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# Ramelton FRS

## Environmental Constraints Study Report

### Donegal County Council

**Report No. W3639-ENV-R003**
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Comhairle Contae Dhún na nGall
Donegal County Council

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# Contents

## Figures

## Tables

# Terms and Abbreviations

| | |
|---|---|
| % | Percentage |
| I | One |
| II | Two |
| III | Three |
| IV | Four |
| V | Five |
| ACA | Architectural Conservation Area |
| AEP | Annual Exceedance Probability |
| AFA | Area for Further Assessment |
| AlluviMIN | EPA geoportal code for mineral alluvium |
| AminDW | EPA geoportal code for deep well drained mineral (derived from mainly acidic parent materials) |
| AminPD | EPA geoportal code for deep poorly drained mineral (derived from mainly acidic parent materials) |
| AminPDPT | EPA geoportal code for poorly drained mineral soils with peaty topsoil (derived from mainly acidic parent materials) |
| AminSP | EPA geoportal code for shallow poorly drained mineral soil (derived from mainly acidic parent materials) |
| AminSW | EPA geoportal code for shallow well drained mineral (derived from mainly acidic parent materials) |
| AQIH | Air Quality Index for Health |
| BL | ByrneLooby |
| BminSP | EPA geoportal code for shallow poorly drained mineral soil (derived from mainly basic parent materials) |
| BminSW | EPA geoportal code for shallow well drained mineral (derived from mainly basic parent materials) |
| c. | Approximately |
| CDP | Council Development Plan |
| CEMP | Construction Environmental Management Plan |
| CFRAMS | Catchment Flood Risk Assessment and Management Study |
| Co. | County |
| COVID-19 | Coronavirus disease 2019 |
| DCCAE | Department of the Environment, Climate and Communications |
| DHLGH | Department of Housing, Local Government and Heritage |
| DCC | Donegal County Council |
| EC | Executive Council |

| | |
|---|---|
| EIA | Environmental impact assessment |
| EIAR | Environmental impact assessment report |
| Eir | Eircom Limited |
| EirGrid | EirGrid Group |
| EPA | Environmental Protection Agency |
| ESB | Electricity Supply Board |
| EU | European Union |
| FAQ | Frequently asked questions |
| FRMP | Flood Risk and Management Plan |
| FRS | Flood Relief Scheme |
| GIS | Geographic Information Systems |
| GSI | Geological Survey Ireland |
| HLC | Historic Landscape Characterisation |
| IFI | Inland Fisheries Ireland |
| km | Kilometres |
| $km^2$ | Kilometres squared |
| kV | Kilovolt |
| LAP | Local Area Plan |
| LCA | Landscape Character Assessment |
| Made | EPA geoportal code for made ground |
| m | meter(s) |
| mm/yr | Millimeters per year |
| NBDC | National Biodiversity Data Centre |
| NHA/ pNHA | Natural Heritage Areas / Proposed Natural Heritage Areas |
| NIAH | National Inventory of Architectural Heritage |
| NMS | National Monuments Service |
| NPWS | National Parks and Wildlife Service |
| NRA | National Road Schemes |
| NTA | National Transport Authority |
| NWNB CFRAM | North Western – Neagh Bann (NWNB) Catchment Flood Risk Assessment and Management (CFRAM) Study |
| NWRM | National Water Retention Measures |
| OPW | Office of Public Works |
| pe | Population Equivalent. |

| | |
|---|---|
| Pers. Comm. | Personal Communication |
| QI | Qualifying Interests |
| Q-value | Biological River Quality Classification System |
| RMP | Record of Monuments and Places |
| RPS | Record of Protected Structures |
| SAC | Special Areas of Conservation |
| SCI | Sites of Community Importance OR Species of Conservation Interest |
| SEA | Strategic Environmental Assessment OR Social and Environmental Assessment |
| SI | Site Investigation OR Statutory Instrument |
| SMR | Sites and Monuments Record |
| SPA | Special Protection Area |
| sp. | Species (singular) |
| spp. | Species (plural) |
| TII | Transport Infrastructure Ireland |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| WFD | Water Framework Directive |
| WHS | World Heritage Site |
| WwTP | Wastewater Treatment Plant |
| ZAP | Zone of Archaeological Potential |

# Executive Summary

The objective of this project is the identification, design, and submission of a Flood Relief Scheme, to alleviate the risk of flooding for the community of Ramelton. The Scheme will be technically, socially, environmentally and economically acceptable to the standards of the EU Directive on the Assessment and Management of Flood Risk (Floods Directive 2007/60/EC) transposed into Irish Law as SI 122 of 2010.

The possible solution identified in the CFRAM is comprised mainly of construction of hard defences and associated works in locations within the Ramelton (Ráth Mealtain) and surrounding areas, chiefly along the Quays and the banks of the Leannan River and Ramelton River which discharge into Lough Swilly. Potential works along the Newmill River, which also discharges into Lough Swilly, are also being investigated within the project level assessment.

Preferred measures outlined in the CFRAM comprise:

- Flood Defences for River Leannan:
  - Old Tanyard Building
  - Shore Road
- Trash Screen for Ramelton River:
  - Pound Stream
  - Old Corn Mill Bridge

Additional works/investigations identified post CFRAM that may include:

- Investigate flood risk of properties along Newmill River.

Investigate collapse of existing stone wall along the right bank of the River Leannan at Shore Road. The aim of the project at preliminary design stage is to carry out a detailed evaluation of viable flood relief measures, select the best measure or combination of measures and carry out a preliminary design. Catchment based measures to reduce flow and flood peaks will also be considered, if feasible.

A summary of the key constraints identified for each of the environmental disciplines considered as part of the baseline constraints identification exercise is described below. They include:

- Resources and Materials.
- Population and Human Health.
- Hydrology.
- Soils, Geology and Hydrogeology.
- Ecology and Biodiversity.
- Cultural Heritage and Archaeology.
- Landscape and Visual.
- Air Quality.
- Climate Change.
- Noise and Vibration.

| Resources and Materials |
| --- |
| Impacts on services and utilities such as watermains, stormwater drainage, underground powerlines etc. will all need to be considered during the design process. The possible interruption of these services and utilities should be minimised, where possible. Furthermore, impacts on roads, public rights of way and land ownership will need to be considered. |
| Irish Water, in partnership with DCC, is currently developing a sewerage scheme in Ramelton as part of an overarching 'Ramelton, Milford and Rathmullan Sewerage Scheme' project. Infrastructure proposed at Ramelton comprises a pumping station and a 200 mm diameter rising main (Irish Water, 2021). The design and construction of the FRS scheme should be mindful of this future development and manage all interfaces. |

| Population and Human Health |
| --- |
| Urban development may limit access and movement of vehicles/equipment during construction at the following locations:<br>• Pound Street on the Ramelton River<br>• Shore Road<br>During construction of the scheme, traffic restrictions could pose problems for deliveries and site access and traffic management measures will be considered as part of the environmental impact assessment process. The traffic associated with construction works will need to be mindful of the tourist and retail trades.<br>It is also likely that the existing embankments will form part of the new scheme (either as is or upgraded/replaced) such that a maintenance regime post-scheme will be put into place. These works will need to be mindful of the tourist and retail trades also. |
| Sensitive receptors e.g. homes, schools, medical facilities, places of worship, should be considered key constraints in the design of the flood relief scheme. The scheme design should take into account the value (both cultural and economic) of any buildings (residential, retail, etc.) close to the waterbodies' edges or likely to be adversely affected by the scheme within the scheme study area. Medical facilities in the scheme study area (Ramelton Health Centre, Ramelton Community Hospital and Acupuncture Ramelton) are sensitive receptors and must be given due consideration. Flooding events can cause devastation to homes, businesses and local facilities, with social and human health impacts. Their specific protection through adequate flood defences should be considered in the design of the scheme. |
| Other impacts to population that are also concerned with human health, including material assets such as water supply, wastewater treatment, and utilities should also be given due consideration. |

| Hydrology |
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| Surface water bodies in the study area are classed under the Water Framework Directive as 'At risk' of not meeting WFD objective of 'Good' Ecological Status and, additionally, a designated high status river is present. Under WFD requirements, the development of the scheme should incorporate measures to ensure that the hydromorphological conditions of the water body is consistent with the achievement of the required ecological status. Further mitigation should be implemented with regards to the release of suspended solids and accidental releases of |

| Hydrology |
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| pollutants during construction, however these are mentioned in further detail in the Ecology & Biodiversity Section.<br>Measures to protect surface water from leaks/spills, contamination, increased turbidity or input of suspended solid, etc, should be considered. |
| Contamination potentially present on site from historical land use must also be considered. The CEMP for the scheme will include measures to avoid mobilising and/or creating pathways for any contaminants present on site to the surface where surface runoff can introduce contaminants to surface water during enabling and construction works. |
| Measures to protect active national water monitoring stations and hydrometric gauges and avoid impacting their data collection processes should be considered during design and construction phases. The scheme design and schedule will need to take into consideration the development of any WWTPs, water abstraction facilities or third party 'WFD' projects in the vicinity of the scheme area, including potential impacts to utilities and infrastructure. |
| Potential impacts on the hydrology and morphology of the study area watercourses during construction, maintenance and operations should be considered. It is recommended that the hydrological and morphological (physical condition) regime of all waterbodies which might be affected by the scheme are fully considered to ensure that the WFD hydro-morphological status is unaffected. |
| The scheme should take into consideration water quality sensitive protected species, including Annex II species and qualifying interests for the SAC, recorded in waterbodies in the scheme area and vicinity. Additionally, water dependant terrestrial ecosystems are present within the study area and downstream and should be considered. The scheme should take into consideration the presence of protected water resources in the study area (Lough Swilly SAC and Lough Swilly SPA). |

| Soils, Geology and Hydrogeology |
| --- |
| Made ground and/or contaminated ground: Depending on the scheme design and type of works, for areas where made ground is uncompacted and/or highly variable it may require to excavate and place this material and replace with suitable founding material. This material may also be a possible a source of contamination. As this material will be excavated during construction, it may require contamination testing be undertaken during the detailed site investigation. |
| Contaminated land: The scheme area is located in an area with industrial heritage and commercial properties. If intrusive works are required during construction at locations where known or unknown contaminated land may be present (e.g. from recorded historical land-use), an investigation may be required into determine if land contamination is present and, if present, to determine its nature and extent. |
| Soils and groundwater: Poor draining soils occurring within the scheme footprint are potentially soft and compressible and will likely require a detailed site investigation (SI) in order to design a suitable flood defence scheme. Appropriate environmental controls and management measures will be implemented for any advance SI works, this may include a requirement for AA screening, or an application/notification to NPWS for approval. A CEMP will be developed for construction activities. The CEMP will identify appropriate equipment and construction techniques that should be used in circumstances where there is a potential impact to the environment. Engineering design should minimise the impacts of the flood relief scheme on the sections of river within the study areas and the wide catchment. |

| Soils, Geology and Hydrogeology |
|---|
| Groundwater vulnerability to contamination: Depending on the design of the scheme, works may occur adjacent or within areas where groundwater is classified by the GSI as 'extremely vulnerable' to contamination. Appropriate environmental controls and management measures will be implemented for any advance SI works. A CEMP will be developed for construction activities. A CEMP will be developed for all site investigation works, construction activities and traffic management. |
| Karst features: GSI data indicated that there are no recorded karst features in the study area. However, despite the lack of carbonate lithologies in bedrock in the study area it is prudent to consider that karst features such as caves, swallow holes, weathered rock and dolines may be present and can lead to ground surface and ground instability and are a constraint to be considered in the engineering design of the scheme. |

| Ecology and Biodiversity |
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| The most significant ecological constraint in Ramelton is the Leannan River SAC and Lough Swilly, SAC and SPA, in addition to shellfish protected water status within the wider environs of Lough Swilly. For this reason, any works that are to be carried by adjacent to the lough, or on the banks of waterbodies that feed into the lough, to reduce flooding must take these sensitivities into account. Where at all possible, any in-river and coastal/marine works should be avoided and every effort must be made to minimise, if not avoid, any run off into waterbodies. Options to include the setting back of hard defences from the watercourses/waterbodies will continue to be considered as the design options progress in order to minimise potential impacts on the protected sites. All work that is to be carried out adjacent to waterbodies must be carried out in such a way as to minimise the potential for events such as diesel or concrete spillages, run off of water with suspended sediment loadings or any accidental spillages. If it is considered necessary to re-build in river structures (e.g. culverts, weirs), the same sort of construction approach should be designed in to minimise resuspension and loss of concrete to the river. |
| Appropriate Assessment under Articles 6(3) and 6(4) of the EU Habitats Directive (Directive 92/43/EEC) will be required for the proposed scheme. The Habitats Directive was initially transposed into Irish law in 1997 by the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997)6, with later amendment regulations (S.I. No. 233 of 1998; S.I. No. 378 of 2005). |
| In ecological terms, the river corridors (including the rivers themselves), the coast (including coastal mudflats) and transitional estuarine waters support a number of protected species. Any in-river and bankside works, and costal and estuarine works have to be designed to minimise potential impacts on these (and all other) species. All works should be planned wherever possible to be carried out at times of the year that are ecologically least sensitive e.g. outside bird nesting (March – September) and fish migration periods (Spring/Summer, depending on species). Overwintering and migratory birds must also be considered with regard to potential disturbance during the construction phase. |
| As a European protected species, the otter is fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Any scheme option that may have the potential to disturb otters must be assessed.<br>A full otter survey should be completed once the scheme extents are known. If otters are found to be present in areas were works are proposed, and disturbance is likely, then DCC will need to apply for a licence to allow proposed development works that might affect otters to proceed legally. The potential impacts on otter will be assessed and reported in the EIA. |

| Ecology and Biodiversity |
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| Otter mitigation works can potentially be conducted at any time of year but must avoid the breeding season (usually Spring but can be any time of year) if holts are present on site. |
| Pre-construction update surveys should be carried out for badgers to maintain the validity of species data. Should a badger sett be recorded within the scheme extents prior to construction works then appropriate mitigation and a licence for works will be required. Construction of new setts must be completed in Spring/Summer with blocking and destruction of existing setts completed in Autumn/early winter. |
| The scattered mature trees, bridges, architecture (churches, masonry) and areas of low water flow provide good foraging, roosting and commuting routes for bat species in the area. Options that require the removal of mature trees or works to bridges or other riverine structures with the potential to support roosting bats shall be assessed for bat potential. Bat surveys shall be conducted on any features with medium or high potential for roosting bats. Once more detail becomes available pertaining to the proposed structural alterations to the site (including the proposed methods of construction), the site should be re-visited for the purpose of:<br>• Surveying key locations (e.g. where it is known that potential roosting habitat will be removed or disturbed); and<br>• Obtaining more detailed information about any potential bat roosts (i.e. whether it is a maternity roost, hibernaculum, etc.)<br>This information will inform any considerations of mitigation measures that may need to be implemented. The optimal time to conduct map surveys are May and August when bats are most active. If bats are found, they should not be disturbed during hibernation period (October to March) or maternity period (June to August). If a bat roost requires removal, then a licence would be required. Removal of roosts should be carried out during the summer months for hibernation roosts and during the winter months for maternity roosts.<br>As all Irish bats and their roosts are protected under national and EU legislation it is an offence to disturb or interfere with them without a licence. Such a derogation (which must be given by the Minister for the Environment, Heritage and Local Government) can only be sanctioned where there is no satisfactory alternative and where it will not be detrimental to the favourable conservation status of the species concerned. Therefore, any felling of trees or work on bridges which provide suitable roost habitat for bats should be sought in advance of any development that may interfere with such roost sites. |
| A fish survey of suitable waterbodies in the study area should be competed on site to establish the presence/absence/abundance of fish species. This will involve netting and electrofishing surveys, where required (i.e. where instream works will cause disturbance to the river bed via structure or excavation) and where technically feasible. In terms of the construction programme, it should be noted that in salmonid catchments, in-stream works are not permitted between the months of January to April (migration) and October to December (spawning). This corresponds with guidance from Inland Fisheries Ireland (Murphy, 2016). |
| Any impacts that result in a decrease in anadromous salmonid populations (Atlantic salmon and sea trout) could have a significant impact upon the viability of the freshwater pearl mussel population. The lifecycle of freshwater pearl mussel is reliant upon the development of glochidia which attach to the gills of host fish, usually juvenile salmonids, to continue development (Skinner A, 2003). Therefore, a decline in the salmonid population within the river, as a result of construction and operational disturbance to migration, could have an impact upon the future viability and population size of freshwater pearl mussel. Works therefore should be carried out outside the period when salmon are migrating either upstream to breed or when fish return to the sea as smolts or adults. |

| Ecology and Biodiversity |
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| Surface water bodies in the study area are classed under the Water Framework Directive as 'At risk' of not meeting the WFD objectives of 'good' Ecological Status (see Figure 5-4). Further, the Ecological and Biological Status of the River Leannan is 'good', although not currently meeting the NPWS Protected Area Objectives (Freshwater Peal Mussel and salmonid catchment).<br>Under WFD requirements, the development of the scheme should incorporate measures not to worsen its status. All possible risks of point source pollution or runoff during construction and operation should be assessed and prevented. Works during the construction of the scheme could pose a threat to the water quality of water bodies within and downstream of the study area though various mechanism, chiefly:<br>• Increasing suspended solids in the water bodies through release or run-off of significant amounts of suspended solids during enabling works and construction; and<br>• Unplanned events such as leaks/spills/runoff/accidental release or escape of fuels, oils and lubricants, bulk liquid cement, contaminated leachate, etc.<br>Measures to protect surface water from leaks/spills, contamination, increased turbidity or input of suspended solid, etc, should be considered. |
| Japanese Knotweed, Rhododendron and Himalayan Balsam have been identified as present within the study area. An Invasive Species Management Plan has been prepared separately (Report Ref (ByrneLooby, 2021 Ref: W3639-BLP-R-ENV-012)). An invasive species treatment and management plan will be implemented for the scheme during 2022 and on a continuous basis leading to construction and operation of the Scheme. |

| Cultural Heritage and Archaeology |
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| All archaeological and historic sites/features and properties with statutory designation in the study area are the key considerations in the constraints study in relation to cultural heritage, these sites have been identified and mapped for the constraints study. In summary the following constraints have been identified. |
| The scheme area may contain known and previously unknown underwater archaeological heritage that should be considered in any study to inform planning design and any potential EIARs. There is a general riverine/coastal archaeological potential in Ramelton and Lough Swilly. All wrecks over 100-years old are protected under the 1987 and 1994 (Amendment) Acts of the National Monuments Acts. |
| There are 49 Register of Protected Structures (RPS) sites within the constraints study area. These structures/features should be considered as cultural heritage constraints during the design of the proposed flood relief scheme and avoided where possible.<br>There are 37 NIAH sites in the study area that have not been added to the RPS, however there is a potential that they may be added in the future. It is noted that there is the intention to include Shore Road and the Quay walls on National Inventory of Architectural Heritage with associated interim protection pending their addition to the Record of Protected Structures in County Donegal.<br>Every care should be taken in these locations to avoid direct impacts on protected structures or by means of careful design or by the application of appropriate mitigation measures. This includes development that might adversely affect the setting of the protected structure. Any design proposals in the vicinity of protected structures vicinity should be carried out in a way that will not materially affect the character, integrity, amenity and setting of these sites. An |

| Cultural Heritage and Archaeology |
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| architectural conservation specialist may be required advise on appropriate measures mitigate any potential impact on this.<br>There may be opportunities under Objective 4 of the County Donegal Heritage Plan Actions set out in the Heritage Council Strategy (2018-2022) to 'promote heritage education, training, tourism and outreach activities'. |
| While change within the setting of an historic site or landscape may be acceptable, in certain instances development will be considered intrusive and inappropriate (such as large embankments, walls or similar permanent infrastructure). This effect on the setting of archaeological and architectural heritage sites requires an assessment to be made on a case-by-case basis according to the type of development, its location and landscape setting by means of objective analysis based on a set of predefined criteria and professional judgement, supported by appropriate descriptive material. Specific mitigation requirements can only be identified as issues for development once the design options are defined. Further assessments such as archaeological testing, underwater archaeological assessments, structural architectural heritage appraisals or structural surveys, etc. may be required in the next phases of the assessment or as mitigation measures for the scheme. It should be noted, however, if flood relief measures impact any areas in proximity to an RMP, or in the ZAP of the town, the judicious use of archaeological assessment techniques may be required in these areas in order to understand the implications for the proposed scheme. In accordance with the Architectural Heritage Guidelines any work to or in the vicinity of a Protected Structure, NIAH site or the ACA require a conservation heritage impact assessment by a conservation architect. |

| Landscape and Visual |
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| The existing trees and planting within the study area provides both visual and recreational amenity for the residential and amenity areas within the study area and the wider districts. Additionally, the 'green' and coastal character of the landscape is considered to be a key component of local tourism development for the towns and the wider area. Such areas also provide a network of habitats, ecological 'corridors' and 'stepping stones' essential for wildlife. Accordingly, such feature should be retained where possible. |
| The proposed development of the subject site will result in a change to the landscape character which will be most noticeable locally, such as from the adjacent residential and tourist areas (including along the riverbanks and bridges). The potential magnitude of this change will be assessed when the details, scale and extent of the proposed interventions have been finalised.<br>Historical landscape character and cultural heritage: Within the study area there are several designations and structures of national interest that need to be considered such as Protected Structures and Recorded Monuments, a Conservation Area, and Sites of Archaeological Interest. |
| Protecting the key landscape resource which underpins the Wild Atlantic Way and the Donegal Tourism brand generally from inappropriate development is recognised as a key planning challenge in Donegal. There are recreational amenities within the study area that need to be considered in relation to possible impacts on their accessibility, recreational and visual values:<br>• Walk/Cycle Pathways along the coast and banks of the rivers,<br>• Land use zoning objectives in county development plans – areas zoned as for Amenity. |

| Landscape and Visual |
|---|
| Key viewpoints will be selected when the details, scale and extent of the proposed interventions have been defined. There is a need to protect:<br>• Views towards the rivers, estuary and lough from business serving the tourism and recreational sector (e.g. cafes, etc),<br>• Recreational views – towards to and from the river, estuary and lough (e.g. public pathways),<br>• Public, recreational and residential views to and from the coast, rivers and bridges, with emphasis on area that may be visually impacted by the suggested hard defence proposals in CFRAM:<br>o Towards and from Lough Swilly SAC and SPA<br>o Towards and from Recorded Monuments and Protected Structures<br>o Public pathways and amenity areas which pass through the study area<br>o Other tourist amenities e.g. guesthouses, cafes, restaurants, seating areas |
| During the construction phase, the following elements of the proposed development have the potential to cause visual impacts, they will however be short to medium term in duration:<br>o Temporary site works – hoarding, lighting, cranes, car parking, storage areas<br>o Construction traffic – dust and emissions<br>o Tree and vegetation clearance<br>o Groundworks – cut and fill excavations<br>o Laying of foundations |
| The principal elements which are likely to give rise to landscape and visual impact in the long term/operational phase are:<br>• Removal of some existing trees<br>• Height of proposed structures/ interventions<br>• New structures/ interventions<br>• Change of character – dependent on proposed interventions type and scale<br>• Proposed tree and shrub planting<br>Appropriate design, siting and mitigation measures are required to integrate the proposed scheme within the landscape. |

| Air Quality |
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| The key constraints in relation to air quality are any sensitive receptors in proximity to the location of construction works. The scheme design should take into consideration any air/climate sensitive receptors such as residences, schools, businesses, and medical facilities located in proximity to works associated with the flood relief scheme. |

| Climate Change |
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| The potential impacts of climate change will need to be considered in the design of the proposed scheme. |
| Carbon impacts in relation to flooding consist of a) the potential impacts associated with flood damages and b) potential impacts associated with the construction and operation of the flood defences themselves. Through installing flood relief measures, the potential impacts associated with flood damages can be largely mitigated, however carbon impacts from construction and operation (the 'carbon cost' will be calculated as the scheme progresses. |

| Climate Change |
|---|
| The Climate Change Sectoral Adaptation Plan for Flood Risk Management (2019 - 2024) considers Flood Relief Schemes to be a key prevention strategy for effects of climate change, and as such, this Project is integral to the overall climate adaptation strategy. However, climate change is considered as a constraint on the design of the scheme, as higher rainfall and extreme weather events attributing to climate changes may lead to higher water levels, which would influence the design of the scheme. |
| The design should be mindful of the Donegal County Council Climate Adaptation Strategy which sets out strategic priorities, measures and responses for adaptation in the County over the next five years, as required by the Climate Action and Low Carbon Development Act 2015 (Donegal County Council, 2019). The risk of flooding and provision of sustainable protection infrastructure is noted as a key item in the Strategy. The WFD has also called for a shift in flood management approach away from site specific hard engineering solutions, towards an integrated assessment of water resources and flood management at the catchment scale. The assessment and design should be mindful of this and reference key climate change legislation. |
| As part of the Project, the foreseen 'Carbon Cost' of the tonnes of Carbon Dioxide ($CO_2$) the proposed scheme options will generate, and the financial implications of this $CO_2$ quantity will be undertaken, taking into account relevant guidelines from the EU. |

| Noise and Vibration |
|---|
| During the options assessment it is recommended that the short-listed flood alleviation measures be assessed in relation to the impact of noise and vibration during the construction phase of the project. |
| Noise and vibration effects are expected to occur during the construction phase only. Construction noise is temporary in nature, and therefore the normal way of minimising the impact is to limit the working hours. The Local Authority may place noise limits on the construction works. The project CEMP will include measures to avoid or minimise the potential impacts of noise on sensitive receptors during construction. |
| Ground-borne vibration attenuates rapidly with distance. People are very sensitive to vibration and can feel vibration long before it becomes an issue in terms of cosmetic damage or structural damage to older buildings located within the work vicinity. Assessment of potential for damage due to vibration should be carried out where vulnerable structures are located in close proximity to works such as sheet piling. |
| The scheme design and methods for works during construction should consider potential impacts to potential vulnerable structures and consider if there is a requirement for ongoing noise and vibration monitoring during construction. Other construction sites within the vicinity should also be considered, with note taken of the cumulative impacts of vibration particularly, in areas with older buildings present. |
| Traffic along national route roads within the town is congested and traffic noise, particularly at peak times, and construction traffic should be managed to ensure cumulative or in-combination impacts from noise and/or vibration are avoided, where possible, or minimised. |

# 1 Introduction

## 1.1 Overview

The OPW, working in partnership with Donegal County Council (DCC) and other Local Authorities, commissioned and have completed the North Western – Neagh Bann (NWNB) Catchment Flood Risk Assessment and Management (CFRAM) Study. The relevant CFRAM Study reports are available, for information purposes, from the publications section of www.FloodInfo.ie (CFRAM) (Office of Public Works, 2021a).

The NWNB CFRAM study area included Ramelton as an Area for Further Assessment (AFA) and concluded that a flood relief scheme would be viable and effective for the community. Possible solutions identified in the CFRAM is comprised mainly of construction of hard defences and associated works in locations within the Ramelton (Ráth Mealtain) and surrounding areas, chiefly along the Quays and the banks of the Leannan River and Ramelton River which discharge into Lough Swilly. Potential works along the Newmill River, which also discharges into Lough Swilly, are also being investigated within the project level assessment. All waterbodies included in the Scheme Area are mentioned in Table 1-1 below. The potential for Natural Water Retention Measures (NWRM) is also being assessed as part of a NWRM Feasibility Assessment and may reduce the scale of the structural protection works required as part of the schemes. These measures may include catchment woodlands, land and soil management practises, agricultural and upland drainage modifications, overland sediment traps, river bank restoration and washlands and offline storage ponds.

**Table 1-1: Waterbodies in Scheme Area**

| | | Alternative Names | | |
|---|---|---|---|---|
| **Reach ID** | **DB2 FRS Name** | **EPA** | **Local** | **CFRAM** |
| 0123M | Leannan River | Leannan | - | Leannan |
| 0124 | Ramelton River | Rathmelton | - | Pound Street Watercourse |
| 3901 | Newmill River | Newmill | - | Newmill |

The scheme area (AFA) for the CFRAM Study is shown in Figure 1-1.

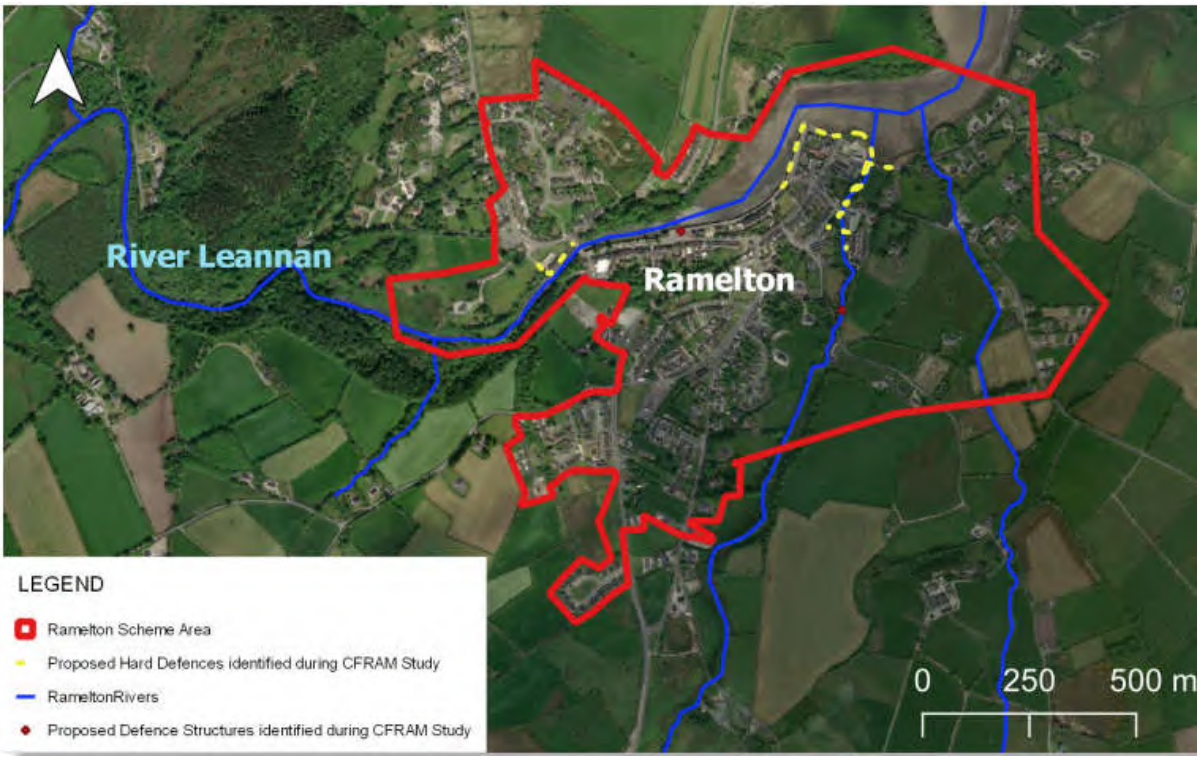


**Figure 1-1 CFRAM AFA and proposed flood defence measures**

Flood risk in Ireland has historically been addressed through the use of structural or engineered solutions (arterial drainage schemes and/or flood relief schemes). In line with internationally changing perspectives, the government adopted a new policy in 2004 that shifted the emphasis in addressing flood risk towards:

- Catchment-based context for managing risk.
- More pro-active flood hazard and risk assessment and management, with a view to avoiding or minimising future increases in risk, such as that which might arise from development in floodplains.
- Increased use of non-structural and flood impact mitigation measures.

Notwithstanding this shift, engineered solutions to manage existing risks are likely to continue to form a key component of the overall national flood risk management programme and strategy. A further influence on the management of flood risk in Ireland is the 'Directive on the Assessment and Management of Flood Risks 2007/60/EC' (also known as the 'Floods Directive'). The aim of this Directive is to reduce the adverse consequences of flooding on human health, the environment, cultural heritage and economic activity.

Typical proposed flood relief works could involve raising the flood defence levels of the river by constructing new flood defence walls incorporating flood gates and/or strengthening and raising existing ones, constructing new flood defence embankments and/or strengthening and raising existing ones, raising and repairing existing bridge parapets, work on weirs, work on channels and culverts, constructing storage ponds and/or strengthening and enlarging existing ones, installing new flap valves and repairing or replacing existing ones, installing new screens on culvert inlets

and/or replacing existing ones, installing pressure manhole covers, and may include ancillary works such as pumping stations and/or storage tanks.

## 1.2 Environmental Study Area

Ramelton is located on the western shore of Lough Swilly, a sea inlet, on the Fanad Peninsula in north County Donegal. Outside of the urban centres at Ramelton and other villages, the area is predominantly rural and agricultural in nature.

The environmental constraints study area has been developed in consideration of the preferred option in the CFRAM study and additional areas for further investigation as identified by DCC and BL. The preferred measures identified in the CFRAM, their location(s), and overall project footprint may be liable to change as more information becomes available through project level assessment.

The environmental constraints study area includes the lengths of river channel / watercourse that have hydraulic influence on the area intended to benefit from, and be protected by, any feasible scheme as well as the catchment areas draining to the downstream ends of those river channels. The study area boundary for each environmental discipline will vary according to the location of receptors and individual topic best practice, appropriate statutory and/or specialist guidance, and applicable legislation and regulations.

The environmental constraints study area for each discipline topic is defined in each section, accompanied by a figure showing the extents of the study area for that topic.

The constraints study will consider the effects of the construction and operation of the scheme in the catchment area as a whole, where appropriate. Site surveys have been and will be undertaken to collect recent and site-specific baseline data to inform the scheme design, the scoping report, environmental impact assessment (EIA) and Appropriate Assessment (AA) for this scheme and data, where appropriate and available at the time of writing and, have been included in consideration of potential constraints.

## 1.3 Project Background and Need for the Scheme

Flood hazard is the potential threat posed by flooding to people, property, the environment, and our cultural heritage. Flooding only presents a risk however when people, property, businesses, farms, infrastructure, the environment, or our cultural heritage can be potentially impacted or damaged by floods.

Flood risk is the combination of the probability of flood events of different magnitudes and the degree of the potential impact or damage arising from a flood.

The objective of this project is the identification, design, submission (for planning consent) and construction of a Flood Relief Scheme (FRS), that is technically, socially, environmentally and economically acceptable, to alleviate the risk of flooding to the community of Ramelton in

accordance with to the standards of the EU Directive on the Assessment and Management of Flood Risk (Floods Directive 2007/60/EC) transposed into Irish Law as SI 122 of 2010.

## 1.4 History of flooding

There is a history of pluvial (rainfall), fluvial (river) and tidal flooding at Ramelton with recent events recorded in August 2014, January 2012, and October & December 2011.Tidal flooding inundates the quay and Shore Road. The Pound Street area is vulnerable to flooding due to the restricted capacity of the culvert on the Ramelton River in this area. This risk is exacerbated due to potential for blockage. A total of 9 reports of flood events have been cited and a timeline of these events and reported sources is displayed in Table 1-2 below.

**Table 1-2: Flood History Overview Timeline**

| Date | Receptors | Source |
|---|---|---|
| 05/08/2014 | 10 residential properties on Pound St. and Community Centre. | Fluvial (Blockage) |
| 26/01/2013 | Roads Flooded | Pluvial* |
| 22/06/2012 | Roads Flooded | Pluvial* |
| 29/01/2012 | Minor flooding reported | Pluvial* |
| 04/01/2012 | Farmland | Fluvial |
| 30/12/2011 | Roads Flooded | Pluvial* |
| 03/11/2011 | Roads Flooded | Pluvial* |
| 11/08/1998 | Roads Flooded | Pluvial* |
| 1995 | Farmland and Road | Coastal |
| Varies | Roads Flooded – Properties cut-off | Coastal |

## 1.5 Potential Flood Risk Management Measures

The scheme area identified in the FRMP for Ramelton, identified a series of flood embankments with revetment protection, walls, demountable barriers along the quays and a flood gate located on Shore Road.

A trash screen is also proposed upstream on the Ramelton River on the Old Corn Mill Bridge which is susceptible to blockage and floods properties in and around the Pound Street.

The existing stone wall (320m) along the right bank of the River Leannan at Shore Road is unlikely to be structurally sound, with one part (approximately 10m) of it collapsing since the CFRAM study was undertaken. It is also a heritage structure included on the National Inventory of Architectural Heritage. Therefore, whilst it may be high enough, it is unlikely to withstand an extreme flood in terms of breach/ collapse. Repair works was carried out early 2021 on the collapsed section. This stretch of wall is included for assessment in the overall FRS, as well as a further 230m of existing open quay wall where flood defences are to be located.

The proposed CFRAM measures on the River Leannan upstream of Ramelton Bridge is a linear defence to protect the old Tanyard building which has been converted to apartments. The building however includes a single storey lean to structure, which protrudes into the River Leannan. The foundation footprint and make-up is unknown and will be investigated. Reconsideration of the option due to possible buildability issues is required.

Flood risk to properties to the east of the Study area from the Newmill Watercourse is also considered for the scheme.

Preferred measures outlined in the CFRAM comprise:

- Flood Defences for River Leannan:
    - Old Tanyard Building
    - Shore Road
- Trash Screen for Ramelton River:
    - Pound Stream, Old Corn Mill Bridge

Additional works/investigations identified post CFRAM may include:

- Investigate flood risk of properties along Newmill River.
- Investigate collapse of existing stone wall along the right bank of the River Leannan at Shore Road.

A project-level options assessment will consider the scheme option outlined in the CFRAM and any other viable options arising out of project-level assessment. Development of the latter is ongoing and will be based on more detailed information than was available for the CFRAM, including detailed hydrological assessment, hydraulic modelling studies and environmental studies. Consequently, the type and location of measures outlined in the CFRAM and shown in Figure 1-2 are liable to change as further information becomes available through project level assessment and the level of flood risk both now and in the future is confirmed.

Figure 1-2 shows the location of hard defences in the preferred option in the CFRAM and the FRMP.

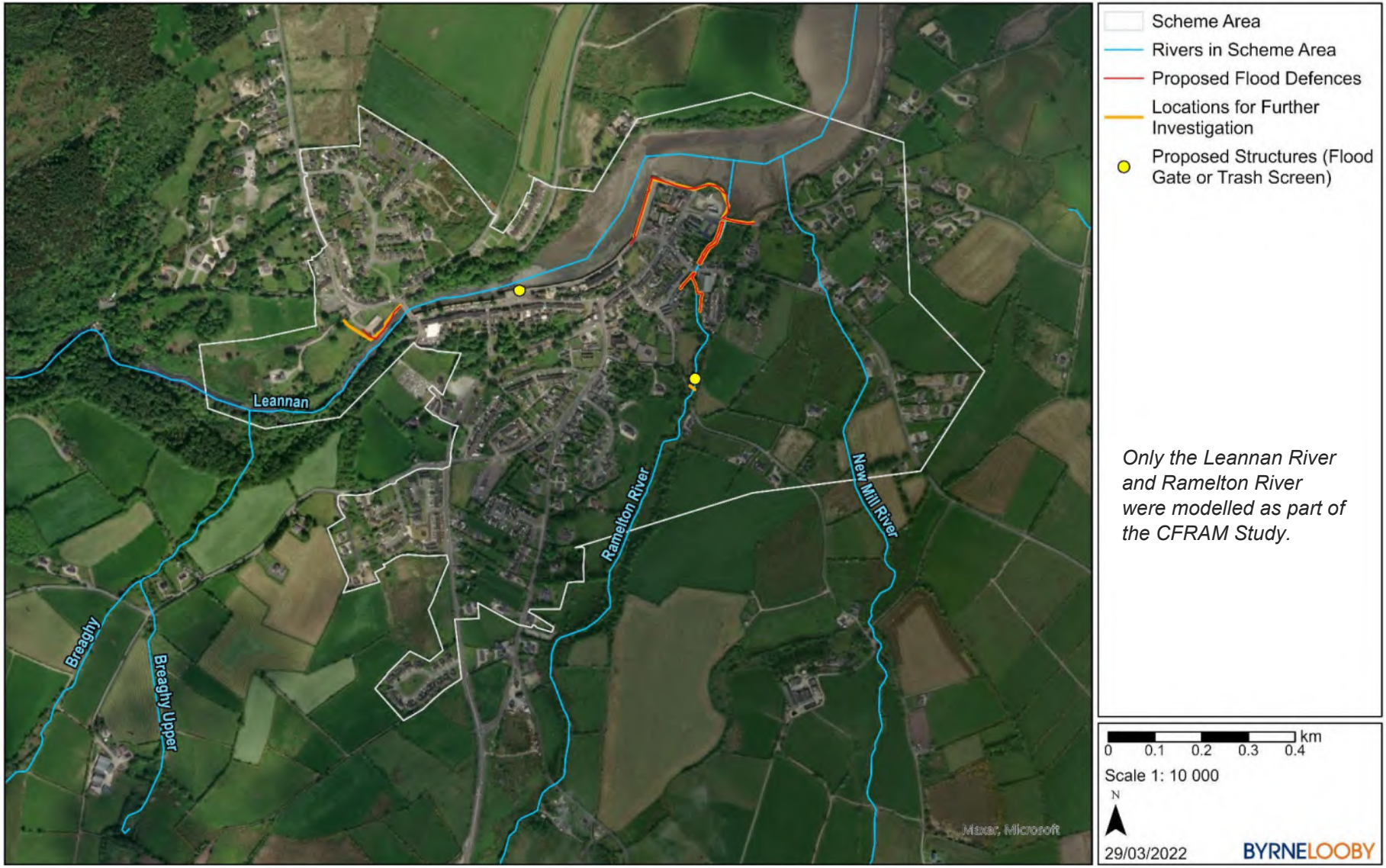


**Figure 1-2 Project Scheme Area and Proposed Flood Defence Measures**

# 2 Environmental Constraints

## 2.1 Stages of Work

Various stages of work are carried out in the completion of a flood relief scheme. There are five stages of work as outlined in Table 2-1 and the progression to each subsequent stage depends on the outcome of the previous stage.

**Table 2-1 Flood Relief Scheme Stages**

| Stage | Environmental Assessment | Examples of the specific studies completed as the scheme progresses |
|---|---|---|
| I | Scheme Development | Data Gathering and review<br>Topographical Surveys<br>LiDAR surveys<br>Drainage Surveys<br>Ecology Surveys<br>Archaeological Investigation<br>Hydrology Study & Hydraulic Modelling<br>Flood Defence Asset Surveys<br>Site Investigations and site walkovers<br>Conduct Flood Risk Assessments<br>Prepare a number of Flood Risk Management Options<br>Carry out a Cost Benefit Analysis<br>Selection of a Preferred Option<br>Flood Risk Management Plan<br>Interference Notices<br>Public Consultation |
| | Initial Consultation with Stakeholders | |
| | Constraint Study | |
| | Screening for Appropriate Assessment | |
| | Appropriate Assessment | |
| | Detailed Design | |
| | Scoping for EIA | |
| | Environmental Impact Assessment | |
| | Public Consultation | |
| | Preparation of Environmental Assessment of Options Report | |
| | Public Consultation on Preferred Scheme | |
| | EIAR for Preferred Option | |
| II | Preparation of Part X Planning Application | |
| | Submission of a Part X Planning Application to An Bord Pleanála | |
| III | Detailed Design Confirmation | |
| | Tender | |
| IV | Construction Supervision | |
| V | Handover to Client | |

ByrneLooby have been appointed to bring the scheme from preliminary design (Stage I), assessing various options available, through public consultation, detailed design and environmental procedures (Environmental Impact Assessment and Appropriate Assessment) to planning application to An Bord Pleanála (Stage II).

Subject to successfully satisfying An Bord Pleanála requirements, the scheme will then be designed and tendered (Stage III), constructed (Stage IV) and delivered (completed) to the client (Stage V).

## 2.2 Scope of Constraints Study

The Environmental Constraints Study is the first step in the preparation of an environmental impact assessment report for the Ramelton Flood Relief Scheme. The purpose of the constraints study is to identify the key environmental aspects which may be impacted upon by possible flood relief measures and/or which may impose constraints on the viability and/or design of these measures.

The scope of the Environmental Constraints Study has followed the guidelines prepared by the Department of Housing, Local Government and Heritage: Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018 (Department of Housing, Local Government and Heritage, 2018).

Guidance contained with the Environmental Protection Agency's Guidelines 'Advice Notes on the Current Practice in the Preparation of Environmental Impact Statements' (2015) has also been considered (EPA, 2017).

This Environmental Constraints Study has been reported under the following sub-discipline/topic area headings:

- Resources and Materials
- Population and Human Health
- Hydrology
- Soils, Geology and Hydrogeology
- Biodiversity
- Cultural Heritage and Archaeology
- Landscape and Visual
- Air Quality
- Climate Change
- Noise

For this study we have combined the human health, land use, traffic and population in the population and human health section. Similarly, other sections of the constraints study e.g. noise, air quality, etc. are also applicable to human beings. Air quality includes climate and noise includes vibration due to the nature and location of the scheme.

## 2.3 Methodology

ByrneLooby and its specialists have undertaken a series of desk studies and preliminary site visits as part of the constraints study. Further details on constraints are presented in the following

sections of this report. Information has been gathered with due regard to the likely environmental impacts of the proposed scheme, and the statutory requirements for Environmental Impact Assessment and Appropriate Assessment as set out in the EU Directives and associated Irish legislation.

The constraints study has had regard in general to the following guidance and information sources as mentioned below. Specific guidance and information sources are referenced in individual specialist sub- sections.

### 2.3.1 General Guidance and background information

The following guidance and information sources were referred to in the preparation of this constrains study report:

- Department of Housing, Local Government and Heritage August 2018. Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Local Government and Heritage, 2018).
- Guidelines on the information to be contained in Environmental Impact Statements, 2002 (Environmental Protection Agency) and Draft Revised Guidelines, 2017.
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (Environmental Protection Agency, 2003) and Draft Revised Notes, 2015.
- Department of Environment, Heritage and Local Government (2010) Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.
- European Communities (2000) Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC.
- EC Environment Directorate-General (2000) 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.
- Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.
- Department of Environment, Heritage and Local Government (2010) Circular NPW1/10 & PSSP 2/10 Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.
- Flood Risk Management Plan for the North Western River Basin (UOM01) (OPW 2018)[1].
- NWNB SEA Statement UoM01 (OPW 2017)[1].

[1] Available at floodinfo.com (Office of Public Works, 2021a).

- North Western-Neagh Bann CFRAM AA Screening report (OPW 2015)[1].
- NWNB AA NIS - UoM01 (OPW 2016)[1].
- AFA Final Designation Report (OPW 2012)[1].
- Appropriate Assessment Determination in accordance with Regulation 42(11) of the European Communities (Birds and Natural Habitats) Regulations 2011 – 2015 for Flood Risk Management Plan for the North-Western River Basin (UoM01) (OPW 2018)[1].
- Methodology for Classifying the Vulnerability of National Monuments from Flooding in The Republic of Ireland (OPW 2011)[1].
- National Pluvial Screening Project for Ireland (OPW 2010)[1].
- North-West and Neagh-Bann Flood Risk Review Final Report May 2012 (OPW 2011)[1].
- North Western - Neagh Bann CFRAM Study UoM 01 Hydraulics Report (OPW 2014)[1].
- North Western - Neagh Bann CFRAM Study UoM 01 Hydrology Report (OPW 2013)[1].
- North Western - Neagh Bann CFRAM Study UoM 01 Inception Report (OPW 2012)[1].
- NWNB Final Report UoM01 (OPW 2017)[1].
- NWNB POR UoM01 (OPW 2016)[1].
- NWNB SEA Environmental Report UoM01(OPW 2016)[1].
- NWNB SEA Scoping Report (OPW 2015)[1].
- PFRA Main Report (OPW 2012)[1].
- Preliminary Flood Risk Analysis Report - Waterways Ireland (OPW 2011)[1].
- Preliminary Flood Risk Analysis Report - Waterways Ireland – Appendices (OPW 2011)[1].
- Public Consultation on the Draft Flood Risk Management Plans - Summary Report (OPW 2017)[1].
- Weighting The Perceived Importance of Minimising Economic, Social and Environmental/ Cultural Risks In Flood Risk Management (OPW 2015)[1].
- County Donegal Development Plan 2018-2024 (Donegal County Council, 2018).
- Donegal County Council Tourism Strategy 2017 – 2020 (Donegal County Council, 2017).
- Study of Heritage Led Actions for Renewal & Regeneration (Draft) (Dedalus Architecture, 2020)

Key guidance or references specific to specialist areas considered in this report are included in the discipline specific methodology sections, where appropriate.

## 2.4 Project Team

This environmental constraints report was drafted by the Byrne Looby: Fiona Symes (oversight, generalist inputs), Rhian Llewellyn (geology, soils, hydrogeology and hydrology and generalist inputs), Steven Tooher (ecologist) and Paige Leresche (generalist inputs), Kagiso Selaledi and David Moran (scheme information and hydrology).

## 2.5 Consultation

Consultation has been carried out with the public and various stakeholders, the purpose of which was to engage with them, to gather local knowledge on flooding and environmental constraints and opportunities for addressing flood risk in the area.

Comprehensive communication and engagement plans have been developed and adopted by the team such as a project website, direct emails, local media, and public consultation among other approaches listed in Table 2-2. Consultation includes the establishment of a maintained project website and regular project newsletters.

At the time of writing consultation is ongoing and the views of statutory bodies, non-statutory bodies and interested stakeholders will be considered in the preparation of the EIA. Where stakeholders have provided inputs that have implications on the project constraints these have been considered.

**Table 2-2: Consultation Plan**

| Communication Activity | Purpose / Correspondence |
|---|---|
| Project website | https://www.floodinfo.ie/frs/en/ramelton/home/<br>The website provides regular updates and information to stakeholders about the scheme. The website provides scheme information, scheme news and updates, a photo gallery, and resources section comprised of FAQ, glossary and contact subsections. Publicly available key project documents are provided for direct download from the project website, as they become available. The website is available in Gaeilge and English language. |
| Direct Email | A dedicated project email address is the primary source of contact for all interested Parties (unless otherwise requested by a party): rameltonfrs@byrnelooby.com.<br>On the 01/10/2021, project information letters were sent to 8 relevant authorities and stakeholders. The responses to these letters have been logged and further information is provided in Appendix B of this report. |

| Communication Activity | Purpose / Correspondence |
|---|---|
| Local authority / community publications such as parish newsletters | Items in local authority / community group newsletters are likely to reach a wide range of citizens.<br>A newsletter is published quarterly by ByrneLooby to the project website. The September 2021 newsletter is the first newsletter to be published on the project website.<br>A total of 120 information packs, questionnaires and pre-paid envelopes were delivered to properties within the 0.1% AEP flood extent boundary in Ramelton by Donegal County Council and ByrneLooby. The Public Information Pack is included under Appendix A.<br>This information was also made available on the project website (https://www.floodinfo.ie/frs/en/ramelton/project-info/public-engagement/). |
| Social Media | Donegal County Council advertise any project information on their social media outlets. |
| Public Consultation Days / workshop | Consultation exhibitions / events offer a more extensive and open form of engagement on a personal basis. They provide opportunities for members of the public to express views on the consultation subject area, ask questions, and receive feedback on the issues they raise.<br>Public consultation days were held online (due to COVID-19 restrictions) from 27th September 2021 to Friday 22nd October 2021. A questionnaire was issued via online survey for any interested parties to complete. Twelve responses were received.<br>Due to the COVID-19 Pandemic, alternative consultation methods, such as the above, will continue to be considered. |
| Collaborative Workshop | The Collaborative Workshop for Ramelton was held on 9th December 2021. Stakeholders included relevant departments from DCC, OPW, and Loughs Agency. Feedback from the workshop was positive and all stakeholders agreed to continue collaboration throughout the project's timeline. |

Three statutory bodies have responded to a stakeholder letter (sent via email during the first stakeholder engagement event) asking for their views on the proposed scheme. At the time of writing, responses had been provided as outlined in Appendix B. Where communications have been received that advise the inclusion of specific third parties in consultation these requests have been actioned.

### 2.5.1 Public Stakeholder Consultation

The first Public Consultation Event was held from Monday 27th September 2021 to Friday 22nd October 2021.

The objective of the public consultation was to make stakeholders and the general public aware of the project, to provide early engagement and to get the feedback on the flooding, environmental and other issues of concern to them.

Information packs were issued to residents and stakeholder groups including brief information leaflets, a questionnaire, and pre-paid envelopes for responses. This information was also made available on the project website (https://www.floodinfo.ie/frs/en/ramelton/project-info/public-engagement/) and promoted by Donegal County Council via press release and social media.

The PC event was advertised online through the scheme's website, local newspapers, and local radio:

- Donegal Daily
- Donegal News
- Highland Radio
- Donegal County Council website and social media accounts

Donegal County Council provided the option of meeting a member of the project team in Ramelton on the 13th October 2021 from 6pm to 8pm. There were no requests for any in-person meetings.

A total of 120 information packs (Appendix A) were delivered to properties within the 0.1% AEP flood extent boundary in Ramelton by Donegal County Council and ByrneLooby-Arcadis. Questionnaires were enclosed within the information packs, asking a series of questions regarding awareness of the CFRAM Study, personal experiences of flood events in the town and opinions on the importance of various environmental constraints. The questionnaire also provided space for any observations that the resident/stakeholder wished to bring forward.

A total of twelve (12 nos.) questionnaire responses were received for the scheme, and useful general observations/requests/concerns were outlined in these responses, including:

- There were requests for the proper maintenance of culverts and clearing of debris from the river which causes blockages currently.
- There were concerns that the existing drainage system in Pound Street is unfit for purpose.
- Some stakeholders were seeking further information on proposed hard structures and trash screen as outlined in the CFRAM Study and Flood Risk Management Plan.
- There were requests for reinforcement of riverbanks in an environmentally friendly way, by protecting flora and fauna of the town.

### 2.5.2 Additional Consultation

ByrneLooby liaised with the Project Consultant, the Donegal County Council Project Manager and Irish Water in relation to the Ramelton, Milford and Rathmullan Sewerage Scheme. ByrneLooby were provided with the layout drawings and Site Investigation (SI) data from the sewerage scheme, which covered some of the areas proposed for defences for the Ramelton FRS. Representatives from Irish Water and DCC attended the Collaborative Workshop for Ramelton on 9th December 2021.

Further, a meeting was held with Building Design Partnership (BDP) on 13th October 2021. BDP confirmed a number of areas that overlapped with the Ramelton's Public Realm Scheme, including

the Slipway on Gamble's Square, the Quays walls along Shore Road and The Quays and it was agreed by ByrneLooby that the social value of the Public Realm Project will have to be considered, similar to previous and existing examples. BDP attended the Collaborative Workshop for Ramelton on 9th December 2021, and the following was raised:

- Part 8 planning was to be applied for at the close of 2021. It is hoped, subject to funding that work will begin in 2023.
- New street lighting is to be provided to improve light levels on the water.
- The BDP team are open to collaborate with the FRS Project in relation to The Quays and integrate flood defence where possible which may involve shared funding or formalising roles and responsibilities. A potential idea regarding the use of street seating along the quay that perform a dual role of flood defence was discussed.

# 3 Resources and Materials

## 3.1 Introduction

This section describes the constraints relating to material assets within the scheme study area and identifies possible issues which have the potential to constrain the flood relief scheme design.

For the purposes of this report, the study is defined as the area shown in Figure 1-2 which includes Ramelton and some of the surrounding rural area. Features outside of this boundary (up to an outer extent of 10km) are discussed where relevant. Wastewater Treatment Plants and associated discharge points within the Catchment are considered up to 10km from the scheme boundary due to their interaction with hydrology in the catchment (see section 5.3).

## 3.2 Methodology

The material assets within the study area were assessed by consultation with the following documents:

- EPA data base on waste licenced facilities within the study area.
- EPA data on Urban Waste Water Discharges in Ireland.
- Urban Waste Water Treatment in 2020 (EPA, 2020)

The methodology included:

- Identification of possible material assets within the scheme study area.
- Identification of locations where there may be existing sensitive receptors.
- Identification of material assets constraints.

## 3.3 Baseline / Receiving Environment

Material assets within the study area include:

- Wastewater infrastructure.
- Waste management facilities.
- Water supply networks
- Electricity networks
- Digital infrastructure

- Land ownership and zoning.
- Roads and Transportation network.
- Pedestrian and cycling networks.

Gas infrastructure was assessed, but not found in the scheme area.

### 3.3.1 Wastewater Treatment Plants

Ramelton is not currently served by Wastewater Treatment Facilities and untreated, or partially treated wastewater, is discharging into the Leannan Estuary and Lough Swilly.

Irish Water, in partnership with DCC, is currently developing a sewerage scheme in Ramelton as part of an overarching 'Ramelton, Milford and Rathmullan Sewerage Scheme' project. Infrastructure proposed at Ramelton comprises a pumping station and a 200 mm diameter rising main (Irish Water, 2021).

EPA licenced waste water treatment facilities within 10 km of the scheme boundary and within the sub-catchment are described in Table 3-1 and their locations shown in Figure 3-1.

**Table 3-1 Urban Wastewater Treatment Plants (WWTP) locations within 10km of the scheme**

| Facility name | License # | Facility type | Treatment type | Location of emission |
|---|---|---|---|---|
| Ramelton | D0341-01 | Sewage Treatment >500pe | Primary Treatment | Discharge Outfall to Swilly Estuary (emission ID TPEFF0600D0341SW001) |
| Letterkenny | D0009-01 | Sewage Treatment >500pe | Tertiary P Removal | Discharge Outfall to Swilly Estuary (emission ID TPEFF0600D0009SW001) |
| Milford | D0342-01 | Sewage Treatment >500pe | Secondary Treatment | Discharge Outfall to Maggys Burn (emission ID TPEFF0600D0009SW001) |
| Rathmullan | D0345-01 | Sewage Treatment >500p | No Treatment | Discharge Outfall to Swilly Estuary (emission ID TPEFF0600D0345SW001) |
| Newtowncunningham | D0349-01 | Sewage Treatment >500pe | Secondary Treatment | Discharge Outfall to Glare River (emission ID TPEFF0600D0349SW001) |
| Kilmacrennan | D0513-01 | Sewage Treatment >500p | Secondary Treatment | Discharge Outfall to Lurgy River (emission ID TPEFF0600D0513SW001) |
| Manorcunningham | D0519-01 | Sewage Treatment >500pe | Secondary Treatment | Discharge Outfall to Leslie Hill Stream (emission ID TPEFF0600D0519SW001) |

Data source: EPA online data for Licensing and Permitting (EPA, EPA online data for Licensing and Permitting, 2021)


**Figure 3-1 Urban Wastewater Treatment Plant (WWTP) locations within 10 km of the scheme area**
(Data Source EPA online data for Licensing and Permitting (EPA, EPA Licensed Facilities, 2021)

### 3.3.2 Wastewater network

The foul network is operated and maintained by Irish Water. Data provided by Irish Water has been used to identify existing foul networks.

Stormwater drainage is the responsibility of Donegal County Council.

### 3.3.3 Waste Management

Recycling, domestic, commercial and industrial waste services are provided by commercial operators within the study area.

The EPA data map viewer for waste (EPA, 2021) indicates that there are no dump sites or waste site present within the study area. The closest waste site is Drumabodan Landfill Site which is c. 6 km from the scheme area, upstream and close to the left bank of the Leannan River.

EPA data indicates that large-scale industrial and agricultural activities in Table 3-2, licenced under the Pollution Prevention Control Directive, are present in the scheme area (EPA, 2021).

**Table 3-2 Licensed Facilities within the Study Area**

| Type | Name | License # | Location |
|---|---|---|---|
| Waste | Drumabodan Landfill Site | W0063-02 | Kilmacrenan, Donegal |
| Waste | Glenalla Landfill Site | W0125-01 | Glenalla, Milford, Donegal |


**Figure 3-2 Existing Wastewater Network**

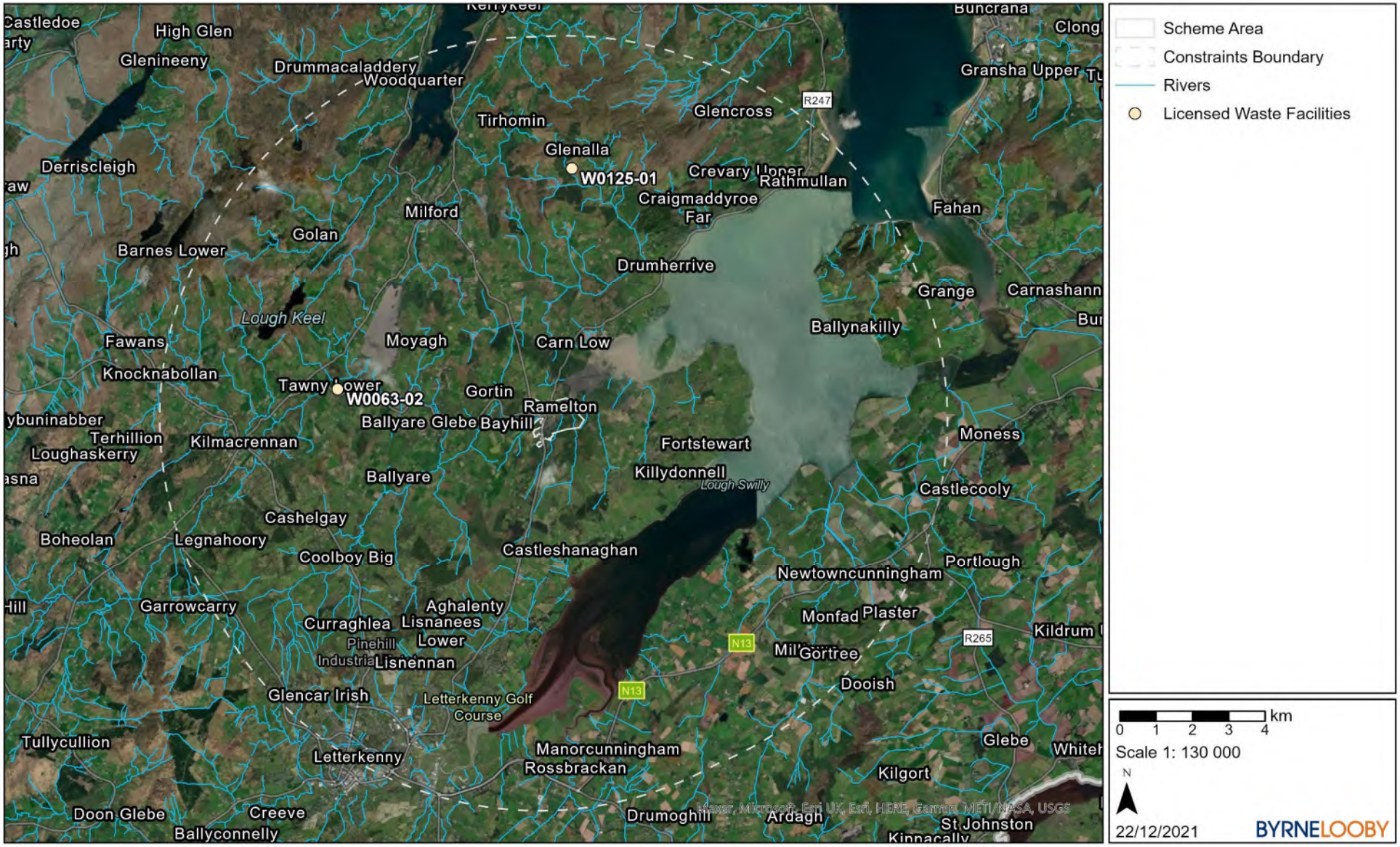


**Figure 3-3: Licensed Emission Facilities within the Study Area**

### 3.3.4 Water supply

Water for domestic, commercial and agricultural purposes is managed by Irish Water and is supplied to Ramelton, principally from the Goldrum Water Treatment Plant (Lough Salt). Lough Salt is located approximately 10km from Ramelton.

#### 3.3.4.1 Existing River Abstractions

There is no record of surface water abstraction from waterbodies within the study area (EPA, 2021).

#### 3.3.4.2 Existing Groundwater Abstractions

Well card data produced by the Geological Survey of Ireland (GSI) indicates that there are 26 dug wells, 58 boreholes, 1 spring, and 1 unknown abstraction within the study area (see detail in Table 3-3). The approximate locations are shown in Figure 3-4 (Geological Survey Ireland, Department of the Environment, Climate and Communications, 2021).

**Table 3-3 Abstraction in the scheme area**

| Label | GSI Code | Type | Depth (m) | Drill Date | Easting | Northing |
|---|---|---|---|---|---|---|
| 1 | 2041NEW006 | Borehole | 32 | - | 225770 | 426360 |
| 2 | 2041NEW009 | Borehole | 114.3 | - | 229880 | 427620 |
| 3 | 2041NEW016 | Dug well | 3.1 | 1969-10-10 | 217890 | 420040 |
| 4 | 2041NEW020 | Unknown | 1 | 1967-05-01 | 215020 | 420620 |
| 5 | 2041NEW021 | Dug well | 2.4 | 1970-09-01 | 224380 | 420050 |
| 6 | 2041NEW022 | Dug well | 3.6 | 1962-11-01 | 224210 | 420180 |
| 7 | 2041NEW023 | Borehole | 67 | 2000-08-15 | 217260 | 427280 |
| 8 | 2041NEW025 | Borehole | 60 | - | 218350 | 425380 |
| 9 | 2041NEW026 | Borehole | 63 | - | 218000 | 425500 |
| 10 | 2041NEW027 | Spring | - | - | 221710 | 420010 |
| 11 | 2041NEW028 | Borehole | 9 | 2002-07-30 | 221370 | 420440 |
| 12 | 2041NEW029 | Borehole | 9 | 2002-07-30 | 224340 | 421610 |
| 13 | 2041NEW030 | Borehole | 10 | 2002-08-30 | 227060 | 422450 |
| 14 | 2041NEW031 | Borehole | 6 | 2002-07-30 | 222510 | 420160 |
| 15 | 2041NEW032 | Borehole | 10 | 2002-07-30 | 228000 | 422140 |
| 16 | 2041NEW033 | Borehole | 6.5 | 2002-07-31 | 215860 | 422120 |
| 17 | 2041NEW034 | Borehole | 2.1 | - | 220920 | 424410 |
| 18 | 2041NEW035 | Borehole | 0.5 | 2002-07-26 | 227270 | 426620 |
| 19 | 2041NEW036 | Borehole | 5 | 2002-07-26 | 217920 | 424900 |
| 20 | 2041NEW037 | Borehole | 74.7 | 2003-06-15 | 216370 | 426770 |
| 21 | 2041NEW038 | Borehole | 60 | - | 221030 | 422230 |
| 22 | 2041NWW006 | Dug well | 0.9 | 1959-05-01 | 213950 | 421250 |
| 23 | 2041SEW012 | Dug well | 2.7 | 1959-11-01 | 221080 | 415280 |

| Label | GSI Code | Type | Depth (m) | Drill Date | Easting | Northing |
|---|---|---|---|---|---|---|
| 24 | 2041SEW025 | Dug well | 1.8 | 1960-09-01 | 218950 | 413490 |
| 25 | 2041SEW026 | Dug well | 4.5 | 1972-11-01 | 221980 | 414800 |
| 26 | 2041SEW026 | Dug well | 4.5 | 1972-11-01 | 221980 | 414800 |
| 27 | 2041SEW027 | Borehole | 70.1 | 1972-07-06 | 221570 | 411340 |
| 28 | 2041SEW050 | Borehole | 4 | 2000-09-04 | 218520 | 411530 |
| 29 | 2041SEW051 | Borehole | 5.2 | 2000-09-20 | 218030 | 411470 |
| 30 | 2041SEW052 | Borehole | 5.3 | 2000-08-28 | 217990 | 411490 |
| 31 | 2041SEW053 | Borehole | 5.1 | 2000-08-27 | 217890 | 411520 |
| 32 | 2041SEW072 | Dug well | 3.3 | 2000-10-10 | 217820 | 411470 |
| 33 | 2041SEW089 | Borehole | 8.9 | - | 218610 | 411170 |
| 34 | 2041SEW090 | Borehole | 6.7 | 2000-07-11 | 218630 | 411200 |
| 35 | 2041SEW091 | Borehole | 8.7 | 2000-07-11 | 218650 | 411190 |
| 36 | 2041SEW092 | Borehole | 9 | 2000-07-12 | 218670 | 411170 |
| 37 | 2041SEW093 | Dug well | 3 | 2000-07-05 | 218690 | 411160 |
| 38 | 2041SEW094 | Dug well | 2.2 | 2000-07-07 | 218650 | 411260 |
| 39 | 2041SEW095 | Dug well | 2 | 2000-07-07 | 218630 | 411270 |
| 40 | 2041SEW096 | Dug well | 2.1 | 2000-07-07 | 218610 | 411290 |
| 41 | 2041SEW097 | Dug well | 2.2 | 2000-07-07 | 218580 | 411310 |
| 42 | 2041SEW098 | Dug well | 2.6 | - | 218540 | 411240 |
| 43 | 2041SEW099 | Dug well | 2.8 | 2000-07-05 | 218570 | 411220 |
| 44 | 2041SEW100 | Dug well | 2.2 | 2000-07-06 | 218580 | 411370 |
| 45 | 2041SEW101 | Borehole | 10.3 | 2000-07-21 | 219270 | 411720 |
| 46 | 2041SEW102 | Borehole | 5.4 | 2000-07-22 | 219330 | 411710 |
| 47 | 2041SEW103 | Borehole | 10.8 | 2000-07-25 | 219280 | 411640 |
| 48 | 2041SEW104 | Borehole | 10.5 | 2000-07-27 | 219330 | 411640 |
| 49 | 2041SEW105 | Dug well | 3 | 2000-07-27 | 219350 | 411710 |
| 50 | 2041SEW106 | Dug well | 3.2 | 2000-07-28 | 219470 | 411670 |
| 51 | 2041SEW107 | Dug well | 3.2 | 2000-07-28 | 219400 | 411640 |
| 52 | 2041SEW108 | Borehole | 12 | 2000-07-30 | 219470 | 411610 |
| 53 | 2041SEW109 | Borehole | 2.4 | 2000-11-01 | 220430 | 412500 |
| 54 | 2041SEW110 | Borehole | 5.1 | 2000-11-02 | 220420 | 412370 |
| 55 | 2041SEW111 | Borehole | 3.4 | 2000-10-27 | 219320 | 411820 |
| 56 | 2041SEW112 | Borehole | 10.3 | 2000-07-21 | 219290 | 411740 |
| 57 | 2041SEW124 | Borehole | 10 | 2000-07-05 | 219230 | 412200 |
| 58 | 2041SEW125 | Borehole | 5.6 | 2000-07-19 | 219210 | 412040 |
| 59 | 2041SEW126 | Borehole | 7 | 2000-07-12 | 219230 | 412050 |
| 60 | 2041SEW129 | Borehole | 14 | - | 219550 | 410900 |
| 61 | 2041SEW130 | Dug well | 2.8 | 2000-08-30 | 217050 | 412340 |
| 62 | 2041SEW131 | Dug well | 1.6 | 2000-08-29 | 217150 | 412050 |

| Label | GSI Code | Type | Depth (m) | Drill Date | Easting | Northing |
|---|---|---|---|---|---|---|
| 63 | 2041SEW132 | Dug well | 2.2 | 2000-09-29 | 217330 | 412080 |
| 64 | 2041SEW134 | Dug well | 2 | 2000-10-12 | 217570 | 411760 |
| 65 | 2041SEW135 | Borehole | 6 | 2000-10-01 | 217870 | 411800 |
| 66 | 2041SEW136 | Borehole | 3.9 | 2000-10-02 | 218040 | 411690 |
| 67 | 2041SEW138 | Borehole | 0.6 | 2000-10-06 | 218510 | 411470 |
| 68 | 2041SEW140 | Borehole | - | - | 224380 | 410860 |
| 69 | 2041SEW141 | Borehole | 61 | - | 221780 | 420000 |
| 70 | 2041SEW143 | Borehole | 10 | 2002-07-31 | 218530 | 419360 |
| 71 | 2041SEW144 | Borehole | 3.5 | 2002-08-01 | 222050 | 411630 |
| 72 | 2041SEW145 | Borehole | 4.6 | 2002-07-14 | 226020 | 414440 |
| 73 | 2041SEW146 | Borehole | 10 | 2002-08-01 | 229930 | 416800 |
| 74 | 2041SEW147 | Borehole | 8 | 2002-08-10 | 229640 | 415160 |
| 75 | 2041SEW149 | Borehole | 10.5 | 2002-08-01 | 228160 | 414890 |
| 76 | 2041SEW152 | Borehole | 2 | 2003-05-27 | 221810 | 410480 |
| 77 | 2041SEW153 | Borehole | 75 | 2003-03-08 | 219600 | 416320 |
| 78 | 2041SEW154 | Borehole | 60 | 2003-05-01 | 215130 | 416710 |
| 79 | 2041SEW155 | Borehole | 78 | 2004-02-15 | 220640 | 417180 |
| 80 | 2041SWW014 | Dug well | 1.8 | - | 213780 | 415920 |
| 81 | 2041SWW023 | Borehole | 90 | 2001-03-27 | 212850 | 417600 |
| 82 | 2041SWW030 | Borehole | 61.5 | 2005-03-18 | 214700 | 418550 |
| 83 | 2041SWW031 | Dug well | 2 | 2000-09-11 | 214840 | 418370 |
| 84 | 2341NWW015 | Borehole | 55 | - | 230120 | 425280 |
| 85 | 2341NWW016 | Borehole | 70.1 | - | 232040 | 426210 |
| 86 | 2341SWW031 | Borehole | 10 | 2002-08-02 | 231300 | 417730 |

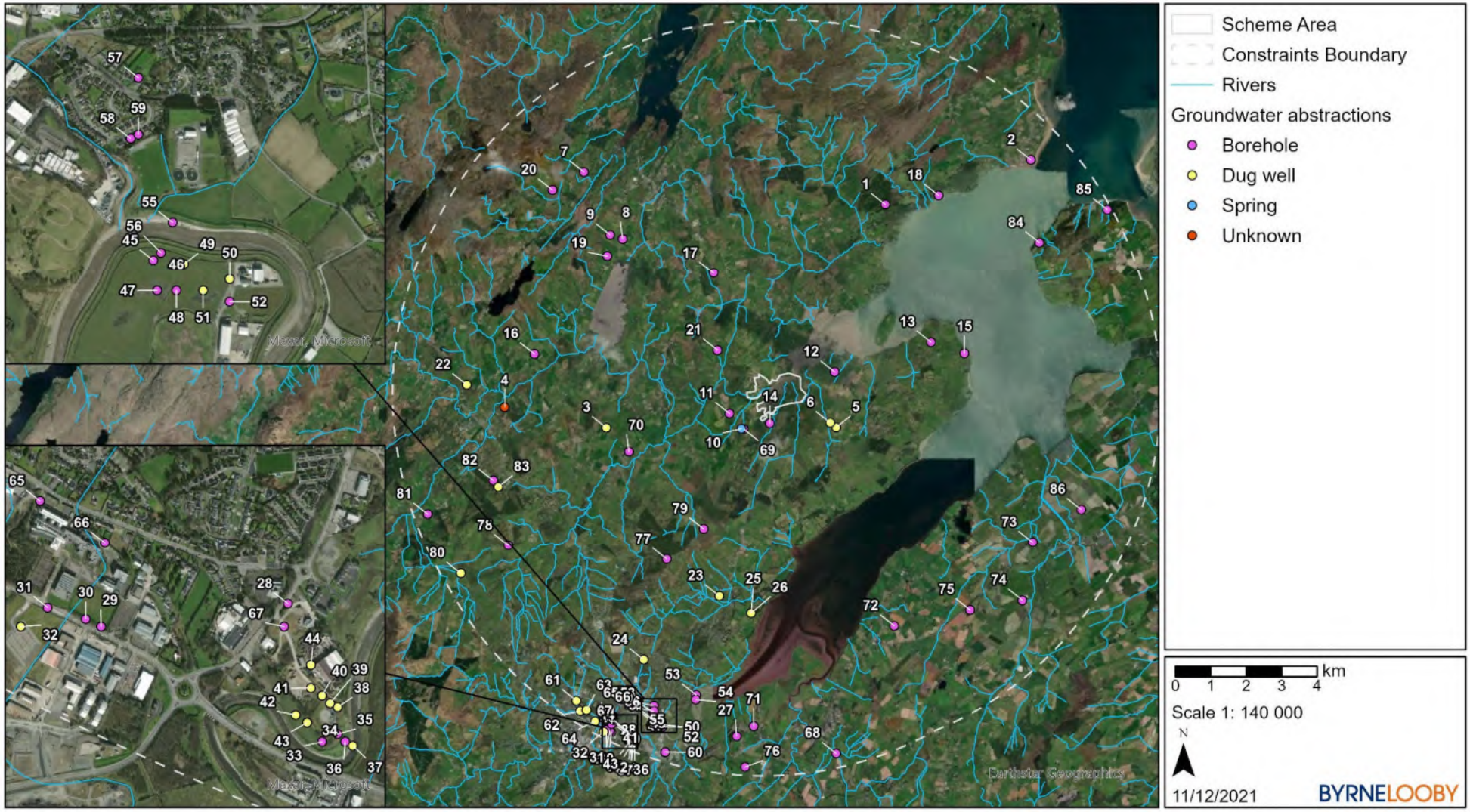


**Figure 3-4: Groundwater abstraction locations**

### 3.3.5 Electricity networks

The Electricity Supply Board (ESB) Networks maintains the distribution electricity infrastructure. Figure 3-5 (overleaf) shows the layout of the network. The electricity infrastructure is network consists of a mix of underground and overhead medium voltage lines.

### 3.3.6 Gas infrastructure

There is no gas distribution or transmission infrastructure reported within the scheme boundary of wider vicinity.

### 3.3.7 Digital infrastructure

Internet and landline services are provided by several commercial operators with available internet speeds averaging from 100 Mb to 500 Mb through 'part fibre' technology ( Switcher Limited, 2021).

Eircom Limited ('Eir') own and maintain the telecoms network for the Area Mobile phone coverage for 2G, 3G, and 4G is provided by commercial operators in the study area with coverage classed as ranging from good to very good by the Commission for Communication Regulation (Commission for Communication Regulation, 2021).


**Figure 3-5 Electricity infrastructure in the scheme boundary and vicinity**

### 3.3.8 Land Ownership and Zoning

Ramelton is located 11 km north of Letterkenny and is classified as a Tier 3 settlement. Located at the mouth of an estuary into Lough Swilly, urban areas of the town are surrounded by agricultural land inland. The town is largely residential with supporting social amenities.

Access to privately owned lands may be required for construction and maintenance works, and land may also need to be acquired as a result of the scheme. Depending on the nature of the land use in the particular areas, there may be a land use change engendered by the proposed scheme.

Rural Area Types identified in the County Donegal Development Plan 2018-2024 are shown in Figure 3-6 (Donegal County Council, 2021).

Appendix D contains a Settlement Framework Map for Ramelton listed as Map 15.20 in the Draft County Donegal Development Plan 2018-2024 (Donegal County Council, 2018).

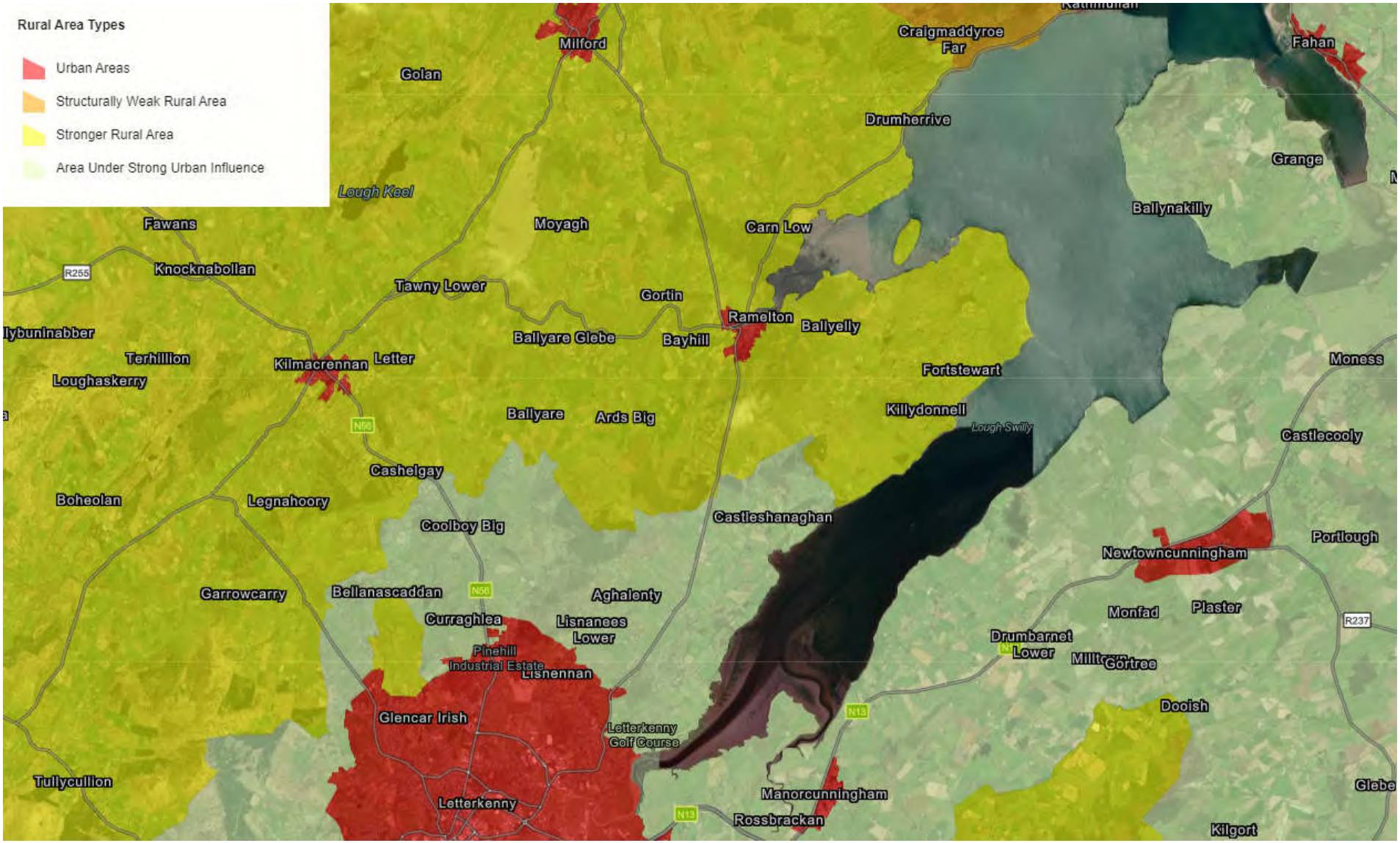


**Figure 3-6: Rural area types in the study area**
Data source: County Donegal Development Plan 2018-2024 ArcMap Viewer (Donegal County Council, 2021)

### 3.3.9 Roads and Transportation Network

Ramelton is served by regional roads R245 (which connects to the N56 at Letterkenny), R247, and R249. In recent years a Car Ferry has linked Rathmullan to Buncrana and Ramelton is located along the road route between Rathmullan (c. 11 km north east of Ramelton) and Letterkenny.

Public transport within Ramelton is largely private. There are no railways or tramways directly serving the study area.

There are no projects in the study area in the Major Roads Projects Active List Transport Infrastructure Ireland (Transport Infrastructure Ireland, 2020).

All roads in the scheme study area are maintained by the County Council, however any modifications to National Primary and Secondary roads would require consultation with Transport Infrastructure Ireland (TII).

### 3.3.10 Pedestrian and Cycling Network

Various walking pathways are located along lengths of the rivers, the quays and within the town. Public amenity areas in the towns are connected by public walkways and bridges. There are no cycle lanes/paths within the town.

At the time of writing, no further information is available with regards to pedestrian and non-vehicular users of the study area (for example cyclists and equestrians). This data has been requested and will be considered as the scheme progresses.

Ramelton Action Plan through the Rural Regeneration and Development Fund, Historic Towns Initiative and Town and Village Renewal Scheme includes a proposal to develop a promenade walkway along Ramelton Quay, road resurfacing and change to one way traffic in the town (Dedalus Architecture, 2020).

Third party infrastructure projects in the study area will be considered within the cumulative impact assessment in the EIAR to identify and determine the significance of any cumulative or in-combination effects.

## 3.4 Key Constraints

Impacts on services and utilities such as watermains, underground powerlines etc. will all need to be considered during the design process. The possible interruption of these services and utilities should be minimised, where possible. Furthermore, impacts on road and bridge infrastructure and land ownership will need to be considered.

Third party infrastructure projects being developed in the study area will be considered within the cumulative impact assessment in the EIAR to identify and determine the significant of any cumulative or in-combination effects. Coordination between project developers/teams will be required where construction occurs within overlapping or similar timeframes or where working areas overlap or are located in nearby areas.

Additional general and site-specific constraints will need to be considered as the scheme progresses, including:

- During planning, development, and construction, the utilities infrastructure must be fully considered to ensure that disruptions to the utilities infrastructure are avoided.
- During the construction stage, measures may have to be taken in order to ensure the construction does not interfere in any of the underground or overground utilities services.
- It will be necessary to contact TII where the development could impact on primary and national roads outside of the scheme area. TII would be specifically concerned as to potential significant impacts the development would have on the national road network (and junctions with national roads) in the proximity of the proposed development.
- It will be necessary to contact ESB if there is a need for lines to be turned off for a period of time (e.g. for works or relocation of infrastructure) and to determine if the affected residences could be serviced from elsewhere.
- It will be necessary to contact Irish Water if there is a need for water utilities to be turned off for a period of time (e.g. for works or relocation of infrastructure) and to determine if the affected residences could be serviced from elsewhere.
- During planning, development, and construction, any proposals by the applicant to divert existing water services (watermains, service connections, rising mains, foul and surface water sewers, culverts, etc.) will need to be submitted to Irish Water prior to works commencing.
- During the construction stage, measures should be taken in order to ensure the construction does not interfere with underground services. Where works occur in proximity to electrical lines, some areas may have to be cut-off for the remainder of the work. This could cause an impact to local residents and business.
- Underground electrical lines in the study area may be at risk of flooding in extreme weather conditions causing power outages in areas of Ramelton. The location of the underground cable routes in the planning and construction stages of the scheme should be taken into consideration.
- Consideration of the designs effect on sewerage capacity in the event of hydrological changes or flooding.
- Impacts on road and bridge infrastructure and land ownership will need to be considered. Further, licenses for opening or forming openings in public roads, as required by the Scheme construction, should be made to the Road Management Office (RMO).
- Impacts on public rights of way, footpaths and cycle routes will need to be considered. The proposed scheme design should ensure continuity of the public walkways within its footprint and future plans for same.
- Bridges provide crossing of the local rivers and are a public right of way and access should be maintained throughout the project construction and operation phases.

- Coordination with third party projects may be required during the planning and development of the scheme to avoid or reduce the likelihood of potential cumulative and in combination impacts.

- As advised by the Minister of transport (Minister of Transport pers. comm. 20/10/2021), given that all of the hard measures identified and assessed in 2018 scored quite high with regards to negative environmental consequences, designers are advised to weigh nature-based criteria compared to hard defences when designing these flood relief schemes.

- As advised by the Minister of transport (Minister of Transport pers. comm. 20/10/2021), the designer of the scheme should ensure that the threat of flooding along the public road network (where it exists) is reduced by the proposed design and that the drainage of the public road network is improved where possible and not impaired by the proposed development.

Irish Water, in partnership with DCC, is currently developing a sewerage scheme in Ramelton as part of an overarching 'Ramelton, Milford and Rathmullan Sewerage Scheme' project. Infrastructure proposed at Ramelton comprises a pumping station and a 200 mm diameter rising main (Irish Water, 2021). The design and construction of the FRS scheme should be mindful of this future development and manage all interfaces.

# 4 Population and Human Health

## 4.1 Introduction

This section sets out the principal constraints in relation to the socioeconomic setting of the study area. These include population, recreation/tourism, and public health matters characterising the study area that may impact on the selection of the flood relief measures for the proposed scheme, and which relate to the main settlement areas near which any flood relief measures are likely to be undertaken.

For the purposes of this report, the study is defined as the area which includes the town of Ramelton and the immediate surrounding rural area. Features outside of this boundary (up to an outer extent of 10km) are considered where relevant.

Currently, the impact of flooding is causing a multitude of socio-economic impacts to the community of Ramelton, including the inability to obtain housing insurance, the permanent loss of belongings, the permanent or temporary loss of livelihood for commercial properties, and the general social impact of angst in potential flood events. The intention of the Scheme is to provide flood defence measures for sensitive receptors in the town of Ramelton, which overall will provide positive impact to the towns, and in particular the individual commercial and residential receptors affected by historical flooding events.

## 4.2 Methodology

A desktop study was undertaken to identify the key population and human health constraints within the study area. The following sources of information were used in the preparation of this section:

- Google Maps (Google, 2021).
- Ordnance Survey Ireland (OSi), National Mapping Agency data accessed through the Geohive map veiwer (OSi, 2021).
- County Donegal Development Plan 2018-2024 (Donegal County Council, 2018).
- Donegal County Council Tourism Strategy 2017 – 2020 (Donegal County Council, 2017).
- Landscape Character Assessment of County Donegal (Donegal County Council, 2016).
- Census of Ireland 2016 (Central Statistics Office, 2021) .
- Donegal County Council Website (https://www.donegalcoco.ie).
- Draft River Basin District Management Plan 2021 (EPA, 2021).
- Ramelton Action Plan (Dedalus Architecture , 2020).

Sensitive receptors and potential constraints have been identified. Other environmental interactions with population and human health, e.g. noise, vibration, air quality, climate, and material assets are addressed in the relevant sections of this chapter.

## 4.3 Baseline / Receiving Environment

### 4.3.1 Population, land use, and human health

Ramelton is a Tier 3 Settlement Strategic Support Town and acts as the retail, commercial, educational and recreational centre for the local area and wider vicinity. The town has 4 schools and a community hospital. The 2016 census recorded the town population as 1,266 (Central Statistics Office, 2021).

**Table 4-1 Population by Nationality from Donegal Local Economic & Community Plan 2016-2022.**

| | Irish | United Kingdom | Polish | Lithuanian | Other EU 27 | Rest of World | Not Stated | Total | % Other than Irish |
|---|---|---|---|---|---|---|---|---|---|
| Ramelton | 1,110 | 61 | 0 | 0 | 12 | 8 | 9 | 1,200 | 6.8% |

**Table 4-2 Socio Economic Groups & Labour Force Details from Donegal Local Economic & Community Plan 2016-2022.**

| | A | B | C | D | E | F | G | H | I | J | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ramelton | 9% | 7% | 11% | 19% | 8% | 7% | 6% | 4% | 2% | 1% | 25% |
| Labour force Participation Rate | 55.2% | | | | | | | | | | |
| Non-Labour force Participation Rate | 44.8% | | | | | | | | | | |
| Unemployment Rate | 32.0% | | | | | | | | | | |
| Labour Force | 534 | | | | | | | | | | |
| *A: Employers and Managers, B: Higher professional, C: Lower professional, D: Non-manual, E: Manual skilled, F: Semi-skilled, G: Unskilled, H: Own account workers, I: Farmers, J: Agricultural Workers, Z: All others gainfully occupied and unknown* | | | | | | | | | | | |

As a heritage town, Ramelton is recognised under 6.1.6 of The Donegal Local Economic and Community Plan 2016 - 2022, as an opportunity for 'Unlocking Our Cultural Resource' through (Donegal County Council, 2015):

- Concentration of the heritage resource.
- Potential for greater contribution to the tourism sector.
- Further develop initiatives to reuse historic buildings in Heritage Towns to contribute to regeneration and placemaking.

Green spaces, residential and commercial properties and facilities for social amenities are present in the study area. Local services within Ramelton include banking facilities, health care facilities

(Ramelton Health Centre, Ramelton Community Hospital and Acupuncture Ramelton) and a Garda Station.

Land use and zonation is described in section 3.3.8.

The 'forces for change' for the town described in the Landscape Character Assessment of County Donegal (Donegal County Council, 2016) lists:

- Degree of pressure for urban generated housing development from Letterkenny.
- Linear development along the rural road network.
- Holiday home development.
- Renewable energy development (windfarms).
- Telecommunications and infrastructural development.
- Coastal erosion (former agricultural lands as identified in the historic maps are now intertidal mudflats).
- Flooding.
- The high quality built environment and natural setting of Ramelton as well as its historical and archaeological heritage give it strong potential to grow within the tourism sector.

The Ramelton Quay represented an integral part of the town, and was the focus of export and international trade, generating a large portion of the wealth of the town in the 19th Century (Dedalus Architecture, 2020). It was supported by The Mall which contained a mix of housing and commercial buildings associated with warehousing, market exchanges and merchant houses. The quay is no longer used for its original purpose and is now represented by a mix of abandoned warehouses/commercial lots, housing and a café/restaurant. It is also used as an informal walking route, as mentioned in Section 3.3.9, and parking area.

### 4.3.2 Tourism and recreation

Two of the key objectives (S-O-4 and S-O-5) within the County Donegal Development Plan reference plans for economic growth and regeneration to support strengthened and vibrant communities. Tourism is a key driver of this (Donegal County Council, 2018a). The Donegal County Council Tourism Strategy 2017-2020 further identifies intentions for the development of tourism infrastructure, with County Donegal being identified as 'Ireland's Hidden Gem'. It is also a policy of the Donegal County Council to preserve, protect and enhance the special built character and functions of Donegal's' 'Heritage Towns' of which Ramelton is one (Donegal County Council, 2018a).

The Access and Recreation assessment in the Landscape Character Assessment of County Donegal (Donegal County Council, 2016) states:

- Regional and county roads radiate from Ramelton in all directions providing excellent permeability throughout the area and linkage to the rest of the county.

- Wild Atlantic Way follows the R245 from the south, through Ramelton and along the coast northwards through this LCA.
- Strong tourism and leisure industry focused on the landscape, seascape and their use.
- River Leannan is a popular fishing river for Brown Trout and Salmon.
- Formerly one of the most important ports in Donegal, Ramelton remains navigable by boats from Lough Swilly.

Ramelton's seaside location, natural and heritage resources, and proximity to, and connections with, Letterkenny are among its strategic assets.

The area is a popular destination for tourists and has an established tourism and hospitality sector. The area also has shopping amenities, including a national supermarket chain, and cultural amenities. The town is characterised by heritage structures and significant structures include the Guild House, Old Meeting Hall, Tullyaughnish Old Church, the Brae, Gamblers Square, Bleach Green, and a freestanding milestone (built c. 1850) (Donegal County Development Board and Partners, 2021).

There are no national waymarked trails of formally recognised local walks present in the scheme area (Donegal County Council, 2021). However, the quays, town centre and 'green' amenity areas including the Green, Lennon River Waterfall, and green areas adjacent to the southern section of Bank Terrace (all located on the left bank of the Leannan River) are recognised green amenity areas that can be enjoyed by walkers.

Fisheries operate in the study area and are popular locations for catching trout and salmon. The section of the River Leannan downstream of the Drummonahan Bridge (Watt's Pool) is privately owned by the Ramelton Fishery Company and fishing is allowed under permit. A permit to fish is also required for Lough Fern. There are no permit requirements at present for the Lennon upstream of the Ramelton Fishery Company stretch (River Leannan, 2021). In addition to freshwater fishing, sea fishing boats berth in Ramelton Harbour. It is not known at present if land-based sea fishing takes place from the quay or surrounding areas.

There are no Bathing Water Areas designated under the EU Water Framework Directive located within the study area (EPA, 2021).

### 4.3.3 Traffic

The TII Traffic Data website does not contain and count data for National Road from within the Scheme area (TII, 2021). Traffic count data for Ramelton has been requested and was not available at the time of writing.

Traffic data will be required to inform the traffic impact assessment for the construction phase of the scheme.

### 4.3.4 Regeneration Plan

Ramelton has been identified as an area of regeneration, and as such the Ramelton Action Plan was launched in 2020, with a new focus on developing a long-term strategy for the regeneration, working with the community, businesses and partners to establish key areas of improvement (Dedalus Architecture , 2020). The Action Plan was made available for public viewing during the period 7th February 2020 to 13th March 2020, after which a series of actions were developed as the basis of the plan. The six actions are:

1. Repair of historic buildings and streets.
2. Provision of public space for people, divided into four Project (The Market Cross, Gamble's Square, Market Green Garden & The Quay).
3. Encouragement of commercial activity.
4. Rejuvenation of the Historic Town Centre.
5. Take action on climate change, environment and sustainability
6. Provision of cycle ways, pathways and walking routes.

Donegal County Council have announced the release of the preliminary designs for the Ramelton Public Realm Enhancement Scheme, 'Ramelton Re-Imagined', funded by the Department of Rural and Community Development through the Rural Regeneration and Development Fund. The aim is to create a 'series of enlivened public spaces connected by a walkable continuous path that wraps around the historic down core' (Donegal County Council, 2022). The scheme is currently open to public consultation and enquiry. Further details of the scheme's intentions are detailed in Chapter 9 of this report.

## 4.4 Key Constraints

- Constraints on population and human health will depend on the final nature and extent of the scheme, as well as the duration and nature of the construction phase.
- Public and tourist amenities and facilities should also be considered key constraints. Impacts on public amenity areas adjacent to and requiring access to the rivers such as riverside walks, parks, playgrounds and tourist features should be considered, with replacement mitigation proposed if necessary. Impacts on tourist facilities, recreation and amenity facilities in the area should be considered constraints, especially those requiring access to the watercourses in the area.
- Development of the proposed scheme must take into consideration ways for areas of commercial or tourist potential maintain their aesthetic and public attractiveness both during construction and operation of the scheme.
- Development of the proposed scheme must take into consideration ways to complement and enhance public amenities including green spaces in the proposed scheme footprint.

Measures to protect extant recreational areas and green public spaces should be developed within the proposed scheme. The proposed scheme design should ensure continuity of the public walkways within its footprint.

- The scheme design should take into account the value (both cultural and economic) of any buildings (residential, retail, etc.) close to the edges of waterbodies likely to be adversely affected by the scheme within the scheme study area.
- Regional roads in the project are likely to be congested at peak travel times. Some roads in the scheme area are narrow and may not be suitable for site access. A bridge provides road and pedestrian access across the Leannan river and access to the bridge should be maintained throughout scheme construction and development. There is a potential for construction to make traffic more congested in the study area and vicinity in the short term. A traffic management plan will be required with the CEMP.
- Construction works will have to be mindful of maintaining access for both pedestrians and cyclists. A traffic management plan will be required during construction works.
- Any design proposals should ensure that any bridges over watercourses are maintained where feasible so that temporary or permanent disruption of local transport links and access to homes and businesses in the study area are minimised.
- Urban development may limit access and movement of vehicles/equipment during construction. During construction of the scheme, traffic restrictions could pose problems for deliveries and site access and traffic management measures will be considered as part of the environmental impact assessment process. The access at Pound Street, where a culvert runs underneath an existing property, is a key area of concern with regards to limited access and movement of vehicles/equipment during construction.
- Sensitive receptors e.g. homes, schools, medical facilities, places of worship, should be considered key constraints in the design of the flood relief scheme. The scheme design should take into account the value (both cultural and economic) of any buildings (residential, retail, etc.) close to the waterbodies' edges or likely to be adversely affected by the scheme within the scheme study area. Medical facilities in the scheme area are sensitive receptors and must be given due consideration. Flooding events can cause devastation to homes, businesses and local facilities, with social and human health impacts. Their specific protection through adequate flood defences should be considered in the design of the scheme.

Other impacts to population that are also concerned with human health, including material assets such as water supply, wastewater treatment, and utilities should also be given due consideration.

Constraints and considerations regarding the architectural conservation area are addressed in Section 8.

# 5 Hydrology

## 5.1 Introduction

This section of the report outlines the environmental constraints associated with the hydrology of the study area, inclusive of all surface water bodies (rivers, lakes, loughs, estuaries etc.) and their associated catchments and basins. Groundwater is addressed in Section 6.

The principal surface waterbodies in the scheme area are outlined in Section 5.3.2 but include the Leannan River, Ramelton River, and Newmill River, all of which outflow to Lough Swilly within Ramelton.

For the purposes of this report, the study is defined as an area approximately 3 km in radius from the scheme area (see Figure 1-2). Features outside of this boundary (up to an outer extent of 10 km) are discussed where relevant to give greater context within the wider vicinity of the project area, (as they are considered unlikely to interact with the scheme). This 10 km extent for such features will be reviewed at scoping for EIA and EIA stages and when further details for the design and construction of the scheme become available to ensure adequate consideration of interactions, were relevant.

## 5.2 Methodology

A desktop study was undertaken to describe the overall hydrological regime and water quality within the study area and to define hydrological constraints. The sources of publicly available information consulted in order to identify possible hydrological constraints within the study area include:

- EPA geoportal website including map viewer and water quality database.
- OPW Database of Hydrometric Stations.
- NIEA water quality database and maps.
- Geological data available through the GSI data portal and map viewer series (Geological Survey Ireland, Department of the Environment, Climate and Communications, 2021).
- Water Framework Directive website.
- The OPW's floodinfo.ie portal website.
- North Western River Basin District Management Plan (2009 – 2015).
- Draft River Basin District Management Plan 2021 (EPA, 2021).
- 3rd Cycle Draft Lough Swilly Catchment Report (HA 39) (Catchment Science & Management Unit Environmental Protection Agency, 2021)

- WFD Cycle 2 Catchment, Lough Swilly, Subcatchment Leannan_SC_020 Report (WFD Application, 2018).
- WFD Cycle 2 Catchment Lough Swilly Subcatchment Burnfoot_SC_010 Report (WFD Application, 2019a).
- WFD Cycle 2 Catchment Lough Swilly Subcatchment Crana_SC_010 Report (WFD Application, 2019b).
- Waterbody data for the sub catchments (EPA Catchments, 2021).
- Presentation: Inishowen River Trust Nature Based Solutions on Inishowen Rivers (Murphy, 2021).
- The Opportunity for Natural Water Retention Measures in Inishowen (Bourke et al, 2020).

A number of other datasets are also relevant to hydrology due to their interactions, e.g. ecological sites and hydrogeological features. These have been dealt with in other relevant sections of this report.

The characterisation of the baseline in this section is based on desktop study.

Surface water abstraction is described in Section 3.3.4.1.

## 5.3 Baseline / Receiving Environment

### 5.3.1 The Lough Swilly Catchment

All rivers in the study area are located within the Lough Swilly catchment which drains a total area of 507 km$^2$. This catchment comprises the northern and eastern parts of the Inishowen Peninsula and is drained by several relatively small rivers which flow from the mountains in the centre of the peninsula (Catchment Science & Management Unit Environmental Protection Agency, 2021).

### 5.3.2 Waterbodies in the Study Area

Within the scheme are the following waterbodies are present:

| Watercourse | Catchment Area [km$^2$] | Main Stream Length [km] |
|---|---|---|
| Leannan | 255.7 | 41.7 |
| Ramelton | 2.3 | 3.0 |
| Newmill | 3.7 | 4.9 |

A review of OPW arterial drainage schemes indicate there are no arterial drainage schemes or benefitting lands within the model catchment (Office of Public Works, 2021b). The Ballasallagh (Ray River) Drainage District Channel is located is located c. 3 km north east of Ramelton.

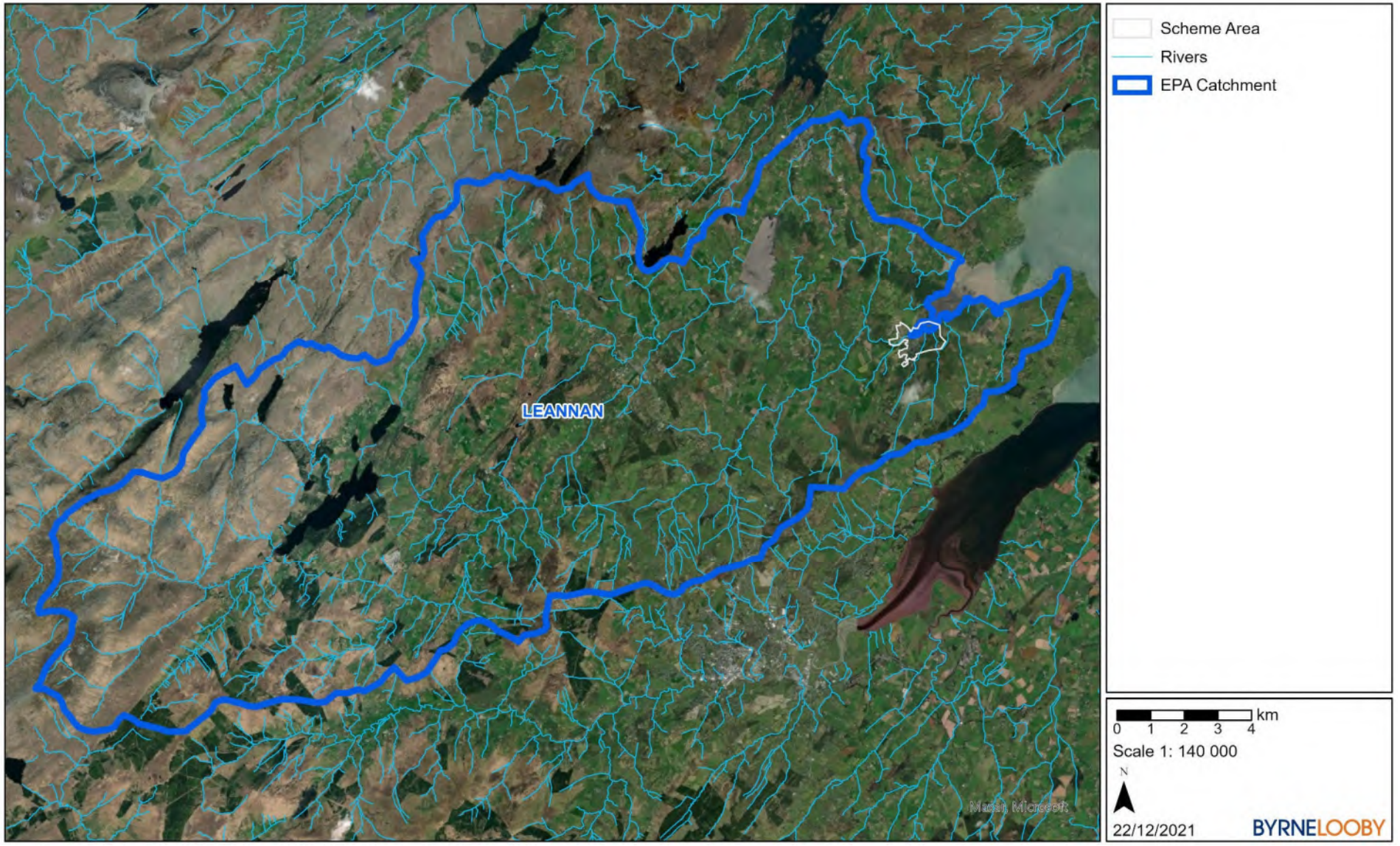


**Figure 5-1 River Leannan Catchment**
(Data source: EPA GeoPortal)

### 5.3.3 Surface waterbody quality and status

The Water Framework Directive (WFD) was agreed by all individual European Union (EU) member states in 2000 and provides a comprehensive framework for water quality management across the EU. The directive requires that all member states adopt a comprehensive integrated basin-based approach to water management.

Rivers, lakes, estuaries and coastal waters can be awarded one of five statuses including 'high', 'good', 'moderate', 'poor' and 'bad' whereas groundwater can be awarded only 'good' or 'poor' status (see Table 5-2 and Figure 5-3 for those relating to the scheme area). Whilst the Ramelton River is 'unassigned' with regards to water quality status, the Leannan River is associated with a 'high' status (similarly for its tributary CARN LOW_010). Ecological status for surface water bodies is primarily driven by the Biological Quality Elements (BQEs) which includes fish, aquatic flora, macroinvertebrates and phytoplankton. Standards for general physico-chemical parameters, specific pollutants and hydromorphology are set at levels in order that they are sufficient to support the status of the BQEs (Catchments.ie, 2021).

The key objectives of the directive are to maintain a 'high' status of waters where it exists, prevent any deterioration in the existing status of waters and achieve at least 'good' in relation to all waters by 2015, latest by 2027. Those rivers classed as being 'at risk' relates to the potential of that watercourse meeting the 'good' Ecological Status.). Whilst the Ramelton River is currently 'under review' with regards to risk status, the Leannan River is associated with an 'not at risk', deafferenting from its tributary (CARN LOW_010 ) which is class as 'at risk' with key pressures identified as being agriculture, urban waste water and domestic wastewater. This is as outlined in Table 5-2 and illustrated in Figure 5-4.

The River Basin Management Plan (RBMP) for Ireland 2022-2027 is currently out for public consultation[2], to be published later in 2022. The final plan will need to be considered in this flood relief scheme.

The EPA monitors survey water within the study area National water quality monitoring stations and their location are detailed in Table 5-1 (EPA, 2021).

**Table 5-1 National water quality monitoring stations and hydrometric gauges within 3km of the scheme area**

| Map Label | Registration Number | Type | Name | Waterbody | Status/ Purpose | ING Coordinates | |
|---|---|---|---|---|---|---|---|
| | | | | | | Easting | Northing |
| 39005 | 39005 | Hydrometric Gauge | Rathmelton | Leannan | Staff Gauge Only (Inactive) | 222051 | 420892 |
| 39006 | 39006 | Hydrometric Gauge | Claragh | Leannan | Recorder (Active) | 220215 | 420084 |
| 1 | RS39C340730 | National WQ Monitoring Station | Carn Low - Interstitial, Br north of Carn Low. | Carn Low | River Water (Investigative) | 223240 | 423086 |

[2] https://www.gov.ie/en/consultation/2bda0-public-consultation-on-the-draft-river-basin-management-plan-for-ireland-2022-2027/

| Map Label | Registration Number | Type | Name | Waterbody | Status/ Purpose | ING Coordinates | |
|---|---|---|---|---|---|---|---|
| | | | | | | Easting | Northing |
| 2 | RS39L010600 | National WQ Monitoring Station | Drumman Br (d/s L Fern) | Leannan | River Water (Operational) | 219013 | 421882 |
| 3 | RS39L010700 | National WQ Monitoring Station | Bridge at Claragh | Leannan | River Water (PreWfd) | 220311 | 420133 |
| 4 | RS39L010750 | National WQ Monitoring Station | Br S Drummonaghan | Leannan | River Water (Investigative) | 221646.8 | 421055 |
| 5 | RS39L010800 | National WQ Monitoring Station | Bridge End: at Old Mill | Leannan | River Water (Operational) | 222075 | 420891 |
| 6 | RS39L012000 | National WQ Monitoring Station | Drumonaghan Br. | Leannan | River Water (PreWfd) | 222361 | 421129 |
| 7 | RS39N050990 | National WQ Monitoring Station | Newmill - Interstitial, Br slightly u/s from Lough Swilly. | Newmill | River Water (Investigative) | 223126 | 421309 |

Recent and publicly available surface water quality data is available for the study areas from the catchments.ie website (WFD Application, 2019a,b; EPA Catchments, 2021). Physicochemical surface water data is available from monitoring station codes in the scheme area and vicinity. This data will be considered with of the environmental impact assessment. Data from Northern Ireland Environment Agency will also be considered, where appropriate.

The Catchments.ie website publishes waterbody status data for the sections of rivers within the study area (where works might be proposed) under their sub catchment classification system. An overview is provided in Table 5-2 and Figure 5-4 (WFD Application, 2019a,b; EPA Catchments, 2021).


**Figure 5-2 Hydrology constraints study area with locations of national water quality monitoring stations and hydrometric gauges**

**Table 5-2 Waterbody status data for the waterbodies within the study area**

| Waterbody (type) | Name | Code | Monitoring type of Waterbody | Water Quality Status (2013-2018) | WFD risk status | High Ecological Status | Pressures |
|---|---|---|---|---|---|---|---|
| Ramelton River/ Newmill River | NEWMILL_010 | IE_NW_39N050990 | N/A | Unassigned | Under Review due to its unassigned status and pending the outcomes of an investigative assessment | No | N/A |
| River Leannan | CARN LOW_010 (Tributary of the Leannan) | IE_NW_39L012000 | • Operational Monitoring<br>• Supporting Chemistry Monitoring<br>• Biological Monitoring | • Ecological Status or Potential: High<br>• Biological Status or Potential: High<br>• Invertebrate Status or Potential: High | At Risk as it has a High Ecological Status Objective which it is no longer meeting. | Yes | Agriculture, Urban Waste Water, Domestic Waste Water.<br><br>The river waterbody is impacted by nutrient and organic pollution. |
| River Leannan | LEANNAN_060 | IE_NW_39L010600 | • Operational Monitoring<br>• Supporting Chemistry Monitoring<br>• Biological Monitoring | • Ecological Status or Potential: Good. However currently not meeting the NPWS Protected Area Objectives (Freshwater Peal Mussel and salmonid catchment).<br>• Biological Status or Potential: Good<br>• Supporting Chemistry Conditions: Pass | Not at Risk | No | N/A |

Source: WFD Application, 2018, 2021.


**Figure 5-3 WFD River Water Quality Status (2013 – 2018)**

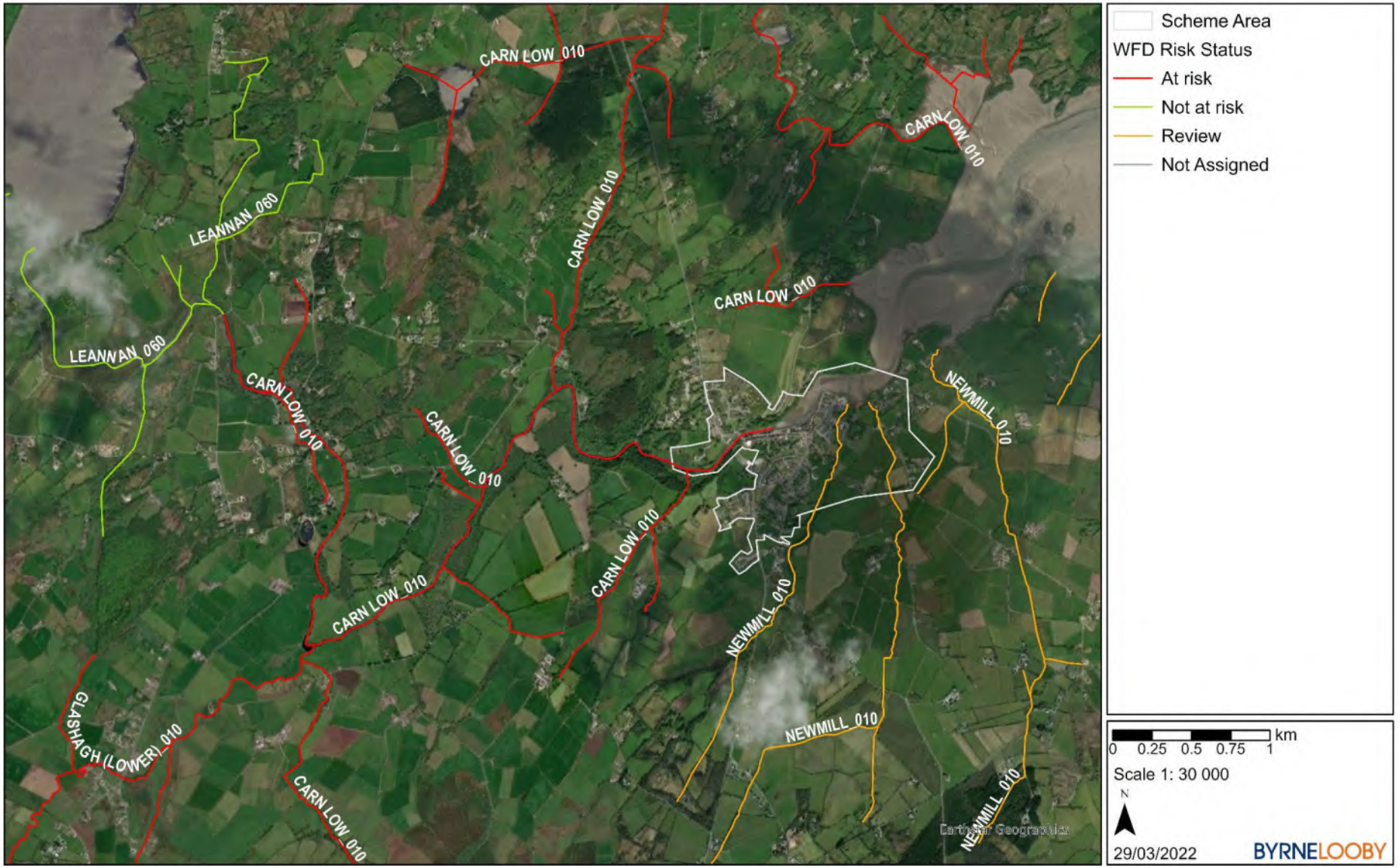


**Figure 5-4 WFD River Risk Status**

## 5.4 Key Constraints

Surface water bodies in the study area are classed under the WFD as 'At risk' of not meeting the WFD objectives of 'good' Ecological Status and, additionally, a designated high status river is present. Under WFD requirements, the development of the scheme should incorporate measures to ensure that the hydromorphological conditions of the water body is consistent with the achievement of the required ecological status.

Measures to protect surface water from leaks/spills, contamination, increased turbidity or input of suspended solid, etc, should be considered.

Contamination potentially present on site from historical land use must also be considered. The CEMP for the scheme will include measures to avoid mobilising and/or creating pathways for any contaminants present on site to the surface where surface runoff can introduce contaminants to surface water during enabling and construction works.

Measures to protect active national water monitoring stations and hydrometric gauges and avoid impacting their data collection processes should be considered during design and construction phases.

The scheme design and schedule will need to take into consideration the development of any WWTPs, water abstraction facilities or third party 'WFD' projects in the vicinity of the scheme area, including potential impacts to utilities and infrastructure.

Potential impacts on the hydrology and morphology of the study area watercourses during construction, maintenance and operations should be considered. A hydromorphology survey will be completed using the River Hydromorphology Assessment Technique (RHAT). It is recommended that the hydrological and morphological physical condition regime of all waterbodies which might be affected by the scheme are fully considered to ensure that the WFD hydro-morphological status is unaffected.

The scheme should take into consideration water quality sensitive protected species, including Annex II species and qualifying interests for the SAC, recorded in waterbodies in the scheme area and vicinity. Additionally, water dependant terrestrial ecosystems are present within the study area and downstream and should be considered.

The scheme should take into consideration the presence of protected water resources in the study area (Lough Swilly SAC and Lough Swilly SPA).

# 6 Soils, Geology and Groundwater

## 6.1 Introduction

This section of the report outlines the environmental constraints associated with the soils, geology and groundwater/hydrogeology of the study area.

The extents of the topic specific constraint boundaries/study areas are provided in the relevant figures in the following section and are:

- 1 km of the scheme area boundary for geology, karst features, geoheritage, geohazards, economic geology, and soil.
- 3 km of the scheme area boundary for groundwater.

In the absence of formal guidance on the establishment of a study area for this topic, the boundaries were selected using professional judgement to ensure that the local geological context could be considered at an appropriate scale to the features identified. Features outside of these boundaries may be discussed in the following subsections to give greater context within the wider vicinity of the project area, where relevant. However, such features are not considered within the constraint boundary as they are unlikely to interact with the scheme.

## 6.2 Methodology

A desktop study was undertaken to describe the environmental constraints associated with the soils, geology and hydrogeology of the study area. The sources of publicly available information consulted in order to identify possible constraints within the study area include:

- The Geological Survey of Ireland (GSI) online database.
- Geological Survey Ireland (GSI) data and map viewer, including hydrogeology, geology, soils, geoheritage, and karst database. GSI is a division of the Department of Communications, Climate Action and Environment. Specific attribution statement: "This report contains Irish Public Sector Data (Geological Survey) licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence".
- Department of the Environment, Climate and Communications OPALS Viewer (Mineral Exploration and Mining).
- Donegal County Council Planning Department (Quarries Register under Section 261 Planning and Development Act 2000).
- Teagasc Irish Soil Information System.
- EPA Map data and map viewer, including Water data, ENVision Mines Site, the EPA's online Historic Mines Inventory.

- Groundwater data hosted on Catchments.ie.
- 1st Draft Lough Swilly GWB Description (Geological Survey Ireland, 2004).
- 3rd Cycle Draft Lough Swilly Catchment Report (HA 39) (Catchment Science & Management Unit Environmental Protection Agency, 2021).
- Irish Concrete Federation Members Directory (Irish Concrete Federation, 2021).

The characterisation of the baseline in this section is based on desktop study.

Groundwater abstraction is described in Section 3.3.4.2.

## 6.3 Baseline / Receiving Environment

### 6.3.1 Geology

Bedrock geology in the study area and wider catchment is comprised of Dalradian metasediments and Ramelton is underlain largely by schists. Bedrock geology is detailed in Table 6-1. GSI data indicates that Quaternary geology in the study area is comprised of till derived from metamorphic rocks and alluvium (Geological Survey Ireland, Department of the Environment, Climate and Communications, 2021).

**Table 6-1 Bedrock geology in the study area**

| Formation | Lithology | Stratigraphical Unit |
|---|---|---|
| N/A | Metadolerites | N/A |
| Termon Formation | Banded semi-pelitic & psammitic schist. The lowermost semi-pelitic schists are typically dark and graphitic and interbedded with thin units of dolomitic marble and lenses of psammite. | Dalradian, Precambrian |
| Upper Crana Quartzite Formation | The formation comprises an upward-coarsening sequence of graded pebbly grits. Grading is conspicuous and cross-stratification is also present. Sub-rounded pebbles and cobbles of quartz as vein quartz and as single crystals are common. | Dalradian, Precambrian |
| Lower Crana Quartzite Formation | Psammitic schist with some marble beds. A lower fine grained unit comprises thick, rarlely graded, beds of psammite interbedded with finely striped semi-pelitic schists. This is overlain by a unit of striped psammites with sime thin marbles best seen southeast of the Leannan Fault. | Dalradian, Precambrian |

### 6.3.2 Karst features

Karst can form on any rock that is soluble in water and, within Ireland, most karst is found in Carboniferous limestones. Karsts features can cause structural instability to overlying and adjacent land and increase vulnerability to groundwater by creating a pathway for contaminants present on land or surface waters to enter the subsurface.

GSI bedrock mapping data indicates that Carboniferous limestone is not present within the study area. Localised dolomitic marbles are present within the study area. Karst feature data compiles by the groundwater unit at the Department of the Environment, Climate and Communications (DCCAE) indicates that there are no karst features reported from the scheme area or vicinity. There are no karst features reported in proximity of the lower catchment (Geological Survey Ireland, Department of the Environment, Climate and Communications, 2021).

### 6.3.3 Soils and sediments

Teagasc data indicates that made soils are present in urban areas and, outside of these areas, alluvial soils, acid brown earths are present within the scheme area, including shallow, rocky soils complexes to the west of the scheme area (Geological Survey Ireland, Department of the Environment, Climate and Communications, 2021).

DCCAE provide high level soil permeability data that is not available throughout the constraints boundary area of scheme area. This data indicates that subsoil permeability is largely moderate in the study area (Geological Survey Ireland, Department of the Environment, Climate and Communications, 2021).

Historical site investigation data for soils, including reports outlining the presence of any soil contamination that may be present in the scheme area, were not available at the time of writing. Two licenced waste facilities, Drumabodan and Glenalla, are present in the study area (see Section 3.3.2) and could be a potential source of contamination. However, the location and nature of any contaminated soils, if present in the scheme, may not be recorded, particularly where caused by historical events.

EPA data indicates that there are marine dumpsite boundaries within the scheme area for dredge material in the harbour.

Soils in the scheme area and vicinity are shown in Figure 6-2.

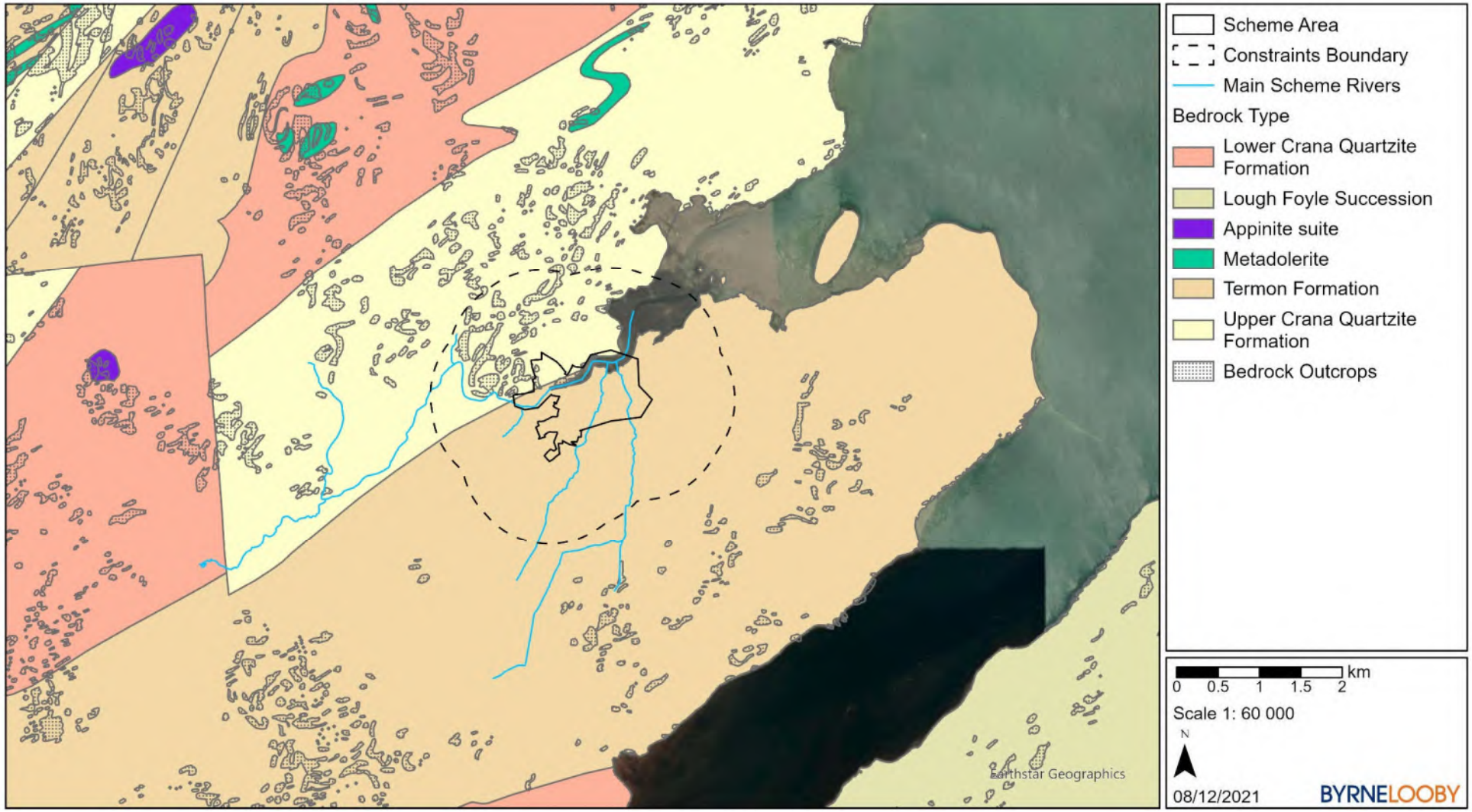


**Figure 6-1 Bedrock geology**

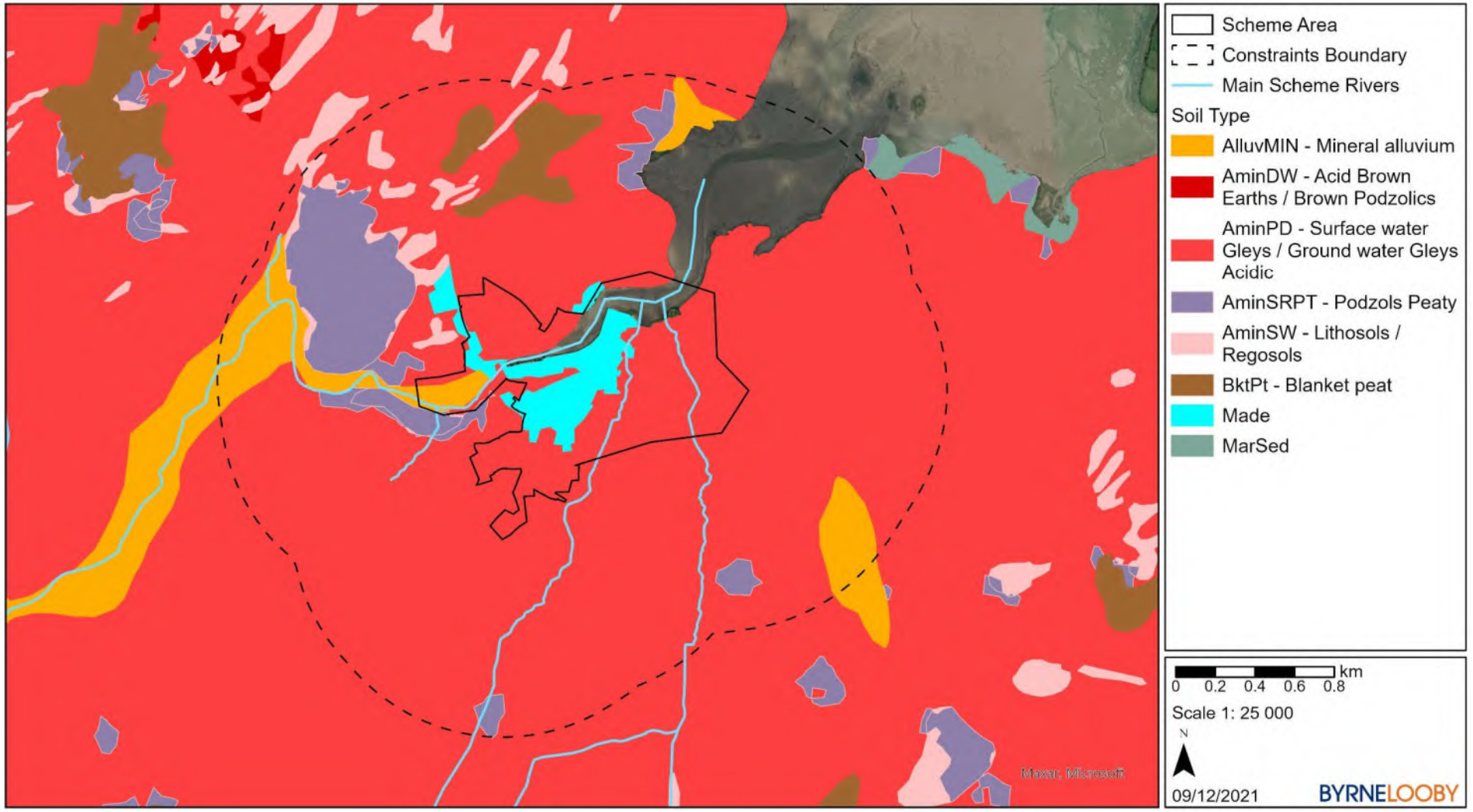


**Figure 6-2 Soils in the scheme area and vicinity.**

(Source: EPA GeoPortal). Abbreviations for soil categories: AlluviMIN = mineral alluvium; AminDW = deep well drained mineral (derived from mainly acidic parent materials); AminPD = deep poorly drained mineral (derived from mainly acidic parent materials); AminSRPT= shallow, lithosolic or podzolic type soils potentially with peaty topsoil (derived from non-calcareous rock or gravels); AminSP = shallow poorly drained mineral soil (derived from mainly acidic parent materials); AminSW = shallow well drained mineral (derived from mainly acidic parent materials); BkPt = blanket peat; Made = made ground, MarSed = marine/ estuarine sediments

### 6.3.4 Geoheritage

GSI data indicates that The Loch Súilí (also known as Lough Swilly) Irish Geological Heritage site is present within the study area.

Lough Swilly is one of Ireland's few glacial fjords and the cliffs, beaches, mudflats, salt marshes, polders and headlands at the Lough make this County Geological Site a classic textbook locality for coastal erosion and deposition features. Lough Swilly is the only fjord on Ireland's north coast. The lough contains a range of sedimentary environments, including intertidal and salt marsh areas, some of which have been reclaimed for agricultural use. Parts of the site include Lough Swilly SAC (002287) and pNHA (000166), the North Inishowen Coast SAC and pNHA (002012), and Ballyhoorisky Point to Fanad Head SAC and pNHA (001975) (Geological Survey Ireland, 2019 ).

### 6.3.5 Geohazards

GSI data indicates that there are no landslides reported from the study area.

### 6.3.6 Economic geology

There are no registered quarries in the study area under Section 261A of the Planning and Development Act (2000 – 2011).

### 6.3.7 Groundwater

Aquifer categories are intended to describe both resource potential (Regionally or Locally important, or Poor) and groundwater flow type and attenuation potential (through fissures, karst conduits or intergranular). The aquifer code is made up of the aquifer resource value and how the groundwater flows in the bedrock or sand & gravel aquifer. They are as follows (Geological Surveys Ireland, 2022):

Regionally Important (R) Aquifers:

- Karstified bedrock (Rk)
- Fissured bedrock (Rf)
- Extensive sand & gravel (Rg)

Locally Important (L) Aquifers:

- Sand & gravel (Lg)
- Bedrock which is Generally Moderately Productive (Lm)
- Bedrock which is karstified to a limited degree or limited area (Lk)
- Bedrock which is Moderately Productive only in Local Zones (Ll)

Poor (P) Aquifers:

- Bedrock which is Generally Unproductive except for Local Zones (Pl)
- Bedrock which is Generally Unproductive (Pu)

The catchment is largely mountainous and is entirely underlain by metamorphic rocks that provide limited groundwater resources (Catchment Science & Management Unit Environmental Protection Agency, 2021). Hydrostratigraphic rock unit groups in the constraints area broadly fall into Precambrian quartzites, gneisses and schists and Precambrian marbles. Ramelton is underlain by

"Poor Aquifer-Bedrock which is Generally Unproductive except for Local Zones" (Geological Survey Ireland, Department of the Environment, Climate and Communications, 2021).

The Geological Survey Ireland (GSI) classes groundwater vulnerability is 'Moderate' to 'High' throughout much of the study area. Other areas are either classed as 'Low', 'Extreme', or 'Rock at or near karst surface' (see Figure 6-7) (Geological Survey Ireland, Department of the Environment, Climate and Communications, 2021). Groundwater vulnerability represents the characteristics of the geological and hydrogeological features at a site that determine the ease of contamination of groundwater, or in other words how easy can contamination infiltrate into subsurface materials and contaminate the groundwater.

The groundwater body (code: IEGBNI_NW_G_059) that underlies the study area and its Water Framework Directive waterbody status is shown in Table 6- and classified as not at risk (WFD Application, 2019a; WFD Application, 2019b).

**Table 6-2 Ground Waterbody WFD Status 2013-2018 for the study area**

| Chemical | Overall Groundwater Status | Quantitative Groundwater Status |
|---|---|---|
| Good | Good | Good |

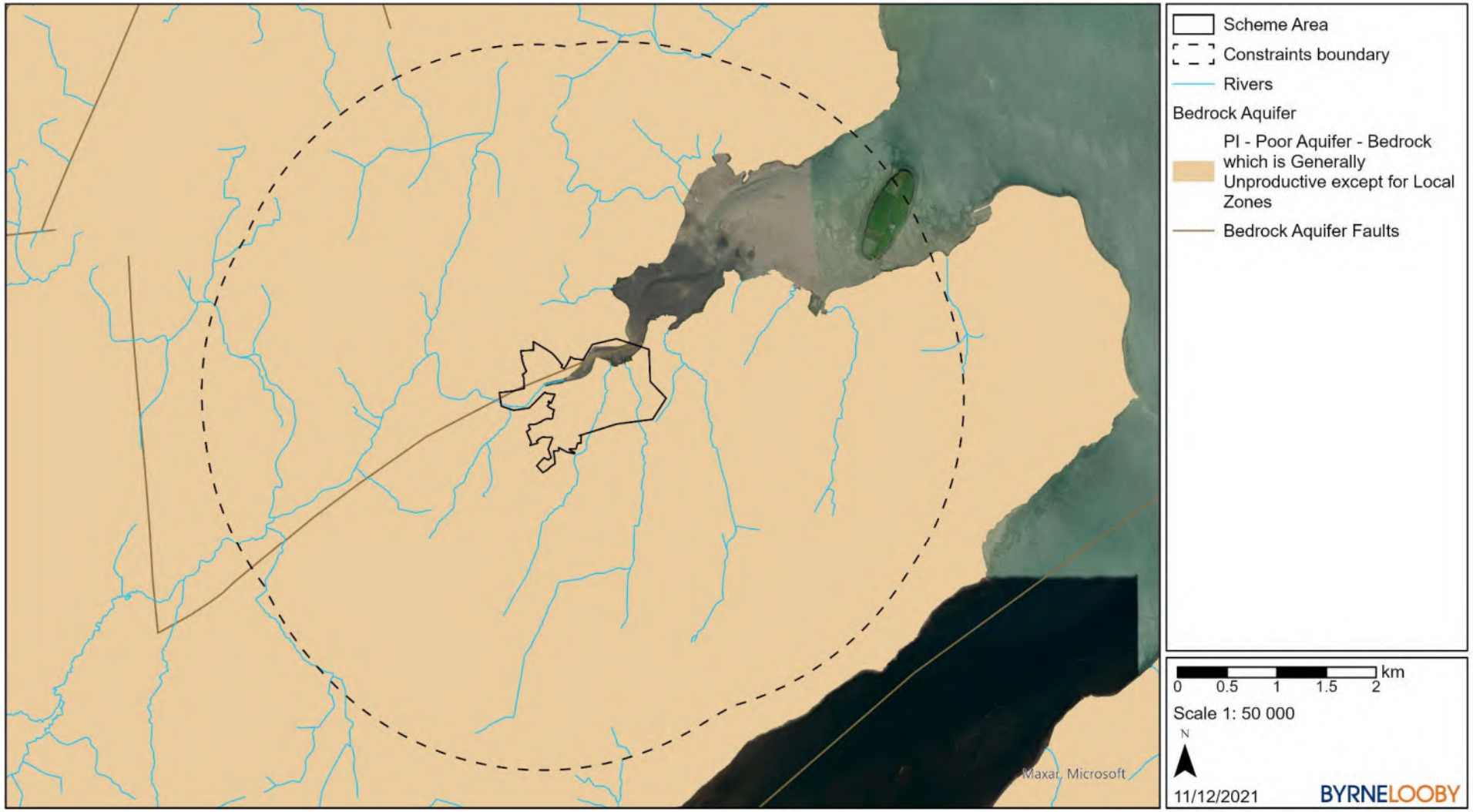


**Figure 6-3 Aquifers in the study area.**

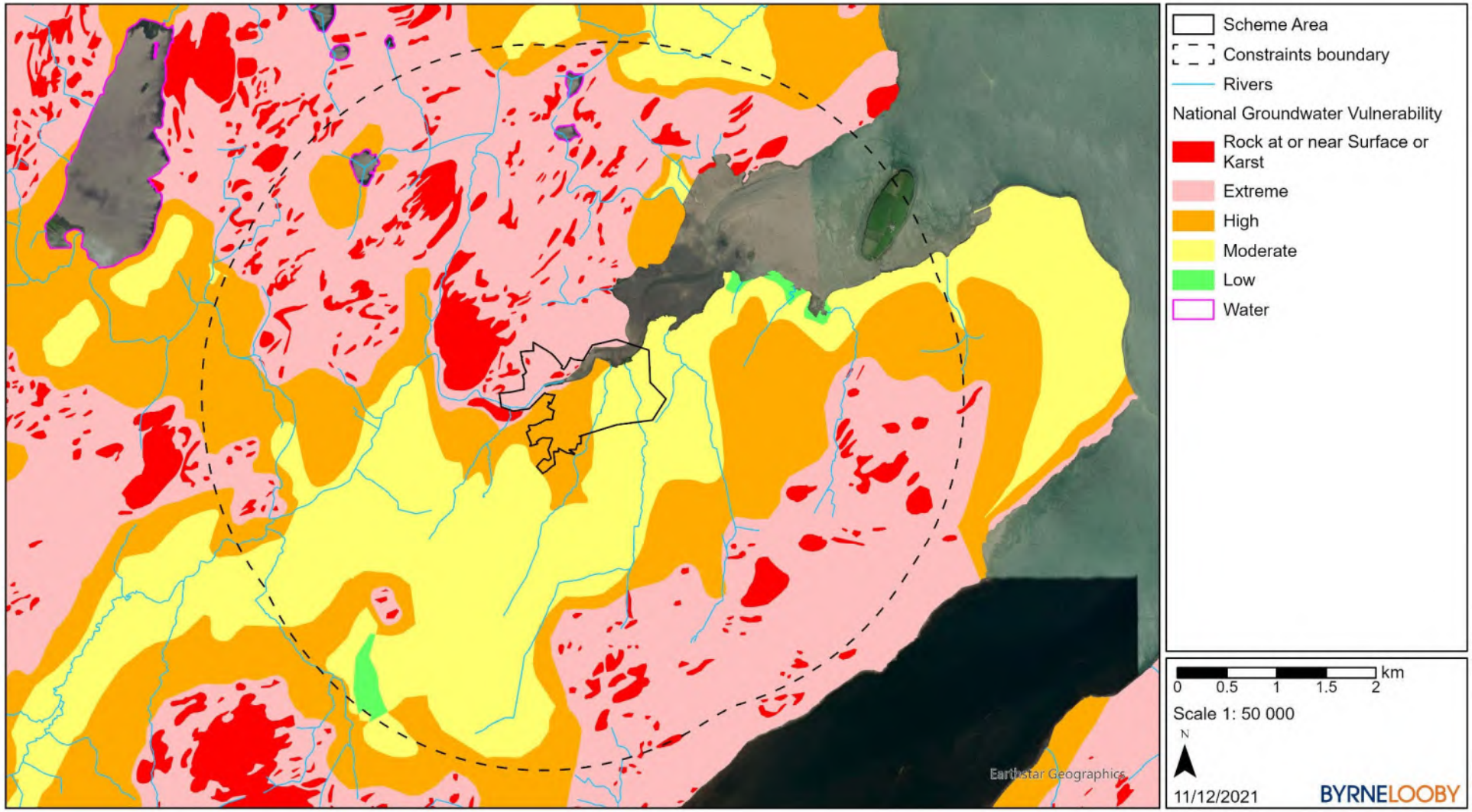


**Figure 6-7 Groundwater vulnerability in the study area**

## 6.4 Key Constraints

Key constraints associated with the soils, geology and hydrogeology of the study area include:

- Made ground and/or contaminated ground: Depending on the scheme design and type of works, for areas where made ground is uncompacted and/or highly variable may require to excavate and place this material and replace with suitable founding material. This material may also be a possible a source of contamination. As this material will be excavated during construction, it may require contamination testing be undertaken during the detailed site investigation.

- Contaminated land: The scheme area is located in an area with industrial heritage and commercial properties. If intrusive works are required during construction at locations where known or unknown contaminated land may be present (e.g. from recorded historical land-use), an investigation may be required into determine if land contamination is present and, if present, to determine its nature and extent.

- Soils and groundwater: Poor draining soils occurring within the scheme footprint are potentially soft and compressible and will likely require a detailed site investigation (SI) in order to design a suitable flood defence scheme. Appropriate environmental controls and management measures will be implemented for any advance SI works, this may include a requirement for AA screening, or an application/notification to NPWS for approval. A CEMP will be developed for construction activities. The CEMP will identify appropriate equipment and construction techniques that should be used in circumstances where there is a potential impact to the environment. Engineering design should minimise the impacts of the flood relief scheme on the sections of river within the study areas and the wide catchment.

- Groundwater vulnerability to contamination: Depending on the design of the scheme, works may occur adjacent or within areas where groundwater is classified by the GSI as 'extremely vulnerable' to contamination. Appropriate environmental controls and management measures will be implemented for any advance SI works. A CEMP will be developed for construction activities. A CEMP will be developed for all site investigation works, construction activities and traffic management.

- Karst features: GSI data indicated that there are no recorded karst features in the study area. However, despite the lack of carbonate lithologies in bedrock in the study area it is prudent to consider that karst features such as caves, swallow holes, weathered rock and dolines may be present and can lead to ground surface and ground instability and are a constraint to be considered in the engineering design of the scheme.

- Geoheritage: It is good practice to inform the Geological Survey Ireland (GSI) (contact: Beatriz.Mozon@gsi.ie) where:
    - construction works temporarily or permanently uncover significant outcrop;
    - were reports detailing any site investigations can be made available to the GSI;
    - a digital photographic record of any significant new excavation can be produced and provided to the GSI.

# 7 Ecology and Biodiversity

## 7.1 Introduction

This section assesses data on flora, fauna and habitats within the study area in order to identify receptors potentially sensitive to flood risk management options, or which may constrain the implementation of certain options.

For the purposes of this report, the constraints study area is defined as an area approximately 15km in radius from the urban area of Ramelton where potential measures are proposed. This is shown in Figure 7-1.

The extent of the study area is based on best practice guidance (Chartered Institute of Ecology and Environmental Management, 2018 (updated 2019)) which advises that a 'zone of influence' is established which includes the area of which ecological features may be affected as a result of the scheme and (DoE, 2009) which recommends that all Natura 2000 sites within 15km of a project be initially screened for impacts.

## 7.2 Methodology

A desktop assessment and a Preliminary Ecological Assessment (PEA) were carried out to identify features of ecological importance which have potential to be affected by the proposed development. It compromises of both a desk study and a walkover survey. A PEA (as described by the Chartered Institute of Ecology and Environmental Management (CIEEM) (Chartered Institute of Ecology and Environmental Management, 2017) is the term used to describe a rapid field assessment of the ecological features present, or potentially present, within a site of the surrounding area based on a visit to the site at a suitable time of the year. It involves describing the habitats and species present at the site based on visual and photographic surveys. The PEA is undertaken also to make a preliminary assessment of the likely impacts of a development. The assessments included an examination of aerial imagery and other available datasets to investigate the potential for connectivity to designated and ecologically sensitive areas, as well as a review of available literature e.g. NPWS data on European sites.

### 7.2.1 Desktop Study

During the desktop study, information was collated from readily available sources including:

- National Parks and Wildlife Service (NPWS) (https://www.npws.ie/maps-and-data/habitat-and-species-data (accessed September 2021)
- Development Applications Unit of the Department of Hosuing, Local Government and Heritage
- Birdwatch Ireland
- Inland Fisheries Ireland.

- The Atlas of Breeding Birds in Britain and Ireland (Sharrock, 1976)
- The New Atlas of Breeding Birds of Britain and Ireland (Gibbons et al., 1993)
- NPWS site synopses, satellite images of the area and OPW Discovery Series maps.
- Information on the Lough Swilly catchment was sourced from websites of and publications from the following organisations:
    - National Parks and Wildlife (National Parks and Wildlife Service, 2015);
    - The Environmental Research Unit (Environmenal Research Agency, 1992, p. 507)
    - The Environmental Protection Agency (Environmental Protection Agency, 2018)
    - Lough's Agency (Loughs Agency, 2021)
    - Inland Fisheries Ireland.

### 7.2.2 Site Walkover

Habitats which might be affected by the development were identified and their suitability to support sensitive, rare and protected species was assessed (having regard to the typical ranges of species known to occur in the locality).

The walk over survey (September 2021) involved examining and recording the habitats and flora and fauna that are present along the river bank, in the vicinity of the locations of proposed measures, and areas for investigation and photographing representative elements of these. All identifications were made in the field and binoculars were used to identify birds.

1.2.3 Legislation and Guidance

In assessing the potential impacts on the prevailing biodiversity, due regard was had to relevant legislation and guidance including:

- EIA Directive (2014/52/EU);
- Planning and Development Acts 2000 – 2018 and Planning and Development Regulations 2001-2019;
- Wildlife Act 1976 and as amended;
- Flora (Protection) Order 2015;
- Inland Fisheries Act 1959 – 2010;
- EU Water Framework Directive 2000/60/EC;
- European Communities (Birds and Natural Habitats) Regulations 2011 (as amended);

- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (Chartered Institute of Ecology and Environmental Management (CIEEM, 2018 (updated September 2019));
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (European Union, 2013);
- Ireland's National strategy for Plant Conservation: progress towards 2020 (Smyth, N. Cole, E. Kelleher, C, Jebb, M & Lynn, D., 2019);
- Ireland's Marine Strategy Framework Directive Article 19 Report Initial Assessment, GES and Targets and Indicators (Marine Institute, October 2013);
- National Biodiversity Action Plan 2017-2021 (Department of Culture, Heritage and the Gaeltacht, 2011); and,
- Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters (Inland Fisheries Ireland, 2016).

This section of the report has been compiled from a preliminary ecology report based on a site walkover and desktop assessment.

A number of other factors that are also relevant to ecology due to their interactions, e.g. hydrology, hydrogeology and population and human health, are detailed in the relevant sections of this report.

## 7.3 Baseline / Receiving Environment

The biodiversity description in the Landscape Character Assessment of County Donegal (Donegal County Council, 2016) states:

- Ecologically important landscape containing 160.6ha of Natura 2000 sites (SAC & SPA) and 128.9ha of pNHA sites.
- Stretch of the Leannan River is designated as a Freshwater Pearl Mussel Catchment area.
- Lough Swilly is designated as SPA (004075) and lush fertile valleys carved out by various tributaries and streams flow towards the Lough creating important biodiversity corridors.
- Hedge and deciduous tree bound fields are a predominant feature in this landscape providing biodiversity corridors throughout.
- Dispersed areas of deciduous woodland, demesne woodland and important historic woodlands in this LCA.
- Regional and county road network extensively lined in native hedgerow and deciduous trees.

### 7.3.1 Natura 2000 sites

Natura 2000 is an ecological network composed of sites designated under the Birds Directive (Special Protection Areas (SPA)) and the Habitats Directive (Sites of Community Importance (SCI), and Special Areas of Conservation (SAC)).

Best practice guidance (DoE, 2009) recommends that all Natura 2000 sites within 15km of a project be initially screened for impacts.

There are three Special Protection Area (SPA) and five Special Areas of Conservation (SAC) within 15km of the scheme are as listed in Table 7-1 and shown on Figure 7-1 (NPWS, 2021).

**Table 7-1 Natura 2000 Sites within 15km of the scheme area**

| Type | Site CodeRA | Site Name | County |
|---|---|---|---|
| SAC | 002176 | Leannan River SAC | Donegal |
| SAC | 002287 | Lough Swilly SAC | Donegal |
| SAC | 002047 | Cloghernagore Bog and Glenveagh National Park SAC | Donegal |
| SAC | 002159 | Mulroy Bay SAC | Donegal |
| SAC | 000116 | Ballyarr Wood SAC | Donegal |
| SPA | 004039 | Derryveagh And Glendowan Mountains SPA | Donegal |
| SPA | 004060 | Lough Fern SPA | Donegal |
| SPA | 004075 | Lough Swilly SPA | Donegal |

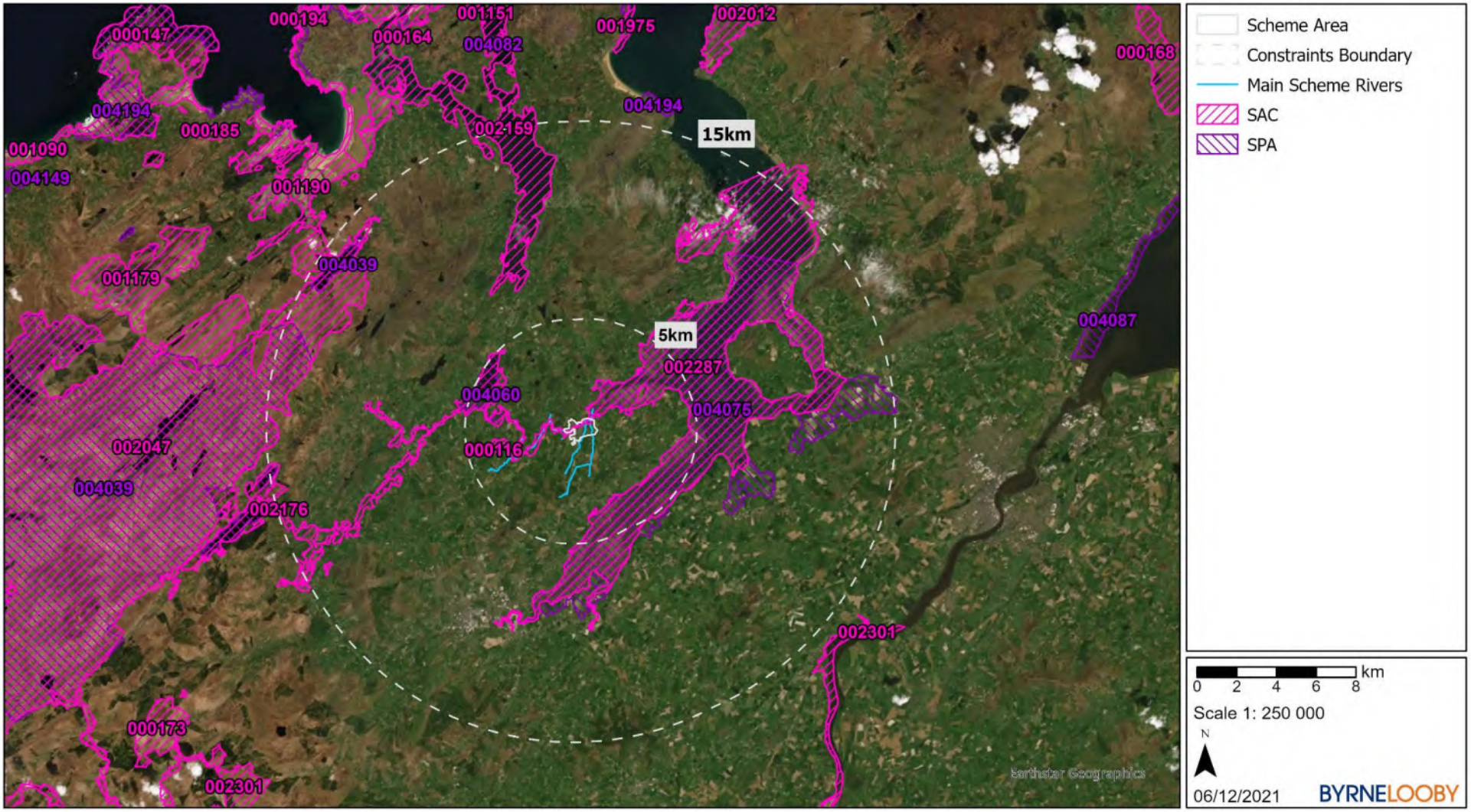


**Figure 7-1 Natura 2000 Sites within 15km of the scheme area**

#### 7.3.1.1 Leannan River Special Area of Conservation

This SAC is of high conservation value for the following Qualifying Interest (QI) habitats and plant and animal species):

**Habitats**

- 3110 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)

**Species**

- 1029 *Margaritifera margaritifera* (Freshwater Pearl Mussel)
- 1106 *Salmo salar* (Salmon)
- 1355 *Lutra lutra* (Otter)
- 1833 *Najas flexilis* (Slender Naiad)

The SAC contains protected water dependent habitats or species.

This site has the generic conservation objective to 'maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected' (National Parks & Wildlife Service, 2021).'

#### 7.3.1.2 Lough Swilly Special Area of Conservation

The great majority of Lough Swilly lies within Lough Swilly Special Area of Conservation (SAC) (site code 002287) (National Parks & Wildlife Service, 2021). This SAC is of high conservation value for the following Qualifying Interest (QI) habitats and plant and animal species):

**Habitats**

- 1130 Estuaries
- 1150 Coastal lagoons
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)
- 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles

**Species**

- 1355 Otter (*Lutra lutra*)

The SAC contains protected water dependent habitats or species.

#### 7.3.1.3 Lough Swilly Special Protection Area

The Special Protection Area (SPA) includes protected water species as qualifying interests and specific water supporting conditions have not been identified for the dependent bird species (Catchment Science & Management Unit Environmental Protection Agency, 2021). Qualifying Interests of the SPA are:

- A005 Great Crested Grebe (*Podiceps cristatus*)
- A028 Grey Heron (*Ardea cinerea*)
- A038 Whooper Swan (*Cygnus cygnus*)
- A043 Greylag Goose (*Anser anser*)
- A048 Shelduck (*Tadorna tadorna*)
- A050 Wigeon (*Anas penelope*)
- A052 Teal (*Anas crecca*)
- A053 Mallard (*Anas platyrhynchos*)
- A056 Shoveler (*Anas clypeata*)
- A062 Scaup (*Aythya marila*)
- A067 Goldeneye (*Bucephala clangula*)
- A069 Red-breasted Merganser (*Mergus serrator*)
- A125 Coot (*Fulica atra*)
- A130 Oystercatcher (*Haematopus ostralegus*)
- A143 Knot (*Calidris canutus*)
- A149 Dunlin (*Calidris alpina*)
- A160 Curlew (*Numenius arquata*)
- A162 Redshank (*Tringa totanus*)
- A164 Greenshank (*Tringa nebularia*)
- A179 Black-headed Gull (*Chroicocephalus ridibundus*)
- A182 Common Gull (*Larus canus*)
- A191 Sandwich Tern (*Sterna sandvicensis*)
- A193 Common Tern (*Sterna hirundo*)

- A395 Greenland White-fronted Goose (*Anser albifrons flavirostris*)
- A999 Wetland and Waterbirds

### 7.3.2 Natural Heritage Areas and proposed Natural Heritage Areas

There are no Natural Heritage Areas (NHA) within 15km of the scheme and 14 proposed Natural Heritage Areas (pNHA) are within 15 km of the scheme (see Table 7-2). Figure 7-2 provides a map showing the Proposed Natural Heritage Sites (pNHAs) within 5km of the Scheme Area.

**Table 7-2 Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA) are within 15 km of the scheme area**

| Type | Site Code | Site Name | County |
|---|---|---|---|
| pNHA | 000116 | Ballyarr Wood | Donegal |
| pNHA | 000158 | Lough Akibbon And Gartan Lough | Donegal |
| pNHA | 000166 | Lough Swilly Including Big Isle, Blanket Nook & Inch Lake | Donegal |
| pNHA | 000180 | Port Lough | Donegal |
| pNHA | 001114 | Derriscligh Bog | Donegal |
| pNHA | 001118 | Derrylaggy Woods | Donegal |
| pNHA | 001155 | Leannan Valley Woods | Donegal |
| pNHA | 001162 | Lough Fern | Donegal |
| pNHA | 001196 | The Point, Mulroy | Donegal |
| pNHA | 002011 | River Swilly Valley Woods | Donegal |
| pNHA | 002047 | Cloghernagore Bog And Glenveagh National Park | Donegal |
| pNHA | 002055 | Carlan Isles (Mulroy Bay) | Donegal |
| pNHA | 002056 | Old Rectory, Fahan | Donegal |
| pNHA | 002057 | Ramelton Mill | Donegal |

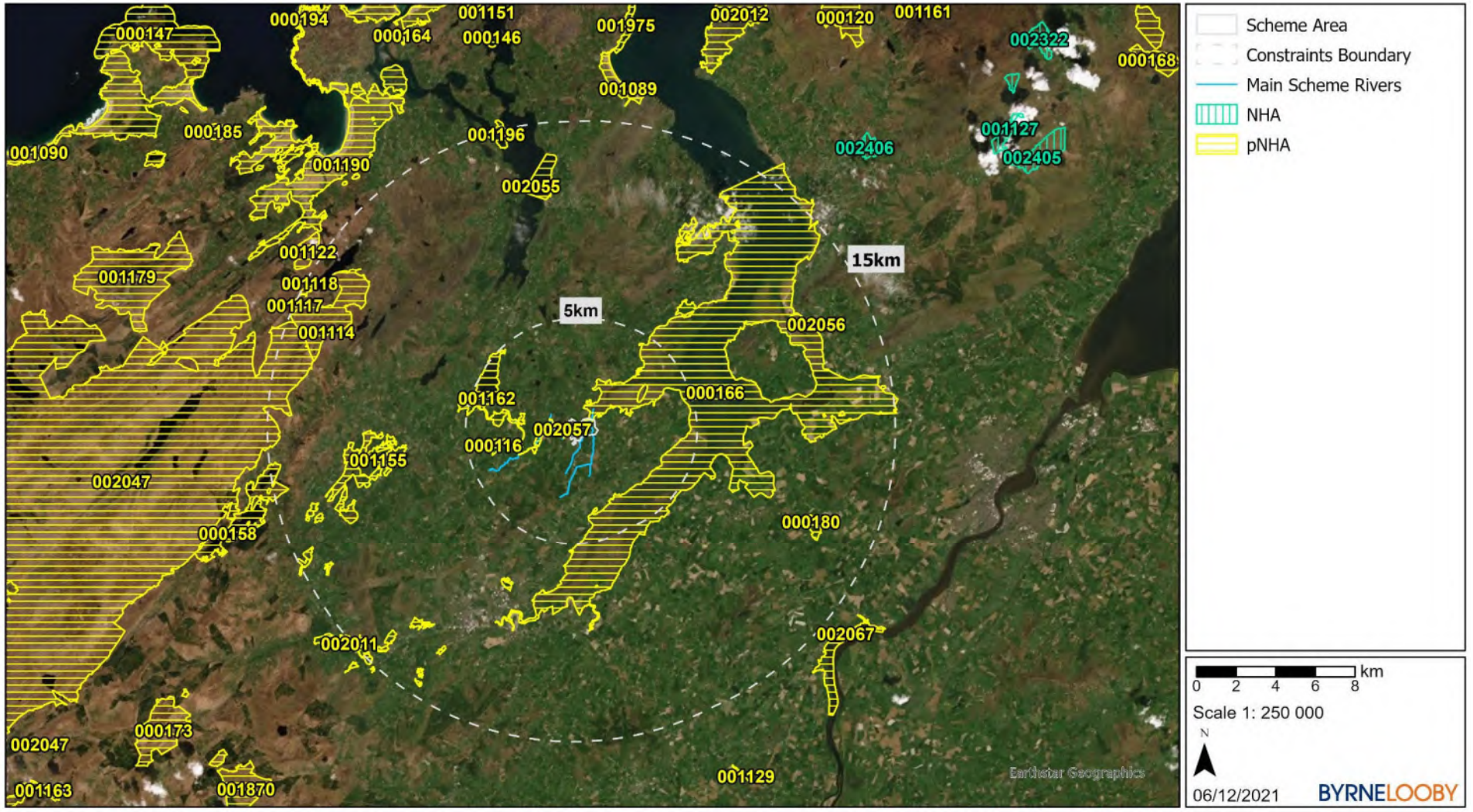


**Figure 7-2 Proposed Natural Heritage Sites (pNHAs) within 5km of the scheme area**

### 7.3.3 Ecology and Water Designated Statuses

#### 7.3.3.1 Water Framework Directive

The WFD was agreed by all individual European Union (EU) member states in 2000 and provides a comprehensive framework for water quality management across the EU. The directive requires that all member states adopt a comprehensive integrated basin-based approach to water management.

Whilst the Ramelton River is 'unassigned' with regards to water quality status and 'under review' with regards to risk status, the Leannan River is associated with a 'high' ecological status (similarly for its tributary CARN LOW_010) and a 'not at risk' rating (Figure 5-3 and Figure 5-4). This risk rating differs from that of its tributary (CARN LOW_010 ) which is class as 'at risk' with key pressures identified as being agriculture, urban waste water and domestic wastewater. Whilst a 'high' ecological status is given, the Leannan River is identified as not currently meeting the NPWS Protected Area Objectives (Freshwater Peal Mussel and salmonid catchment).

The River Basin Management Plan (RBMP) for Ireland 2022-2027 is currently out for public consultation[3], to be published later in 2022. The final plan will need to be considered in this flood relief scheme.

#### 7.3.3.2 Quality of Salmonid Waters Regulations

The Leannan River is designated under S.I. 293: European Communities (Quality of Salmonid Waters) Regulations, 1988 within the scheme area (EPA, 2021), although is not currently meeting the NPWS Protected Area Objectives (Freshwater Peal Mussel and salmonid catchment).

#### 7.3.3.3 Nutrient Sensitive Areas

There are no designated Nutrient Sensitive Areas in the catchment. However, species sensitive to water quality are present in the scheme area and pressures on water quality have been identified within the catchment (see Table 5-2 for details).

#### 7.3.3.4 Other

The catchment occurs within *Margaritifera* (freshwater pearl mussels) sensitive areas (Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media, 2017). However, this species is not recorded from the study area (see Section 7.3.4.12).

[3] https://www.gov.ie/en/consultation/2bda0-public-consultation-on-the-draft-river-basin-management-plan-for-ireland-2022-2027/

### 7.3.4 Protected/Notable Species

Several species of flora and fauna are afforded protection under national, European and international law. At a national level, species are protected under, inter alia, the Wildlife Acts. At a European level, species are protected under, inter alia, the Birds Directive (Council Directive 79/409/EEC) and Habitats Directive (Council Directive 92/43/EEC), which are transposed into national law by various measures including the European Communities (Natural Habitats) Regulations, 1997-2005, and the European Communities (Conservation of Wild Birds) Regulations, 1985. The badger is not considered endangered in Ireland; however, badgers are protected under the Wildlife Acts (Wildlife Act, 1976; Wildlife Amendment Act, 2000), and in Northern Ireland under the Wildlife (N.I.) Order of 1985.

In many cases a derogation licence will be required to remove or disturb these legally protected species or their habitats.

Protected/Notable species recorded in the study are include:

- Migratory and wetland birds
- Otter
- Badgers
- Hedgehog
- Common Frog
- Bats
- Various freshwater and saltwater fish, including Salmon
- Dolphin

#### 7.3.4.1 Birds

Over 35 bird species (National Biodiversity Records Centre, 2021) have been recorded from the study area including the following protected bird species: Barn Swallow (*Hirundo rustica*), Black-headed Gull (*Larus ridibundus*), Common Grasshopper Warbler (*Locustella naevia*), Common Starling (*Sturnus vulgaris*), Common Swift (*Apus apus*), Common Wood Pigeon (*Columba palumbus*), Eurasian Curlew (*Numenius arquata*), Eurasian Oystercatcher (*Haematopus ostralegus*), Great Cormorant (*Phalacrocorax carbo*), Herring Gull (*Larus argentatus*), House Martin (*Delichon urbicum*), Little Egret (*Egretta garzetta*), Mallard (*Anas platyrhynchos*), Mew Gull (*Larus canus*), and Mute Swan (*Cygnus olor*).

During the ecology walkover survey, the following birds were observed foraging on the mudflats:

a. SCIs under Lough Swilly SPA:
    1. Common Gull (*Larus canus*)
    2. Mallard (*Anas platyrhynchos*)
    3. Curlew (*Numenius arquata*)

4. Black-headed Gull (*Chroicocephalus ridibundus*)

b. BoCCI – Red-list:
   1. Curlew (*Numenius arquata*)
   2. Black-headed Gull (*Chroicocephalus ridibundus*)

c. Birds Directive - Annex I:
   1. Bar-tailed Godwit (*Limosa lapponica*)

#### 7.3.4.2 Mammals (non volent)

The desk study data collection exercise confirmed records of otter, badger, hedgehog and bats.

The study site contains suitable foraging, commuting, breeding and resting habitats for common mammal species in general and similar habitats are also present at a larger scale in the wider landscape. Overall, the proposed site is considered of local importance for mammal (non-volant) species.

#### 7.3.4.3 Otter

The ecological study area contains suitable commuting, foraging, breeding and resting habitats for otter. During the site survey, field signs of otter (print and spraint) were observed on the left bank of Newmill River. Desktop study indicates that otters have previously been reported as occurring in the vicinity of the scheme with spraints recorded at the Leannan River and Ramelton Quay.

Otter is listed as vulnerable in the Irish Red Data Book and is fully protected in the State by the Wildlife Act. It is also listed in both Annex II and IV of the EU Habitats Directive and in Appendix II of the Berne Convention.

#### 7.3.4.4 Red Squirrel

There are no existing NBDC records for Red Squirrel within the study area. No dreys or field signs were recorded during the site visit. Construction work is very unlikely to threaten red squirrel as no drey sites were recorded within the proposed scheme area.

The red squirrel is protected under the Wildlife Act (1976) and Wildlife (Amendment) Acts (2000 and 2010) and the Bern Convention (Appendix III).

Ongoing/regular human disturbance may deter red squirrel from using the site on a regular basis.

#### 7.3.4.5 Pine Marten

There are no existing NBDC records for Pine Marten within the study area. No evidence of pine marten activity was observed during the Habitat and Species Walkover Survey.

The pine marten is protected in Ireland by both national and international legislation. Under the Irish Wildlife Acts it is an offence, except under licence, to capture or kill a pine marten, or to destroy or disturb its resting places.

Ongoing/regular human disturbance may deter pine marten from using the site on a regular basis.

#### 7.3.4.6 Badger

NBDC holds over 100 records of badger/signs of badger activity in the vicinity of the scheme located throughout the study area. No setts or field signs were recorded during the site visit. Construction work is very unlikely to threaten badger as no setts were recorded within the proposed scheme area.

Ongoing/regular human disturbance may deter badgers from using the site on a regular basis.

#### 7.3.4.7 West European Hedgehog

Hedgehogs have been recorded within the study area. No hedgehogs or field signs of hedgehog were observed during the ecological walkover survey.

#### 7.3.4.8 Bats

NBCD records indicate that Lesser Noctule (*Nyctalus leisleri*), Daubenton's Bat (*Myotis daubentonii*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), and Whiskered Bat (*Myotis mystacinus*) have been recorded have been recorded in the study area.

All bat species are listed in Annex IV(a) of the Habitats Directive and are strictly protected in Ireland. A person who deliberately captures, kills or disturbs a specimen in the wild..…… or who damages or destroys a breeding site or resting place of such an animal, is guilty of an offence (Mullen, Marnell, & Nelson, 2021).Habitat suitability index data compiled by the National Biodiversity Data Centre (NBDC, 2021) for the scheme area indicates that it is generally of moderate suitability for bat usage. The area is deemed most suitable for soprano pipistrelles, common pipistrelles, Leisler's and natterer's bats. The surrounding landscape is reasonably diverse, comprising a mixture of agricultural grassland, woodland and urban land-uses, which are punctuated by a network of criss-crossing treelines/hedgerows and a river system. The diverse landscape, as well as the presence of ecological corridors (in the form of hedgerows/treelines and rivers) are what increases the habitat suitability index for bats. The presence of the estuary (a large area that is unsuitable for foraging bats) is likely to have prevented a higher overall index being attributed to the area. Bat habitat suitability within the study area is summarised in Table 7-3 below.

**Table 7-3 Bat habitat suitability index**

| Bat Species | Index (out of 100) |
|---|---|
| All Bats | 23.78 |
| *Pipistrellus pygmaeus* | 46 |
| *Plecotus auritus* | 29 |
| *Pipistrellus pipistrellus* | 34 |
| *Rhinolophus hipposideros* | 0 |
| *Nyctalus leisleri* | 29 |
| *Myotis mystacinus* | 17 |
| *Myotis daubentonii* | 21 |

| Bat Species | Index (out of 100) |
|---|---|
| *Pipistrellus nathusii* | 3 |
| *Myotis nattereri* | 35 |

#### 7.3.4.9 Herpetofauna (reptiles and amphibians)

NBDC records for Common Frog (*Rana temporaria*) and exist for the study area. No published records for Natterjack Toad (*Epidalea calamita*) or Smooth Newt (*Lissotriton vulgaris*) are held by NBDC for the study area.

Common Frog is the only species of frog found in Ireland and is listed as an internationally important species. Frogs are protected under the European Union Habitats Directive and by the Irish Wildlife Act.

#### 7.3.4.10 Marine Mammals

NBDC hold records for marine mammal species. Records in the vicinity of the scheme are a single record of Common or Striped Dolphin (recorded 25/01/2018).

#### 7.3.4.11 Fish

NBDC does not hold any fish records within the scheme area. The Central and Regional Fisheries Board completed a fish stock report in 2009 (The Central and Regional Fisheries Board, 2009)[4]. However, none of the sampling points were within the scheme area. The site synopsis report for the River Leannan indicates that river supports Atlantic Salmon – it is a good spring and grilse salmon river with extensive spawning habitats and good water quality.

Further surveys are required on site to establish the presence/absence/abundance of fish. This will involve netting, electrofishing surveys and consultation with Inland Fisheries.

#### 7.3.4.12 Aquatic Invertebrates

NBDC data indicates that there are no records of Freshwater Pearl Mussel (*Margaritifera margaritifera*) in the scheme area.

However, historical records (over 25 years old) indicate that this species was present over a kilometre upstream of the scheme area in the Leannan River at Tully Bridge, Kilmacrenan, Bellaned Bridge, and Dromore Bridge. In addition, the upstream catchment status is sensitive for Freshwater Pearl Mussel, as advised by Local Authority Waters Programme (LAWPRO) in the collaborative workshop for Ramelton on 9th December 2021. As further advised, the Leannan River is identified as a Priority Area for Action (PAA) by LAWPRO, for actions of 'restoration' as a result of anthropogenic activities affecting the river currently (agriculture/wastewater discharge).

[4] http://www.wfdfish.ie/wp-content/uploads/2011/11/Swilly_Inch_estuary_report_2009.pdf

There are no NBDC records of Zebra Mussel (*Dreissena polymorpha*) for the scheme area or surrounds.

### 7.3.5 Aquatic and Terrestrial Site habitats

A habitats survey was completed in September 2021. Habitats (*sensu* Fossitt, 2000) present within the study area are listed in Table 7-4 below. Habitat maps are provided in Appendix C.

**Table 7-4 Habitats types within and adjacent to the proposed scheme footprint**

| Habitat Name | Habitat Code (as per Fossitt, 2000) |
|---|---|
| Eroding/Upland Rivers | FW1 |
| Improved Agricultural Grassland | GA1 |
| Amenity Grassland | GA2 |
| Dry Meadows and Grassy Verges | GS2 |
| Mixed Broadleaved Woodland | WD1 |
| Scrub | WS1 |
| Hedgerows/Treelines | WL1/WL2 |
| Buildings and Artificial Surfaces | BL3 |
| Tidal Rivers | CW2 |
| Mud Shores | LS4 |
| Mixed Sediment Shores | LS5 |
| **Annex I Habitats** | **Code (as per EU Habitats Directive)** |
| Estuaries | 1130 |
| Mudflats and Sandflats not Covered by Seawater at Low Tide | 1140 |

### 7.3.6 Invasive species

#### 7.3.6.1 Invasive floral species

The following floral species have been recorded from the scheme area:

- Legally designated species under S.I. No. 477 of 2011, 3rd Schedule, Part 1:
    - Indian Balsam (*Impatiens glandulifera*).
    - Japanese Knotweed (*Fallopia japonica*).
    - Salmonberry (*Rubus spectabilis*) (NBDC record, not recorded in project invasive species survey).
    - Rhododendron (*Rhododendron ponticum*) (project invasive species survey record).
- Other non-native species
    - Butterfly-bush (*Buddleja davidii*).
    - Sycamore (*Acer pseudoplatanus*).

Currently, Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 make it an offence to: plant, disperse, allow dispersal or cause the spread of a number of non-native 'invasive species' including Japanese knotweed and Himalayan balsam.

Butterfly-bush (*Buddleja davidii*) and Sycamores (*Acer pseudoplatanus*) are an invasive species widely present across the Island of Ireland that is not subject to legal restrictions.

A survey to identify and record the occurrence of non-native invasive species was undertaken in September 2021. Japanese Knotweed, Rhododendron and Himalayan balsam have been identified as present within the public realm areas in the study area, as shown on Figure 7-3. An Invasive Species Management Plan has been prepared separately (Report Ref (ByrneLooby, 2021 Ref: W3639-BLP-R-ENV-012).

An invasive species treatment and management plan will be implemented for the scheme during 2022 and on a continuous basis leading to construction and operation of the Scheme.


**Figure 7-3 Invasive Species (extract from ByrneLooby, 2021 Ref: W3639-BLP-R-ENV-012)**

## 7.4 Key Constraints

### 7.4.1 Water Framework Directive

Surface water bodies in the study area are classed under the Water Framework Directive as 'At risk' of not meeting the WFD objectives of 'good' Ecological Status. Further, the Ecological and Biological Status of the River Leannan is 'good', although not currently meeting the NPWS Protected Area Objectives (Freshwater Peal Mussel and salmonid catchment).

Under WFD requirements, the development of the scheme should incorporate measures not to worsen its status. All possible risks of point source pollution or runoff during construction and operation should be assessed and prevented. Works during the construction of the scheme could pose a threat to the water quality of water bodies within and downstream of the study area though various mechanism, chiefly:

(1) Increasing suspended solids in the water bodies through release or run-off of significant amounts of suspended solids during enabling works and construction; and

(2) Unplanned events such as leaks/spills/runoff/accidental release or escape of fuels, oils and lubricants, bulk liquid cement, contaminated leachate, etc.

### 7.4.2 Protected Sites

The most significant ecological constraint in Ramelton is the Leannan River SAC and Lough Swilly, SAC and SPA, in addition to shellfish protected water status within the wider environs of Lough Swilly. For this reason, any works that are to be carried by adjacent to the lough, or on the banks of waterbodies that feed into the lough, to reduce flooding must take these sensitivities into account. Where at all possible, any in-river and coastal/marine works should be avoided and every effort must be made to minimise, if not avoid, any run off into waterbodies. Options to include the setting back of hard defences from the watercourses/waterbodies will continue to be considered as the design options progress in order to minimise potential impacts on the protected sites.

All work that is to be carried out adjacent to waterbodies must be carried out in such a way as to minimise the potential for events such as diesel or concrete spillages, run off of water with suspended sediment loadings or any accidental spillages. If it considered necessary to re-build of build in river structures (e.g. culverts, weirs), the same sort of construction approach should be designed in to minimise resuspension and loss of concrete to the river.

Appropriate Assessment under Articles 6(3) and 6(4) of the EU Habitats Directive (Directive 92/43/EEC) will be required for the proposed scheme. The Habitats Directive was initially transposed into Irish law in 1997 by the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94 of 1997)6, with later amendment regulations (S.I. No. 233 of 1998; S.I. No. 378 of 2005). Article 12 and 13 of the Habitats Directive relates to the establishment of a system of strict protection for certain animal and plant species, while Article 16 provides for derogations from these provisions under limited circumstances. Article 12, 13 and 16 of the Habitats Directive are transposed into Irish law by Regulation 51, 52 and 54 of the Birds and Habitats Regulations of 2011, respectively.

### 7.4.3 Protected/notable Species

In ecological terms, the river corridors (including the rivers themselves), the coast (including coastal mudflats) and transitional estuarine waters support a number of protected species. Any in-river and bankside works, and costal and estuarine works have to be designed to minimise potential impacts on these (and all other) species.

All works should be planned wherever possible to be carried out at times of the year that are ecologically least sensitive e.g. outside bird nesting (March – September) and fish migration periods (Spring/Summer, depending on species). Overwintering and migratory birds must also be considered with regard to potential disturbance during the construction phase.

### 7.4.4 Otter

As a European protected species, the otter is fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Any scheme option that may have the potential to disturb otters must be assessed.

A full otter survey should be completed once the scheme extents are known. If otters are found to be present in areas were works are proposed and disturbance is likely then DCC must apply for a licence to allow proposed development works that might affect otters to proceed legally. The potential impacts on otter will be assessed and reported in the EIA.

Otter mitigation works can potentially be conducted at any time of year but must avoid the breeding season (usually Spring but can be any time of year) if holts are present on site.

### 7.4.5 Badgers

Pre-construction update surveys would be carried out to maintain the validity of species data. Should a badger sett be recorded within the scheme extents prior to construction works then appropriate mitigation and a licence for works will be required. Construction of new setts must be completed in Spring/Summer with blocking and destruction of existing setts completed in Autumn/early winter.

### 7.4.6 Bat

The scattered mature trees, bridges, architecture (churches, masonry) and areas of low water flow provide good foraging, roosting and commuting routes for bat species in the area. Options that require the removal of mature trees or works to bridges or other riverine structures with the potential to support roosting bats shall be assessed for bat potential. Bat surveys shall be conducted on any features with medium or high potential for roosting bats.

Once more detail becomes available pertaining to the proposed structural alterations to the site (including the proposed methods of construction), the site should be re-visited for the purpose of:

- Surveying key locations (e.g. where it is known that potential roosting habitat will be removed or disturbed); and

- Obtaining more detailed information about any potential bat roosts (i.e. whether it is a maternity roost, hibernaculum, etc.)

This information will inform any considerations of mitigation measures that may need to be implemented. The optimal time to conduct map surveys are May and August when bats are most active. If bats are found, they should not be disturbed during hibernation period (October to March) or maternity period (June to August). If a bat roost requires removal, then a licence would be required. Removal of roosts should be carried out during the summer months for hibernation roosts and during the winter months for maternity roosts.

As all Irish bats and their roosts are protected under national and EU legislation it is an offence to disturb or interfere with them without a licence. Such a derogation (which must be given by the Minister for the Environment, Heritage and Local Government) can only be sanctioned where there is no satisfactory alternative and where it will not be detrimental to the favourable conservation status of the species concerned. Therefore, any felling of trees or work on bridges which provide suitable roost habitat for bats should be sought in advance of any development that may interfere with such roost sites.

### 7.4.7 Freshwater Fish

A fish survey of suitable waterbodies in the study area should be competed on site to establish the presence/absence/abundance of fish species. This will involve netting and electrofishing surveys, where required (i.e. where instream works will cause disturbance to the river bed via structure or excavation) and where technically feasible.

In terms of the construction programme, it should be noted that in salmonid catchments, in-stream works are not permitted between the months of January to April (migration) and October to December (spawning). This corresponds with guidance from Inland Fisheries Ireland (Murphy, 2016).

A full impact assessment and management plan for fish species will be produced as part of the EIA report once full scheme details (including construction methods) are known.

### 7.4.8 Freshwater Pearl Mussel

Any impacts that result in a decrease in anadromous salmonid populations (Atlantic salmon and sea trout) could have a significant impact upon the viability of the freshwater pearl mussel population. The lifecycle of freshwater pearl mussel is reliant upon the development of glochidia which attach to the gills of host fish, usually juvenile salmonids, to continue development (Skinner A, 2003). Therefore, a decline in the salmonid population within the river, as a result of construction and operational disturbance to migration, could have an impact upon the future viability and population size of freshwater pearl mussel. Works therefore should be carried out outside the period when salmon are migrating either upstream to breed or when fish return to the sea as smolts or adults.

### 7.4.9 Invasive Species

Japanese Knotweed, Rhododendron and Himalayan Balsam have been identified as present within the study area. An Invasive Species Management Plan has been prepared separately (Report Ref (ByrneLooby, 2021 Ref: W3639-BLP-R-ENV-012)).

An invasive species treatment and management plan will be implemented for the scheme during 2022 and on a continuous basis leading to construction and operation of the Scheme.

# 8 Cultural Heritage and Archaeology

## 8.1 Introduction

This section assesses and evaluates the potential cultural heritage and archaeology (consisting archaeological and build heritage) constraints of the study area.

For the purposes of this report, the constraints study area is defined as the area outlined in Figure 1-2. All the cultural heritage constraints within the scheme area are considered. Further focus was given to the designated heritage assets which are present within 100m of reaches of waterbodies where CFRAM measure are proposed or areas for further investigation have been identified, as this area is most likely to be potentially physically affected by the proposed works.

## 8.2 Methodology

Constraints were determined through a desk study. The assessment involved the compilation and mapping of available cultural heritage data sets. This forms a permanent renewable database that can be utilised by multiple specialist users to provide information for the project design and EIA process.

A review of the following information took place in order to inform the cultural heritage report:

- Guidelines for the Archaeological Assessment of Flood Relief Schemes (Department of Housing, Local Government and Heritage, 2021).
- Framework and Principles for the Protection of the Archaeological Heritage – Published by Dúchas (Department of Arts, Heritage, Gaeltacht and the Islands, 1999).
- UNESCO World Heritage Sites (WHS) and Tentative World Heritage Sites and those monuments on the tentative list.
- National Monuments in State care, as listed by the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH).
- National Monuments Sites with Preservation Orders Sites.
- Sites listed in the Register of Historic Monuments.
- Record of Monuments and Places (RMP) and the Sites and Monuments Record (SMR) from the Archaeological Survey of Ireland.
- National Inventory of Architectural Heritage (NIAH) Building Survey (NIAH ratings are international, national, regional, local and record, and those of regional and above are recommended for inclusion in the RPS).
- Cartographical Sources, OSi Historic Mapping Archive, including early editions of the Ordnance Survey including historical mapping (OSi, 2021).

- Topographical files of the National Museum of Ireland as provided through Heritagemaps.ie (The Heritage Council, 2021).
- Place names; Townland names and toponomy (Gaois, Fiontar & Scoil na Gaeilge and The Placenames Branch Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media, 2021).
- The Dúchas Project National Folklore Collection (UCD, 2021).
- A review and interpretation of aerial imagery (Google earth 2001–2021 used in combination with historic mapping to identify potential cultural heritage assets.
- Settlement Character Assessment in Landscape Character Assessment of County Donegal (Donegal County Council, 2021).
- National Inventory of Architectural Heritage, Survey of the Architectural Heritage of County Donegal (NIAH) (National Inventory of Architectural Heritage, 2021).
- The Irish archaeological excavations catalogue i.e. Excavations bulletin and Excavations Database (Department of Housing Local Government and Heritage, 2021).
- Draft County Donegal Heritage Plan 2014-2019 (County Donegal Heritage Forum, 2015).
- Wreck Inventory of Ireland Database (WIID) (National Monuments Service, 2021).
- Record of Protected Structures 2020 as set out in the Draft County Donegal Development Plan 2018–2024 (Donegal County Council, 2020)
- Ramelton Heritage Town Brochure (Donegal County Development Board and Partners, 2021).

The 'Archaeological Survey of County Donegal' 1983 is currently being reprinted as part of the implementation of the Draft County Donegal Heritage Plan.

## 8.3 Baseline / Receiving Environment

Ramelton is a historic town with significant heritage, architectural and archaeological value. It was designated as a 'Heritage Town' by Donegal County Council in September 2000. The town was founded in the early 1600s on the site of 'O'Donnel Castle' and was an important port located at a point where the River Leannan flows into Lough Swilly. Ramelton was a prosperous town during the 18th and early 19th century during which most of its distinctive Georgian architecture was built, and continued to be the centre of governance for County Donegal until the late 19th Century (Donegal County Council, 2018).

Objectives for the protection of the Archaeological and Built Heritage in the county are set out in the County Donegal Development Plan 2018 – 2024:

'AH-O-1: To conserve and protect the County's archaeological heritage for present and future generations.'

'BH-O-1: To preserve, protect, enhance and record the archaeological heritage of the County.'

'BH-O-2: To further consolidate and protect the built heritage of the County through a systematic programme of additions to the Record of Protected Structures having regard to Ministerial recommendations arising from the NIAH survey of Donegal, the designation of Architectural Conservation Areas, the safeguarding of Historic Gardens, the preparation of Village Design Statements for the County's 5 Heritage Towns.'

'BH-O-3: To promote economic growth and sustainability through the ongoing regeneration of the built environment.'

'BH-O-4: To harness the economic benefits of the historic environment including the promotion of heritage tourism in both rural and urban areas.'

'BH-O-5: To facilitate appropriate revitalisation and reuse of the built heritage throughout the County including vernacular and/or historic industrial and maritime buildings using best conservation practice and traditional building skills.'

There are eighteen policies listed under Section 7.2.3 of the County Donegal Development Plan 2018 – 2024 specifically related to these objectives.

### 8.3.1 Previous excavations

Five archaeological excavations have taken place within the core of the town with four of these classes as of no archaeological significance. Monitoring of excavation on the quays (ITM: E 622755m, N 921286m) showed 'The natural subsoil was sealed by a dark brown, silty clay that contained a number of sherds of post-medieval pottery and modern rubble with frequent red brick, slate, tiles etc. The uppermost strata are interpreted as representing redeposited archaeological layers/formation deposits for the building of the warehouse/mill buildings, and the deposits in Lift shaft 1 as material deposited to facilitate land reclamation or deeper excavations for the construction of the upstanding buildings' (Excavations.ie, 2021). In the 1980s, a Presbyterian meetinghouse (ITM: E 623447m, N 920787m) was excavated on the eastern side of the scheme area (Department of Housing Local Government and Heritage, 2021).

### 8.3.2 Designated Heritage Constraints

#### 8.3.2.1 Archaeology (pre-1700)

The Record of Monuments and Places (RMP) is a statutory audit of archaeological monuments established and protected under Section 12 of the National Monuments (Amendment) Act 1994.

##### 8.3.2.1.1 Zone of Archaeological Potential

Ramelton is classed as a Historic Town, first identified in the Urban Archaeological Survey of County Donegal and included in the Record of Monuments & Places. Within the Historic Town boundaries are classified as a Zone of Archaeological Potential where it's considered that significant archaeology is present.

Where works are to be carried out in proximity to a Zone of Archaeological Potential, consent will be required from the Department of Housing, Local Government and Heritage, with two months written notice given (irrespective of whether planning permission is required or not).

#### 8.3.2.1.2 Record of Monuments and Places and Sites and Monuments Record Sites (RMP / SMR sites)

The Record of Monuments and Places (RMP) of the DHLGH records known upstanding archaeological monuments, their original location (in cases of destroyed monuments) and the position of possible sites identified as cropmarks on vertical aerial photographs. Archaeological sites identified since 1994 have been added to the non-statutory SMR database of the Archaeological Survey of Ireland (National Monuments Service, DHLGH), which is available online at www.archaeology.ie and includes both RMP and SMR sites. Those sites designated as SMR sites have not yet been added to the statutory record but are scheduled for inclusion in the next revision of the RMP.

Where works are to be carried out in proximity to a Recorded Monument, consent will be required from the Department of Housing, Local Government and Heritage, with two months written notice given (irrespective of whether planning permission is required or not).

RMP sites located within the proposed study area are detailed in Table 8-1 and illustrated in Figure 8-1 below.

**Table 8-1: RMP sites within the proposed scheme area**

| Map Label | RMP No. | Type | Townland | ITM Coordinates | |
|---|---|---|---|---|---|
| | | | | Easting | Northing |
| 01 | DG01216 | Historic town | Rathmelton | 622663 | 921108 |
| 02 | DG01217 | Castle - unclassified | Rathmelton | 622789 | 921327 |
| 03 | DG01218 | Church | Rathmelton | 622628 | 920994 |
| 04 | DG01220 | Architectural feature | Rathmelton | 622624 | 920983 |
| 05 | DG01221 | Meeting-house | Rathmelton | 622807 | 921087 |
| 06 | DG01222 | Architectural fragment | Rathmelton | 622531 | 920796 |
| 07 | DG02879 | Bawn | Rathmelton | 622789 | 921327 |
| 08 | DG02880 | Graveyard | Rathmelton | 622635 | 920987 |

#### 8.3.2.1.3 Underwater archaeology

In response to initial consultation, Development Applications Unit have advised in a personal communication dated 5th November 2021 that 'the Wreck Inventory of Ireland Database lists a large number of longboat discoveries from the Rivers Finn and Foyle, near Ballybofey, and wrecks are recorded from Lough Swilly near Buncrana and Ramelton'. However, such records are not readily identifiable in the publicly available online datasets hosted by Department of Housing, Local Government, and Heritage or the National Monuments Service: Wreck Viewer and archive records will be consulted during the specialist surveys to be completed in 2022.

#### 8.3.2.1.4 World Heritage Site

There are no World Heritage Sites in the study area nor are there any sites contained in the tentative list of candidate Sites.


**Figure 8-1 RMP Sites and SMR Zones within the constraints study area**

#### 8.3.2.2 Archaeology (post-1700)

Archaeology within this realm is legislated by The Planning and Development Act, 2000 (as amended), the Planning and Development Regulations, 2001 (as amended) and the Department of Housing, Local Government and Heritage's Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999.

##### 8.3.2.2.1 National Inventory of Architectural Heritage (NIAH)

The National Inventory of Architectural Heritage (NIAH) building surveys provide the basis for the recommendations of the Minister for Heritage and Electoral Reform to the planning authorities for the inclusion of particular structures in their Record of Protected Structures. The published surveys are a source of information on the selected structures for relevant planning authorities. It is worthwhile noting that the NIAH survey is not considered to be a complete record of the architectural heritage of an area.

The properties recorded in the study area by the NIAH are considered as being buildings and structures of conspicuous historical, archaeological, artistic, scientific, social or technical interest and are recorded by this survey as having a 'Regional' rating. Structures that are considered of regional significance are recommended by the Minister to the relevant planning authority for inclusion in their RPS and the planning authorities can add to the record at any time should the choose to adopt them.

The NIAH sites within the study area are indicated in Figure 8-2 and details provided in Table 8-2 There are 86 NIAH sites in the study area, of which 37 have not yet been added to the RPS.

**Table 8-2 NIAH Sites within the study area**

| Map # | NIAH Reg# | Name | Date | Townland | RPS | Originality* | In-Use Type |
|---|---|---|---|---|---|---|---|
| 1 | 40800201 | The Tanyard | 1860 - 1900 | Ballyboe (Rathmelton) | Y | tannery | - |
| 2 | 40800202 | McCloughan Gunn and Co. Solicitors | 1860 - 1900 | Rathmelton | Y | house (2) | office |
| 3 | 40800203 | | 1780 - 1820 | Rathmelton | Y | store/ warehouse | - |
| 4 | 40800204 | Mirabeau Steak House | 1800 - 1820 | Rathmelton | Y | house | restaurant |
| 5 | 40800205 | | 1810 - 1850 | Rathmelton | Y | house (2) | house |
| 6 | 40800206 | Ramelton Bridge | 1820 - 1910 | Ballyboe (Rathmelton), Rathmelton | Y | bridge | bridge |
| 7 | 40800208 | - | 1770 - 1790 | Bridge End, Drummonaghan | Y | worker's house; outbuilding | house; outbuilding |
| 8 | 40800210 | Drummonaghan Bridge | 1780 - 1820 | Bayhill, Bridge End, Drummonaghan | Y | bridge | bridge |

| Map # | NIAH Reg# | Name | Date | Townland | RPS | Originality* | In-Use Type |
|---|---|---|---|---|---|---|---|
| 9 | 40800211 | Lennonside Butchers\Bridge Laundrette and Cleaners | 1750 - 1800 | Rathmelton | Y | house | shop/retail outlet; office |
| 10 | 40800212 | - | 1840 - 1880 | Rathmelton | Y | house | house |
| 11 | 40800213 | Ramelton Garda Station | 1860 - 1900 | Rathmelton | Y | house | garda station/ constabulary barracks |
| 12 | 40800214 | - | 1780 - 1840 | Rathmelton | Y | store/ warehouse | outbuilding |
| 13 | 40800215 | Relton Developments Ltd. | 1800 - 1840 | Rathmelton | Y | house | office |
| 14 | 40800301 | Kelly's Mill | 1800 - 1815 | Bridge End, Drummonaghan | Y | mill (water) | - |
| 15 | 40800302 | Kelly's Mill | 1870 - 1875 | Bridge End, Drummonaghan | Y | store/ warehouse | - |
| 16 | 40800303 | Kelly's Mill | 1870 - 1875 | Bridge End, Drummonaghan | Y | kiln | - |
| 17 | 40800304 | St. Mary's Catholic Church | 1885 - 1895 | Rathmelton | N | church/ chapel | church/ chapel |
| 18 | 40800305 | The Green | 1820 - 1850 | Bridge End, Drummonaghan | Y | house | house |
| 19 | 40800401 | - | 1740 - 1780 | Rathmelton | Y | house | house |
| 20 | 40800402 | The Corner House | 1760 - 1800 | Rathmelton | Y | house | house; restaurant |
| 21 | 40800403 | Ramelton Wesleyan Methodist Chapel | 1870 - 1910 | Rathmelton | Y | church/ chapel | outbuilding |
| 22 | 40800404 | - | 1760 - 1830 | Rathmelton | Y | quay/ wharf | quay/ wharf |
| 23 | 40800405 | - | 1800 - 1840 | Rathmelton | Y | store/ warehouse (3) | house |
| 24 | 40800406 | - | 1850 - 1870 | Rathmelton | Y | store/ warehouse (2) | - |
| 25 | 40800407 | County Genealogy Centre\Ramelton Story | 1830 - 1850 | Rathmelton | Y | store/ warehouse | museum/ gallery; heritage centre/ interpretative centre |
| 26 | 40800408 | County Genealogy Centre\Ramelton Story | 1860 - 1865 | Rathmelton | Y | store/ warehouse | heritage centre/ interpretative centre; museum/ gallery |

| Map # | NIAH Reg# | Name | Date | Townland | RPS | Originality* | In-Use Type |
|---|---|---|---|---|---|---|---|
| 27 | 40800409 | - | 1810 - 1850 | Rathmelton | Y | store/ warehouse | - |
| 28 | 40800412 | - | 1780 - 1820 | Rathmelton | Y | store/ warehouse | outbuilding |
| 29 | 40800413 | - | 1770 - 1810 | Rathmelton | Y | house | house |
| 30 | 40800414 | Ramelton Public Hall | 1875 - 1880 | Rathmelton | Y | town/ county hall (2) | town/ county hall |
| 31 | 40800416 | - | 1820 - 1860 | Rathmelton | Y | unknown; factory | - |
| 32 | 40800421 | Ramelton Library | 1670 - 1820 | Rathmelton | Y | church/ chapel | library/ archive |
| 33 | 40800422 | - | 1820 - 1870 | Rathmelton | Y | mill (water); house | house |
| 34 | 40800423 | A. Gamble & Co. Ltd | 1860 - 1900 | Rathmelton | Y | house | house |
| 35 | 40800424 | - | 1900 - 1910 | Rathmelton | Y | bank/ financial institution (3) | house |
| 36 | 40800503 | The Manse | 1760 - 1820 | Rathmelton | Y | house | house |
| 37 | 40800504 | First Ramelton Presbyterian Church | 1905 - 1910 | Rathmelton | Y | church/ chapel | church/ chapel |
| 38 | 40800505 | St. Paul's Church of Ireland Church | 1820 - 1860 | Rathmelton | Y | church/ chapel | church/ chapel |
| 39 | 40800506 | Mill House | 1830 - 1850 | Rathmelton | Y | house | house |
| 40 | 40800508 | The Old House Café | 1610 - 1750 | Rathmelton | Y | house | house; restaurant |
| 41 | 40800509 | - | 1750 - 1780 | Ballyboe (Rathmelton) | Y | milestone/ milepost | - |
| 42 | 40823002 | - | 1780 - 1890 | Bayhill, Bridge End, Drummonaghan | Y | weir | - |
| 43 | 40823005 | - | 1780 - 1870 | Bayhill, Bridge End, Drummonaghan, Rathmelton | Y | weir | - |
| 44 | 40823010 | - | 1780 - 1820 | Rathmelton | N | house | house |
| 45 | 40823013 | - | 1790 - 1830 | Ballyboe (Rathmelton) | N | house | house |
| 46 | 40823014 | The Lodge | 1800 - 1860 | Bridge End, Drummonaghan | N | house | house |
| 47 | 40823021 | Gannon Memorial | 1910 - 1920 | Rathmelton | N | monument | monument |
| 48 | 40823022 | Ramelton Parochial Hall | 1895 - 1960 | Rathmelton | N | school | hall |
| 49 | 40823026 | Whoriskey's Spar Supermarket | 1860 - 1900 | Rathmelton | Y | house | apartment/flat (converted); |

| Map # | NIAH Reg# | Name | Date | Townland | RPS | Originality* | In-Use Type |
|---|---|---|---|---|---|---|---|
| | | | | | | | shop/ retail outlet |
| 50 | 40823029 | Cuba Hair Design | 1810 - 1840 | Rathmelton | Y | house | surgery/ clinic; office |
| 51 | 40823032 | - | 1860 - 1900 | Rathmelton | N | house (2) | house |
| 52 | 40823033 | - | 1860 - 1900 | Rathmelton | N | house (2) | house |
| 53 | 40823034 | - | 1860 - 1900 | Rathmelton | N | house (2) | house |
| 54 | 40823035 | - | 1790 - 1830 | Rathmelton | Y | house | |
| 55 | 40823036 | - | 1790 - 1830 | Rathmelton | Y | house | house |
| 56 | 40823037 | Headworks | 1790 - 1830 | Rathmelton | N | house | office |
| 57 | 40823038 | - | 1790 - 1830 | Rathmelton | N | house | house |
| 58 | 40823039 | - | 1790 - 1830 | Rathmelton | N | house | house |
| 59 | 40823041 | Liam Grier: Design Studio | 1820 - 1910 | Rathmelton | N | house | house |
| 60 | 40823045 | - | 1840 - 1900 | Rathmelton | N | house | house |
| 61 | 40823046 | - | 1860 - 1900 | Rathmelton | N | house | house |
| 62 | 40823047 | Murray's Pharmacy | 1790 - 1830 | Rathmelton | N | house | house |
| 63 | 40823051 | Betting Office | 1700 - 1740 | Rathmelton | N | house | shop/ retail outlet |
| 64 | 40823053 | - | 1760 - 1800 | Rathmelton | N | house | house |
| 65 | 40823054 | - | 1760 - 1800 | Rathmelton | N | house (2) | house |
| 66 | 40823061 | - | 1800 - 1840 | Rathmelton | Y | hotel | - |
| 67 | 40823063 | - | 1800 - 1850 | Rathmelton | N | house | house |
| 68 | 40823065 | - | 1740 - 1780 | Rathmelton | N | house | - |
| 69 | 40823070 | - | 1800 - 1880 | Rathmelton | Y | house | house |
| 70 | 40823071 | - | 1740 - 1760 | Rathmelton | N | house | house |
| 71 | 40823072 | - | 1840 - 1880 | Rathmelton | N | outbuilding | - |
| 72 | 40823073 | Tullyaughnish Church of Ireland Church | 1610 - 1800 | Rathmelton | N | church/chapel | - |
| 73 | 40823075 | Frewin House | 1885 - 1895 | Rathmelton | N | rectory/ glebe/ vicarage/ curate's house | house |
| 74 | 40823076 | Ramelton Old Masonic Lodge | 1810 - 1870 | Rathmelton | N | masonic lodge/ hall | masonic lodge/ hall |
| 75 | 40823080 | Melbourne House | 1860 - 1880 | Rathmelton | N | house | house |
| 76 | 40823081 | Ardeen | 1840 - 1920 | Rathmelton | N | house | house; guest house/ b&b |
| 77 | 40823082 | - | 1840 - 1880 | Rathmelton | N | bridge | bridge |
| 78 | 40823083 | - | 1840 - 1880 | Rathmelton | N | bridge | bridge |
| 79 | 40823089 | - | 1840 - 1880 | Rathmelton | N | house | house |

| Map # | NIAH Reg# | Name | Date | Townland | RPS | Originality* | In-Use Type |
|---|---|---|---|---|---|---|---|
| 80 | 40823097 | Charles Kelly Ltd. | 1850 - 1870 | Rathmelton | N | store/ warehouse (3) | - |
| 81 | 40823099 | Charles Kelly Ltd. | 1860 - 1900 | Rathmelton | N | store/ warehouse (3) | shop/ retail outlet; store/ warehouse |
| 82 | 40823107 | Conway's Bar | 1780 - 1820 | Rathmelton | N | house | - |
| 83 | 40823109 | The Green | 1780 - 1820 | Bridge End, Drummonaghan | Y | building misc | - |
| 84 | 40823110 | - | 1810 - 1850 | Rathmelton | N | gates/ railings/ walls | gates/ railings/ walls |
| 85 | 40823111 | Newmill Bridge | 1800 - 1880 | Rathmelton | N | bridge | bridge |
| 86 | 40823113 | - | 1800 - 1870 | Rathmelton | N | house | house |

**The number in brackets represents the number of structures where multiple structures are registered under the same NIAH registration number*

It is noted that there is the intention to include Shore Road and the Quay walls on National Inventory of Architectural Heritage with associated interim protection pending their addition to the Record of Protected Structures in County Donegal.

#### 8.3.2.2.2 Architectural Conservation Area (ACA)

An ACA refers to a place, area, group of structures or townscape that is of special architectural, archaeological, historical, social, cultural, or scientific interest, or that contributes to the appreciation of a Protected Structure. There is no designated ACA present within the study area


**Figure 8-2 NIAH sites and HIAH sites on the RPS in the study area**

## 8.4 Key Constraints

All archaeological and historic sites/features and properties with statutory designation in the study area are the key considerations in the constraints study in relation to cultural heritage, these sites have been identified and mapped for the constraints study. In summary the following constraints have been identified.

### 8.4.1 Archaeological Heritage

The scheme area may contain known and previously unknown underwater archaeological heritage that should be considered in any study to inform planning design and any potential EIARs. Such sites can include a range of underwater cultural heritage such as fortifications with associated slipways, quays, etc., harbours with associated infrastructure, shipwrecks, weirs, fishtraps, lakeside dwellings, causeways, logboats, sites such as rock cut platforms and steps, and artefactual material associated with sites or as individual depositions in underwater environments. Riverine post-medieval built heritage, such as quaysides, slips and flood-defence parapet walls may also be included, as can structures and features relating to the former use of the rivers for the milling and brewing industries. Archaeological materials relating to earlier quaysides, industrial structures and the reclamation of these areas may also be present beneath present ground level (DAU pers. comm. 05/11/2021; reference: G Pre00255/2021).

As advised by DAU National Monuments Service (NMS), the methodologies and processes outlined in the 'Framework and Principles for the Protection of the Archaeological Heritage and the 'Guidelines for the Archaeological Assessment of Flood Relief Schemes' (DHLGH 2021) should be consulted and adhered to in undertaking the archaeological assessments for these projects (DAU pers. comm. 05/11/2021; reference: G Pre00255/2021).

There is a general riverine/coastal archaeological potential in Ramelton and Lough Swilly. All wrecks over 100-years old are protected under the 1987 and 1994 (Amendment) Acts of the National Monuments Acts.

There are 49 RPS sites within the constraints study area. These structures/features should be considered as cultural heritage constraints during the design of the proposed flood relief scheme and avoided where possible.

There are 37 NIAH sites in the study area that have not been added to the RPS, however there is a potential that they may be added in the future. It is noted that there is the intention to include Shore Road and the Quay walls on National Inventory of Architectural Heritage with associated interim protection pending their addition to the Record of Protected Structures in County Donegal.

Every care should be taken in these locations to avoid direct impacts on protected structures or by means of careful design or by the application of appropriate mitigation measures. This includes development that might adversely affect the setting of the protected structure. Any design proposals in the vicinity of protected structures vicinity should be carried out in a way that will not materially affect the character, integrity, amenity and setting of these sites. As advised by DAU (DAU

pers. comm. 05/11/2021; reference: G Pre00255/2021), it is suggested that OPW appoint a dedicated Project Archaeologist to support in this process.

There may be opportunities under Objective 4 of the County Donegal Heritage Plan Actions set out in the Heritage Council Strategy (2018-2022) to 'promote heritage education, training, tourism and outreach activities.

### 8.4.2 Historic Character and Setting

While change within the setting of an historic site or landscape may be acceptable, in certain instances development will be considered intrusive and inappropriate (such as large embankments, walls or similar permanent infrastructure). This effect on the setting of archaeological and architectural heritage sites requires an assessment to be made on a case-by-case basis according to the type of development, its location and landscape setting by means of objective analysis based on a set of predefined criteria and professional judgement, supported by appropriate descriptive material.

Specific mitigation requirements can only be identified as issues for development once the design options are defined. Further assessments such as archaeological testing, underwater archaeological assessments, structural architectural heritage appraisals or structural surveys, etc. may be required in the next phases of the assessment or as mitigation measures for the scheme.

It should be noted, however, if flood relief measures impact any areas in proximity to an RMP, or in the ZAP of the town, the judicious use of archaeological assessment techniques may be required in these areas in order to understand the implications for the proposed scheme.

In accordance with the Architectural Heritage Guidelines any work to or in the vicinity of a Protected Structure, NIAH site or the ACA require a conservation heritage impact assessment by a conservation architect.

All recommendations made in this report are subject to approval of the relevant Local Authorities and the National Monuments Service, Department of Housing, Local Government and Heritage.

# 9 Landscape and Visual

## 9.1 Introduction

This section of the report provides a review of the landscape and visual constraints that have been identified within the study area.

For the purposes of this report, the study is defined as the area CFRAM AFA outlined in Figure 1-1, also including Newmill Watercourse.

## 9.2 Methodology

The procedure used for the landscape and visual constraints study entailed a desktop study of the scheme area in relation to its overall context both locally and regionally and including a review of the relevant planning polices and publications, including the following:

- County Donegal Development Plan 2018-2024, including interactive mapping for scenic amenity (Donegal County Council, 2018).
- Landscape Character Assessment of County Donegal (Donegal County Council, 2016) comprising:
    - Landscape Character Assessment of County Donegal (including 'Ramelton Swilly Coast')
    - Settlement Character Assessment
    - Digital Interactive Mapping.
- National Parks & Wildlife Service – location of SPAs, SACs and NHAs.
- Guidelines for Landscape and Visual Impact Assessment (Landscape Institute & I.E.M.A., UK 2013).
- National Landscape Strategy for Ireland 2015-2025 (Department of Housing, Local Government and Heritage, 2020).
- Historic Gardens and Designed Landscape sites in County Donegal - National Inventory of Architectural Heritage (National Inventory of Architectural Heritage, 2020).

## 9.3 Baseline / Receiving Environment

### 9.3.1 Landscape Character

Ramelton is located on the east of the Fanad Peninsula. It is located in a fertile agricultural landscape along the coastline on Lough Swilly.

#### 9.3.1.1 Landscape Character Assessment (LCA)

The Land Form and Land Cover assessment in the Landscape Character Assessment of County Donegal (Donegal County Council, 2016) states:

- Much of this LCA is hard quartzite rolling rural landscape in a 'U' shape around the estuary and coast, whilst schist underlies better quality agricultural land in the south of this area.
- A large tidal shallow estuary indents the east of this area, and all the surrounding lands slope towards it; the River Leannan flows out through Ramelton, a natural port, through the deep Ramelton channel out to the Lough Swilly.
- Six freshwater lakes punctuate the undulating upland area within the north west of this LCA, part of a wider landscape of agricultural river valleys carved out by numerous streams and rivers.
- Fertile agricultural lands swathe southern lower lying lands and the low sloping shore towards Lough Swilly display a pattern of farms with a 2 storey farmhouse and associated outbuildings surrounded by large rectilinear shaped hedgerow bound fields, whilst lands on 'rougher' higher ground in the north of this area tend to have a tighter pattern of smaller more irregular shaped fields, also hedgerow trimmed.
- There is a heavy dispersal of deciduous and ancient woodland throughout the area, most notable along the shore and river valleys, the hillside to the north of Ramelton and at Ray wood on the northern shores of the LCA.'

Landscape character assessment is a process which describes, maps and classifies landscapes objectively. Defining landscape character enables an understanding to be formed of the inherent value and importance of individual landscape elements and the processes that may alter landscape character in the future. In relation to landscape character, the County Donegal Development Plan 2018-2024 contains a range of objectives applicable to protected areas, ecology, built structures, culture, tourism, and industry are key objects (reproduced in Appendix E).

All new developments within County Donegal must have regard to the specific landscape classifications as provided in the Landscape Character Assessment of County Donegal (2016), in terms of integration and assimilation of development into the receiving landscape, particularly in accordance with Policy NH-P-13 (see Appendix E). The study area contains Areas of High Scenic Amenity (EHSA) broadly located parallel to the coast with inland areas classed as Areas of High Scenic Amenity (HSA) and Areas of Moderate Scenic Amenity (MSA), shown in Figure 9-1 in Section 9.3.7. The town of Ramelton is within an area of HSA.

### 9.3.2 Townscape Features & Regeneration

Ramelton is a historic town with significant heritage, architectural and archaeological value. It was designated as a 'Heritage Town' by Donegal County Council in September 2000. It is a town of built, social and cultural heritage with a unique character however the town is subject to areas of dereliction and abandonment and has been identified as having limited links to the historic centre.

As a result, Ramelton has been identified as an area of regeneration, and as such the Ramelton Action Plan was launched in 2020, with a new focus on developing a long-term strategy for the regeneration, working with the community, businesses and partners to establish key areas of improvement (Dedalus Architecture , 2020).

Donegal County Council have announced the release of the preliminary designs for the Ramelteon Public Realm Enhancement Scheme, 'Ramelton Re-Imagined', funded by the Department of Rural and Community Development through the Rural Regeneration and Development Fund. The aim is to create a 'series of enlivened public spaces connected by a walkable continuous path that wraps around the historic down core' (Donegal County Council, 2022).

The preliminary/ emerging designs consist of (Donegal County Council, 2022)[5]:

1. Transforming Gamble's square into a key Gateway entering the historic centre and a flexible market and events location with increased space for people.
2. Creating new road alignment at Market Cross to provide a wider footway and a crossing for a better and safer pedestrian experience.
3. Establishing 'The Bing' as a showcase bio-diverse, multi- terraced garden, events and play experience individual to Ramelton and accessible to all users.
4. The creation of a high quality public space along the Quays reflecting Ramelton's geographical and cultural heritage. New paving and street furniture will provide a continuous pedestrian experience linking to the rest of the town and promote trading and activities along the building edge.
5. Connecting Market Square by a new footpath and crossing to the series of walkable public spaces and re-establishing it as an identifiable public space for activities.

### 9.3.3 Seascape features

Lough Swilly (Seascape Unit 6) overlaps with the area for the Donegal County Council Landscape Character Assessment for Buncrana (Donegal County Council, 2016).

Lough Swilly is a large inland glacial tidal fjord that separates the Inishowen and Fanad peninsulas and the seascape has a high degree of uninterrupted visibility of the lough from many points along the shore and coast. The seascape topography is characterised by with high elevated bog and low-lying fertile fields and a range of uses including agriculture, tourism, forestry, and multiple sea uses including fishing, aquaculture, sailing, swimming, water sports and diving. The coastal edge is predominantly low-lying with silty edges and areas of salt marsh and salt meadows. Special features of Seascape Unit 6 comprise: significant buildings, landmarks, biodiversity and cultural features (Donegal County Council, 2016).

[5] https://www.donegalcoco.ie/yourcouncil/communicationsoffice/pressreleasefromjan2021/rameltonre-imagined/

### 9.3.4 Historic Landscape Characterisation (HLC)

No historic landscape characterisation has been undertaken for the vicinity of the scheme boundary at the time of writing.

The History, Culture and Heritage assessment in the Landscape Character Assessment of County Donegal (Donegal County Council, 2016) states:

- There are a number of Recorded Monuments within this LCA.
- Ruins of 15th Century Killydonnel friary on the western shore of Lough Swilly stand on the site of an earlier 10th Century church.
- Important vernacular and imposed built heritage including 40 RPS structures.
- Demesne landscape at Fortstewart on the eastern coast and at Ballyarr House to the west of Ramelton.
- The Historic Landscape Characterisation explains that Ramelton is surrounded by productive land farmed since the Neolithic period, and this combined with Lough Swilly's strategic role encouraged the medieval development of the O'Donnell Stronghold including the Franciscan Friary built by the O'Donnells at Killydonnel in the 16th century. The area is covered in straight-sided surveyed and rectilinear fields (south), a patchwork of sinuous-bounded and irregular fields and semi-open rough ground to the north (Generic HLC-types), speculatively, this may partly reflect former Ulster Plantation lands (more likely to be reorganised in the 18th and 19th centuries) and more traditionally farmed areas on poorer land.'

### 9.3.5 Existing Trees and Hedgerows

The County Donegal Development Plan 2018-2024 states that Traditional field boundaries such as stone walls, hedgerows, tree lines, banks and ditches contribute to the regional character of rural landscapes in County Donegal and reflect historical landownership and farming practises that reinforce our sense of place.

There are areas of mature woodland, tree planting and hedgerows within and around the study area. While there are no Tree Preservation Orders or Heritage Trees within the study area, the woodland, tree planting and hedgerows may provide visual and residential amenity and biodiversity benefits within this area and the surrounding environment.

Trees and hedgerows marking boundaries and along the river corridors create important biodiversity corridors and linkages.

### 9.3.6 Land Use Zoning

Details on land use zoning are provided in Section 3.3.8.

### 9.3.7 Protected Views, Corridors and Prospects

Protected views in the vicinity of the scheme are shown in Figure 9-1 Scenic Amenity Designations and views (County Donegal Development Plan 2018 – 2024).

The rivers within the scheme area are classified as green corridor with riparian habitat, and discontinuous tree cover and agricultural lands on banks within the study area. Urban development is located close to the banks on both sites of the river within the town, including quay walls.

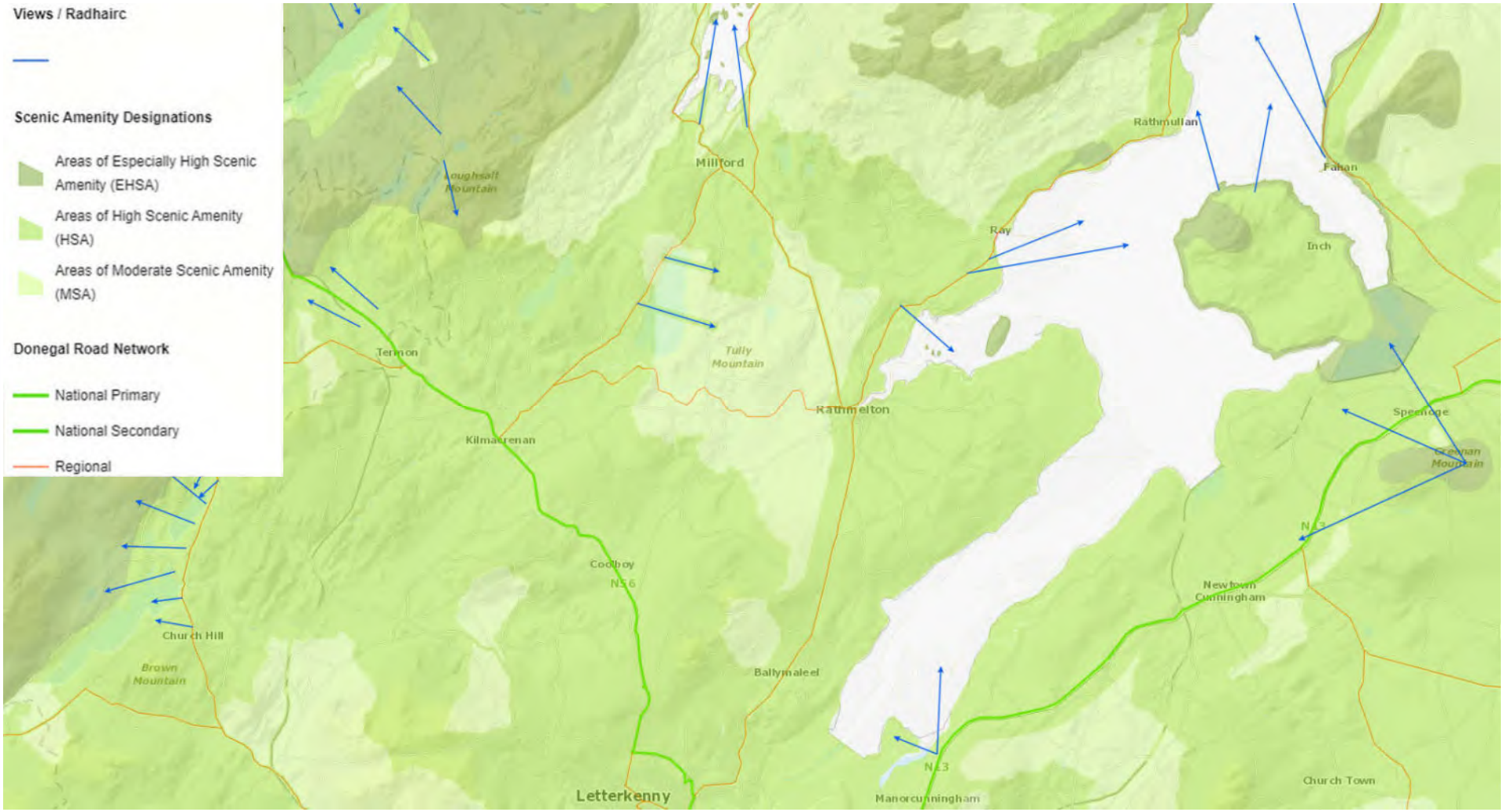


**Figure 9-1 Scenic Amenity Designations and views**
Source: (Scenic Amenity Designations, 2021)

## 9.4 Key Constraints

The existing trees and planting within the study area provides both visual and recreational amenity for the residential and amenity areas within the study area and the wider districts. Additionally, the 'green' and coastal character of the landscape is considered to be a key component of local tourism development for the towns and the wider area. Such areas also provide a network of habitats, ecological 'corridors' and 'stepping stones' essential for wildlife. Accordingly, such feature should be retained where possible.

The proposed development of the subject site will result in a change to the landscape character which will be most noticeable locally, such as from the adjacent residential and tourist areas (including along the river banks and bridges). The potential magnitude of this change will be assessed when the details, scale and extent of the proposed interventions have been finalised.

Historical landscape character and cultural heritage: Within the study area there are several designations and structures of national interest that need to be considered such as Protected Structures and Recorded Monuments, a Conservation Area, and Sites of Archaeological Interest

Protecting the key landscape resource which underpins the Wild Atlantic Way and the Donegal Tourism brand generally from inappropriate development is recognised as a key planning challenge in Donegal

There are recreational amenities within the study area that need to be considered in relation to possible impacts on their accessibility, recreational and visual values:

- Walk/Cycle Pathways along the coast and banks of the rivers,
- Land use zoning objectives in county development plans – areas zoned as for Amenity.

Key viewpoints will be selected when the details, scale and extent of the proposed interventions have been defined.

There is a need to protect:

- Views towards the rivers, estuary and lough from business serving the tourism and recreational sector (e.g. cafes, etc),
- Recreational views – towards to and from the river, estuary and lough (e.g. public pathways),
- Public, recreational and residential views to and from the coast, rivers and bridges, with emphasis on area that may be visually impacted by the suggested hard defence proposals in CFRAM:
    - Towards and from Lough Swilly SAC and SPA
    - Towards and from Recorded Monuments and Protected
    - Public pathways and amenity areas which pass through the study area

  - Other tourist amenities e.g. guesthouses, cafes, restaurants, seating areas

- During the construction phase, the following elements of the proposed development have the potential to cause visual impacts, they will however be short to medium term in duration:
  - Temporary site works – hoarding, lighting, cranes, car parking, storage areas
  - Construction traffic – dust and emissions
  - Tree and vegetation clearance
  - Groundworks – cut and fill excavations
  - Laying of foundations

The principal elements which are likely to give rise to landscape and visual impact visual impact in the long term/operational phase are:

- Removal of some existing trees
- Height of proposed structures/ interventions
- New structures/ interventions
- Change of character – dependent on proposed interventions type and scale
- Proposed tree and shrub planting

Appropriate design, siting and mitigation measures are required to integrate the proposed scheme within the landscape.

As advised by the Minister of transport (Minister of Transport pers. comm. 20/10/2021), given that all of the hard measures identified and assessed in 2018 scored quite high with regards to negative environmental consequences, designers are advised to weigh nature-based criteria compared to hard defences when designing these flood relief schemes.

Further, visual impact from existing national roads should be considered as part of the EIAR.

# 10 Air Quality

## 10.1 Introduction

This section describes the existing air quality in the scheme study area and identifies possible issues which have the potential to constrain the flood relief scheme design.

For the purposes of this report, the study is defined as the Scheme Area which includes Ramelton and some of the surrounding rural area (up to an outer extent of 500m).

## 10.2 Methodology

The procedure used for the landscape and visual constraints study entailed a desktop study of the scheme area in relation to its overall context both locally and regionally and including a review of the relevant planning polices and publications, including the following:

- Air Quality Index for Health (EPA, 2021),
- Most recent data for from the Letterkenny Station 64 (EPA, 2021),
- Donegal County Council Website, Air pollution (Donegal County Council , 2021),
- EPA air quality data (EPA, 2021).

## 10.3 Baseline / Receiving Environment

The scheme study area is comprised of Ramelton and surrounding rural areas, small villages and settlements, farmland, open spaces. The closest national air quality monitoring station is Station 64 at Letterkenny, c. 26 km from the study area.

Item 'WES-0-6' in the County Donegal Development Plan (2018-2024) states the following air quality objective:

*'It is the policy of the Council to provide for environmental protection, through: the protection of surface water and ground water from pollution in accordance with the River Basin Management Plan, Groundwater Protection Scheme and Source Protection Plans for public water supplies, the protection against soil contamination; minimising air and noise pollution; supporting remediation of all existing pollution; ensuring full compliance with relevant National and European Regulations, Statutes and Directives through monitoring and control of relevant activities.'* (Donegal County Council, 2018).

Under the Clean Air for Europe Directive, EU member states must designate "Zones" for the purpose of managing air quality. For Ireland, four zones were defined in the Air Quality Standards Regulations (2011). The zones were amended on 1 January 2013 to take account of population counts from the 2011 CSO Census and to align with the coal restricted areas in the 2012 Regulations (S.I. No. 326 of 2012).

Ireland is divided into zones (Zones A, B C and D) for the assessment and management of air quality, in compliance with EU legislation. The scheme study area is located in Zone D: Rural Ireland ('Rural West'). According to the EPA Air quality index for health (AQIH) the air quality of the zone in which Ramelton is located was reported as '3 - Good' (data correct as of 28 December 2021) (EPA, 2021).

Sensitive receptors within the scheme study area with respect to air quality and climate are predominantly people. This includes homes, schools, medical centres, businesses, sports facilities, and places of worship. Flora and fauna can also be sensitive to air quality and climate. Biodiversity is dealt with in Section 7.

During the construction phase, sensitive receptors may be impacted due to construction activities and construction traffic.

The operational phase will not result in any impacts in relation to air and will have will be beneficial to the surrounding property owners in alleviating flooding which may increase in frequency due to climate change.

## 10.4 Key Constraints

The key constraints in relation to air quality are any sensitive receptors in proximity to the location of construction works. The scheme design should take into consideration any air/climate sensitive receptors such as residences, schools, businesses, and medical facilities located in proximity to works associated with the flood relief scheme.

# 11 Climate Change

## 11.1 Introduction

This section describes the baseline conditions, the regulatory framework (with regard to the consideration of climate change for flood relief schemes in Ireland) and identifies any implications, considerations, constraints and/or opportunities with regards to the proposed scheme.

For the purposes of this report, the study is defined as the island of Ireland.

## 11.2 Methodology

The procedure used to identify potential climate change constraints entailed a review of relevant legislation, policy and guidance, a desktop study of climate data available for Ireland and an identification of key constraints for the proposed scheme.

This Chapter has been prepared with review of the following documents:

- Climate Change Sectoral Adaptation Plan for Flood Risk Management (2019 - 2024) (Office of Public Works, 2019)
- Climate Change and Low Carbon Development Act (2015)(amended 2021)
- The National Adaptation Framework (2018) (Department of Communications, Climate Action & Environment, 2018)
- Donegal County Council's Climate Adaptation Strategy 2019-2024. (Donegal County Council , 2019).

## 11.3 Baseline / Receiving Environment

### 11.3.1 Flood Risk and Climate Change

It is acknowledged nationally that climate change is likely to have a significant effect upon flood risk in Ireland due to rising sea levels and more intense rainfall events and storms (Office of Public Works, 2019) however there remains uncertainty in relation to the rate and scale of this change.

Met Éireann has predicted that in Ireland the autumns and winters may see a rise in rainfall events of approximately 20%, and that the summer period may become drier. However, the change in precipitation patterns in Ireland, particularly at a local level and for shorter (sub-seasonal) durations, remains uncertain and is the subject of ongoing research (Office of Public Works, 2019). The Climate Change Sectoral Adaptation Plan for Flood Risk Management (2019 – 2024) reports that since the early 1990s, a rise in mean sea level of approximately 3.5 cm per decade has been observed and various studies have shown that during the 20th century, sea level rise has been accelerating.

To add to this, an increase in storm events over the North Atlantic Region are predicted to have a direct impact upon storm surges on the coast of Ireland (Office of Public Works, 2019).

Rising sea levels and increased rainfall predictions place parts of Ireland and, more specifically, County Donegal at greater risk of flooding from coastal, groundwater pluvial and fluvial flooding. Currently, flooding has already been identified as a key concern for County Donegal and current levels of adaptation are projected to be insufficient to avoid flooding for current global warming predictions (Donegal County Council , 2019). This calls for a greater need for planning and development in vulnerable areas.

Climate change allowance for the hydrological analysis will be calculated for two possible future scenarios, namely the Mid-range Future Scenario (MRFS) and the High-End Future Scenario (HEFS). Table 11-1 summaries the climate change allowances to be applied, in line with national guidance (Office of Public Works, 2019).

**Table 11-1: Climate Change Allowances**

| Parameter | MRFS | HEFS |
|---|---|---|
| Extreme Rainfall Depth | +20% | +30% |
| Extreme Flows | +20% | +30% |
| Sea Level Rise | +500mm | +1000mm |
| Urbanisation | *No general allowance – review on a case-by-case basis* | |
| Forestation | -1/6 Tp[1] | -1/3 Tp[1]<br>+10% SPR[2] |
| Note 1: Reduce the time to peak (Tp) by a third: This allows for potential accelerated runoff that may arise as a result of drainage of afforested land.<br>Note 2: Add 10% to the Standard Percentage Runoff (SPR) rate: This allows for increased runoff rates that may arise following felling of forestry. | | |

### 11.3.2 Carbon and Climate Change

The Climate Action and Low Carbon Development Act provides for the approval of plans by the Government in relation to climate change for the purpose of pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy; to establish a body to be known as the National Expert Advisory Council on Climate Change; and to provide for matters connected therewith. The Act is Ireland's first framework piece of climate change legislation and lays the ground for transition towards a low carbon economy, to be achieved through a combination of the following:

- a national greenhouse gas mitigation plan;
- a national adaptation framework; and
- specific sectoral adaptation plans. (Grantham Research Institute on Climate Change and the Environment, 2022)

Carbon impacts in relation to flooding consist of a) the potential impacts associated with flood damages and b) potential impacts associate with the construction and operation of the flood defences themselves.

Through installing flood relief measures, the potential impacts associated with flood damages can be largely mitigated, however carbon impacts from construction and operation (the 'carbon cost' will be calculated as the scheme progresses.

As part of the Project, the foreseen 'Carbon Cost' of the tonnes of Carbon Dioxide ($CO_2$) the proposed scheme options will generate, and the financial implications of this $CO_2$ quantity will be undertaken, taking into account relevant guidelines from the EU. The calculation of the Carbon Cost shall include:

- The quantities of different types of materials to be used for the option or Scheme.
- The quantity of $CO_2$ embodied in each type of material through sourcing, production, etc.
- The quantity of $CO_2$ that would be generated through the construction process.
- The quantity of $CO_2$ that would be generated per year in operation and maintenance of the option or scheme, such as through the operation of pumps, maintenance operations, etc.

## 11.4 Key Constraints

For the purposes of this report, potential climate change impacts have been classified as potential flood risk impacts and potential carbon impacts.

The Climate Change Sectoral Adaptation Plan for Flood Risk Management (2019 - 2024) considers Flood Relief Schemes to be a key prevention strategy for effects of climate change, and as such, this Project is integral to the overall climate adaptation strategy.

However, climate change is considered as a constraint on the design of the scheme, as higher rainfall and extreme weather events attributing to climate changes may lead to higher water levels, which would influence the design of the scheme.

The design should be mindful of the Donegal County Council Climate Adaptation Strategy which sets out strategic priorities, measures and responses for adaptation in the County over the next five years, as required by the Climate Action and Low Carbon Development Act 2015 (Donegal County Council, 2019). The risk of flooding and provision of sustainable protection infrastructure is noted as a key item in the Strategy.

The WFD has also called for a shift in flood management approach away from site specific hard engineering solutions, towards an integrated assessment of water resources and flood management at the catchment scale. The assessment and design should be mindful of this and reference key climate change legislation, as outlined in Section 11.2 above.

Carbon impacts in relation to flooding consist of a) the potential impacts associated with flood damages and b) potential impacts associated with the construction and operation of the flood defences themselves.

Through installing flood relief measures, the potential impacts associated with flood damages can be largely mitigated, however carbon impacts from construction and operation (the 'carbon cost' will be calculated as the scheme progresses.

As part of the Project, the foreseen 'Carbon Cost' of the tonnes of Carbon Dioxide ($CO_2$) the proposed scheme options will generate, and the financial implications of this $CO_2$ quantity will be undertaken, taking into account relevant guidelines from the EU.

# 12 Noise and Vibration

## 12.1 Introduction

This section describes the existing noise environment in the scheme study area and identifies possible issues which have the potential to constrain the flood relief scheme design.

For the purposes of this report, the study is defined as the Scheme Area which includes Ramelton and some of the surrounding rural area (up to an outer extent of 500m).

## 12.2 Methodology

The procedure used for the noise and vibration constraints study entailed a desktop study of the scheme area in relation to its overall context both locally and regionally and including a review of the relevant planning polices and publications, including the following:

- Available aerial & street photography available by Google (2021) and OSi (2021).

## 12.3 Baseline / Receiving Environment

Sensitive Receivers to noise and vibration within the study area are predominately people and animals. Sensitive Receivers to vibration may include built structures and potentially vulnerable structures could include bridges, buildings, walls, property, and protected structures.

Most of the noise and/or vibration-sensitive receptors in the study areas are within the urban areas of Ramelton. Sensitive receptors may also be present in surrounding rural areas where built structures (including residential) or livestock may be present in proximity to construction works.

Noise during the construction phase of the project may have a temporary or short-term adverse impact on the local environment. It is not envisaged that the development of the flood relief scheme will lead to noise and vibration impacts that have a long-term or detrimental effect to sensitive receptors within the study area.

## 12.4 Key Constraints

During the Options assessment is recommended that the short-listed flood alleviation measures be assessed in relation to the impact of noise and vibration during the construction phase of the project.

Noise and vibration effects are expected to occur during the construction phase only and would be expected to include:

- Construction traffic,

- Earthmoving plant and equipment,
- Sheet piling,
- Power tools and generators.

Construction noise is temporary in nature, and therefore the normal way of minimising the impact is to limit the working hours. The Local Authority may place noise limits on the construction works.

The project CEMP will include measures to avoid or minimise the potential impacts of noise on sensitive receptors during construction. The following noise control measures may be employed to limit noise impacts from the scheme:

- Install site hoarding 2.4 m high around site boundaries,
- Install local noise barriers with absorptive linings near to specific sources, during construction works,
- Provide enclosures around generators,
- Provide local screening,
- Implement appropriate noise management measures.

Ground-borne vibration attenuates rapidly with distance. People are very sensitive to vibration and can feel vibration long before it becomes an issue in terms of cosmetic damage or structural damage to older buildings located within the work vicinity. Assessment of potential for damage due to vibration should be carried out where vulnerable structures are located in close proximity to works such as sheet piling.

The scheme design and methods for works during construction should consider potential impacts to potential vulnerable structures and consider if there is a requirement for ongoing noise and vibration monitoring during construction. Other construction sites in the vicinity should also be considered, with note taken of the cumulative impacts of vibration particularly, in areas with older buildings present.

Traffic along national route roads within the town is congested and traffic noise, particularly at peak times, and construction traffic should be managed to ensure cumulative or in-combination impacts from noise and/or vibration are avoided, where possible, or minimised.

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# Appendix A – Public Information Pack

Comhairle Contae
Dhún na nGall
Donegal County Council

www.ccdhunnangall.ie www.donegalcoco.ie

20th September 2021

**Re: Ramelton Flood Relief Scheme – Opening Public Consultation**

Dear Sir/Madam,

Ramelton Flood Relief Scheme is being progressed by Donegal County Council in partnership with the Office of Public Works. Engineering consultants, Byrne Looby - Arcadis have been appointed to design a flood relief scheme that is technically, socially, environmentally and economically acceptable. The project is currently in Stage 1 "Scheme Analysis and Development". This involves data collection / surveys, detailed river modelling, and early community engagement to inform the design and identify the preferred Scheme. Our aim is to ensure that design is based on the most up to date information and analysis, and that stakeholder and public input regarding flooding, design and environmental constraints are considered as early as possible in the process.

To this end we are launching an Opening Public Consultation period which will run from 27th September 2021 to 22nd October 2021. Due to the ongoing COVID-19 pandemic, an Opening Public Consultation Day will not be held in person. Instead, we hope to engage with you via online consultation or through correspondence with the project team. Please find enclosed:

1. An information leaflet providing you with more detail on the scheme, links to the project website, the public consultation process, the information we are looking for, and how you can make a submission online, by email, post or telephone.
2. A questionnaire form. We would be grateful if you could fill it out and return to us by 22nd October 2021. The information leaflet provides the contact details and an option to download the form online if you wish.

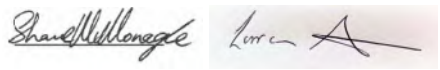
Our first Scheme Newsletter will be published soon. It will include the background to the Scheme, updates on the stages in the project and what the team are working on. These newsletters will be prepared every three months and will keep you up to date with progress. You can download them from the project website www.floodinfo.ie/frs/en/ramelton .

At the end of Stage 1, a second public consultation will be held to let you know how your submission has been considered in arriving at the preferred Scheme to be taken forward to the statutory planning process.

We also advise that surveying teams will be in Ramelton over the coming months to gather data for the project. This includes ecologists gathering environmental data, and engineers reviewing existing infrastructure. The surveyors may require access to private lands to complete their assessments. All teams will carry identification and follow HSE Guidelines in relation to safe practices and COVID 19.

We thank you in advance for your input to the public consultation which will greatly assist in the development of the flood relief scheme.

Yours faithfully,



Shane Mc Monagle and Lorraine Arbuckle,

Flood Relief Schemes Unit, floodreliefschemes@donegalcoco.ie

# Ramelton Flood Relief Scheme

# Stakeholder and Public Consultation Event

# Questionnaire

**(Please complete this questionnaire and return to ByrneLooby, Attention: Project Manager, Building 2100, Cork Airport Business Park, Kinsale Road, Cork, Email: RameltonFRS@ByrneLooby.com by Friday 22nd October 2021. Kindly sign GDPR Compliance on Pg 3 of 3 of this questionnaire.**

**1 Name:** _____

**Address:** _____

_____

_____

**Phone (Optional):** _____ **Email: (Optional):** _____

**2 Are you aware of the North-Western - Neagh Bann (NWNB) Catchment Flood Risk Assessment and Management (CFRAM) Study and its findings or recommendations?**

**Yes** ☐ **No** ☐

**3 Do you own, rent or occupy a property within the study area being considered?**

**Yes** ☐ **No** ☐

**4 Address of Property (if different from home address)** _____

**5 Have you had any personal experience of flooding?** **Yes** ☐ **No** ☐

**6 If yes, do you have information which can be used to inform the scheme? Please describe information available? Can Donegal Co. Co. contact you to collect this information?**

_____

_____

**7 Do you have photographs or videos of flooding?** **Yes** ☐ **No** ☐

**8 If yes, may Donegal County Council have permission to use them?** **Yes** ☐ **No** ☐

*Note: Photographs / videos can be collected at a later date.*

**9 Also if yes, could you please describe the photograph?**

**10 Type of property flooded?**

| | | | |
|---|---|---|---|
| **Residential** | ☐ | **Retail** | ☐ |
| **Office** | ☐ | **Workshop** | ☐ |
| **Open Space** | ☐ | **Other** | ☐ |

**If other, please describe:** _____

**11 Approximate maximum depth of flooding? (Please state whether the depth is in meters or feet):** _____

**12 Source of Flooding:**

**Directly from river/ Stream** ☐

**From Drains/ Sewer** ☐

**Overground flow (surface water)** ☐

**13 How do you think the issue of flooding can be resolved?**

| |
|---|
| |

**14 In your opinion, how important are the following environmental constraints to the proposed Flood Relief Scheme?** *(Please tick appropriate boxes)*

| Environmental Constraints | Rating | | | | |
|---|---|---|---|---|---|
| | Not Important | Less Important | Moderately Important | Important | Very Important |
| | 1 | 2 | 3 | 4 | 5 |
| Socio-Economic and Social Issues | | | | | |
| Biodiversity (Flora, Fauna, Habitats, etc) | | | | | |
| Water Quality & River Flows | | | | | |
| Soil/Geology/ Groundwater | | | | | |
| Air Quality and Odours | | | | | |
| Climate | | | | | |
| Traffic | | | | | |
| Noise and Vibration | | | | | |
| Architectural and Cultural Heritage | | | | | |
| Landscape and Visual Amenity | | | | | |
| Angling, Tourism and Recreation | | | | | |
| Local Fisheries | | | | | |
| Others, Please Specify: | | | | | |
| | | | | | |

**15 Please provide below any other comments or observations you wish to make with respect to flooding on the Ramelton Flood Relief Scheme?**

| |
|---|
| |

**GDPR COMPLIANCE**

| | |
|---|---|
| **Your contact details have been collected to aid the development of the flood relief scheme for Ramelton. The details will only be used for the purposes of contacting you in relation to the scheme, which may include some or all of the following:**<br>**- Notifying you of future consultation opportunities**<br>**-Arranging access to your lands for the purposes of data collection by project staff and approved third party surveyors**<br>**- Clarifying information, you have already provided to the project team and obtaining further inputs**<br>**Your details will be securely kept on file for the duration of the project** | |
| **Signature:** | **I agree to the above use and retention of my contact details** |

**Donegal County Council is committed to protecting your privacy. Any personal information which you provide will be treated with the highest standards of security and confidentiality, in accordance with the Data Protection Acts 1988 - 2018. For further information https://countydonegalfrs.ie/index.php/cookie-policy/**

**Freedom of Information: Any information provided will be used to the provisions of the Freedom of Information Act. Personal information will be subject to the provisions of the Data Protection Acts and will not be disclosed.**

**THANK YOU FOR YOUR CO-OPERATION**

# PUBLIC ENGAGEMENT EVENT

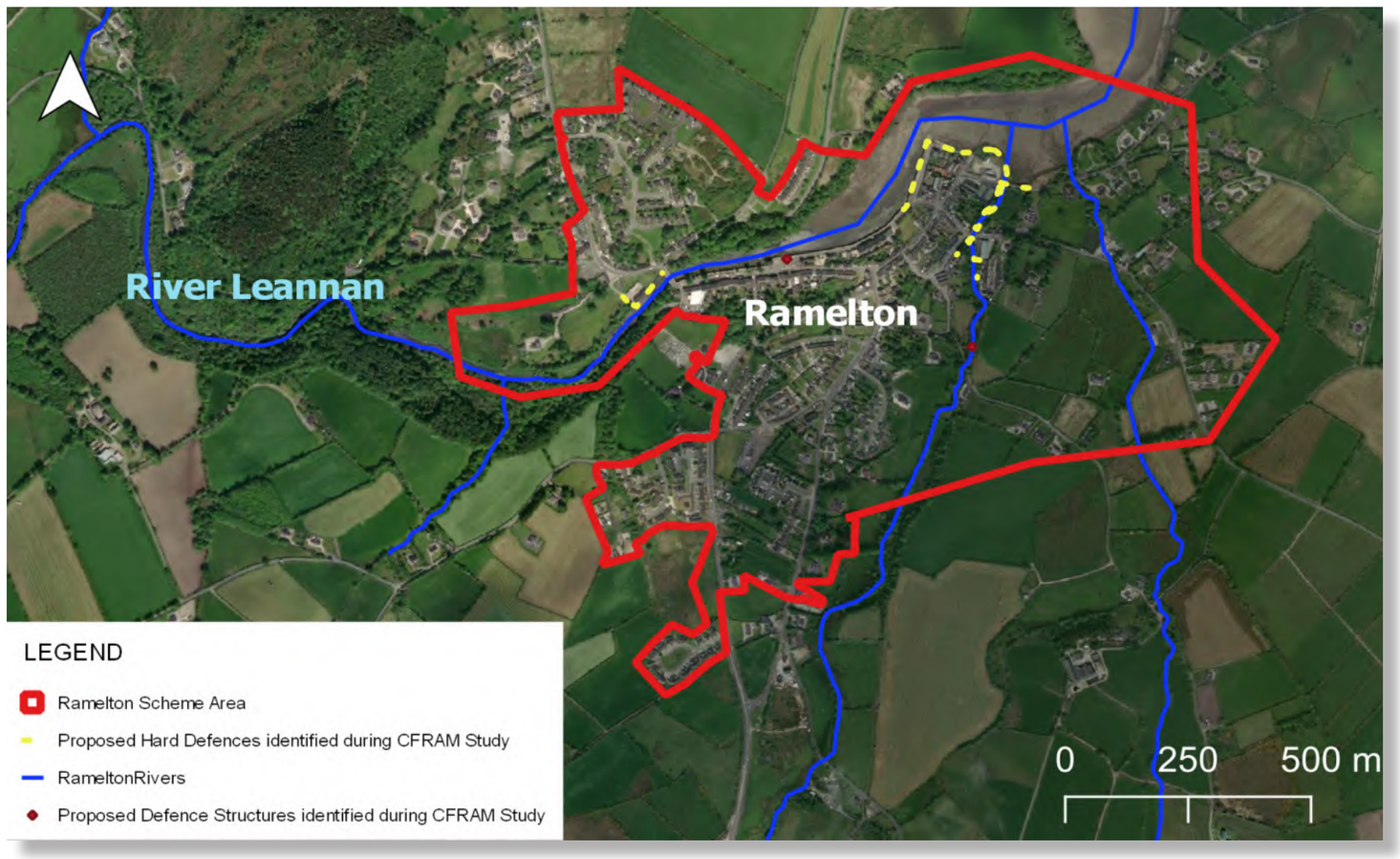
## RAMELTON FLOOD RELIEF SCHEME

**From:** Mon, 27th September to Fri, 22nd October 2021

**Log onto:** www.floodinfo.ie/frs/en/ramelton/project-info/public-engagement/

**Updates:** https://www.floodinfo.ie/frs/en/ramelton/home/

***Read about the project and submit your comments***




*THE STUDY AREA*

**SCHEME PURPOSE:** The purpose of this scheme is to alleviate the risk of flooding to the community of **Ramelton** delivering a scheme that is technically, socially, environmentally, and economically acceptable.

Donegal County Council have appointed Engineering and Environmental Consultants **ByrneLooby** to design and implement a Flood Relief Scheme for **Ramelton.**
Donegal County Council is working with the Office of Public Works to deliver the project.

**This is the first public consultation event.**
From **Monday 27th September to Friday 22nd October 2021,** we are gathering feedback from the public about their experiences of flooding in the scheme area along with thoughts and preferences on possible flood relief measures.
**Your opinions are important to us,** they help us build a picture of your experiences, local knowledge and insight, which will help deliver a *Successful Flood Relief Scheme.*

Please *share* your comments, experiences and concerns on potential environmental issues, constraints, risks and the implementation of solutions within **the Study Area.**

## What actions can we take to lessen the effects of flood events and to prevent flooding?

EXAMPLES OF FLOOD RELIEF MEASURES

| DO NOTHING | NON STRUCTURAL MEASURES | RELOCATION OF PROPERTIES AND/OR INFRASTRUCTURE | FLOW DIVERSION | FLOW REDUCTION | FLOW CONTAINMENT | INCREASE CONVEYANCE OF CHANNEL | SEDIMENT DEPOSITION | STORM WATER PUMPING |
|---|---|---|---|---|---|---|---|---|
| **Example** Implement no new flood alleviation measures | **Example** Install a flood warning system or individual property protection | **Example** Reconstruct properties and/or infrastructure to a higher elevation/ level | **Example:** Creation of river diversions or flow bypass channel) | **Example** Upstream catchment management or flood storage | **Example** through the construction of flood defences | **Example** increase the conveyance of the town's channel flows upstream and/or through and/or downstream | **Action** Sediment deposition and possible sediment traps | **Action** Pump storm water from behind flood defences |

## Please share your comments with us

RAMELTON FLOOD RELIEF SCHEME
Comhairle Contae Dhún na nGall Donegal County Council
Tionscadal Éireann Project Ireland 2040
OPW Oifig na nOibreacha Poiblí Office of Public Works
ARCADIS BYRNELOOBY

# RAMELTON FLOOD RELIEF SCHEME

Online Stakeholder and Public Consultation from Monday 27th September 2021 to Friday 22nd October 2021

### Your Experiences

We want to hear about your past experiences of flooding and your local knowledge

### Your Concerns

We welcome your concerns on important issues including- environmental and ecological impacts and risks

### Your Ideas

You may have some ideas, please share them with us

### Your Opinions

By listening to all stakeholders, we can build a successful flood relief scheme together.

**Please read about the scheme and submit your comments online from: 27/9/2021- 22/10/2021**

**LEARN**
**https://www.floodinfo.ie/frs/en/ramelton/home/**

**COMMENT**
**https://www.floodinfo.ie/frs/en/ramelton/project-info/public-engagement/**

## Why a flood relief scheme?

The purpose of a **Flood Relief Scheme** is to lessen the effects of flooding and to protect the community of Ramelton against future flood events. The aim is to provide a scheme that is technically, socially, environmentally, and economically acceptable.

Donegal County Council has appointed Engineering and Environmental Consultants **ByrneLooby** to design and implement the proposed Flood Relief Scheme.

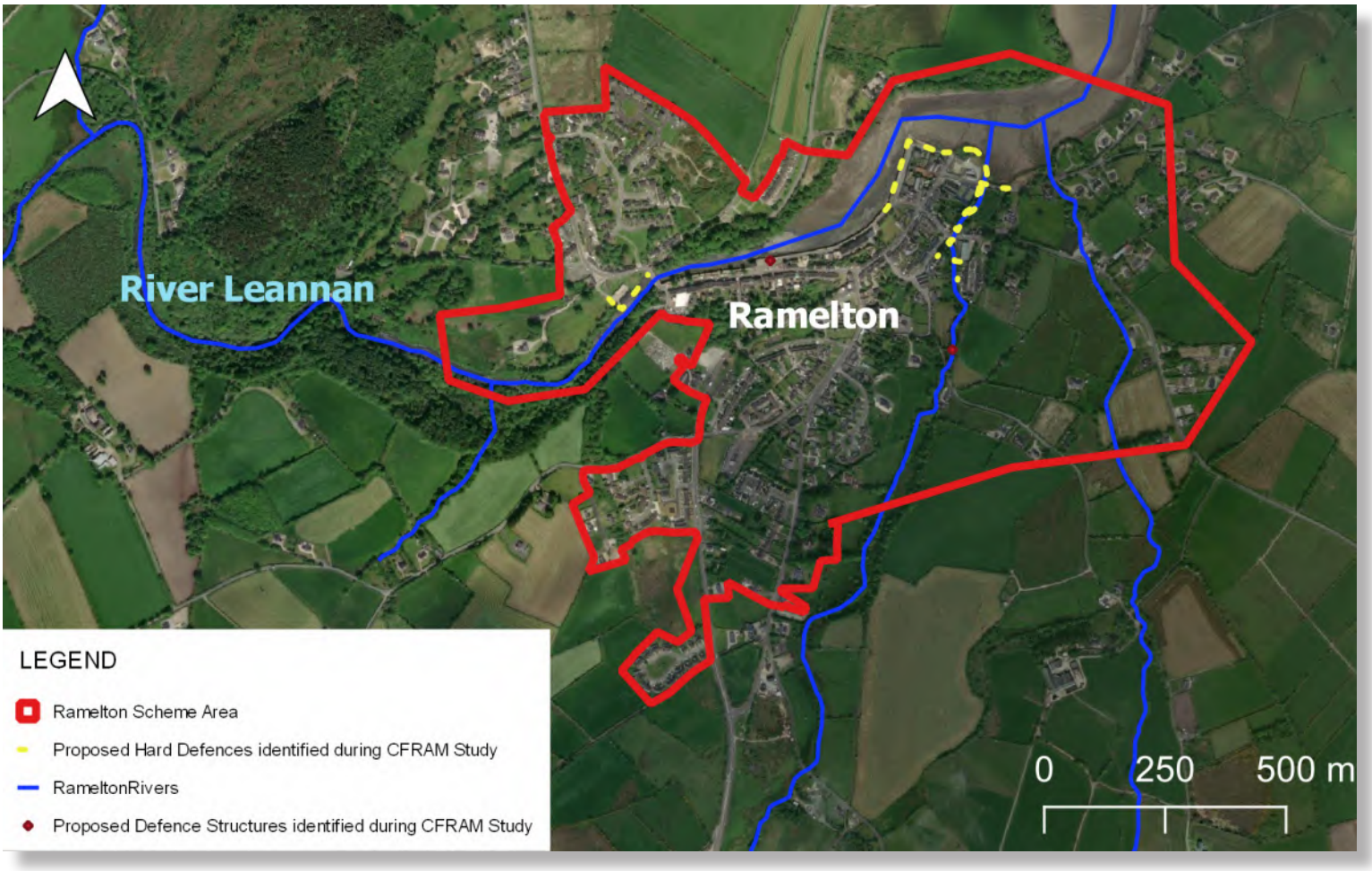
Donegal County Council will be working with the Office of Public Works to deliver the project.

From **Monday 27th September to Friday 22nd October 2021,** we are gathering feedback from the public online, about your experiences of flooding in the scheme area, along with thoughts and preferences on potential flood relief measures.

We welcome **your comments** on potential environmental risks, constraints and issues within the Study Area. Your views on the implementation of solutions are appreciated.

Your opinions are important to us; they help us build a picture of your experiences, local knowledge and insight, which will help deliver *a Successful Flood Relief Scheme.*

RAMELTON FLOOD RELIEF SCHEME | Comhairle Contae Dhún na nGall Donegal County Council | Tionscadal Éireann Project Ireland 2040 | OPW Oifig na nOibreacha Poiblí Office of Public Works | ARCADIS | BYRNELOOBY




*THE STUDY AREA*

## Play your part

**Your Feedback is Important**

We invite the general public and all interested parties to give their opinions on the study area online. Please take the opportunity to **play your part** in the early stages of the planning for the Flood Relief Scheme for Ramelton.

All comments received in response to the public consultation event will be considered by the Donegal County Council and the Office of Public Works.

Your comments form part of our engineering and environmental studies during Stage 1 of the **Ramelton Flood Relief Scheme.**

We appreciate your time and thank you for your input.

## What Happens Next?

Please examine the Study Area above and log onto **https://www.floodinfo.ie/frs/en/ramelton/home/** and let your views be known by completing and returning the questionnaire **by Friday 22nd October 2021.**

All completed questionnaires, queries and comments in relation to this project can sent to either of the following:

**EMAIL:** RameltonFRS@ByrneLooby.com

**POST:** Project Manager Ramelton FRS
ByrneLooby
Building 2100
Cork Airport Business Park
Kinsale Road
Cork

**CALL:** +353 (0) 21 240 7988

**LOG ONTO THE PUBLIC CONSULTATION:** From Mon 27/09/21 to Fri 22/10/21
**https://www.floodinfo.ie/frs/en/ramelton/project-info/public-engagement/**

**VISIT FOR UPDATES:**
**https://www.floodinfo.ie/frs/en/ramelton/home/**

**Freedom of Information**
Any information provided will be subject to the provisions of the Freedom of Information Act.
Personal information will be subject to the provisions of the Data Protection Acts and will not be disclosed.

RAMELTON FLOOD RELIEF SCHEME
Comhairle Contae Dhún na nGall Donegal County Council
Tionscadal Éireann Project Ireland 2040
OPW Oifig na nOibreacha Poiblí Office of Public Works
ARCADIS
BYRNELOOBY

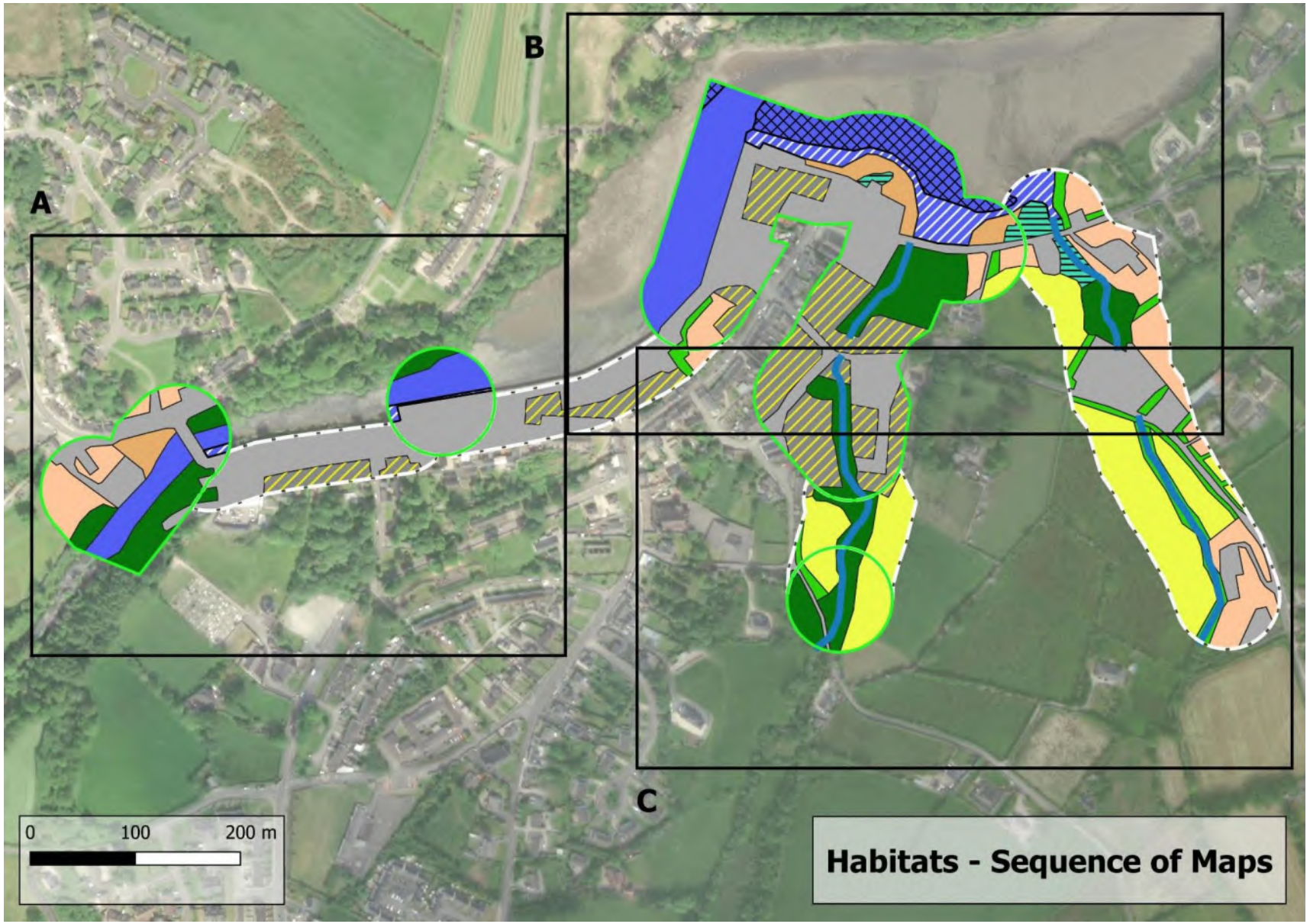
# Appendix B – Responses to project level initial environmental consultation

A summary of responses received up to and on 10th January 2022 is provided below.

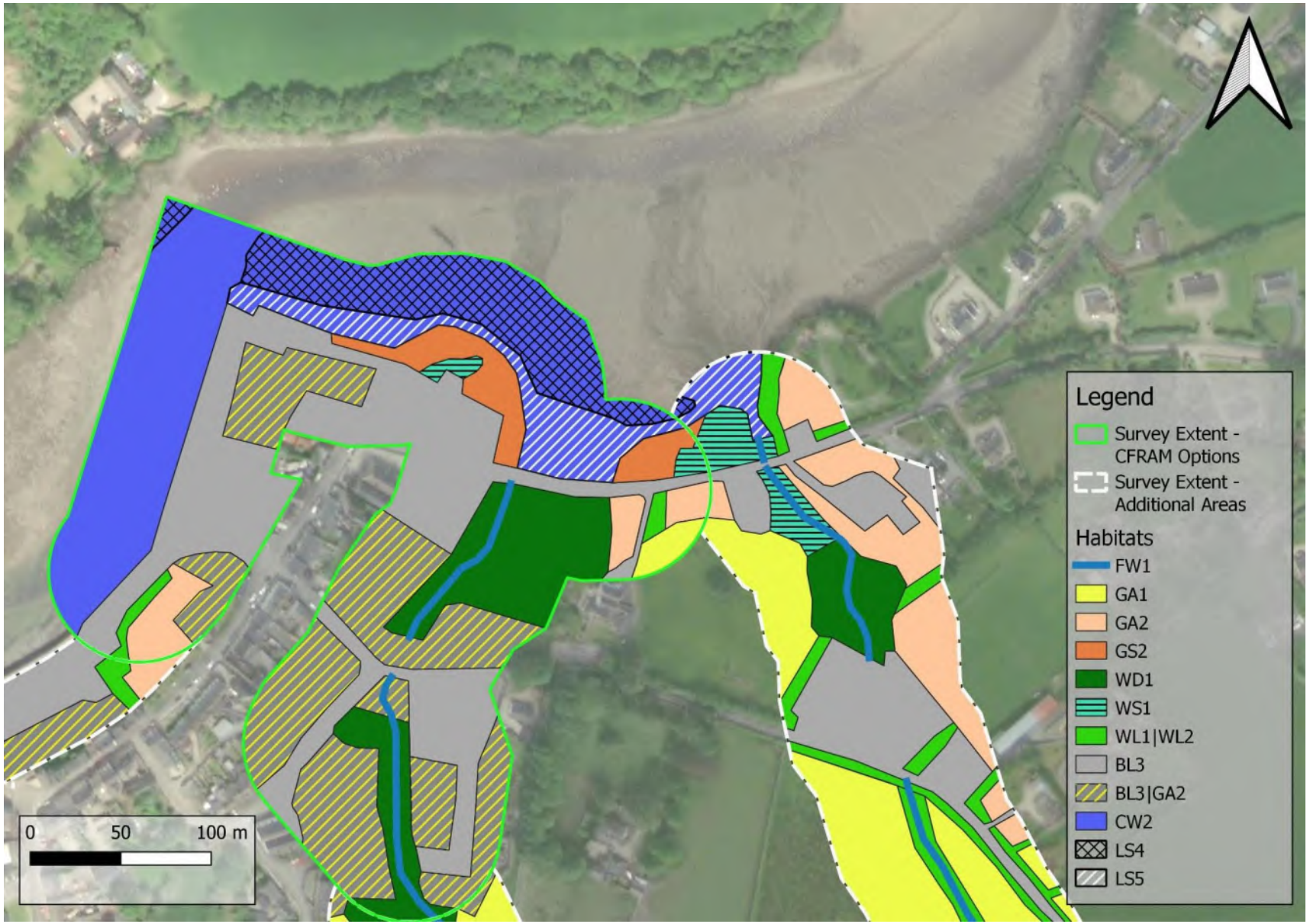
| Organisation | Feedback to initial stakeholder engagement/environmental consultation |
|---|---|
| Development Applications Unit (DAU)<br><br>National Monuments Services of the DAU | Email received 04/11/2021.<br>• Advise OPW to appoint dedicated FRS Project Archaeologist(s).<br>• Advised that the methodologies and processes outlined in the 'Guidelines for the Archaeological Assessment of Flood Relief Schemes' (DHLGH 2021) are consulted and adhered to in undertaking the archaeological assessments for these projects.<br>• Draw the applicant's attention to the Department's published policy in relation to the archaeological assessment, including 'Framework and Principles for the Protection of the Archaeological Heritage – Published by Dúchas The Heritage Service' the 'Guidelines for the Archaeological Assessment of Flood Relief Schemes' (DHLGH 2021).<br>• Highlight available datasets to be used in the archaeological impact assessment.<br>• Comments on the requirements of the assessment of the FRS project is included. |
| Eamon Ryan TD, Minister for Transport | Letter attached to email received 20/10/2021.<br><br>Observations provided comprise:<br>• All of the hard measures identified and assessed in 2018 scored quite high negative environmental consequences. The planners are advised to weigh nature-based criteria compared to hard defenses when designing these flood relief schemes and when going to tender.<br>• The designer of the scheme should ensure that the threat of flooding along the public road network (where it exists) is reduced by the proposed design and that the drainage of the public road network is improved where possible and not impaired by the proposed development. |

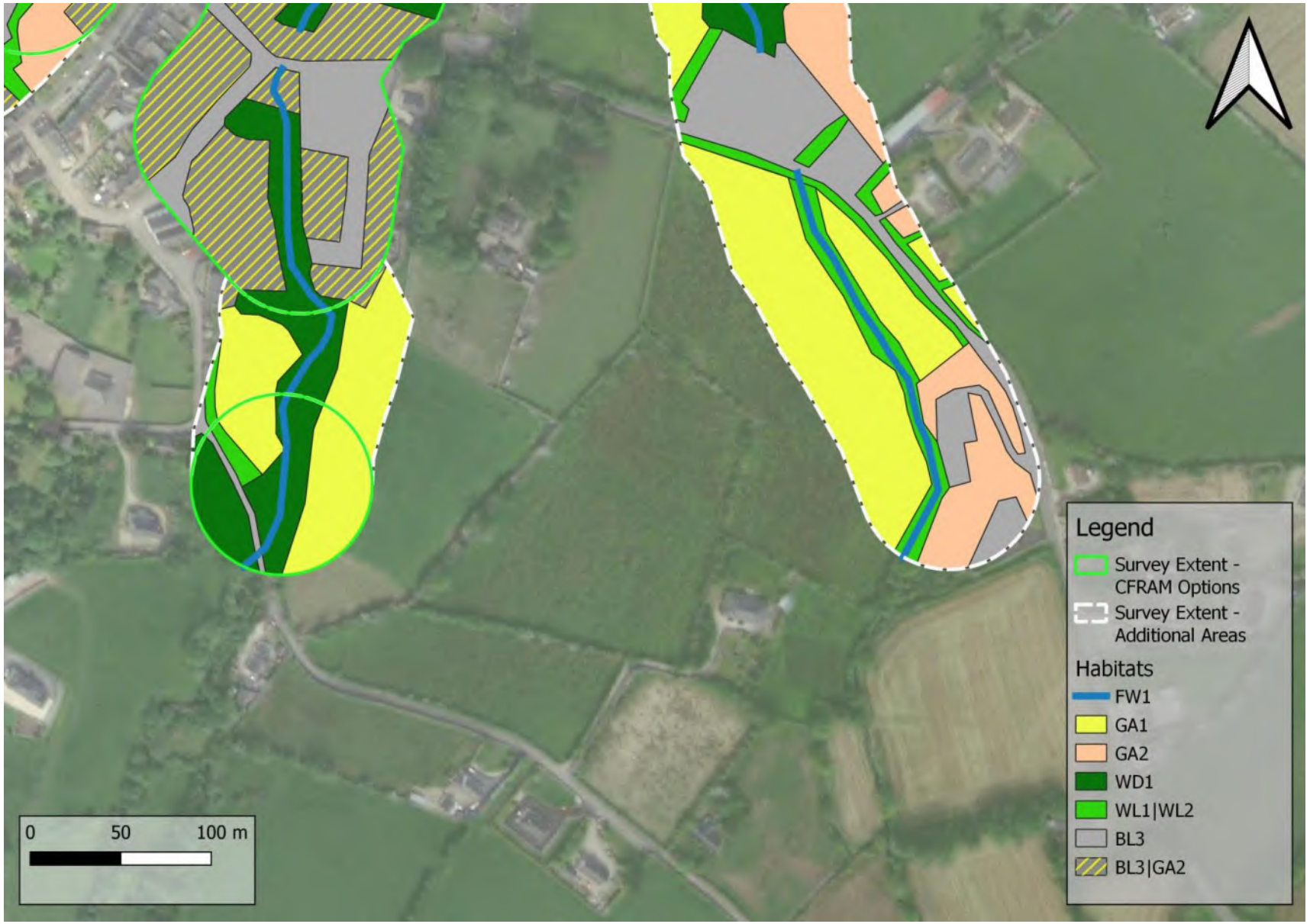
| Organisation | Feedback to initial stakeholder engagement/environmental consultation |
|---|---|
| Geological Survey Ireland | Letter and reference sheet attached to email received 18/10/2021.<br><br>Observations provided comprise:<br><br>• Advise on online data sources to use for the environmental assessment for Geoheritage, Groundwater, Geotechnical database, Geohazards, and Marine and Coastal.<br><br>• Recommended that the following guidelines are consulted: Institute of Geologists of Ireland, 2013. Guidelines for the Preparation of the Soils, Geology and Hydrogeology Chapters of Geology in Environmental Impact Statements.<br><br>• Should development go ahead, all other factors considered, Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out. The data would be added to Geological Survey Ireland's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to Beatriz Mozo, Geological Mapping Unit, atBeatriz.Mozo@gsi.ie, 01-6782795. |

# Appendix C – Habitat Mapping


A
B
C
0
100
200 m
Habitats - Sequence of Maps


Legend
Survey Extent - CFRAM Options
Survey Extent - Additional Areas
Habitats
GA2
GS2
WD1
BL3
BL3|GA2
CW2
LS5
0
50
100 m


Legend
Survey Extent - CFRAM Options
Survey Extent - Additional Areas
Habitats
FW1
GA1
GA2
GS2
WD1
WS1
WL1|WL2
BL3
BL3|GA2
CW2
LS4
LS5
0
50
100 m


Legend
Survey Extent - CFRAM Options
Survey Extent - Additional Areas
Habitats
FW1
GA1
GA2
WD1
WL1|WL2
BL3
BL3|GA2
0
50
100 m

# Appendix D – Settlement Framework Map for Ramelton

The figure overleaf is the Settlement Framework map for Ramelton, reproduced from the County Donegal Development Plan 2018- 2024 (Donegal County Council, 2018), listed as Map 15.20.

**Draft County Donegal Development Plan 2018 - 2024**

**Dréacht Plean Forbartha Contae Dhún na nGall 2018 - 2024**

Layer 2B - Map 15.20
Sraith 2B - Léarscáil 15.20

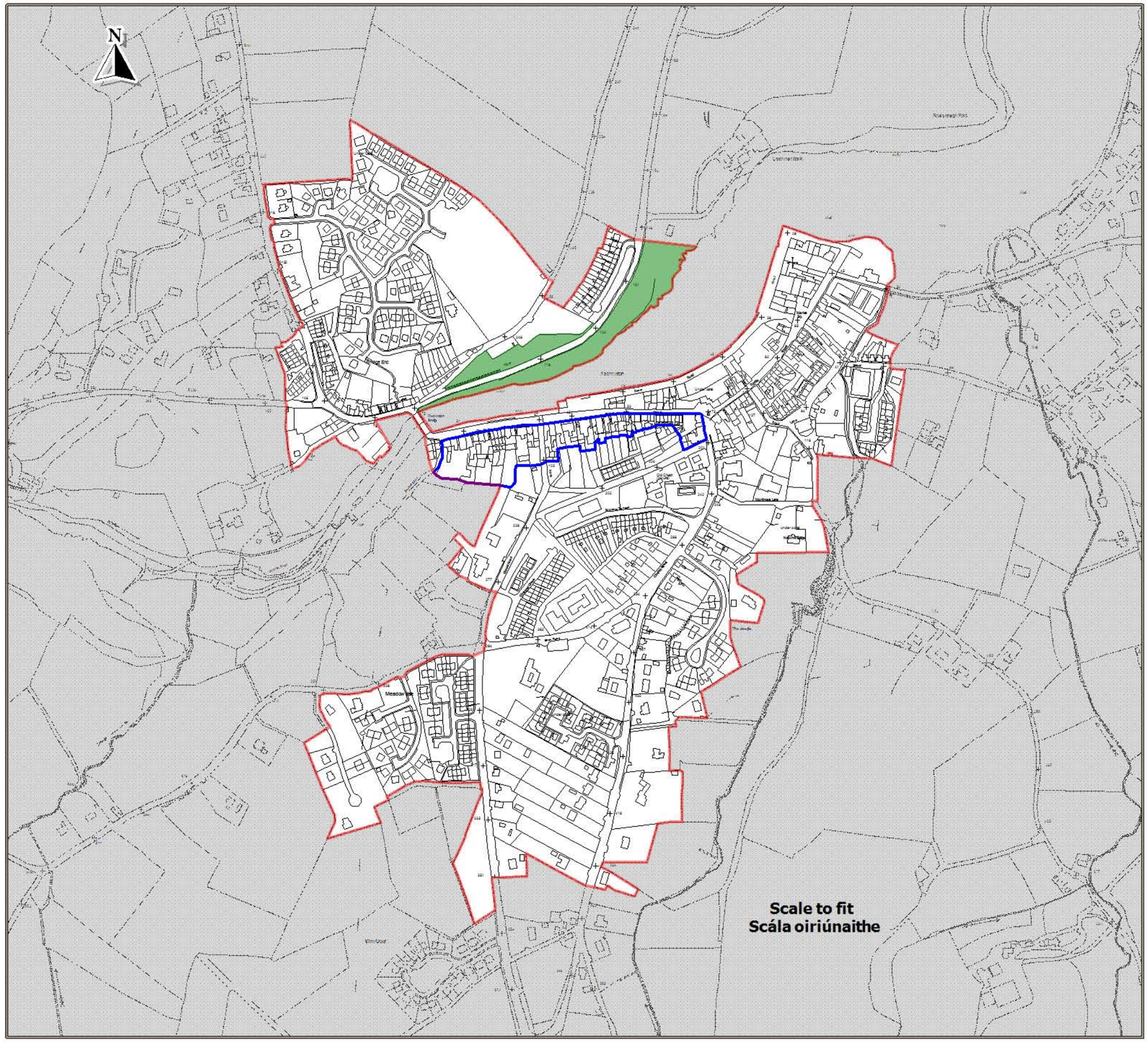
# Ramelton
# Ráth Mealtain

**Settlement Framework**
**Creatlach Lonnaíochta**

Settlement Envelopes
Imchlúdaigh Lonnaíochta

Town Centre
Lár an Bhaile

Amenity Areas
Limistéir Thaitneamhachta




Source - Donegal County Council
Foinse - Comhairle Chontae Dhún na nGall



To be read in conjunction with relevant accompanying text contained in the front section of this appendix as well as other relevant objectives & policies of the CDP.
Le Léamh i gcomhar leis an téacs ábhartha tionlacain atá chun tosaigh sa chuid seo den aguisín chomh maith le cuspóirí agus beartais ábhartha eile sa PFC.

# Appendix E – County Donegal Development Plan 2018-2024: policies associated with landscape

This appendix does not contain a fully comprehensive list of policies stated in the County Donegal Development Plan 2018-2024 related to landscape and the reader is directed to that document should further information be required. Text in italic within this appendix is reproduced from County Donegal Development Plan 2018-2024.

**Natural Heritage policies outlined in Donegal County Development Plan where landscape is a consideration are as follows:**

*NH-P-1: It is a policy of the Council to ensure that development proposals do not damage or destroy any sites of international or national importance, designated for their wildlife/habitat significance in accordance with European and National legislation including: SACs, Special SPAs, NHAs, Ramsar Sites and Statutory Nature Reserves.*

*NH-P-5: It is a policy of the Council to require consideration of the impact of potential development on habitats of natural value that are key features of the County's ecological network and to incorporate appropriate mitigating biodiversity measures into development proposals.*

*NH-P-6: It is a policy of the Council to protect areas identified as Especially High Scenic Amenity on Map* [therein]*:'Scenic Amenity'. Within these areas, only developments assessed to be of strategic importance or developments that are provided for by policy elsewhere in this Plan shall be considered.*

*NH-P-7: Within areas of 'High Scenic Amenity' (HSC) and 'Moderate Scenic Amenity' (MSC) as identified* [in maps therein]*: 'Scenic Amenity', and subject to the other objectives and policies of this Plan, it is the policy of the Council to facilitate development of a nature, location and scale that allows the development to integrate within and reflect the character and amenity designation of the landscape.*

*NH-P-8: It is the policy of the Council to safeguard the scenic context, cultural landscape significance, and recreational and environmental amenities of the County's coastline from inappropriate development.*

*NH-P-9: It is the policy of the Council to manage the local landscape and natural environment, including the seascape, by ensuring any new developments do not detrimentally impact on the character, integrity, distinctiveness or scenic value of the area.*

*NH-P-10: It is a policy of the Council to retain and protect significant stands of existing trees/hedgerows/woodlands, and seek increased planting of native trees where appropriate in new developments.*

*NH-P-11: It is a policy of the Council to seek the protection of stone wall boundaries where they are shown to play a significant heritage role. Where the demolition of such stone walls is unavoidable, the reinstatement of stone walls at revised location/set back within the site using agreed local materials and techniques, will be required.*

*NH-P-12: It is a policy of the Council to protect the integrity of the Shore Walks from Moville to Greencastle, Bundoran to Tullaghan, Buncrana to Stragill and the walkway encircling Trusk Lough*

*and Ballybofey by the management of development that would intrude upon or inhibit the amenities of those walks and surrounding areas.*

*NH-P-13: It is a policy of the Council to protect, conserve and manage landscapes having regard to the nature of the proposed development and the degree to which it can be accommodated into the receiving landscape. In this regard the proposal must be considered in the context of the landscape classifications, and views and prospects contained within this Plan and as illustrated on Map* [therein]*: 'Scenic Amenity'.*

*NH-P-14: It is a policy of the Council to protect the character of the following approach roads to Glenveagh National Park:*

- *Glendowan to Doochary Road.*
- *Dunlewey to Termon Road.*
- *Churchill to Termon/Dunlewy Road.*
- *Muckish Gap to Cabiber Bridge.*

*NH-P-15: It is a policy of the Council to safeguard prominent skylines and ridgelines from inappropriate development.*

*NH-P-16: It is a policy of the Council to protect and enhance the landscape character, culture and heritage of the Islands whilst facilitating appropriate development. All development must be considered in the context of the landscape classification contained within this Plan and as illustrated on* [therein]: *Scenic Amenity.*

*NH-P-17: It is a policy of the Council to seek to preserve the views and prospects of special amenity value and interest, in particular, views between public roads and the sea, lakes and rivers. In this regard, development proposals situated on lands between the road and the sea, lakes or rivers shall be considered on the basis of the following criteria:*

- *Importance value of the view in question.*
- *Whether the integrity of the view has been affected to date by existing development.*
- *Whether the development would intrude significantly on the view.*
- *Whether the development would materially alter the view. In operating the policy, a reasonable and balanced approach shall be implemented so as to ensure that the policy does not act as a blanket ban on developments between the road and the sea, lakes and rivers.*

*NH-P-19: It is a policy of the Council to protect County Geological Sites (CGS) through a precautionary approach to development proposals with the potential to impact upon a CGS. Proposals should be accompanied by a detailed report from a competent person setting out the potential impact to ensure that an informed decision can be made. Where significant harm to the CGS is deemed likely, planning permission will not be granted unless there are overriding considerations of public importance to the County.*

*NH-P-20: It is the policy of the Council to ensure the protection of Cró na mBraonáin habitats and Grouse sanctuary given its high concentration of Red Grouse and its importance to the national Red Grouse population, which is a protected species under the EU Birds Directive.*

**Build heritage policies outlined in Donegal County Development Plan where landscape is either directly or indirectly a consideration are as follows:**

*BH-P-1: It is a Policy of the Council to conserve and protect all structures (or parts of structures) and sites contained in the Record of Protected Structures that are of special architectural, historic, archaeological, artistic, cultural, scientific, social or technical interest.*

*BH-P-2: It is a policy of the Council to review the RPS on an ongoing basis, and to add structures (or parts of structures) of special interest, including, those recommended by the Minister through the NIAH Survey of Donegal or other buildings which the Council consider to have special interest.*

*BH-P-3: It is a policy of the Council to ensure retention of vernacular and/or historic structures (and parts of structures), including their functional and decorative details, that are sensitive to traditional construction methods and materials and do not have a detrimental impact on the character or appearance of a structure and are in accordance with current conservation guidelines and best practice.*

*BH-P-4: It is a policy of the Council to ensure the repair, reuse and appropriate refurbishment of vernacular and/or historic buildings, which make a positive contribution to the built heritage of the area including those as referred to on the National Inventory of Architectural Heritage.*

*BH-P-5: It is a policy of the Council to protect and preserve vernacular and/or historic industrial and maritime buildings. Proposals for restoration or adaptive re-use should be facilitated subject to a full architectural assessment.*

*BH-P-6: It is a policy of the Council to ensure, where appropriate, measures to extend, modify or materially alter the fabric of vernacular and/or historic buildings are sensitive to traditional construction methods and materials and craftsmanship and do not have a detrimental impact on the character or appearance of a structure.*

*BH-P-7: It is a policy of the Council to promote and retain building fabric such as lime mortar, slate, thatch, timber windows, rendering and joinery and the reinstatement of such will be encouraged.*

*BH-P-8: It is a policy of the Council to facilitate appropriate and high quality design solutions including considerations of scale, proportion, detailing and material specification for development proposals affecting vernacular and/or historic buildings in both urban and rural settings.*

*BH-P-9: It is a policy of the Council to conserve and enhance the quality, character and distinctiveness of towns and streetscapes in the County, including street layouts, historic structures, building lines, traditional plot widths, signage and historical street furniture as well as the character of the area.*

*BH-P-10: It is a policy of the Council to ensure the retention of historic shop fronts, pub fronts and traditional (hand-painted) signage as part of the streetscape of towns and villages and roads of both urban and rural Donegal.*

*BH-P-11: It is a policy of the Council to ensure proposals on the Islands will conserve and/or enhance the intrinsic character, scale and visual amenity of the architectural heritage respecting the character of existing buildings, important views and spaces and the historic settlement pattern in terms of scale, height, grouping, density, design, materials, traditional building techniques and workmanship.*

*BH-P-12: It is a policy of the Council to ensure the sensitive design, siting and rationalisation of modern street furniture and elements such as lighting, seats and benches, litter boxes, bollards, railings, street signs, post boxes, telephone kiosks, paving, kerbstones, utility boxes, cables, posts, antenna, statues, plaques and other monuments, which will visually integrate with their host locations.*

*BH-P-13: It is a policy of the Council to identify and promote the re-use of traditional building clusters/groupings in both rural and urban settings which add to the unique and specific value of a given landscape character.*

*BH-P-14: It is a policy of the Council to continue to protect the built heritage fabric of the County by identifying appropriate Architectural Conservation Area designations.*

*BH-P-15: It is a policy of the Council to preserve, protect and enhance the special built character and functions of the 'Heritage Towns' of Ardara, Ballyshannon, Moville, Ramelton and Raphoe.*

*BH-P-16: It is a policy of the Council to carry out village design statements for its five 'Heritage towns' to contribute to a greater understanding of these townscapes resources of the County and plan for future appropriate development.*

*BH-P-17: It is a policy of the Council to require that any historic structures that have to be demolished or significantly altered are photographed and recorded (including scaled drawings) to agreed professional standards.*

*BH-P-18: It is a policy of the Council to preserve the integrity of Historic Gardens and Designed Landscape sites in County Donegal identified in the National Inventory of Architectural Heritage (www.buidingsofireland.ie/Surveys/Gardens/).*

**Community Culture and The Gaeltacht policies outlined in Donegal County Development Plan where landscape is a consideration are as follows:**

*CCG-O7: To promote, protect, harness and sustainably develop the Culture of Donegal by inter alia:*

- *Implementing the Capital Programme/Infrastructural Plan of the Cultural services strategy 2016-2020 and any subsequent related capital programme/infrastructural plan.*
- *Supporting the public arts programme of the Council.*

- *Engaging with local communities to harness the cultural and creative resource of the county.*
- *Promoting the cultural and creative sector as an integral part of a sustainable tourism sector including the cultural tourism product associated with the Wild Atlantic Way and cultural tourism products associated with the history, geography, folk traditions and language and musical tradition of Donegal.*
- *Recognising and protecting the landscape and built heritage of Donegal as key elements of our culture.*
- *Nurturing and harnessing the cultural and creative resource of the Donegal Islands.*
- *Engaging with the cultural and creative resource that of the worldwide Donegal Diaspora and Donegal's new communities.*
- *Promoting the artistic sector including: visual arts, performance arts, literature, and contemporary arts including the reuse and redevelopment of vacant and derelict buildings for the arts sector.*

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