Natura Impact Statement

Manorhamilton fire station,
Co. Leitrim

Report produced by Woodrow Sustainable Solutions Ltd.
On behalf of Leitrim County Council

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STATEMENT OF AUTHORITY

Woodrow Sustainable Solutions Ltd (Woodrow) is an established and accomplished environmental consultancy committed to delivering robust ecological assessment services for clients in the private and public sectors. Woodrow provides an in-house team of ecologists and environmental professionals whose primary specialisms include botany, habitats, birds, bats, mammals, invertebrates and aquatic ecology. Woodrow's investment in high-technology field equipment and software, and the development of our own field-data collection app (Eco-Log), ensures reliability and confidence in our work. Woodrow staff are fully conversant with wildlife legislation in both Ireland and the UK, and work to exacting standards, according to established guidelines issued by the Chartered Institute of Ecology and Environmental Management (CIEEM). All the ecological surveys were undertaken by appropriately experienced surveyors. The information in this Natura Impact Statement (NIS) comprises tabular and graphic information based on the relevant desk-based information and is supported by ecological surveys undertaken at the proposed development site by Woodrow Sustainable Solutions Ltd.

This NIS has been approved by Patrick Quinn. Patrick is a senior Ecologist with Woodrow Sustainable Solutions Ltd with over 5 years' experience in ecological consulting. He has a significant level of experience in aquatic ecology and monitoring include water treatment plants and water scheme infrastructure projects that require ecological supervision throughout. Patrick is an Associate member of the Chartered Institute of Ecology and Environmental Management and also the Institute of Fisheries Management.

This report is written by Fionn Murphy. Fionn is a senior ecologist with Woodrow Sustainable Solutions Ltd ('Woodrow'). He holds a B.Sc. in environmental science and a M.Sc. in environmental science from the Universities of Copenhagen and Hohenheim (double degree). He is an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Fionn has a broad range of ecological experience having worked in a variety of consulting and research roles in Ireland, Denmark and Germany. He has authored reports and managed projects for numerous different developments including for forestry, recreation, infrastructure and wind energy developments.

Patrick Quinn – Qualifications:

B. Sc. (Hons) Environmental Science, Institute of Technology, Sligo, 2015.
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MSc – Environmental Science, University of Copenhagen & University of Hohenheim, 2017. BSc – Environmental Science, National University of Galway Ireland, 2012.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Background

Woodrow Sustainable Solutions Ltd. (Woodrow) was engaged on behalf of the applicant – Leitrim County Council – to prepare a Natura Impact Statement (NIS) for the proposed development of a fire station in Manorhamilton, Co. Leitrim. The proposed development is for the construction and operation of this facility.

The intention of this NIS is to determine, in view of best scientific knowledge, applying the precautionary principle, and in light of the conservation objectives of the relevant Natura 2000 sites, whether the proposed development, either alone or in combination with other plans or projects, may adversely affect the integrity of any Natura 2000 sites. Natura 2000 sites, also known as European Sites, are Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

The legal basis on which SACs are selected and designated is the EU Habitats Directive, transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended. SACs are designated for the protection of certain habitats and species under the Habitats Directive. Ireland is required under the terms of the EU Birds Directive (2009/147/EC) to designate SPAs for the protection of endangered species of wild birds. This includes certain listed rare and vulnerable species, regularly occurring migratory species, such as ducks, geese and waders, and wetlands, especially those of international importance, which attract large numbers of migratory birds each year.

This report provides information which can be used to assist the Competent Authority in applying Article 6(3) and 6(4) of the Habitats Directive[1] as necessary, under their roles, functions and responsibilities in relation to the Appropriate Assessment of plans or projects.

The legislative context of the requirement to undertake Appropriate Assessment is outlined in the following sections.

1.2 Legislative context

1.2.1 Requirement for Appropriate Assessment Screening

An Appropriate Assessment Screening provides the information necessary to fulfil the requirements of Article 6 of the EU Habitats Directive 1992 and Regulation 42 of the (Birds and Natural Habitats) Regulations 2011 in determining the potential impacts on Natura 2000 Sites of the proposal. The European Directive 92/43/EEC (The Habitats Directive) was transposed into Irish law by the European Communities (Natural Habitats) Regulations 1997 and European Communities (Birds and Natural Habitats) Regulations 2011 (Habitats Regulations). Regulation 42(1) of the 2011 Regulations requires that:

> *"A Screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which*

[1] Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, as amended by Council Directive 97/62/EC. Available at: http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm [Accessed November 2021]

is not directly connected with or necessary to the management of the Site as a Natura 2000 Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the Site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the Natura 2000 Site".

Case law[2] has required that measures which are *intended to avoid or reduce* the harmful effects of the proposed development on any relevant Natura 2000 site, i.e., specific mitigation, cannot be considered at the screening stage of the Appropriate Assessment process and where this arises, the plan or project must be assessed fully.

If, following the screening process, a likely significant effect is predicted or cannot be ruled out; under Regulation 42(6), an Appropriate Assessment is required in order to determine the potential for impact on the integrity of a Natura 2000 site. In the event of a negative assessment in terms of an adverse effect on Site integrity, a proposal can only be consented in the absence of feasible alternatives and for 'Imperative Reasons of Overriding Public Interest' (IROPI). In such cases, compensatory measures to ensure the integrity of the Natura 2000 Site is maintained, are required. The Guidance document on Article 6(4) of the 'Habitats Directive' states that:

"Any uncertainty over the precise nature and/or magnitude of the adverse effects should be thoroughly tested. Where appropriate, a precautionary approach should be adopted and the assessment of adverse effect based on a worse-case scenario."[3]

1.2.2 Requirement for a Natura Impact Statement

The Appropriate Assessment test assesses whether, in view of the best scientific knowledge and applying the precautionary principle, and in light of the conservation objectives of the relevant Natura 2000 sites, the proposed project, either alone or in combination with other plans or projects, may adversely affect the integrity of any Natura 2000 sites.

If, following the screening process, a potential significant effect is predicted or cannot be ruled out, under Regulation 42(6) an Appropriate Assessment is required in order to determine the potential for impact on integrity of a Natura 2000 site.

Regulation 42(9) of the 2011 Habitats Regulations states:

Where a public authority is required to conduct an Appropriate Assessment pursuant to paragraph (6) in relation to a plan or project that it proposes to undertake or adopt, it shall:

- Prepare a Natura Impact Statement (NIS);
- Compile any other evidence including, but not limited to, scientific evidence that is required for the purposes of the Appropriate Assessment; and,
- Submit a Natura Impact Statement together with evidence compiled under *subparagraph (b)* to the Minister not later than six weeks before it proposes to adopt or undertake the plan or project to which the Natura Impact Statement and evidence relates.

[2] People Over Wind and Peter Sweetman v Coillte Teoranta (C-323/17); and, Heather Hill Management Company clg v An Bord Pleanála [2019] IEHC 450.

[3] European Commission (2007) Available at: http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf [Accessed November 2021].

Section 177AE of the Planning and Development Acts 2000 to 2001 (as inserted by section 57 of the Planning and Development (Amendment) Act 2010) sets out the appropriate procedure for Local Authority projects with potential to impact on Natura 2000 Sites. This requires that, where an Appropriate Assessment is required in respect of a development by a local authority that is a planning authority, they will prepare, or cause to be prepared, a Natura Impact Statement. The Natura Impact Statement shall then be provided to *An Bord Pleanála* for them to undertake an Appropriate Assessment.

With the Screening for Appropriate Assessment having determined that potential significant effects on Natura 2000 Sites could not be ruled out (see Section 3 of this report), a Natura Impact Statement is required under Regulation 42(9) of the European Communities (Birds and Natural habitats) Regulations 2011. This Natura Impact Statement provides an assessment of the proposal considering potential impacts on Qualifying Interests within Natura 2000 Sites and provides mitigation proposals to avoid impacts on the integrity of Natura 2000 Sites. This allows for an audit trail through Article 6 of the EU Habitats Directive to facilitate an Appropriate Assessment by a competent authority.

1.2.3 Structure/ layout of the report

This Natura Impact Statement provides the information necessary for the Competent Authority, to undertake an Appropriate Assessment of the proposed development. The report sections, paragraphs and tables relate in sequence to the process of assessing the potential impact of the project in the context of sequential requirements of Article 6 of the EU Habitats Directive.

1.2.4 Main sources of information

The following guidance documents and sources of information were consulted:

- Department of Environment, Heritage and Local Government (DoEHLG, 2010 rev.). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities;
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 & PSSP 2/10;
- European Community Habitats Directive (92/43/EEC) – The Habitats Directive (European Commission 1992);
- European Commission (2021) Commission Notice - Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
- European Commission (2021) ANNEX to the Commission Notice - Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
- European Communities (Natural Habitats) Regulations 1997 (European Commission 1997);
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (EC Environment Directorate-General, 2000);
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (EC, 2018);
- Office of the Planning Regulator (OPR) (2021) OPR Practice Note PN01 Appropriate Assessment Screening for Development Management;
- European Community Habitats Directive (92/43/EEC) – The Habitats Directive;

- Environmental Protection Agency (EPA) Maps[4];
- National Parks and Wildlife Services online MapViewer[5];
- National Parks and Wildlife Service's data (downloaded GIS datafiles)[6];
- To review other planning applications in Co. Leitrim – Leitrim CoCo Planning Viewer[7]; *and*,
- Leitrim County Development Plan (2015-2023)[8].

2. SITE DESCRIPTION & FEATURES OF THE PROPOSED DEVELOPMENT

2.1 Location

The proposed development is situated to the west of Manorhamilton town on the N16. **Figure 1** shows the location of the development boundary. The site lies within 116m of nearby Bonet River and is almost entirely situated within Lough Gill SAC. The site slopes towards the north west at a gradient of 1:26.

2.2 Description of proposed development

The proposed fire Station is to house 2no. fire appliances and approximately 11-13 staff members. The design has been refined to ensure accommodation is efficient and economically sized.

The proposed building is two storey, with a butterfly roof. The accommodation sits to both sides of a double height garage space. The current height of the proposed building is c.8.0m tall at the tallest point.

The proposed development is displayed in **Figure 2**. An asphalt surface is to be provided to the car park and drill yard with a metal security fence bounding the drill yard. The site will contain an attenuation lagoon to collect surface water runoff from the site. The green areas are proposed to be sown with tall wild grasses for screening and environmental purposes.

[4] EPA Maps. Available at: https://gis.epa.ie/EPAMaps/ [Accessed November 2021].

[5] NPWS Map Viewer. Available at: http://webgis.npws.ie/npwsviewer/ [Accessed November 2021)

[6] NPWS Maps and Data. Available at: https://www.npws.ie/maps-and-data [Accessed November 2021].

[7] Leitrim CoCo planning viewer http://www.leitrimcoco.ie/eng/Contact_Us/Online-Maps/ [Accessed November 2021].

[8] Leitrim County Development Plan (2023-2029). Available at: http://leitrimcoco.ie/eng/news/new_slider/leitrim-county-development-plan-2023-2029.71652.shortcut.html [Accessed May 2023]

Figure 1. Proposed development site for Manorhamilton fire station

Figure 2. Proposed layout. Rhatigan architects, Scale 1:250

2.2.1 Construction Phase

The proposed construction works will be broadly divided into 5 separate phases.

1. Establishment of site compound.
   This will take place adjacent to the existing gate to the northeast of the of site and will act as a construction access point. Works will consist of site clearance and the erection of temporary fencing and site huts. The process, which will involve site clearing machinery and personnel vehicles is expected to last a duration of 2 weeks.

2. Site clearance (building location).
   This stage will involve site clearing machinery and is expected to last for a period of 4 weeks.

3. Establishment of site drainage network.
   This will involve the use of diggers and the laying of piping and filling material, expected to last over a period of 4 weeks.

4. Building construction.
   This stage is expected to last a duration of 9 months and will include several distinct steps, involving the following machinery and materials;
   - Excavations- Excavation machinery. Materials: fill
   - Foundations- Excavation machinery, concrete trucks. Materials: fill and concrete
   - Floor slab, block and steelwork- Concrete trucks, material delivery vehicles, scaffolding and crane. Materials: Fill, concrete, insulation, membranes, steel and blockwork
   - External Façade, weathering and roof. Material delivery vehicles, scaffolding and crane. Materials: Cladding, roofing, insulation, windows and doors.
   - Internal works and mechanical and electrical (M&E). Material delivery vehicles and internal scaffolding. Materials: Partitions, finishes and M&E

5. Site completion works- establishment of carpark, drill tower and fencing.
   This stage will involve the material delivery vehicles, a tarmac truck and roller. Material will include fill, concrete, tarmac and fencing line marking. The expected duration of this stage is 1 month.

2.2.2 Operational Phase

Site Drainage

Storm drainage from the site will run to the proposed attenuation lagoon, where solids will be allowed to settle before the water is passed through a petrol interceptor in order to remove potential hydrocarbons before it is discharged to the existing roadside drain.

Foul drainage from the site is transported to the adjacent waste water treatment plant via the on-site pump station (**Figure 3**).

Runoff from wash bay and yard services is gathered in a grit sump (Klargester Grit Sump W1 040) and enters a washdown interceptor (Kingspan Interceptor NSFP 003) and then

discharges into foul sewer which discharges to the pump station and on to the public wastewater treatment plant.

Chemical and hydrocarbon storage

The proposed fire station will follow standard practices for storage at Irish fire stations and consist of:

- Kerosene (for boiler)
- Diesel (fuel in the fire appliance and 4 x 4 vehicle)
- Petrol (Relatively small quantities for fuelling small plant for e.g., chainsaws, generators, power pack units for hydraulic cutting equipment, power washer.)
- Domestic cleaning products (Domestos, Flash, washing up liquid, hand sanitisers, Milton etc.)
- Industrial spillage absorbent granules approx. 30- 40 kept in stock (10 kg bags)
- Fire extinguishing agent approx. 30 drums kept in stock (20 litre drums on bunded crate)

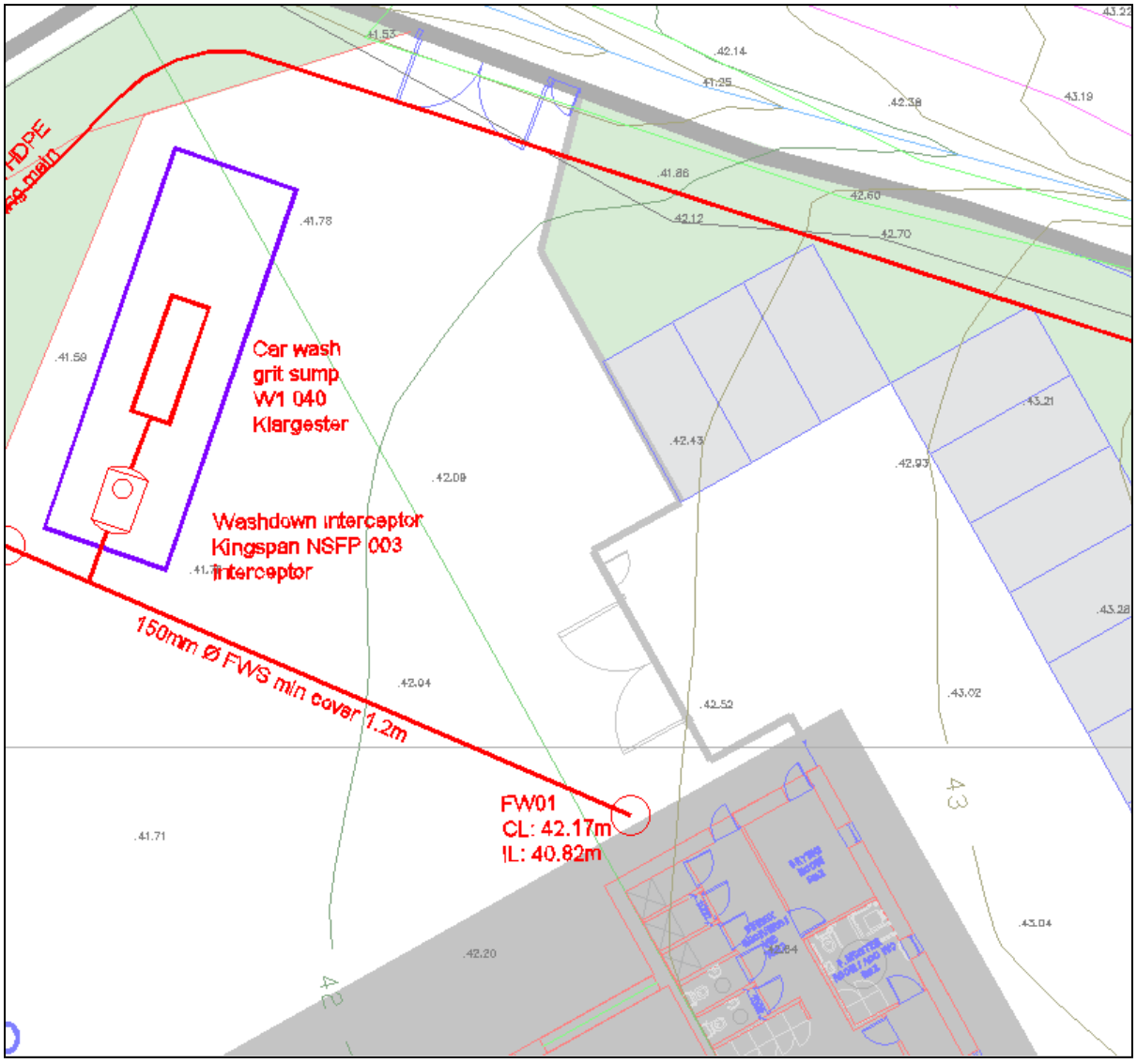

Figure 3. Proposed foul drainage system

2.3 Field surveys & assessment methodology

2.3.1 Desk study

Prior to the commencement of ecological surveys for the proposed development a desktop scoping exercise was conducted to determine the occurrence of Natura 2000 sites in the area surrounding proposed development. This identified any species and habitats listed as Qualifying Interests (QI) for designated sites and facilitated a targeted approach to conducting ecological surveying to inform the Appropriate Assessment (AA) process.

Desk-based studies and field surveys for AA focused on determining connectivity (source-receptor pathways) between the proposed development and Natura 2000 sites by investigating the occurrence and distribution of:

- Habitat types listed in Annex I of the Habitats Directive
- Species of animal and plants listed in Annex II and/or IV of the Habitats Directive
- Species of bird listed in Annex I of the Birds Directive

As part of site scoping, a preliminary screening for Appropriate Assessment was undertaken.

As outlined in DoEHLG (2010)[9] guidelines (based on review by Scott Wilson *et al*., 2006)[10], potential for source-receptor connectivity between the proposed development site and Natura 2000 sites within 15 km of the proposed development site were initially considered. The 15 km is an arbitrary distance within which the initial desktop search was undertaken; in some cases, the zone of influence of a proposal may be much shorter depending on the ecological feature being considered, or it could occasionally extend significantly beyond this distance, for example where there is hydrological connectivity to a designated site via a river network.

Primary sources of information for the desktop study included:

- Site layout plans and drawings provided by Rhatigan Architects
- Orth-imagery and 6-inch mapping was viewed using Bing Maps, Google Earth Pro, Google Maps, Ordnance Survey Ireland – GeoHive.
- National Parks & Wildlife Service - NPWS Designations Viewer[11] was used to identify the location of sites designated for nature conservation, specifically Natura 2000 sites (SPA & SAC). Shapefiles and metadata for designated sites have been downloaded and are updated annually for use by Woodrow ecologists on local GIS.
- Environmental Protection Agency - EPA Maps[12] provide an online mapviewer which was used to investigate hydrological connectivity to sites designated for nature conservation, aquifer vulnerability and groundwater vulnerability.
- National Parks & Wildlife Service site synopsises for Natura 2000 Sites.

9 Department of Environment, Heritage and Local Government (2010) Appropriate Assessment of Plans and Projects in Ireland – Guidance for Local Authorities

10 Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants & Land Use Consultants. (2006). *Appropriate Assessment of Plans*.

11 NPWS Designation Viewer - Available at: http://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba Accessed November 2021

12 EPA Maps – Available at: EPA Maps Accessed November 2021

2.3.2 Field surveys

Field surveys were carried out on the 28th September 2021. Potential connectivity with other European sites was assessed, as was the potential for the occurrence of QI habitats and species. Furthermore, the presence or apparent absence of Invasive Alien Species (IAS) was recorded. Particular emphasis was placed upon the qualifying interests of Lough Gill SAC, given that the proposed development area lies within the bounds of this Natura 2000 site. The resulted in the following surveys being undertaken, following best practice;

- Otter survey following Smal (2008),
- Habitat survey following Fossitt (2000),
- Suitability for salmonids following; 'The Evaluation of habitat for Salmon and Trout' (DANI Advisory leaflet No. 1) to assess habitat suitability for salmonids[13],
- Suitability for lamprey Species following guidance by Maitland (2003),
- Suitability for white-clawed crayfish following Reynolds *et al.* (2010), and
- IAS surveys

3. SCREENING FOR APPROPRIATE ASSESSMENT

European Directive 92/43/EEC (The Habitats Directive) requires that any plans or projects that could, alone or in combination with other plans or projects, affect a Natura 2000 site, be subject to screening for potential significant effect on any Natura 2000 site.

3.1 Overview of the screening process

According to the NPWS (2009, as amended in 2010), the Appropriate Assessment Screening exercise can result in the following possible conclusions or outcomes:

- Appropriate Assessment is not required: The proposed development is directly connected with or necessary to the nature conservation objectives of the site.
- Appropriate Assessment is not required: Screening establishes that there is no potential for significant effects on a Natura 2000 site (subject to any further changes to the proposed development)
- Significant effects are likely, or it is uncertain as to whether or not they are likely. Permission must be refused unless the proposed development is subject to Appropriate Assessment.

- Alternatively, the Screening process may recommence on the basis of modified plans.

3.2 Zone of Influence (ZoI)

The following section provides information on the European Sites in the vicinity of the Proposed Development which have the potential to be within the zone of influence of the proposal (all European Sites within 15km of the Proposed Development are shown in **Figure 4**).

The potential impacts on designated sites are dependent on the location, topography and environment at the development site, the nature of impacts arising, the sensitivity of receptors and the causal links and conduits, rather than simply the distance. In many cases the

[13] https://www.daera-ni.gov.uk/publications/evaluation-habitat-salmon-and-trout-advisory-leaflet (Accessed 23/11/21)

potential zone of influence could be considerably less than 15km (for example noise and airborne pollution) while the potential zone of influence could be greater than 15km, for example if there is a significant and direct hydrological pathway e.g., a main river which flows directly into a European Site; or if a QI / SCI species ranges over areas which are greater than 15km from a European Site for which they are a listed feature of interest.

The Steps to follow when identifying which European Site(s) may be affected by a plan or project are available from the European Commission Guidance (2021) *Commission Notice - Assessment of plans and projects in relation to Natura 2000 sites - Methodological*

guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. In particular, the assessment should identify:

- *Any Natura 2000 sites geographically overlapping with any of the actions or aspects of the plan or project in any of its phases, or adjacent to them;*
- *Any Natura 2000 sites within the likely zone of influence of the plan or project. Natura 2000 sites located in the surroundings of the plan or project (or at some distance) that could still be indirectly affected by aspects of the project, including as regards the use of natural resources (e.g., water) and various types of waste, discharge or emissions of substances or energy;*
- *Natura 2000 sites in the surroundings of the plan or project (or at some distance) which host fauna that can move to the project area and then suffer mortality or other impacts (e.g., loss of feeding areas, reduction of home range);* and,
- *Natura 2000 sites whose connectivity or ecological continuity can be affected by the plan or project.*

European Sites with potential pathways for impacts are identified in order to establish the zone of influence of the proposal. These can then be assessed based on factors such as proximity to the proposed works, the Qualifying Interests (QIs) / Special Conservation Interests (SCIs) of the European Sites (and the species or habitats upon which these rely), and their conservation status. Further information on this is also available within the Office of the Planning Regulator (OPR) (2021) *OPR Practice Note PN01 Appropriate Assessment Screening for Development Management.*

On consideration of the scale, design and location of these works, the Zone of Influence of this proposal is not considered to be greater than 1km, and potentially less.

European Sites within the 15km potential zone of influence are shown in **Table 1** below. **Figure 4** illustrates the proximity of the proposed development to these European Sites.

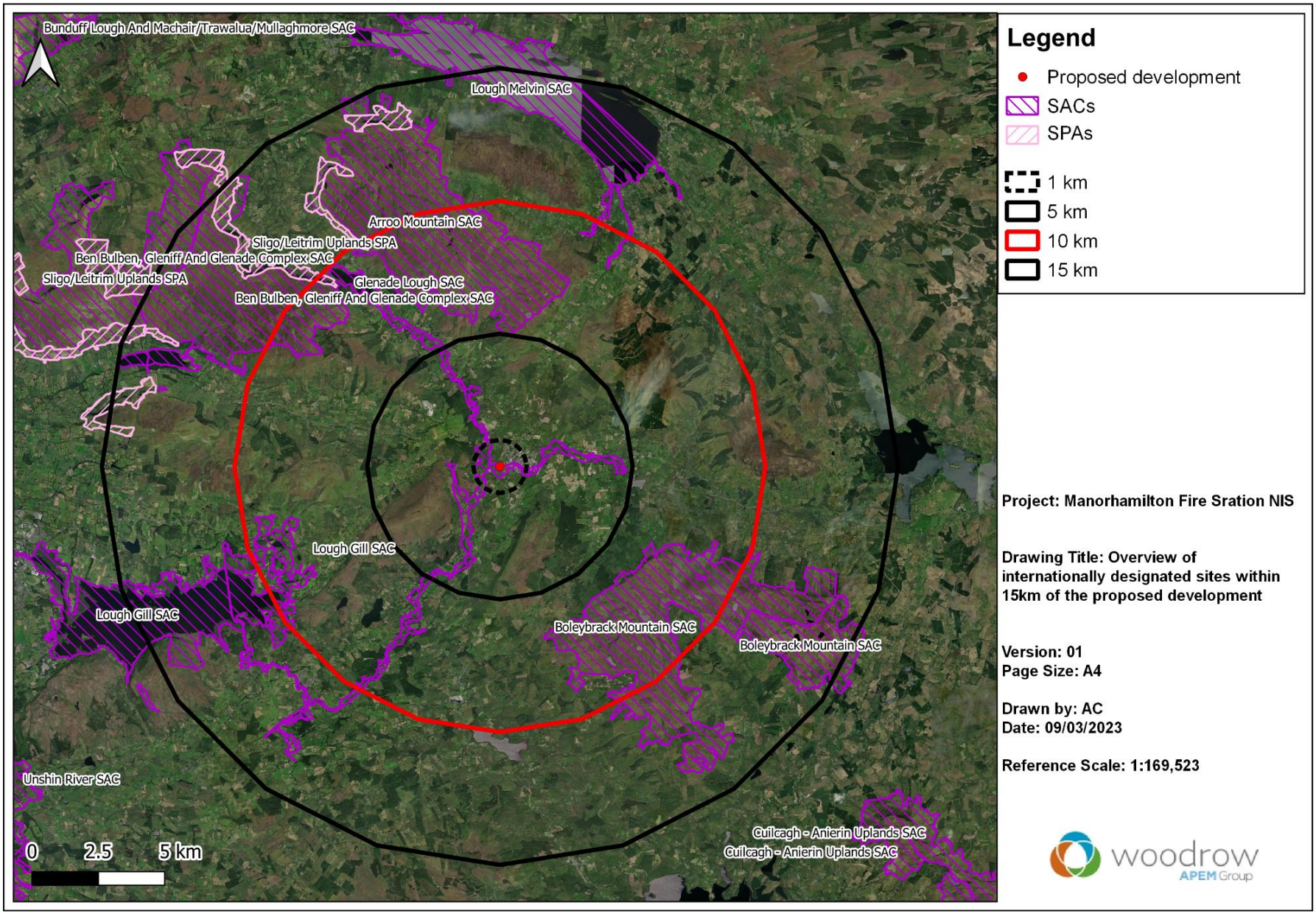

Figure 4. European Sites within 15km of the Proposed Development

Table 1. Designated sites with potential connectivity to the proposed development

Natura 2000 Site	Main features of interest ***= A priority habitat – habitats which are in danger of disappearing within the EU territory, are highlighted with an asterisk***	Distance from the proposal	Potential Site- Pathway-Receptor Linkage via proximity of site, and/or surface water connectivity?[14]
Lough Gill SAC (NPWS, 2021a)	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] *Austropotamobius pallipes* (White-clawed Crayfish) [1092] *Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra planeri* (Brook Lamprey) [1096] *Lampetra fluviatilis* (River Lamprey) [1099] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355	*0 km*	**Yes,** site both lies within the SAC and shares potential hydrological connectivity with the Bonet River via local drainage ditches. There is considered to be potential for significant effects.
Aroo Mountain SAC (NPWS, 2016)	Northern Atlantic wet heaths with *Erica tetralix* [4010] European dry heaths [4030] Alpine and Boreal heaths [4060] Blanket bogs (* if active bog) [7130]	*ca. 5*km	**No.** While there is hydrological connectivity of *ca*. 8.5km, the proposed area of works lies downstream of the European site. Hence there will not be a deterioration in water quality of this designated site. Given the non-mobile nature of QIs designated for this site, there is not considered to be a source receptor pathway. There is no potential for significant effects

[14] EPA Maps https://gis.epa.ie/EPAMaps/ provides online mapping for rivers, streams, flow direction arrows, ground water vulnerability layers and designated sites for Ireland and parts Northern Ireland etc. – This website was used to assess the potential for connectivity of watercourses and ground water from the proposal to Natura 2000 sites.

Natura 2000 Site	Main features of interest **** = A priority habitat – habitats which are in danger of disappearing within the EU territory, are highlighted with an asterisk***	Distance from the proposal	Potential Site- Pathway-Receptor Linkage via proximity of site, and/or surface water connectivity?[14]
	Petrifying springs with tufa formation (Cratoneurion) [7220] Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*) [8120] Calcareous rocky slopes with chasmophytic vegetation [8210]		
Boleybrack mountain SAC (NPWS, 2016a)	Natural dystrophic lakes and ponds [3160] Northern Atlantic wet heaths with *Erica tetralix* [4010] European dry heaths [4030] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] Blanket bogs (* if active bog) [7130	*ca.*6.1km	**No.** While there is hydrological connectivity of *ca.* 11.9km, the proposed area of works lies downstream of the European site. Hence there will not be a deterioration in water quality of this designated site. Given the non-mobile nature of QIs designated for this site, there is not considered to be a source receptor pathway. There is no potential for significant effects
Ben Bulben, Gleniff and Glenade Complex SAC (NPWS, 2021)	Water courses of plain to montane levels with the *Ranunculion fluitantis* and Callitricho-Batrachion vegetation [3260] Northern Atlantic wet heaths with *Erica tetralix* [4010] European dry heaths [4030] Alpine and Boreal heaths [4060] *Juniperus communis* formations on heaths or calcareous grasslands [5130] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]	*ca.* 7.9km	**No.** While there is hydrological connectivity of ca. 13.3km, the proposed area of works lies downstream of the European site. Hence there will not be a deterioration in water quality of this designated site. Given the non-mobile nature of QIs designated for this site, there is not considered to be a source receptor pathway. This site lies marginally outside of the foraging range of otter (13.2km, Reid *et al*. 2013). Given the separation distance of works from the Bonet River, which will not result in the alteration of riverbank habitat or a deterioration in water quality for the Ben Bulben, Gleniff and Glenade Complex SAC, there will not be significant effects.

Natura 2000 Site	Main features of interest ***= A priority habitat – habitats which are in danger of disappearing within the EU territory, are highlighted with an asterisk***	Distance from the proposal	Potential Site- Pathway-Receptor Linkage via proximity of site, and/or surface water connectivity?[14]
	Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Blanket bogs (* if active bog) [7130] Transition mires and quaking bogs [7140] Petrifying springs with tufa formation (Cratoneurion) [7220] Alkaline fens [7230] Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) [8110] Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*) [8120] Calcareous rocky slopes with chasmophytic vegetation [8210] *Vertigo geyeri* (Geyer's Whorl Snail) [1013] *Lutra lutra* (Otter) [1355]		
Lough Melvin SAC (NPWS, 2021b)	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or Isoeto-Nanojuncetea [3130] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355]	*Ca.8.4km*	**No.** There is no hydrological connectivity with Lough Melvin SAC As a result of this and separation distance, there is no potential for significant effects.

Natura 2000 Site	Main features of interest ***= A priority habitat – habitats which are in danger of disappearing within the EU territory, are highlighted with an asterisk***	Distance from the proposal	Potential Site- Pathway-Receptor Linkage via proximity of site, and/or surface water connectivity?[14]
Sligo Leitrim Uplands SPA (NPWS, 2021c)	Peregrine (*Falco peregrinus*) [A103] Chough (*Pyrrhocorax pyrrhocorax*) [A346]	*Ca. 9km*	**No**, the proposed development does not contain suitable habitat for use by Chough or Peregrine. Furthermore, due to the distance of 9km and limited extent of works, there is not considered to be the potential for effects. There is a hydrological connection of ca. 13km, however the proposed development is downstream of this designated site.
Cummeen Strand/Drumcliff Bay SAC (NPWS, 2013)	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] *Juniperus communis* formations on heaths or calcareous grasslands [5130] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] Petrifying springs with tufa formation (Cratoneurion) [7220] *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014] *Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra fluviatilis* (River Lamprey) [1099]	*>31 km*	**No**, while there is a hydrological connection, the >31 km separation distance and assimilative qualities of Lough Gill will negate the potential for significant effects

Natura 2000 Site	Main features of interest ***= A priority habitat – habitats which are in danger of disappearing within the EU territory, are highlighted with an asterisk***	Distance from the proposal	Potential Site- Pathway-Receptor Linkage via proximity of site, and/or surface water connectivity?[14]
	Phoca vitulina (Harbour Seal) [1365]		
Cummeen Strand SPA (NPWS, 2013a)	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Oystercatcher (*Haematopus ostralegus*) [A130] Redshank (*Tringa totanus*) [A162] Wetland and Waterbirds [A999]	*>32 km*	**No**, while there is a hydrological connection, the >32 km separation distance and assimilative qualities of Lough Gill will negate the potential for significant effects

3.3 Field Survey Results

See **Appendix 1** for site photos.

Habitats: The proposed development site consists entirely of GS4. wet grassland habitat (Fossitt, 2000), with the surrounding fields being wet grassland and semi-improved grassland. The surrounding fields are fringed by drainage ditches, which contained water at the time of surveys. As such, no QI habitats are present within the proposed development area and surroundings.

Otter: The application site, which consists of wet grassland habitat is considered to be of sub-optimal foraging value to otter. The nearby Bonet River and nearby drainage ditches were examined for signs of otter activity. While no signs of otter activity (spraints, holts, tracks etc.) were detected, the nearby portion of the Bonet was determined to present favourable foraging and commuting conditions for otter.

Fisheries suitability: The portion of the Bonet River adjacent to the application site contains a variety of different substrate types including sand, gravel, cobble and boulders. This portion of the river exhibited depths of over 1m at the time of surveys, with a width of 5-10m. While optimal spawning conditions for salmon and lamprey species predominantly exist in fast flowing, well oxygenated shallow head streams, this part of the rivers course can be used by adults and provide shelter for juveniles. There is sufficient range of substrate sizes and undercut to support white-clawed crayfish.

Connectivity: An assessment of the sites hydrological connectivity found that the network of drainage ditches in the surrounding fields are connected to the nearby Bonet River. Given the site slopes towards this network of ditches over peaty soils, there is considered to be connectivity with the overall hydrological network of Lough Gill SAC.

Invasive Alien Species: Site investigations did not detect the presence of alien invasive species.

Birds: A common assemblage of species associated with agricultural land were recorded during the site visit including, rook (*Corvus frugilegus*), magpie (Pica pica), jackdaw (*Coloeus monedula*), wood pigeon (*Columba palumbus*), robin (*Erithacus rubecula*) and house sparrow (*Passer domesticus*). No species associated with designated sites were detected during surveys.

Table 2. Qualifying interests within ZoI of proposed development

Qualifying Interests (QIs) [QI code] * = Priority Habitats	Proximity and connectivity of the Qualifying Interest to the proposed development site	Qualifying Interest within the Zone of Influence?
NATURA 2000 SITE: Lough Gill SAC (001976)		
Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150]	This habitat is contained within Lough Gill (NPWS 2016b), >20km hydrological distance from the application site. It is considered that the assimilative quality of Lough Gill and the intervening waters will negate negative impacts relating to water quality.	No
Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210]	This habitat does not occur within close proximity of the proposed development. The terrestrial nature of this habitat precludes connectivity.	No
Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	This habitat does not occur within close proximity of the proposed development. The terrestrial nature of this habitat precludes connectivity.	No
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0]	The closest instance of this habitat occurs at the mouth of the River Bonet (NPWS 2016b), ca. 20km downstream of the proposed development. Given this distance and the relatively low susceptibility of this habitat to surface water pollution (O'Neill *et al*., 2013), there is not considered to be a pathway.	No
***Austropotamobius pallipes* (White-clawed Crayfish) [1092]**	There is potential for this species to occur in the nearby Bonet River	Yes
***Petromyzon marinus* (Sea Lamprey) [1095]**	Due to the lack of detailed location data in conservation objectives, the precautionary approach is applied. It is considered possible that this species occurs in the Bonet River.	Yes
***Lampetra planeri* (Brook Lamprey) [1096]**	Due to the lack of detailed location data in conservation objectives, the precautionary approach is applied. It is considered possible that this species occurs in the Bonet River.	Yes
***Lampetra fluviatilis* (River Lamprey) [1099]**	Due to the lack of detailed location data in conservation objectives, the precautionary approach is applied. It is considered possible that this species occurs in the Bonet River.	Yes
***Salmo salar* (Salmon) [1106]**	This species is known to occur in the nearby Bonet River (NPWS, 2016b)	Yes
***Lutra lutra* (Otter) [1355]**	There is potential for this species to occur in the nearby Bonet River and the surrounding area	Yes

3.4 Results and Conclusions of Screening for Appropriate Assessment

The proposed development involves the construction and operation of a new fire station in Manorhamilton, Co. Leitrim. The proposed development in located on the outskirts of the town within an area of wet grassland amongst agricultural fields. The proposed development is described in detail in **Section 2.**

The Proposed Development is not connected with or necessary for the management of any Natura 2000 Site. The proposed area of works is situated within Lough Gill SAC. As a result of this, Lough Gill SAC is considered to be within the Zone of Influence which poses the risk of direct and indirect impacts and therefore the risk of significant effects, on this Natura 2000 Site and its QI's.

Below, Lough Gill SAC and its QI's which are considered to be within the Zone of Influence are listed. Due to the fact that this Natura 2000 Site could be affected by the Proposed Development for the reasons outlined below, it is deemed necessary using the precautionary principle to 'screen in' this Natura 2000 Site and to undertake an Appropriate Assessment in order to consider if the Proposed Development could affect the integrity of this Natura 2000 Site.

The following QIs of the Lough Gill SAC could be affected by water quality impacts:

- *Austropotamobius pallipes* (White-clawed Crayfish) [1092]
- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Lampetra planeri* (Brook Lamprey) [1096]
- *Lampetra fluviatilis* (River Lamprey) [1099]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]

The following QIs of the Lough Gill SAC could be affected by disturbance impacts:

- *Lutra lutra* (Otter) [1355]

Conservation Objectives for the Qualifying Interests within the Zone of Influence

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 (NPWS, 2021a)

Conclusions

Following the screening process above, the screening matrix of all impacts (**Table 1**) ruled out Natura 2000 Sites for further assessment based on distance and the lack of a source-pathway-receptor linkage between the QIs and their specific sensitivities, and the Proposed Development. One Natura 2000 Site, Lough Gill SAC, has been identified as being in the Zone of Influence. The QIs within the Lough Gill SAC which are within the Zone of Influence were identified in **Table 2**, these are: *Austropotamobius pallipes* (white-clawed Crayfish) [1092], *Petromyzon marinus* (sea lamprey) [1095], *Lampetra planeri* (brook lamprey) [1096], *Lampetra fluviatilis* (river lamprey) [1099], *Salmo salar* (Atlantic salmon) [1106] and *Lutra lutra* (otter) [1355]

The Screening for Appropriate Assessment has concluded that there is the potential for Significant Effects on Lough Gill SAC and that a Natura Impact Statement is required. This Natura 2000 Site and the QIs within the Zone of Influence (presented in Table 1 and 2 and above) are assessed in Table 3 as part of the Natura Impact Assessment process. The Natura Impact Statement is presented from Section 4 of this report.

4. DESCRIPTION OF NATURA 2000 SITES AND QUALIFYING INTERESTS POTENTIALLY EFFECTED

4.1 Natura 2000 Sites Identified within the Screening for Appropriate Assessment

The Screening for Appropriate Assessment (Section 3) specifically deals with the potential for likely significant effects on Natura 2000 Sites / European Sites (and their Qualifying Interests [QI's]), and where this arises, the Natura Impact Statement aims to assess whether the project may adversely affect the integrity of any Natura 2000 Sites.

The conclusions of the Screening for Appropriate Assessment exercise can be found in Section 3.2 of this NIS. The Screening for Appropriate Assessment identified that there is a potential source-pathway receptor linkage to one Natura 2000 Site, Lough Gill SAC, which might result in significant impact on the Natura 2000 Site and its QI's habitats and / or species. **Table 3** details the Natura 2000 Site for which the Screening for Appropriate Assessment concluded significant effects could not be ruled out, it is a potential significant effects matrix which includes the QIs potentially affected as well as the impact type and cause. The Natura 2000 Site and it's QIs with potential source-pathway receptor linkages, as outlined in Section 3, are considered to be in the Proposed Development's Zone of Influence.

4.2 Description of the Natura 2000 Site within the Zone of Influence

Lough Gill SAC [001976]

This site includes Lough Gill, Doon Lough to the north-east, the Bonet River (as far as, but not including, Glenade Lough), and a stretch of the Owenmore River near Manorhamilton in Co. Leitrim. Lough Gill itself, 2 km east of Sligo town, lies at a geological junction of ancient metamorphic rocks which produce acid groundwater, and limestone which dissolves in the groundwater.

Lough Gill is a large lake, being 8 km long, and has steep limestone shores and underwater cliffs. It is over 20 m deep in places. The lake appears to be naturally eutrophic. The aquatic macrophyte flora is very limited, probably due to the rapid increase in depth around most of the margin.

There is a fringe of deciduous woodland along most of the length of the Garavogue River. In parts it is dense and impenetrable, with a very wet marshy underlayer. Some areas are dominated by Rusty Willow (*Salix cinerea subsp. oleifolia*), with Alder (*Alnus glutinosa*) also occurring commonly. Other tree species present include Goat Willow (*Salix caprea*), Hazel (*Corylus avellana*), Rhododendron (*Rhododendron ponticum*) and Cherry Laurel (*Prunus laurocerasus*). Both of the latter species are invasive aliens. In the understorey, species such as Guelder-rose (*Viburnum opulus*), Gipsywort (*Lycopus europaeus*) and Skullcap (*Scutellaria galericulata*) are found. Reedswamp is also common along the river. Another area of alluvial wet woodland is found at the mouth of the Bonet River. Here there is dense willow (*Salix sp*.) scrub, along with Reed Canary-grass (*Phalaris arundinacea*), and also areas where Alder and Goat Willow are dominant.

Areas of unimproved wet and dry grassland also occur within the site, the former particularly by the lake and the latter well developed in the north-east of the site and in the vicinity of O'Rourke's Table. Orchid-rich Calcareous Grassland, a priority habitat listed on Annex I of the E.U. Habitats Directive, has been reported from Clogher Beg, according to the Irish Semi-natural Grasslands Survey, 2010. Heath covered hillsides above the woods are dominated by Heather (*Calluna vulgaris*).

The site is of considerable importance for the presence of four Red Data Book fish species that are listed on Annex II of the E.U. Habitats Directive - Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Sea Lamprey (*Petromyzon marinus*) and Atlantic Salmon (*Salmo salar*). The Lough Gill system gets a very early run of spring salmon, while the Bonet holds stocks of salmon from spring right through to the end of the season. White- clawed Crayfish (*Austropotamobius pallipes*), Otter and Pine Marten are well established on this site, the first two are both Annex II species.

(NPWS, 2016b)

Site-specific Conservation Objectives and Favourable Conservation Status

A site-specific conservation objective aims to define favourable conservation conditions for a particular habitat or species at that site (NPWS, 2021a). According to Articles 1(e) and 1(i) of the Habitats Directive (EC, 1992) and as cited in NPWS (2021a), favourable conservation status of a habitat is achieved when:

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

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

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

Table 3 - Potential Significant Effects Matrix for the Natura 2000 Site and Qualifying Interests within the Zone of Influence with the potential to be Significantly Affected by the Proposed Development.

Natura 2000 Site (Site Code)	Qualifying Interest (QI) [QI Code]	Closest proximity / potential connectivity of the Natura 2000 site to the Proposed Development (i.e., Site red line boundary).	Potential Impact type and effect	Potential Cause
Lough Gill SAC [001976]	*Austropotamobius pallipes* (White-clawed Crayfish) [1092]	There is potential for this species to occur *ca.* 100m from the proposed development in the Bonet River.	Pollution (sediment and chemical / hydrocarbons) resulting in reduction of migrating adult Atlantic salmon.	There is potential for construction related pollution events to impact water quality. There is potential for operational related pollution events, particularly chemical / hydrocarbons to impact water quality.
			Dumping, litter and other waste materials produced on site.	There is potential for inappropriate waste disposal during construction which has the potential for secondary impact on the species due to localised habitat alteration or direct impact. It is therefore considered that there is potential for impact on this species.
	Petromyzon marinus (Sea Lamprey) [1095]	There is potential for this species to occur *ca.* 100m from the proposed development in the Bonet River.	Pollution (sediment and chemical / hydrocarbons) resulting in reduction of migrating adults.	There is potential for construction related pollution events to impact water quality. There is potential for operational related pollution events, particularly chemical / hydrocarbons to impact water quality.
			Dumping, litter and other waste materials produced on site.	There is potential for inappropriate waste disposal during construction which has the potential for secondary impact on the species due to localised habitat alteration or direct impact due to ingestion of plastics etc. It is therefore considered that there is potential for impact on this species.
	Lampetra planeri (Brook Lamprey) [1096]	There is potential for this species to occur *ca.* 100m from the proposed development in the Bonet River.	Pollution (sediment and chemical / hydrocarbons) resulting in reduction of migrating adults.	There is potential for construction related pollution events to impact water quality. There is potential for operational related pollution events, particularly chemical / hydrocarbons to impact water quality.

Natura 2000 Site (Site Code)	Qualifying Interest (QI) [QI Code]	Closest proximity / potential connectivity of the Natura 2000 site to the Proposed Development (i.e., Site red line boundary).	Potential Impact type and effect	Potential Cause
			Dumping, litter and other waste materials produced on site.	There is potential for inappropriate waste disposal during construction which has the potential for secondary impact on the species due to localised habitat alteration or direct impact due to ingestion of plastics etc. It is therefore considered that there is potential for impact on this species.
	Lampetra fluviatilis (River Lamprey) [1099	There is potential for this species to occur *ca.* 100m from the proposed development in the Bonet River.	Pollution (sediment and chemical / hydrocarbons) resulting in reduction of migrating adults.	There is potential for construction related pollution events to impact water quality. There is potential for operational related pollution events, particularly chemical / hydrocarbons to impact water quality.
			Dumping, litter and other waste materials produced on site.	There is potential for inappropriate waste disposal during construction which has the potential for secondary impact on the species due to localised habitat alteration or direct impact due to ingestion of plastics etc. It is therefore considered that there is potential for impact on this species.
				There is potential for construction related disturbance to alert otter behaviour. There is potential for the operational phase disturbance of the Proposed Development to alter otter behaviour.
	Salmo salar (Salmon) [1106]	There is potential for this species to occur *ca.* 100m from the proposed development in the Bonet River.	Pollution (sediment and chemical / hydrocarbons) resulting in reduction of migrating adult Atlantic salmon.	There is potential for construction related pollution events to impact water quality. There is potential for operational related pollution events, particularly chemical / hydrocarbons to impact water quality.

Natura 2000 Site (Site Code)	Qualifying Interest (QI) [QI Code]	Closest proximity / potential connectivity of the Natura 2000 site to the Proposed Development (i.e., Site red line boundary).	Potential Impact type and effect	Potential Cause
			Dumping, litter and other waste materials produced on site.	There is potential for inappropriate waste disposal during construction which has the potential for secondary impact on the species due to localised habitat alteration or direct impact due to ingestion of plastics etc. It is therefore considered that there is potential for impact on this species.
	Lutra lutra (Otter) [1355]	There is potential for this species to occur *ca.* 100m from the proposed development in the Bonet River.	Pollution (sediment and chemical / hydrocarbons l) and resulting in reduction of prey species (i.e., fish).	There is potential for construction related pollution events to impact water quality. There is potential for operational related pollution events, particularly chemical / hydrocarbons to impact water quality.
			Dumping, litter and other waste materials produced on site.	There is potential for inappropriate waste disposal during construction which has the potential for secondary impact on the species due to localised habitat alteration or direct impact due to ingestion of plastics etc. It is therefore considered that there is potential for impact on this species.
			Disturbance resulting in altered behaviour resulting in a reduction of forging and/ breeding	There is potential for construction related disturbance to alert otter behaviour. There is potential for the operational phase disturbance of the Proposed Development to alter otter behaviour.

5. ASSESSMENT OF POTENTIAL EFFECTS

The Proposed Development is hydrologically connected to one Natura 2000 Site, Lough Gill SAC and so this Natura 2000 site is within the Zone of Influence with a potential source-pathway receptor linkage which might result in significant impact on its QI's.

Article 6(3) of the EU Habitats Directive (EC, 1992) requires that any plan or project that is likely to have a significant effect on a European Site must undergo an Appropriate Assessment of "its implications for the site in view of the site's conservation objectives". Such a project can only be consented if the Appropriate Assessment can demonstrate that the proposal "will not adversely affect the integrity of the site concerned". EU guidance on Article 6 states, with respect to 'integrity' "the 'integrity of the site' has been usefully defined as 'the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified'".

An assessment of the likely impacts affecting this Natura 2000 Site is discussed below. The potential for effects on the Natura 2000 Site within the Zone of Influence is assessed in terms of the effect those impacts have to affect the QIs of the Natura 2000 Site. In this report, direct impacts constitute direct or primary impacts to Natura 2000 Sites, for example habitat loss or mortality of QI species. Indirect or secondary impacts constitute pollution of water courses which may flow into a Natura 2000 Site.

5.1 Assessment of Effects on Lough Gill SAC

5.1.1 Assessment of Water Quality Impacts

As outlined in **Table 3,** there is potential for water quality impacts to occur during the construction and operational phase of the Proposed Development.

Construction Stage Water Quality Impacts

During the construction stage, there is potential for the following impacts to occur:

- Contamination of surface / ground waters from hydrocarbons and / or other chemicals stored onsite; and,
- Contamination of surface / ground waters from sediment / suspended solids as a result of excavation works onsite.
- Contamination of surface / ground waters from waste water generated onsite during the construction phase.

The Bonet River is situated *ca.* 100m from the boundary of the Proposed Development. Drainage channels run the perimeter of the Site and discharge into the Bonet River. Therefore, there is the potential for water pollution to enter the SACs hydrological network via the Bonet River.

Operational Stage Water Quality Impacts

- Contamination of surface / ground water from hydrocarbons and/or other chemicals stored onsite

Assessment of Effects of Water Quality Impacts on Lough Gill SAC

Hydrocarbons and chemicals

The release of hydrocarbons as a result of such events as fuel spills has the potential to impact on water quality as a result of reduced oxygen, thereby affecting the salmon populations that require good oxygen supplies. They are known to bioaccumulate in *Salmonids* (e.g., McCain *et al.* 1990), with Atlantic salmon known to be physically affected by short term exposure leading to loss of condition and are also known to avoid areas with hydrocarbons (e.g., Maynard and Weber 1981) leading to the effective loss of habitat or migration routes for the species. The release of even small amounts of hydrocarbons into the watercourses adjacent to the Site, has the potential to result in a significant impact on the populations of Atlantic salmon within the SAC.

The release of hydrocarbons has the potential to have a significant impact on the other QIs of the SAC within the Zone of Influence also. The release of hydrocarbons could impact on otter directly through the degradation of the water quality or indirectly, through the reduction of prey (i.e., fish) available.

Hydrocarbons released due to inappropriate storage or dispensing of fuel could have detrimental effects on QI species.

Suspended solids / Sediments

High levels of suspended solid concentrations in waterbodies can affect the feeding and health of individual species through increased turbidity (inhibiting respiration through gills) and increased siltation affecting composition of riverbed substrate (reducing fry survival) and affecting spawning beds. Suspended solids often hold nutrients such as phosphorus or hydrocarbons that can result in eutrophication and reduced oxygen levels (with high oxygen levels being important for all life stages of Atlantic salmon for example).

Densities of different life stages of salmon, particularly fry and parr, vary within a river catchment, limited often by the availability of suitable substrates. Young parr are territorial and defend small sections of the river channel used for intercepting edible particles within the current (Kalleberg, 1958). Habitat availability and quality are intrinsically linked with survival rates and recruitment to smolt stages. Therefore, small amounts of debris entering a section of river important for vulnerable life stages of salmon can have deleterious impacts, even in the short-term, on juvenile survival and habitat utility.

Wastewater

The release of wastewater into surface waters / groundwaters during the construction stage from Portaloos etc. could cause an increase in nutrients and these key nutrients such as phosphorus and nitrogen are implicated in the eutrophication of rivers. In 2008, the Environmental Protection Agency (EPA) stated that:

> *High concentrations result in excessive plant and algal growth and a range of adverse consequences – deoxygenation at night perhaps resulting in fish kills, clogging of spawning gravels, taste and odour problems, algal blooms in lakes and estuaries, and generally increased costs of treatment for water supplies*[15]

A study in 1990 by the Environmental Protection Agency showed that luxuriant plant growth in salmonid rivers due to the phenomenon of eutrophication was the cause of 50% of fish kills in aquatic systems in Ireland during warm weather events.[16]

The wastewater from the Proposed Development is only a potential impact during the construction phase as during the operational phase, the foul water created by the Proposed Development will be directly pumped to the adjacent Manorhamilton Waste Water Treatment Plant (WWTP).

Due to the potential impacts on water quality from the proposed works during the construction and operational stages, there is potential to contravene the water dependent conservation objectives for the following QIs:

- *Austropotamobius pallipes* (White-clawed Crayfish) [1092]
- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Lampetra planeri* (Brook Lamprey) [1096]
- *Lampetra fluviatilis* (River Lamprey) [1099]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]

Section 7 provides the mitigation measures which will be implemented to prevent any adverse effects through water quality impacts during the construction and operational stages of the Proposed Development.

5.1.2 Assessment of Inappropriate Dumping Impacts

As outlined in **Table 2** there is potential for inappropriate disposal of waste materials arising on Site during the construction process. The potential impacts include the dumping of hard-core and other waste within the Bonet River which is part of the hydrological network of lough Gill SAC.

Assessment of Effects of Inappropriate Dumping Impacts on Lough Gill SAC

The results of dumping of hard-core and other waste within the Bonet River which is part of the hydrological network of Lough Gill SAC could result in direct changes to substrate or leaching of material into the SAC. Atlantic salmon and lamprey species which use the SAC as migrating adults are considered to have some potential to be affected by any subsequent water quality impacts as a result of the construction phase. Furthermore, potential dumping on construction materials such as hardcore could result in direct effects (mortality) of white clawed crayfish, salmon and lamprey species. The Annex II species otter has some potential to be affected by inappropriate dumping by direct impact by ingesting the material or indirect impact which affect their prey species, namely fish.

Due to the potential impacts of inappropriate dumping from the proposed works during the construction stage, there is potential to contravene the conservation objectives for the aforementioned QI species.

Section 7 provides the mitigation measures which will be implemented to prevent any adverse effects through water quality impacts during the construction and operational stages.

[15] EPA (2008) Water Quality of Rivers. Irelands Environment.

[16] EPA (2005) Reference Conditions and Eutrophication Impacts in Irish Rivers: Meeting the Requirements of the Water Framework Directive.

5.1.3 Assessment of Disturbance Impacts

As outlined in **Table 3** there is potential for disturbance to otter during the construction and operational phases of the Proposed Development.

Construction Stage Disturbance Impacts

During the construction stage, there is potential for the following impacts to occur:

- Alteration of otter behaviour resulting in the reduction of foraging and / breeding.

Operational Stage Disturbance Impacts

During the operational stage, there is potential for the following impacts to occur:

- Alteration of otter behaviour resulting in the reduction of foraging and/or breeding.

Assessment of Effects of Disturbance on Otter within the Lough Gill SAC

Otter that may use the Bonet River for foraging may be impacted by disturbance during both the construction and operational phases of the project. During the construction phase, otters have the potential to be disturbed both as a result of noise disturbance or lighting during works, as well as lighting during the operational stage. During field surveys, no signs of otter activity was detected in sections of river closest to the development, however it is still considered highly likely that otter utilize this stretch of river for commuting, foraging or both. A significant source of constant disturbance has the potential to reduce the value of the Bonet River for foraging (supplementary to the SAC) as well as commuting and dispersal. The nature of the Proposal Layout, which is separated from the Bonet River by an area of agricultural grassland stretching over 100m, means that ongoing disturbance of otters is not considered likely to be significant. However, without appropriate mitigation, there is a concern that the construction stage has the potential to impact on the species.

Due to the potential impacts of noise and lighting from the proposed works during the construction stage, there is potential to contravene conservation objectives for this species.
Section 7 provides the mitigation measures which will be implemented to prevent any adverse effects through water quality impacts during the construction and operational stages.

6. APPROPRIATE ASSESSMENT: ASSESSMENT OF IN-COMBINATION EFFECTS ON NATURA 2000 SITES WITHIN THE ZONE OF INFUENCE

CIEEM (2018) state that 'other development projects (besides the one being assessed) can influence the baseline and need to be taken into account. This will be the case in circumstances where another development has been consented or recently constructed and is predicted to have an impact on an ecological feature being considered as part of the EcIA. The baseline may also be affected where another development has an ongoing incremental 'operational' phase effect'.

Proposals with the potential to result in in-combination effects on Natura 2000 Sites are outlined below.

6.1 Associated/Connected Developments

CIEEM (2018) defines associated / connected projects as 'a development activity [which] enables another development activity e.g., phased development as part of separate planning applications. Associated developments may include different aspects of the project which may be authorised under different consent processes. It is important to assess impacts of the project as a whole and not ignore impacts that fall under a separate consent process'.

There are no associated / connected developments associated with the Proposed Development.

6.2 Additive / Incremental Impacts

CIEEM (2018) defines additive/incremental as 'multiple activities/projects (each with potentially insignificant effects) added together to give rise to a significant effect due to their proximity in time and space', with effects which may be 'additive (1+1 = 2) or synergistic (1+1 = 3)'.

Presented in **Table 4** below are planning applications, all of which have been finalised within the immediate vicinity of the Proposed Development.

The majority of potential for in combination impacts will occur during the construction phase of the proposed development. This will primarily manifest in the form of potential surface water contamination. As such, the search for other developments was limited to areas in proximity to the Bonet River and in the locality of the proposed development. The search was limited to developments which have been granted permission since 2019, which thus may be in their construction phase. Additionally, developments in proximity to nearby waterbodies, whose operations were deemed to represent potential in combination effects were also considered.

Table 4 – Planning Permission Permitted in the Vicinity of the Site

Planning Ref. No.	Description	Address	Decision
20193	development consisting of the removal of existing two-storey type dwelling on this site and construction of a replacement two- storey type dwelling, as per revised drawings dated 09/10/20 sheets 6 and 10 submitted with this application and include all other works granted under the previous planning permission (P.19/62) i.e., upgrade existing entrance, install new sewerage treatment system and associated works and connect to all other existing services. A Natura Impact Statement has been submitted with the original planning application and all 13 conditions attached to the original grant of planning permission will be adhered to	Grainne McGowan-Loftus & John Loftus, Carrickleitrim, Manorhamilton, Co. Leitrim	APPLICALATION FINALISED – CONDITIONAL 21/12/20
1962	(a) Demolish existing substation (b) Extension of existing factory (building at rear of site) for storage of end product. Area of proposed extension = 658m2. Total area of building completed = 1843m2. (c) Form new opening in existing gable to link into proposed extension. (d) Construct new canopy over existing and proposed roller shutter doors (rear buildings). (e) Construct new ESB substation and switchroom at rear of site. (f) Provide new hard standing areas around proposed building and carry our associated site works	Elastometall Ireland, Carrickleitrim, Manorhamilton, Co. Leitrim	APPLICALATION FINALISED – CONDITIONAL 19/02/12

Given the low level of staffing and limited nature activities on site during the operational phase, the proposed development is expected to contribute a maximum of 15 population equivalent (PE) (Personal communication, CST Group 10/11/21). The proposed development will not significantly impact upon the capacity or efficiency of the nearby Manorhamilton WWTP, which has a PE of 3,000 after recent upgrades.

Given the limited number of other applications with potential for in combination impacts, coupled with the limited nature of site activities, there is considered unlikely to be significant effects on designated sites as a result of in combination impacts. **Thus, whilst there is potential for the Proposed Development to act additively / incrementally with the consented planning applications, the impact will be so limited it will not cause significant effects on the QIs of the Lough Gill SAC.**

Mitigation measures that support this are presented in **Section 7.2.**

7. MITIGATION OF POTENTIAL EFFECTS

Sections 5 and **6** above detail the potential impacts associated with this proposal. The following issues were determined to have a potential significant effect on the Lough Gill SAC and without mitigation, have the potential to adversely affect the integrity of the SAC:

- Potential impacts relating to water quality during the construction and operational stages of the Proposed Development.
- Potential impacts relating to dumping of materials during construction phase.
- Potential impacts relating to disturbance of otter during the construction and operational stages of the Proposed Development.

The below sections outline the mitigations measures to be implemented in order to mitigate any potential significant effect.

7.1 Mitigation of Water Quality Impacts During the Construction Phase

There are a number of standard best practice guidance on working near water, and standard mitigation measures for controlling pollution and sediment from construction sites. These include the following documents:

- IFI (2016). Guidelines on Protection of Fisheries during the Construction Works in and Adjacent to Waters.
- Loughs Agency (2015). Guidelines for Fisheries Protection during Development Works (Foyle and Carlingford areas). Environmental Guidelines Series – No. 1.
- CIRIA (2006). Control of water pollution from linear construction projects. Technical guidance (C648).
- SEPA (2010). Engineering in the Water Environment: Good Practice Guide: Sediment management.
- SEPA (2009). Engineering in the Water Environment Good Practice Guide: Temporary Construction Methods.
- NRW, NIEA and SEPA (2017). Guidance for Pollution Control. Works and Maintenance in or near Water. GPP 5.

Relevant mitigation measures from these documents will be put in place, in addition to other measures, during construction in order to ensure there are no water quality impacts on the Bonet River which is part of the Lough Gill SAC. Potential water quality impacts during construction include toxic contamination (chemical or hydrocarbon pollution) and non-toxic contamination (generation of silt and sediments).

7.2 Mitigation of Sediment Pollution and Dumping

Suspended solids and sediments must be controlled by both minimisation of and the creation of sediment laden run off, and also the control of suspended solids. Dumping activities can result in both an increase in sediment pollution and direct impacts (mortality) on QI species.

- Weather forecasts will be monitored prior to and during works to avoid working in adverse weather conditions such as heavy rains.
- A marked buffer zone will be erected to prevent any unwanted access within 20m of the riparian zone of the Bonet River before works commence onsite.
- All land drains encompassing the site will be blocked prior to any works commencing onsite to prevent a pathway for sediments to discharge to the Bonet River.
- No instream works are proposed as part of this Proposed Development and so no works will take place within the Bonet River.
- There will be no vehicular access or any sort across the Bonet River.
- There will be no dewatering of excavations to watercourses and or land drains. Any dewatering will be to a settlement tank and further filtration through a silt sock for discharge to a vegetated area.
- There will be no stockpiling of spoils within 50m of the Bonet River at any time during the works.
- For areas where stockpiling occurs (not within 50m of the Bonet River) a double layered silt curtain will be constructed around this stockpile to prevent the movement of solids towards aquatic environments.
- Stock piling heights will be to Best Practice guidance on heights to prevent unwanted slippage of spoils after periods of rainfall.

7.2.1 Mitigation of Hydrocarbon / Chemical Pollution

The potential for hydrocarbons and other pollutants entering the watercourse and protected habitats during construction must be by both risk minimisation and an appropriate capacity for emergency response:

- A complete mechanical check of all hoses and fluid reservoirs of machinery will be carried out by a competent member of the construction team before machinery arrives to site.
- All machinery will carry a spill kit onboard for fast deployment in the event of a hydrocarbon leak or spill.
- All fuels, lubricants and hydraulic fluids shall be kept in secure bunded COSSH store at a minimum of 50m from the river. Containers must be properly secured to prevent unauthorised access and misuse.
- An effective spillage procedure must be put in place with all staff properly briefed. Any waste oils or hydraulic fluids shall be collected, stored in appropriate containers and disposed of offsite in an appropriate manner.
- Machinery will be refuelled on a hardstanding designated area with spill kits on hand and at least 50m away from the river. No refuelling will take place inside the 50m buffer zone. The refuelling will be by a designated fuel delivery vehicle or a double bunded bowser with hose dispenser.
- Spill kits with an appropriate capacity for the contaminants used on site must be kept on site and within machinery and available throughout the dredging process.

- Any portable generators or non-bunded engine driven machines will have a hydrocarbon nappy underneath them at all times to prevent leakage from machinery to the environment.
- A hydrocarbon oil boom must be available on site for immediate deployment within the river in the event of any hydrocarbon spillage at the site. A fuel spillage will be considered to be any loss of fuel, oil or lubricant, including hydraulic oil and spot leakage.
- No concrete washout will be permitted onsite unless to a designated bunded concrete washout area that is not within 50m of any watercourses or drains.
- Any operations in the vicinity of watercourses must adhere to *Guidelines on Protection of Fisheries during the Construction Works in and Adjacent to Waters*, IFI and *Guidelines for Fisheries Protection during Development Works (Foyle and Carlingford areas)* Environmental Guidelines Series – No. 1. Loughs Agency.

7.2.2 Mitigation of Nutrient Pollution (Wastewater)

There must be no potential for wastewater to enter surface waters and or ground waters during the construction phase of the Proposed Development.

- Self-contained and frequently maintained Portaloos will be used onsite and so no discharge of wastewater to the environment will occur.
- Self-contained and frequently maintained site welfare units for workers will be used onsite where grey water will be stored and not discharged to the environment.

7.3 Mitigation of Water Quality Impacts During the Operational Phase

7.3.1 Mitigation of Hydrocarbon / Chemical Pollution

The potential for hydrocarbons and other chemical pollutants entering the watercourse and protected habitats during the operational phase must be controlled by both risk minimisation and an appropriate capacity for emergency response.

- The drainage system for the completed build includes hydrocarbon interceptors, screening and attenuation lagoons and is detailed in section 2 of this report
- A regular maintenance programme will be established so as to ensure proper working of interceptors and cleaning when required.

7.3.2 Mitigation of Nutrient Pollution (Wastewater)

There must be no potential for wastewater to enter surface waters and or ground waters during the operational phase of the Proposed Development without going through the appropriate wastewater treatment system processes.

- The Proposed Development will be connected to Manorhamilton waste water treatment plant, which lies in adjacency to the proposed development and so no onsite discharge of wastewater will occur.

7.4 Mitigation of Disturbance to Otter During the Construction or Operational Phases

The Prosed Development is situated on the fringe of an urban setting and so there is already background disturbance that exists within this setting.

- No direct lighting will be positioned to cause the Bonet River to become highlighted during nocturnal hours when otters may be active during the construction and operation phases of the Proposed Development.
- Any excavated holes within the Site must be covered at the end of every working day to prevent an otter getting injured / trapped when using the Site for commuting during nocturnal hours.

The above measures must be adopted into the contractor's method statements.

8. POTENTIAL EFFECTS AFTER MITIGATION

Table 5. Post mitigation adverse effects on QI species

Qualifying Interest within the Zone of Influence	Impact Type	Potential for Adverse Effect before mitigation?	Mitigation measures	Potential for Adverse Effect after Mitigation
Lough Gill SAC				
Petromyzon marinus (Sea Lamprey) [1095]	Pollution (sediment and chemical / fuel and nutrients) resulting in reduction of good water quality.	Yes	Pollution prevention measures (see **Sections 7.1 and 7.2**).	No
	Direct impacts resulting from dumping, litter and other waste materials produced on site.	Yes	Inappropriate dumping measures (see **Section 7.1**)	No
Lampetra planeri (Brook Lamprey) [1096]	Pollution (sediment and chemical / fuel and nutrients) resulting in reduction of good water quality.	Yes	Pollution prevention measures (see **Sections 7.1 and 7.2**).	No
	Direct impacts resulting from dumping, litter and other waste materials produced on site.	Yes	Inappropriate dumping measures (see **Section 7.1**)	No
Lampetra fluviatilis (River Lamprey) [1099]	Pollution (sediment and chemical / fuel and nutrients) resulting in reduction of good water quality.	Yes	Pollution prevention measures (see **Sections 7.1 and 7.2**).	No
	Direct impacts resulting from dumping, litter and other waste materials produced on site.	Yes	Inappropriate dumping measures (see **Section 7.1**)	No
Salmo salar (Atlantic salmon) [1106]	Pollution (sediment and chemical / fuel and nutrients) resulting in reduction of spawning, juvenile and adult salmon within the SAC due to water quality Dumping, litter and other waste materials produced on site.	Yes	Pollution prevention measures (see **Sections 7.1 and 7.2**).	No
	Direct impacts resulting from dumping, litter and other waste materials produced on site.	Yes	Inappropriate dumping measures (see **Section 7.1**)	No
Austropotamobiuspallipes (White-clawed Crayfish) [1092]	Pollution (sediment and chemical / fuel and nutrients) resulting in reduction of spawning, juvenile and adult salmon within the SAC due to	Yes	Pollution prevention measures (see **Sections 7.1 and 7.2**).	No

Qualifying Interest within the Zone of Influence	Impact Type	Potential for Adverse Effect before mitigation?	Mitigation measures	Potential for Adverse Effect after Mitigation
	water quality Dumping, litter and other waste materials produced on site.			
	Direct impacts resulting from dumping, litter and other waste materials produced on site.	Yes	Inappropriate dumping measures (see **Section 7.1**)	No
Lutra lutra (Otter) [1355]	Pollution (sediment and chemical / fuel and nutrients) resulting in reduction of prey due to water quality impacts.	Yes	Pollution prevention measures (see **Sections 7.1 and 7.2**).	No
	Direct impacts resulting from dumping, litter and other waste materials produced on site.	Yes	Inappropriate dumping measures (see **Section 7.1**)	No
	Disturbance (construction operation phase) of the Proposed Development	Yes	Disturbance to otter measures **(see Section 7.4)**	No

9. CONCLUSIONS

This Natura Impact Statement has examined whether, in view of best scientific knowledge and applying the precautionary principle, the proposed project either individually, or in combination with other plans or projects, may have an adverse effect on the integrity of any Natura 2000 Site (also known as European sites).

The Screening for Appropriate Assessment concluded that there is potential for Potential Significant Effect on Lough Gill SAC and the following QIs within the Zone of Influence: *Austropotamobius pallipes* (white-clawed crayfish) [1092], *Petromyzon marinus* (sea lamprey) [1095], *Lampetra planeri* (brook lamprey) [1096], *Lampetra fluviatilis* (river lamprey) [1099], *Salmo salar* (salmon) [1106], and *Lutra lutra* (otter) [1355].

The Natura 2000 Site, Lough Gill SAC and its QIs within the Zone of Influence were assessed as part of the Natura Impact Assessment process. This process found that whilst a number of potential impacts, namely water quality (construction and operational) and inappropriate dumping and otter disturbance were identified, that the mitigation measures presented in **Section 7** eliminate the Potential for Adverse Effect on the Natura 2000 Sites, and their Qis within the Zone of Influence. Therefore, it is considered that the Proposed Development will not have an adverse effect on the integrity of any Natura 2000 Site.

10. REFERENCES

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, and Coastal. 2nd Edition. Updated September 2019. Available at: https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/

Department of Environment, Heritage and Local Government (2010) Appropriate Assessment of Plans and Projects in Ireland – Guidance for Local Authorities

European Commission (2000). Managing Natura 2000 Sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

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

IFI (2016). Guidelines on Protection of Fisheries during the construction works in and adjacent to waters. Inland Fisheries Ireland. Available at: https://www.fisheriesireland.ie/documents/624-guidelines-on-protection-of-fisheries- during-construction-works-in-and-adjacent-to-waters.html

Kalleberg H (1958). Observations in a stream tank of territoriality and competition in juvenile salmon and trout (Salmo salar L and S. trutta). Report of the Institute of Freshwater Research, Drottningholm 39, 55–98.

Maitland, P.S. 2003. Ecology of the River, Brook and Sea Lamprey. Conserving Natura 2000 Rivers Ecology Series No. 5. English Nature, Peterborough

Maynard, D. J., Weber, D.D. (1981). Avoidance Reactions of Juvenile Coho Salmon (Oncorhynchus kisutch) to Monocyclic Aromatics. Canadian Journal of Fisheries and Aquatic Sciences 38(7):772-778. DOI:10.1139/f81-105

McCain, B.B., Malins, D.C., Krahn, M.M. et al. (1990) Uptake of aromatic and chlorinated hydrocarbons by juvenile chinook salmon (Oncorhynchus tshawytscha) in an urban estuary. Arch. Environ. Contam. Toxicol. 19, 10–16 https://doi.org/10.1007/BF01059807

NPWS (2021) Conservation objectives for Ben Bulben, Gleniff and Glenade Complex SAC [000623]. Generic Version 8.0. Department of Housing, Local Government and Heritage.

NPWS (2021) Conservation objectives for Ben Bulben, Gleniff and Glenade Complex SAC [000623]. Generic Version 8.0. Department of Housing, Local Government and H.

NPWS (2021a) Conservation objectives for Lough Gill SAC [001976]. Generic Version 8.0. Department of Housing, Local Government and Heritage.

NPWS (2021b) Conservation objectives for Lough Melvin SAC [000428]. Generic Version 8.0. Department of Housing, Local Government and Heritage.

NPWS (2021) Conservation objectives for Sligo/Leitrim Uplands SPA [004187]. Generic Version 8.0. Department of Housing, Local Government and Heritage

NPWS (2016) Conservation Objectives: Arroo Mountain SAC 001403. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2016a) Conservation Objectives: Boleybrack Mountain SAC 002032. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2016b) Site Synopsis: Lough Gill SAC. 001976_Rev16.Docx. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013) Conservation Objectives: Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC 000627. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2013a) Conservation Objectives: Cummeen Strand SPA 004035. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

OPR Planning Regulator (OPR) (2021) OPR Practice Note PN01 Appropriate Assessment Screening for Development Management

O'Neill, F.H. & Barron, S.J. (2013). Results of monitoring survey of old sessile oak woods and alluvial forests. Irish Wildlife Manuals, No. 71. NPWS, DoAHG, Dublin, Ireland

Reynolds, J.D., O'Connor, W., O'Keeffe, C. & Lynn, D. (2010) A technical manual for monitoring white-clawed crayfish Austropotamobius pallipes in Irish lakes. Irish Wildlife Manuals, No 45, National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.

Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants & Land Use Consultants. (2006). Appropriate Assessment of Plans.

Smal, C. (2008): Guidelines for the treatment of otters prior to the construction of National Road Schemes. Dublin: National Roads Authority

APPENDIX I

	
View from exterior of site	Drainage ditches fringing site
	
Bonet River adjacent to area where drainage ditches empty	Substrate in Bonet River