL COMPLIANCE WITH ALL IRELAND POLLINATOR PLAN 2021-2025

NEW WOODLAND PLANTING : COMBINATION OF NATIVE IRISH GROWN NATIVE SPECIES SUCH AS BLUEBELLS/ BRASSICA/ DEAD NETTLES/ FOXGLOVE/ HOGWEED/ LADY'S BEDSTRAW/ LESSER CELANDINE/ WELD/ RAMSONS/ RED CAMPION/ WILLOWHERB/ WOUNDWORTS/ VETHCES/ WILD STRAWBERRY/ CROCUS/ SNOWDROP. FINAL DETAILS OF SPECIES AND MIXES TO BE CONFIRMED BY LANDSCAPE SPECIALIST IN FULL COMPLIANCE WITH ALL IRELAND POLLINATOR PLAN 2021-2025

REMOVAL OF RHODODENDRON AND GIANT RHUBARB (GUNNERA TINCTORIA) INVASVICE SPECIES IN FULL COMPLIANCE WITH 6.2.1.3 OF THE ECOLOGICAL IMPACT ASSESSMENT (EIA)

PROPOSED SITE SUBJECT TO THIS APPLCIATION **OUTLINED IN RED** 1.0793 HECTARES (10793m2), 16 NO HOUSING UNITS PROPOSED-14.8 UNITS PER HECTARE-DENSITY 14.8%

ADJOINING SITE OWNED BY MAYO COUNTY COUNCIL OUTLINED IN BLUE

EXISTING FLOOD ZONE WITHIN SITE

EXISTING MURREVAGH RIVER-SUGGEST IF FEASBILE- RIVERSIDE WALK SUITABLE FOR STREAMSIDE ZONE (WITHOUT FORMAL PATHWAYS SO THAT NATURAL LANDSCAPE IS UNDISTURBED)- ALONG RIVER LINKED TO GREENWAY TO NORTH OF SITE- TO MCC DETAILS.

EXISTING DERELICT HOUSE & SHEDS TO BE REMOVED

3 BED (6 PERSON) DORMER SCALE DWELLING- 8 NO TOTAL

2 BED (4 PERSON) DORMER SCALE DWELLING- 8 NO TOTAL

Do not scale this drawing. Use written dimensions only

- Scales as stated are valid on the original drawing only. Written dimensions take precedence. Detail dimensions take precedence over plan dimensions.
- Notify architect of any dimensional discrepancies. Any modifications or deviation to be brought to the attention of the architect for review and approval.
- All vertical dimensions shall be taken from a "bench mark" or other similar guide established prior to the start of construction. High points, low points, irregularities in floor slab which could affect fabrication / installation, work of other trades or vendors shall be brought to the attention of Mayo County Council Architects immediately.
- All drawings are to be read in conjunction with other consultant's drawings
- All dimensions, unless otherwise stated, are given in millimetres and must be confirmed and checked by the Contractor on site.
- Levels are generally given in metres from a specified datum.
- All Levels must be confirmed and checked by the Contractor on site.
- Any discrepancies on this drawing are to be brought to the attention of Mayo County Council Architects immediately.

SURFACE FINISH S2: VEHICULAR ROADWAY: PERMEABLE ASPHALT FINISH TO STRUCTURAL ENGINEERS SPECIFICATION AND DETAILS. FINISH COLOURS MAY BE VARIED TO SLOW TRAFFIC SUBJECT TO DETAIL.

SURFACE FINISH S3: HOME ZONE TURNING AREA: PERMEABLE PAVED FINISH AS PER S5. DIMENSIONS TO ALLOW TURNING FOR FIRE APPLIANCE AS PER TGD B & SERVICE VEHICLE.

SURFACE FINISH S4: PUBLIC FOOTPATHS: FORMED WITH PERMEABLE IN-SITU CONCRETE TO STRUCTURAL ENGINEERS SPECIFICATION AND DETAILS. LESS THAN 1:20 FALLS WITH LANDINGS AT MAX RISE 500MM INTERVALS-TO PROVIDE UNIVERSAL ACCESS.

SURFACE FINISH S5: PARKING AREAS: SELECTED PERMEABLE PAVING ON BASE LAYERS TO STRUCTURAL ENGINEERS SPECIFICATION AND DETAILS.

SURFACE FINISH S6: PRIVACY -GRAVEL AREAS: SELECTED NATURAL STONE GRAVEL AGGREGATE ON PROPRIETARY GRAVEL STABILIZER ON GEO-TEXTILE MEMBRANE ON BASE TO STRUCTURAL ENGINEERS SPECIFICATION AND DETAILS

SURFACE FINISH S7: ACCESS VERGE: BUFFER ZONES FINISHED WITH DECORATIVE FINISH (EG PROPRIETARY BONDED STONE AGGREGATE -SUBJECT TO DETAIL) TO STRUCTURAL ENGINEERS SPECIFICATION AND DETAILS.

EXTERNAL STEPS : STEPPED ACCESS IN COMPLIANCE WITH TGD M 1.1 TO BE PROVIDED WHERE INDICATED- FORMED IN CONCRETE TO STRUCTURAL ENGINEER'S DETAIL. RISERS BETWEEN 150 & 180MM. GOINGS BETWEEN 300 & 450MM.

SURFACE FINISH S9 : PEDESTRIAN CROSSING: PAVED FINISH AS PER S5 ABOVE - TRAFFIC CALMING -TO STRUCTURAL ENGINEER'S DETAIL.

NEW BOUNDARY STONE WALLS TO MATCH EXISTING AND NEW BOUNDARY TYPE B6 WALLS: FORMED WITH SELECTED STONE FINISH TO PUBLIC SIDES- NATURAL STONE CAPPINGS. RENDERED BLOCKWORK TO FACING OF PRIVATE GARDENS ONLY. 2000MM HIGH WHEN SCREENING REAR GARDENS. WHEN IN-FILLING EXISTING WALLS- HEIGHT TO MATCH EXISTING.

BOUNDARY TYPE B8: TIMBER PALISADE FENCING : MIN 2000MM HIGH TIMBER PALLISADE FENCE TO ENGINEERS SPECIFICATION AND DETAILS TO ENSURE PRIVACY TO REAR GARDENS

CONCRETE WALL: FORMED IN EXPOSED CONCRETE (BOARD MARKED) TO ENGINEERS DETAIL & SPECIFICATION. HEIGHTS VARY- TO CONCEAL BINS & ALLOW PROVISION OF METER BOARDS TO FRONTS OF TERRACED HOUSES/ TO PROVIDE KERB EDGES TO GENTLY SLOPED PATHS.

GATE: TIMBER PEDESTRIAN ACCESS- BIN STORE GATES- AGRICULTURAL GATE TO FIELD

EXISTING BOUNDARIES: EXISTING STONE WALL TO ROADSIDE AND EXISTING STONE WALLS TO REAR AREAS TO BE RETAINED. WHERE EXISTING STONE WALLS ADJOIN PRIVATE REAR GARDENS NEW PALLISADE TIMBER FENCING TO BE PROVIDED FOR PRIVACY.

NEW INFILL STONE WALLS ALONG BOUNDARY TO BE PROVIDED TO MATCH EXISTING. NEW PALLISADE FENCING (MIN 2M HIGH) TO BE ADDED WHERE ALONG PRIVATE REAR GARDEN FOR PRIVACY.

EXISTING STONE WALLS ALONG BOUNDARY TO BE RETAINED- MADE GOOD -NEW PALLISADE FENCING (MIN 2M HIGH) TO BE ADDED WHERE ALONG PRIVATE REAR GARDEN FOR PRIVACY.

N

0m 10m 20m 30m 40m 50m

SCALE 1:250 NOTE: 1:250 @ A1 1:500 @ A3

Purpose of Issue: **PART 8 APPLICATION**

STATUS KEY

SHARED / FOR INFORMATION

S0	WORK IN PROGRESS
S1	COORDINATION
S2	INFORMATION
S3	REVIEW / COMMENT
S4	CONST APPROVAL
D1	COSTING
D2	TENDER - CONTRACTOR DESIGN

PUBLISHED

A1	PTI / FSC/ DAC
A2	CONSTRUCTION
A8	AS-BUILT

Rev No.	Date	Comment

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ARCHITECTS DEPARTMENT
MAYO COUNTY COUNCIL

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Project No: A597	Project Title: Housing MURREVAGH, MULRANNY	Dwg Type PART 8	Status: S0
Drawing Title:	SITE PLAN-PROPOSED SITE LEVELS AND BOUNDARY TREAMENTS	Drawing No. 1002	Revision: /
		Scale: 1 : 250	First Issue: 21/06/21
Drawn By: CM-MW	No. - Orig - Cat - Lvl - Type - Role - No. - Status		
Checked By: CM	A597 - MCC - PART 8 - XX - DR - A - 1002 - S0		

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