

Statement to Inform an Appropriate Assessment (Habitats Regulations Assessment)

Shimna River Flood Alleviation Scheme

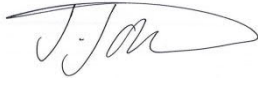
Department for Infrastructure

Project number: 60556684

August 2018

Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position

Distribution List

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1. Introduction

1.1 Background

AECOM was commissioned by the Department for Infrastructure (DfI) – Rivers (the Department) to provide a range of engineering and environmental design services in relation to the Shimna River Flood Alleviation Scheme, which is a project intended to provide relief from future flooding along a stretch of the Shimna River in Newcastle, County Down. Purpose of this report

This report is being prepared on behalf of DfI - Rivers (as the Competent Authority) to inform their determination of whether the project will be possible to complete without having any significant effects on any Natura 2000 site. In accordance with UK guidance, the term HRA collectively refers to the four-staged processes of which Screening and Appropriate Assessment are Stages One and Two respectively. Following the completion of the Stage One - Screening Assessment, should an Appropriate Assessment be required, additional information is considered before a decision can be made.

This document acts as a Statement to Inform the Appropriate Assessment (SIAA), as the actual Appropriate Assessment decision will be taken by DfI on considering its contents.

1.2 Legal and planning context

The European Communities Habitats Directive 92/43/EEC (“the Habitats Directive”) is primarily transposed in Northern Ireland by the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995¹ (As amended) (‘the Regulations’). In the context of the proposed works, Article 6 of the Habitats Directive, which is transposed by Regulation 43 (1) of the Regulations, sets out the legal requirement for Appropriate Assessment (AA) in Northern Ireland:

43.—

1. A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which:
 - a. Is likely to have a significant effect on a Natura site in Northern Ireland (either alone or in combination with other plans or projects), and
 - b. Is not directly connected with or necessary to the management of the site, shall make an appropriate assessment of the implications for the site in view of that site’s conservation objectives
2. In the light of the conclusions of the assessment, and subject to paragraph (3), the Department may give consent for the operation only after having ascertained that the plan or project will not adversely affect the integrity of the site.

The term Natura 2000 site is defined in Section 1.4.

An Appropriate Assessment or ‘Stage 2’ HRA is required where significant effects on Natura 2000 sites are likely (or more specifically ‘cannot be excluded on the basis of objective information’²). If triggered, AA or ‘Stage 2’ HRA then determines whether the project will adversely affect the integrity of the site, in light of the site’s conservation objectives.

¹ Statutory Rule No. 280.

² The ‘Waddenzee’ ruling (C-127/02) is an influential judgement of the European Court of Justice (ECJ) which has clarified what “likely to have a significant effect” means: specifically that, “if it cannot be excluded on the basis of objective information, that it will have a significant effect on the site” and that unless a significant effect can be objectively ruled-out with certainty, then it is ‘likely’.

1.3 Natura 2000 sites

In Northern Ireland, Natura 2000 sites include:

- Special Areas of Conservation (SAC) designated for habitats, plants, and non-bird species;
- Special Protection Areas (SPA) designated for bird species and their habitats; and,
- Any 'candidate' or 'proposed' sites including 'cSAC', Sites of Community Interest (SCI) (which have been formally advertised).

Additionally, in Northern Ireland, under Planning Policy Statement 2: Natural Heritage (PPS2), whilst not part of the European Natura 2000 network, Ramsar sites are also included.

2. Project description

2.1 Site description

The study area centres on the Shimna River, which forms a locally distinctive landscape within the town of Newcastle and includes the Shimna valley, Tipperary Wood and the river corridors associated with the Tullybrannigan and Burren Rivers. The Shimna River is significant for salmon fishing and breeding and is of local nature conservation interest, with the river and trees supporting a range of habitats and species. The dominant existing land uses that surround the riparian corridors of the three rivers are amenity and residential. Islands Park is the predominant land use which is considered a valuable area of active open space and recreation for Newcastle. A redline boundary, representing an indicative survey area based on the extent of the works, is presented in Figure 1.

2.2 Proposed works

The proposed scheme comprises the construction of flood alleviation measures to reduce the risk of flooding from the Shimna River to protect existing properties in the town. The works extend both upstream (into Tipperary Wood) and downstream (into Islands Park) from New Bridge on the Bryansford Road. The proposed works include:

- Demolition of a number of property boundary walls and fences;
- Felling of a number of mature trees;
- Relocation of one drainage ditch;
- 1,430 m of brick/concrete clad sheet piles or sheet pile core embankments;
- Construction of a new pathway;
- Realignment of existing pathways; and,
- Erection of one floodgate.

2.3 Mitigation inherent within the project

The European Commission (EC, 2001) states mitigation should not be considered during Screening for AA (i.e. Stage 1 HRA). The courts subsequently ruled, in several jurisdictions since the EC guidance was published, that mitigation may be permitted in Stage 1 HRA, subject to certain criteria. However, on 12 April 2018, the Courts of Justice of the EU (CJEU) ruled in case C-323/17 (People over Wind v Coillte) that measures intended to avoid or reduce a proposed plan or project's harmful effects on a European site ('mitigation measures') cannot be considered during the screening for Appropriate Assessment stage. Therefore, unless it can be shown that the proposed plan or project would not have a significant effect on the conservation objectives of the relevant European site, it is necessary to carry out an Appropriate Assessment. Mitigation measures should be considered at this stage, when a 'full and precise analysis' can be carried out. This is contrary to the previous guidance whereby inherent mitigation at the screening stage could be considered. As such, to comply with the recent CJEU ruling, no mitigation is included in the Stage 1 Screening.

3. Methodology

3.1 Overview

The function of the Screening assessment is to identify whether or not the proposed development will have Likely Significant Effects on European Sites. In this context “likely” refers to the presence of doubt with regard to the absence of significant effects (ECJ case C-127/02) and “significant” means not trivial or inconsequential but an effect that has the potential to undermine the site’s conservation objectives (English Nature, 1999; ECJ case C-127/02). In other words, any effect that compromises the functioning and viability of a site and interferes with achieving the conservation objectives for the site would constitute a significant effect.

The nature of the likely interactions between the project and the integrity of a European Site will depend upon the sensitivity of the European Site’s qualifying features to potential impacts arising from the project; the current conservation status of the European Site and its qualifying features; and any likely changes to key environmental indicators (e.g. water quality) that underpin the conservation status of European Sites and their qualifying features, in combination with other plans and projects.

The methodology for the Stage 1 HRA broadly follows that for Screening in the EC guidance (EC, 2001). Changes to HRA practice since 2001 (particularly relating to use of mitigation in a HRA Stage 1 from court rulings) are referenced where relevant.

This assessment has been completed using the following guidance:

- The Habitats Regulations Assessment Handbook (Ref 1.4); and
- The European Commission Managing Natura 2000 sites (the Provisions of Article 6 of the Habitats Directive 92/43/EEC).

The methodology used also draws on, and has evolved from, guidance from other jurisdictions in the UK (e.g. Natural England, 2016), and recommendations from international Appropriate Assessment practitioners (Levett-Therivel, 2009 and Chvojková et al., 2013). For instance:

- In accordance with the Natural England HRA standard (Natural England, 2016), the approach will be “clear, rigorous and robust, demonstrating a high degree of technical credibility which is underpinned by the application of sound ecological principles and scientific evidence”; and,
- In accordance with guidance from international Appropriate Assessment practitioners (Levett-Therivel, 2009): the “precautionary principle should be used with reasonableness, and should be commensurate with the level of risk and the level of uncertainty concerned. Time-consuming and costly ecological research should be required only in rare circumstances”

3.1.1 The source-pathway-receptor model and Zones of Influence

The ‘source-pathway-receptor’ conceptual model is a standard tool in environmental assessment. In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism means there is no likelihood for the effect to occur. An example of this model is provided below:

- Source(s), e.g. piling;
- Pathway(s) e.g. vibration; and,
- Receptor(s) e.g. underground badger *Meles meles* resting site at risk of collapse.

The model is focused solely on the selection features for which sites are designated as per the latest Conservation Objectives from the Department of Agriculture, Environment and Rural Affairs (DAERA) website which are referenced throughout this report where relevant.

The proposed development may have the potential to result in a number of impacts, which could potentially affect the selection features of Natura 2000 sites. The analysis of these effects, using scientific knowledge and professional judgement, leads to the identification of a “zone of influence” for each effect (i.e. the distance at which the impact of the proposed borehole development could have potential effects, using professional judgement and published guidance).

3.2 Screening (HRA Stage 1)

In summary, the steps for the Screening are:

- Describe the project and determine whether it is directly connected with or necessary to the management of the site;
- Describe the baseline environment; and,
- The Screening assessment itself;
 - Identify ‘relevant’ Natura 2000 sites, which are those sites potentially connected to the proposed development by source-pathway-receptor linkages; and,
 - Conclude if links to ‘relevant’ sites could give rise to Likely Significant Effects.

3.3 The Precautionary Principle

The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as:

“When human activities may lead to morally unacceptable harm [to the environment] that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis”.

Reasoned application of the ‘Precautionary Principle’ is fundamental to all stages of HRA.

In Stage 1 HRA, significant effects would be presumed without evidence to the contrary, where there was evidence of possible effects on a Natura 2000 site(s) from the proposed development, but uncertainty remained.

3.4 Site visit

The assessment was informed by a desktop assessment and site visits of the proposed development location. The relevant findings of this desktop assessment and site visits are presented in Section 4. The site visits were conducted in June 2018. Photographs of the site are shown in Appendix A.

3.5 Consultation

CEDaR was consulted in order to inform this report. A data information request was made to obtain records for the presence within a 2 km buffer of the site, in order to investigate the potential presence of the various species which are qualifying interests of the neighbouring Natura sites (as detailed in Section 4.2 and Table 4.2).

3.6 Appropriate Assessment (HRA Stage 2)

Appropriate Assessment (AA) is the process provided for under Article 6(3) of the Habitats Directive to determine whether a project or plan could ‘adversely affect the integrity’ of any European sites, either

alone or in-combination with other plans or projects, in the light of the conservation objectives of the European sites in question.

4. Screening

4.1 Baseline description

This section describes the results of the desk study, in order to describe the relevant baseline environment at the site of the proposed works, a description of which is presented below. The relevant baseline environment relates to anything that may be directly or indirectly related to the qualifying interests of Natura 2000 sites.

The study area comprises the area surrounding the Shimna River, in Newcastle, Co. Down, and includes the Shimna valley, Tipperary Wood and the river corridors associated with the Tullybrannigan and Burren Rivers. The Shimna River is bordered along most of its length by pockets of semi-natural broadleaved woodland, whilst the Tullybrannigan and Burren Rivers are fringed by the amenity lands that dominate the surrounding environment. The dominant existing land uses that surround the riparian corridors of the three rivers are amenity and residential.

An examination of existing CEDaR records shows 976 records of 96 species of regional or international importance occurring within 2 km of the site centroid (Appendix B). Due to the proximity of well-studied designated sites (e.g. Murlough SAC ASSI), it is considered likely that a number of records received are associated with these sites (e.g. spring vetch *Vicia lathyroides*, a Priority Species within the dataset, is associated primarily with sand dunes, and as such is unlikely to occur within the site). Some species of bird within the dataset, e.g. goldeneye *Bucephala clangula* and redshank *Tringa totanus* are qualifying species of Strangford Lough SPA SAC Ramsar site. No other species within the dataset are qualifying interests of Natura sites within the vicinity of the proposed development.

4.2 Identification of relevant Natura 2000 sites

This Section identifies the 'relevant' Natura 2000 sites, i.e. those which are potentially connected to the proposed development by source-pathway-receptor links. The Screening assessment will only concentrate on relevant Natura 2000 Sites within 25 km of the proposed development, which will represent the most likely chance of significant effects from the proposed development.

Of the nine sites occurring within 25 km, eight were screened out immediately (Table 4.1) on the basis that they were either upstream of the proposed development (i.e. Eastern Mourne SAC), or that they were sufficiently far away to avoid any potential impacts (e.g. dilution effect), especially given the nature of the hydrological pathway (i.e. the Shimna River); its associated weirs would prevent runoff of sedimentation downstream. Additionally, any Natura 2000 sites beyond 25 km were considered to be far enough away to avoid any potential impacts as no appropriate pathway existed to the ecological receptor.

Table 4.1 Natura 2000 Sites screened in and out with their selection interest features.

Screened in

Site Name	Type	Distance from site	Selection Interest Features
Murlough	SAC	0.22 km	<p>Annex I habitats</p> <ul style="list-style-type: none"> – Fixed coastal dunes with herbaceous vegetation ("grey dunes") – Atlantic decalcified fixed dunes (Calluno-Ulicetea) <p>Annex II species</p> <ul style="list-style-type: none"> – Marsh fritillary butterfly <i>Euphydryas aurina</i>. <p>Other qualifying features</p>

- Sandbanks which are slightly covered by sea water all the time
- Mudflats and sand flats not covered by seawater at low tide
- Atlantic salt meadows (*Glauco-Pucinellietalia maritimae*)
- Embryonic shifting dunes
- Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")
- Dunes with *Salix repens* ssp. *argentea* (*Salicon arenarie*)
- Common seals *Phoca vitulina* are an additional qualifying feature under Annex II species

Screened out

Site Name	Type	Distance from site	Selection Interest Features
Eastern Mournes	SAC	0.92 km	Annex I habitats <ul style="list-style-type: none"> – European dry heaths – Northern Atlantic wet heaths with <i>Erica tetralix</i> – Active blanket bogs – Alpine and boreal heaths – Siliceous alpine and boreal grasslands – Siliceous rocky slopes with chasmophytic vegetation – Siliceous scree of the montane to snow level
Lecale Fens	SAC	10.4 km	Annex I habitats <ul style="list-style-type: none"> – Alkaline fens
Ballykilbeg	SAC	11.84 km	Annex II species <ul style="list-style-type: none"> – Marsh fritillary butterfly <i>Euphydryas aurina</i>.
Killough Bay	SPA, Ramsar	17.3 km	<ul style="list-style-type: none"> – Light-bellied brent goose <i>Branta bernicla hrota</i>
Carlingford Lough	SPA, Ramsar	21.1 km	Breeding and overwintering wildfowl <ul style="list-style-type: none"> – Roseate, Arctic, sandwich, and common tern – Light-bellied brent goose
East Coast	Proposed SPA	21.7 km	Breeding and overwintering wildfowl <ul style="list-style-type: none"> – Great crested grebe <i>Podiceps cristatus</i> – Red-throated diver <i>Gavia stellate</i> – Sandwich tern <i>Thalasseus sandvicensis</i> – Common tern <i>Sterna hirundo</i> – Arctic tern <i>Sterna paradisaea</i> – Manx shearwater <i>Puffinus puffinus</i> – Eider <i>Somateria mollissima</i>
Outer Ards	SPA, Ramsar	24.3 km	Breeding and overwintering wildfowl <ul style="list-style-type: none"> – Arctic tern – Golden plover – Light bellied brent goose – Ringed plover – Turnstone
Strangford Lough	SPA, SAC, Ramsar	24.7 km	Breeding and overwintering wildfowl <ul style="list-style-type: none"> – Sandwich, common and Arctic tern, – Light-bellied brent goose – Knot <i>Calidris canutus</i>

- Redshank *Tringa totanus*
- Bar-tailed godwit *Limosa lapponica*
- Black-tailed godwit *Limosa limosa*
- Gadwell *Anas strepera*
- Great crested grebe
- Greylag goose *Anser anser*
- Greenshank *Tringa nebularia*
- Goldeneye *Bucephala clangula*
- Golden plover *Pluvialis apricaria*
- Grey plover *Pluvialis squatarola*
- Lapwing *Vanellus vanellus*
- Mallard *Anas platyrhynchos*
- Mute swan *Cygnus olor*
- Oystercatcher *Haematopus ostralegus*
- Pintail *Anas acuta*
- Red-breasted merganser *Mergus serrator*
- Teal *Anas clypeata*
- Ringed plover *Charadrius hiaticula*
- Turnstone *Arenaria interpres*
- Wigeon *Anas Penelope*

Annex I habitats

- Large shallow inlet and bay
- Coastal lagoons
- Mudflats and sandflats not covered by sea water at low tide
- Reefs
- Annual vegetation of drift lines
- Atlantic salt meadows (*glauco-puccinellietalia maritimae*)
- Perennial vegetation of stony banks
- *Salicornia* and other annuals colonising mud and sand

4.3 Stage 1 Screening

After the identification of relevant Natura 2000 sites, a Stage 1 Screening for Appropriate Assessment was completed; the screening assessment is presented in Table 4.2.

Table 4.2: Project description and Natura 2000 sites.

Stage 1 Screening for Appropriate Assessment

Brief description of the project or plan	<p>The proposed works involves comprises the construction of flood alleviation measures to reduce the risk of flooding from the Shimna River. This comprises the installation of sheet piled flood defences along sections of the Shimna River and associated tributaries as part of a scheme to alleviate the chance of flooding after periods of high rainfall.</p> <p>The construction work associated with the proposed development include:</p> <ul style="list-style-type: none"> - Removal of trees and bankside vegetation; - Demolition of a number of property boundary walls and fences; - Relocation of one drainage ditch; - Movement of earth to form banks; - 1,430 m of brick/concrete clad sheet piles or sheet pile core embankments;
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Stage 1 Screening for Appropriate Assessment

	<ul style="list-style-type: none"> – Construction of a new pathway; – Realignment of existing pathways; and, – Erection of one floodgate.
<p>Brief description of the [relevant] Natura 2000 site(s)</p>	<p>There are nine Natura 2000 sites within 25 km of the proposed development; however eight of these were screened out of the assessment on the basis that they were considered either to have no impact pathways (e.g. upstream of the proposed works) or to be far enough away, that no significant effects could be experienced by their interest features, either directly or indirectly, or in combination with other plans or projects.</p> <p>Murlough SAC is located approximately 0.22 km east of the proposed development and is hydrologically connected to the site via the Shimna River. Murlough is designated under Directive 92/43/EEC, Annex 1 habitats 'Fixed coastal dunes with herbaceous vegetation ("grey dunes")' and 'Atlantic decalcified fixed dunes (Calluno-Ulicetea)' are priority features within the SAC. Other qualifying features are 'sandbanks which are slightly covered by sea water all the time', 'mudflats and sand flats not covered by seawater at low tide', 'Atlantic salt meadows (<i>Glauco-Pucinellietalia maritimae</i>)', 'embryonic shifting dunes', 'shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") and 'dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicon arenarie</i>). The site is also designated for an Annex II species, the Marsh fritillary butterfly <i>Euphydryas aurina</i>. Common seals <i>Phoca vitulina</i> are an additional qualifying feature under Annex II species.</p>
<p>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European site.</p>	<p>Due to the proximity to the Shimna River and associated tributaries (i.e. hydrological vector pathways) the elements of the works that, either alone or in combination with other plans or projects, are likely to include temporary impacts to water quality associated with the physical disturbance of the aquatic environment and adjacent lands. These may include pollution from mobilised suspended solids, pollution from oils and chemicals during construction, including those associated with cement and concrete.</p>
<p>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura site by virtue of:</p> <ul style="list-style-type: none"> – size and scale; – land-take; – distance from Natura site or key features of the site; – resource requirements (water abstraction etc.); – emission (disposal to land, water or air); – excavation requirements; – transportation requirements; – duration of construction, operation, de-commissioning etc.; and / or, – other. 	<p>There are not likely to be any direct impacts of the project on Natura sites due to the following:</p> <ul style="list-style-type: none"> – The impacts from these works will be of a temporary nature, and on a small scale in comparison with the size of the Natura sites in question; – There will be no land-take within any Natura site; – No resources would be required from within these Natura sites; – No excavation of resources will be required from the Natura sites; – Transportation of materials will be delivered to the site on the normal road network; <p>However, impacts identified that cannot be excluded could be via emissions in the form of suspended solids, silt or other pollutants have the potential to enter watercourses connected with Murlough SAC.</p>
<p>Describe any likely changes to the site arising as a result of :</p> <ul style="list-style-type: none"> – reduction of habitat area; – disturbance to key species; 	<p>There likely will be no changes to any of the Natura sites as a result of the proposed works given the temporary nature and scale of the development, for instance:</p> <ul style="list-style-type: none"> – No reduction in either size or quality of habitats used by qualifying species

Stage 1 Screening for Appropriate Assessment

<ul style="list-style-type: none"> - habitat or species fragmentation; - reduction in species density; and / or - changes in key indicators of conservation value (water quality etc.) 	<ul style="list-style-type: none"> - No change in or disturbance to key indicators (e.g. injury or disturbance to qualifying species) - No change in population or distribution numbers of Annex II species given the distance and scale of the works <p>However, it cannot be excluded that impacts via emissions in the form of suspended solids, silt or other pollutants, which have the potential to enter watercourses connected with Murlough SAC, may change indicators of conservation value such as water quality.</p>
<p>Describe any likely impacts on the Natura site as a whole in terms of:</p> <ul style="list-style-type: none"> - interference with the key relationships that define the structure of the site; - interference with key relationships that define the function of the site. 	<p>There will be no impacts on the Natura 2000 sites as a whole, in terms of interference with the key relationships that define the structure or function of this Natura 2000 sites.</p>
<p>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts are not known.</p>	<p>Impacts identified that cannot be excluded could be via emissions in the form of suspended solids, silt or other pollutants have the potential to enter watercourses connected with Murlough SAC. The magnitude of such impacts is unknown.</p> <p>It is likely that the proposed works will not produce significant impacts on any of the Natura 2000 sites within 25 km of the proposed development due to distances involved.</p> <p>It is considered with a high degree of certainty that it would not be possible for the impacts of these works to act in combination with any other known plans or projects to cause significant negative effects to any Natura 2000 site.</p>

Table 4.3: Data required to carry out the assessment.

Who carried out the assessment	Sources of data	Level of assessment completed	Where can the full results of the assessment be accessed and viewed?
<p>Jenny Jones Consultant Ecologist</p> <p>AECOM Ltd.</p>	<ul style="list-style-type: none"> - Data from Northern Ireland Environment Agency and DAERA on Natura site selection features and conservation objectives. - Digital mapping of Natura 2000 sites. - AECOM ecology surveys to inform Biodiversity chapter of ES. - Data request results from CEDaR. 	<p>Desktop screening study</p> <p>The results obtained are considered to provide a high degree of accuracy.</p>	<p>This report comprises the assessment in its entirety.</p>

4.4 Stage 1 Screening conclusion

The need for an Appropriate Assessment can only be excluded, on the basis of objective scientific information, and in light of the conservation objectives of relevant sites, that the proposed works, either individually or in combination with other plans or projects, would not have likely significant effects on any Natura 2000 site(s). However, after Screening, it is considered that Murlough SAC, a neighbouring Natura 2000 site, may be impacted as a result of the proposed works, due to the hydrological connection present.

Therefore, an Appropriate Assessment of the proposed development is required. The qualifying features of Murlough SAC include Annex I habitats and Annex II species (see Table 4.2 for full details) and the conservation objective for this SAC is "to maintain (or restore where appropriate) the [selection features] to favourable condition". Natura 2000 sites which are not screened out, i.e. Murlough SAC must be considered in an Appropriate Assessment.

5. Information to inform Appropriate Assessment

An Appropriate Assessment or 'Stage 2' HRA is required where significant effects on Natura 2000 sites are likely (or more specifically 'cannot be excluded on the basis of objective information'). As described in Section 4.4, Murlough SAC could not be screened out during Stage 1, as, in the absence of any mitigation measures, it may be significantly impacted by the works.

Table 5.1: Natura sites which may be impacted by the proposed development.

Nature 2000 site (and code)	Relevant qualifying interests which may be impacted by the proposed works	Conservation objective(s)
Murlough SAC UK0016612	<p>Marine qualifying features which could be impacted.</p> <ul style="list-style-type: none"> – Sandbanks which are slightly covered by sea water all the time – Mudflats and sand flats not covered by seawater at low tide – Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) – Common seal 	<ul style="list-style-type: none"> – To maintain marine features (or restore where appropriate) the Sandbanks which are slightly covered by sea water all the time – Mudflats and sandflats not covered by seawater at low tide – Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) – Common seal populations to favourable condition.

There is currently no Method Statement for any stage of the proposed development, as it is still in the design stage. However, as full mitigation measures within a CEMP will be developed and will be incorporated into the scheme (i.e. inherent mitigation), adverse effects to Murlough SAC can be avoided.

Following Simpson (2014), in summary the mitigation proposed must be:

- Measures that form an "intrinsic part of the work carried out", (e.g. through inclusion in method statements);
- Mitigation that is proven to be efficient, and non-contentious, with reference to technical standards and best scientific knowledge;
- Mitigation that will be monitored during implementation to assess whether any amendments are needed to address unforeseen weather or ground conditions; and,
- Assessed as a source of potential effects.

The following mitigation measures comply with these criteria, and are summarised in Section 5.1.

5.1 Mitigation measures

Mitigation must be incorporated within the construction phase of these works to minimise the potential impact of this project on the aquatic environment which provides a link to a Natura site. The mitigation outlined within this Section is expanded upon fully in Chapter 13 (Drainage and the Water Environment) of the Environmental Statement (AECOM, 2018). Specific mitigation in relation to the proposed development at the site includes consideration of water quality, pollution, and sediment control. Mitigation measures will include the following:

Construction Environmental Management Plan

Preparation and implementation of a Construction Environmental Management Plan (CEMP), which consists of Method Statements for all aspects of the proposed works will be undertaken for the scheme. The CEMP will identify the perceived risks to the sensitive environmental receptors, potential pollution pathways, and the mitigation measures to be employed which will negate the risk.

Sediment control

Sediment, including all soils, mud, clay, silt, sand etc., is the single main pollutant generated at construction sites and largely arises from the erosion of exposed soils by surface water runoff. The adoption of appropriate erosion and sediment controls during construction is essential to prevent sediment pollution. Mitigation and control measures to address the impact from suspended sediments associated with construction activities should follow good work practices and sound design principals.

The CEMP will include an Erosion Prevention and Sediment Control Plan and this must be submitted to NIEA -WMU prior to commencement of any works. The first aim of this plan should be to minimise erosion by reducing disturbance and stabilising exposed materials. The plan should then consider control measures to minimise the release of mobilised sediment which results, despite the erosion control measures. Measures to prevent erosion are more effective than controlling sediment once mobilised. Further advice on preparing an Erosion and Sediment Control Plan is provided in the following guidance:

- CIRIA 648 'Control of Water Pollution from Linear Construction Projects' (2006), including information detailing appropriate mitigation measures;
- CIRIA 532: Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors (2001), including information detailing appropriate mitigation measures; and,
- Pollution Prevention Guidance –Standing Advice (NIEA, 2015).

The contractor shall be familiar with the requirements of best practice and relevant guidelines to ensure silt laden or contaminated surface run-off from the entire construction site does not discharge directly to watercourses (and by extension, any Natura 2000 site).

Managing runoff and silty water

The first step towards preventing silt pollution from construction works is to minimise the generation of silt-laden runoff. This can be achieved by carefully planning the site works so that activities likely to generate silt-laden runoff are carried out during drier months (if possible), and erosion of surface soils is controlled. Seasonal weather patterns should be taken into consideration when programming and planning construction activities.

However, as local weather is inherently unpredictable, the control of erosion from surface soils would be paramount to the protection of the water environment. This should encompass the requirement that any attenuation measures are designed to cope with one-off adverse precipitation events and cannot be overwhelmed resulting in polluted runoff reaching the main watercourse to the detriment of the aquatic environment.

Stockpiles should be kept to a minimum, however to control erosion, areas of exposed ground and stockpiles should be minimised to reduce silty runoff and located well away from drains and watercourses (by a minimum distance of 10 m where the land is flat, and further if there is a slope to a watercourse), stabilised as soon as possible (e.g. seeded or geotextile mats), and bunded by earth or silt fences (if required) at the toe of the stockpile to intercept silt-laden runoff during rainfall events. Stockpiles shall not be located where there is a steep slope towards a watercourse.

Existing vegetation should be retained where possible, as mature vegetation stabilises the soil and prevents erosion. Areas where vegetation clearance is required should be kept to a minimum, and the works divided into phases, with seeding and planting of the phases that are complete. This will minimise the areas of exposed soil and thus the risk of erosion. A minimum of a 10 m vegetative buffer shall be maintained adjacent to watercourses (e.g. rivers, ponds) except where works are specifically required to the watercourse.

Vehicle crossings of watercourses shall be minimised and shall use designated crossing points and existing road infrastructure only. Mud shall be controlled at entry and exits to the site using wheel washes and/or road sweepers, and tools and plant must be washed out and cleaned in designated areas.

Accidental spillage

Measures will be taken, and procedures put in place to minimise the risk and potential effects of spillage incidents, such as the following:

- Storage of oils and diesel, along with the general maintenance and refuelling of plant, would be restricted to impermeable bunded areas with a minimum 110% storage capacity and away from surface waters or areas where any spillages could easily reach surface water. All fuel, chemicals and oils would be stored within bunded areas in accordance with GPP 2: Above ground oil storage tanks, and PPG26 – Storage and handling of drums and intermediate bulk containers, and be compliant with The Control of Pollution (Oil Storage) Regulations (Northern Ireland) 2010;
- Leaking or empty oil drums shall be removed from site immediately and disposed of via an appropriately licensed waste disposal contractor;
- All hazardous substances on-site shall be controlled in accordance with The Control of Substances Hazardous to Health Regulations (Northern Ireland) 2003 (as amended) (COSHH Regulations). The storage compound shall be fenced-off and locked when not in use to prevent theft and vandalism;
- Refuelling of plant and machinery shall take place at least 10 m away from watercourses using a mobile fuel bowser and restricted to designated areas on hard standing. Only double-bunded fuel bowsers shall be used. Vehicles must not be left unattended during refuelling operations. Fixed plant shall be self-bunded. Mobile plant must be in good working order, kept clean and fitted with drip trays where appropriate. All water runoff from designated refuelling areas shall be channelled to an oil separator or an alternative treatment system prior to discharge;
- Spill kits and oil absorbent material must be carried by mobile plant and located at vulnerable locations (e.g. crossings of land drains and ditches) to reduce risk of spillages entering the sub-surface or groundwater environment. Booms shall be held on-site for works near watercourses;
- Care must be taken whilst using shuttering oils when preparing formwork. This requires operatives to be trained in the proper handling of materials, the sensitive nature of the wider drainage system, and the consequences of accidental spillage;
- An Emergency Response Plan shall be prepared by the appointed Contractor and included as part of the CEMP, and construction workers trained to respond to spillages as well as being made aware of the NIEA Water Pollution Hotline to report pollution incidents;
- Concrete mixing must be undertaken in designated impermeable areas, at least 10 m away from a watercourse or surface water drain to reduce the risk of runoff entering a watercourse, or the sub-surface, or groundwater environment; and
- Equipment, batching and ready mix lorry washing and cleaning should be washed-out on site into a designated area that has been designed to contain wet concrete / wash waters (see PPG6 – Working at construction and demolition sites).

Prescriptive requirements in the contract documentation would require the contractor to properly assess risk and devise mitigation measures for those activities not already covered by statutory requirements. Where possible, risks would be designed-out. Throughout the construction period however, the Contractor would be required to comply with PPG/GPP requirements and refer to CIRIA 648 'Control of Water Pollution from Linear Construction Projects' (2016), which provides advice on potential impacts arising during the construction phase and the assessment and mitigation of these risks.

Pollution, ecological or environmental impacts

The Contractor shall protect the site, the works and the general environment including the watercourse against pollution. If pollution occurs inform immediately, including to the appropriate authorities and

provide relevant information. The Contractor shall at all times work within and comply with all relevant environmental regulations and pollution prevention guidelines.

5.2 Assessment of impacts

Table 5.2: Assessment of impacts

Stage 2 Appropriate Assessment

Brief description of the project or plan	<p>The proposed works involves comprises the construction of flood alleviation measures to reduce the risk of flooding from the Shimna River. This comprises the installation of sheet piled flood defences along sections of the Shimna River and associated tributaries as part of a scheme to alleviate the chance of flooding after periods of high rainfall.</p> <p>The construction work associated with the proposed development include:</p> <ul style="list-style-type: none"> – Removal of trees and bankside vegetation; – Demolition of a number of property boundary walls and fences; – Relocation of one drainage ditch; – Movement of earth to form banks; – 1,430 m of brick/concrete clad sheet piles or sheet pile core embankments; – Construction of a new pathway; – Realignment of existing pathways; and, – Erection of one floodgate.
Brief description of the [relevant] Natura 2000 site(s)	<p>Murlough SAC is located approximately 0.22 km east of the proposed development and is hydrologically connected to the site via the Shimna River. Murlough is designated under Directive 92/43/EEC, Annex 1 habitats 'Fixed coastal dunes with herbaceous vegetation ("grey dunes")' and 'Atlantic decalcified fixed dunes (Calluno-Ulicetea)' are priority features within the SAC. Other qualifying features are 'sandbanks which are slightly covered by sea water all the time', 'mudflats and sand flats not covered by seawater at low tide', 'Atlantic salt meadows (Glauco-Pucinellietalia maritimae)', 'embryonic shifting dunes', 'shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") and 'dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicon arenarie</i>). The site is also designated for an Annex II species, the Marsh fritillary butterfly <i>Euphydryas aurina</i>. Common seals <i>Phoca vitulina</i> are an additional qualifying feature under Annex II species.</p>
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European site.	<p>Works associated with the proposed development may involve temporary impacts to water quality associated with the physical disturbance of the aquatic environment and adjacent lands. These may include pollution from mobilised suspended solids, pollution from oils and chemicals during construction, including those associated with cement and concrete. The mitigation proposed for the proposed development (described in Section 5.1) will, however, prevent significant amounts of silt or other pollutants (e.g. concrete washings, oils etc.) entering the water and being carried away into these Natura 2000 sites.</p> <p>Given the above described mitigation measures are implemented and adhered to for these construction works, pollution from oils and chemicals and suspended solids are not likely to give rise to significant effects to the qualifying features of Natura 2000 sites, either alone or in-combination with other plans or projects. Furthermore, it is not anticipated that the works will impact on the qualifying features of any of the adjacent Natura sites.</p>
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura site by virtue of:	<p>With the above mitigation measures implemented, no elements of the project are likely to have adverse effects on the integrity of any of the Natura 2000 sites. There are not likely to be any direct impacts of the project on Natura sites due to the following:</p> <ul style="list-style-type: none"> – The impacts from these works will be of a temporary nature, and on a

Stage 2 Appropriate Assessment

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| <ul style="list-style-type: none"> – size and scale; – land-take; – distance from Natura site or key features of the site; – resource requirements (water abstraction etc.); – emission (disposal to land, water or air); – excavation requirements; – transportation requirements; – duration of construction, operation, de-commissioning etc.; and / or, – other. | <p>small scale in comparison with the size of the Natura sites in question;</p> <ul style="list-style-type: none"> – There will be no land-take within any Natura site; – No resources would be required from within these Natura sites; – No excavation of resources will be required from the Natura sites; – Transportation of materials will be delivered to the site on the normal road network; – Any emissions from construction will be managed through mitigation. |
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| <p>Describe any likely changes to the site arising as a result of :</p> <ul style="list-style-type: none"> – reduction of habitat area; – disturbance to key species; – habitat or species fragmentation; – reduction in species density; and / or – changes in key indicators of conservation value (water quality etc.) | <p>There likely will be no changes to any of the Natura sites as a result of the proposed works given the temporary nature and scale of the development and the inherent mitigation, for instance:</p> <ul style="list-style-type: none"> – No reduction in either size or quality of habitats used by qualifying species – No change in or disturbance to key indicators (e.g. injury or disturbance to qualifying species – No change in population or distribution numbers of Annex II species given the distance and scale of the works |
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| <p>Describe any likely impacts on the Natura site as a whole in terms of:</p> <ul style="list-style-type: none"> – interference with the key relationships that define the structure of the site; – interference with key relationships that define the function of the site. | <p>There will be no impacts on the Natura 2000 sites as a whole, in terms of interference with the key relationships that define the structure or function of this Natura 2000 sites, given that these mitigation measures are adhered to.</p> |
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| <p>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts are not known.</p> | <p>The proposed scheme, incorporating the mitigation described in Section 5, is not considered likely to have any adverse effects on the integrity of any adjacent Natura 2000 sites.</p> |
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6. Conclusions

Following implementation of mitigation measures, it is the view of AECOM that the proposed development would have no adverse effects on the integrity of any European site(s), either alone or in combination with other plans or projects.

7. References

AECOM (2018) Shimna Flood Alleviation Scheme, Environmental Statement. Report to Department for Infrastructure (DfI) – Rivers.

Chvojková, E., Roth, P., and Volf, O. (2013) Conclusions of the International Workshop on Appropriate Assessment held in Mikulov, Czech Republic, 4th October 2013.

DAERA Planning and Environment (2016) Pollution Prevention Guidance: Standing advice for planning officers and applicants seeking planning permission for developments which may impact upon the water environment. Issue 02.

EC (2001) Assessment of Plans and Projects Significantly Affecting European sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission Environment Directorate-General).

Levett-Therivel (2009) Guidelines for Good Practice Appropriate Assessment. International Workshop on Assessment of Plans under the Habitats Directive, Oxford, December 2009. Available at: <http://www.levett-therivel.co.uk>.

The European Communities Habitats Directive 92/43/EEC.

8. Figures

Appendix A Site photographs



Plate 1: Amenity grassland dominated the scheme area. Dense scrub to the background fringes the Shimna River.



Plate 2: Shimna River where it flows under Bryansford Road. Water levels were low during survey. Broadleaved semi-natural woodland fringes the river.



Plate 3: Paths are present associated with Islands Park. This path leads through a pocket of broadleaved woodland.



Plate 4: Coniferous plantation woodland to the north of the scheme.



Plate 5: Example of ephemeral/short perennial habitat in the wider area.



Plate 6: Areas of dense/scattered scrub area present across the surveyed area.

Appendix B Relevant CEDaR records

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
Accipiter nisus	Sparrowhawk	18/12/2010 - 01/01/2013	The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.36 SE	Six records, potential to forage over site.
Ardea cinerea	Grey heron	25/02/2012	The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.56 SSW	One record, potential to occur on site.
Asio otus	Long-eared owl	10/05/2005	The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	1.92 SW	One record, usually breeds in the lowlands, often in conifers. Could potentially occur on site.
Buteo buteo	Buzzard	17/09/2011 - 06/11/2013	The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.56 SSW	Two records, potential to forage over site.
Loxia curvirostra	Crossbill	13/02/2003 - 12/04/2013	The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	1.26 WNW	Three records, potential to occur close to the scheme. Breeds and feeds in coniferous woodland.
Mergus merganser	Goosander	07/08/2013 - 08/12/2013	The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.58 SE	Three records, unlikely to occur close to the scheme. Breeds in freshwater lakes.
Primula vulgaris	Primrose	13/04/2004 - 13/04/2005	The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 2)	0.56 NW	Three records, potential to occur on site.

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
Celastrina argiolus	Holly blue	05/05/2010 - 02/04/2017	The Wildlife (Northern Ireland) Order 1985 (Schedule 5)	0.16 SSE	Six records, recorded very close to the scheme and likely to occur on site.
Gonepteryx rhamni	Brimstone	Unknown	The Wildlife (Northern Ireland) Order 1985 (Schedule 5)	0.20 SW	One record very close to the scheme but the date is uncertain. This butterfly is not believed to breed in Northern.
Meles meles	Badger	04/08/1995 - 08/10/2002	The Wildlife (Northern Ireland) Order 1985 (Schedule 5)	0.57 SSE	Six records. Could occur near scheme. A previous survey identified an outlier sett nearby.
Halichoerus grypus	Grey seal	11/12/1997	The Wildlife (Northern Ireland) Order 1985 (Schedule 5), The Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) - Schedule 3, Habitats Directive Annex 2 - non-priority species	1.02 SE	One record, unlikely to occur on site.
Alcedo atthis	Kingfisher	13/01/2002 - 14/01/2011	Birds Directive Annex 1, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.08 SE	Seven records, including one 0.36 SE. Potential to occur on site.
Falco peregrinus	Peregrine	30/12/2004 - 27/05/2010	Birds Directive Annex 1, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.56 SSW	Two records, potential to forage in the area.
Gavia stellata	Red-throated diver	09/12/1995 - 20/04/2017	Birds Directive Annex 1, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.58 SE	23 records; potentially be present at the coast in winter not likely within the scheme area.
Sterna sandvicensis	Sandwich tern	25/03/2006 -	Birds Directive Annex 1, The Wildlife (Northern Ireland) Order 1985	0.08 SE	Three records, unlikely to breed on the site.

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
		03/10/2011	(Schedule 1, part 1)		
Pandion haliaetus	Osprey	01/04/2010	Birds Directive Annex 1, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.56 SSW	One record, unlikely to occur in scheme area.
Circus cyaneus	Hen harrier	10/06/2015	Birds Directive Annex 1, NI Priority Species, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	1.55 S	One record, breeds in upland areas, unlikely to be present near scheme.
Gavia arctica	Black-throated Diver	22/01/2010 - 15/11/2015	Birds Directive Annex 1, NI Priority Species	1.02 SE	Seven records; potentially present at the coast in winter not likely within the scheme area.
Branta leucopsis	Barnacle goose	28/02/2012	Birds Directive Annex 1	0.87 E	One record, unlikely to be present on site.
Egretta garzetta	Little egret	17/01/2015	Birds Directive Annex 1	0.36 SE	One record, potential to be present in the lower parts of the river.
Gavia immer	Great northern diver	30/10/1998 - 15/11/2015	Birds Directive Annex 1	0.56 SSW	24 records, could be present at the coast in winter but the scheme area would not be important for this species.
Larus melanocephalus	Mediterranean gull	02/04/1996 - 07/01/2017	Birds Directive Annex 1	0.08 SE	15 records; potentially present at the coast in winter not likely within the scheme area.
Milvus milvus	Red kite	04/03/2009 - 14/05/2017	Birds Directive Annex 1	0.56 SSW	Three records, potential to forage near scheme, but unlikely to nest.

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
Lutra lutra	Otter	17/08/1980 - 16/06/2010	Habitats Directive Annex 2 - non-priority species, The Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) - Schedule 2, NI Priority Species	0.06 SW	Eight records. Otter have been recorded in the Shimna river.
Petromyzon marinus	Sea lamprey	19/08/2014	Habitats Directive Annex 2 - non-priority species	1.36 N	One record from the Burren River, potential to occur on site but does not appear to have been previously recorded in the Shimna.
Phocoena phocoena	Common porpoise	19/11/2010	Habitats Directive Annex 2 - non-priority species, NI Priority Species, The Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) - Schedule 2	1.55 S	One record, unlikely to occur on site.
Salmo salar	Atlantic salmon	May 1970- 12/07/1999	Habitats Directive Annex 2 - non-priority species, NI Priority Species, The Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) - Schedule 3	0.50 SE	Six records, known to be present in Shimna River.
Delphinus delphis	Common dolphin	10/09/2010	Habitats Directive Annex 4, NI Priority Species, The Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) - Schedule 2	0.56 SSW	One record, unlikely to occur on site.
Martes martes	Pine marten	10/02/2009 - 14/07/2016	Habitats Directive Annex 5, NI Priority Species, The Wildlife (Northern Ireland) Order 1985 (Schedule 5), The Conservation (Nature Habitats, etc.) Regulations	1.42 NNW	Four records, suitable habitat present near scheme.

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
(Northern Ireland) - Schedule 4					
<i>Cladonia portentosa</i>	Reindeer moss	07/10/1992	Habitats Directive Annex 5	0.98 ENE	One record, unlikely to occur on site.
<i>Rana temporaria</i>	Common frog	19/02/1997 - 07/03/2017	Habitats Directive Annex 5	1.00 S	Four records, potential to occur near scheme.
<i>Calidris alpina</i>	Dunlin	23/01/2000 - 08/01/2014	NI Priority Species, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.08 SE	23 records, unlikely to make much use of the site but potential to be present in winter at the lower end of the river.
<i>Melanitta nigra</i>	Common scoter	09/12/1995 - 23/01/2015	NI Priority Species, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.56 SSW	26 records, could be present at the coast in winter but the scheme area would not be important for this species.
<i>Turdus pilaris</i>	Fieldfare	19/12/2010 - 22/12/2010	NI Priority Species, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 1)	0.36 SE	Five records, unlikely to be present near scheme. Overwinters in fields.
<i>Aythya marila</i>	Scaup	09/02/2002 - 19/02/2012	NI Priority Species, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 2)	0.56 SSW	Two records, potential to be present in winter at the lower end of the river.
<i>Bucephala clangula</i>	Goldeneye	23/12/2010 - 24/12/2010	NI Priority Species, The Wildlife (Northern Ireland) Order 1985 (Schedule 1, part 2)	0.56 SSW	Two records, potential to be present in winter at the lower end of the river.
<i>Sciurus vulgaris</i>	Red squirrel	10/12/1982 - 28/03/2017	NI Priority Species, The Wildlife (Northern Ireland) Order 1985 (Schedule 5)	0.07 NW	28 records. Has been recorded very close to the scheme.

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
<i>Teesdalia nudicaulis</i>	Shepherd's cress	1957	NI Priority Species, The Wildlife (Northern Ireland) Order 1985 (Schedule 8, part 1)	0.56 SSW	One record of the species. Unlikely to occur in the site.
<i>Larus argentatus</i>	Herring gull	30/04/2017	NI Priority Species	0.51 NE	Two records, unlikely to breed on site, could forage on the lower end of the river.
<i>Acanthis cabaret</i>	Lesser redpoll	20/12/2010 - 23/12/2010	NI Priority Species	0.56 SSW	Three records, potential to occur close to the scheme. Breeds in coniferous woodland and overwinters in lowland areas.
<i>Acronicta psi</i>	Grey dagger	04/07/2006 - 21/07/2016	NI Priority Species	0.58 SSW	55 records
<i>Acronicta rumicis</i>	Knotgrass	12/06/2006 - 04/06/2015	NI Priority Species	0.75 ENE	20 records, potential to occur on site, this moth is found in woodlands and gardens. The larvae feed on willow, hawthorn, bramble and plantain.
<i>Agrochola helvola</i>	Flounced chestnut	Unknown	NI Priority Species	0.56 SSW	One record from pre-1970, unlikely to occur on site.
<i>Agrochola lychnidis</i>	Beaded chestnut	01/10/2015	NI Priority Species	1.22 NE	1 record, found in a variety of habitats. Potential to occur on site. Larvae feed on grasses.
<i>Allophyes oxyacanthae</i>	Green-brindled Crescent	12/10/2013	NI Priority Species	1.31 NE	One record.
<i>Anguilla anguilla</i>	Eel	01/07/1995 - 25/09/2013	NI Priority Species	0.06 WNW	Eight records, has been recorded in the Shimna River.

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
Apamea remissa	Dusky brocade	12/06/2006 - 10/07/2016	NI Priority Species	0.75 ENE	81 records, found in several habitats including woodlands. Larvae feed on grasses. Potential to occur on site.
Apus apus	Swift	08/05/2011 - 04/06/2017	NI Priority Species	0.56 SSW	Three records, may forage on in the area but breeding locations would not be effected by the scheme.
Arctia caja	Garden tiger	22/07/2006 - 06/07/2016	NI Priority Species	0.75 ENE	17 records, found in various habitats and could occur near the scheme.
Aythya fuligula	Tufted duck	10/01/2011	NI Priority Species	0.58 SE	One record, unlikely to breed on site, may occur on the lower part of the river.
Branta bernicla subsp. hrota	Pale-bellied brent goose	07/03/1993 - 31/01/2014	NI Priority Species	0.56 SSW	15 records, unlikely to use site.
Calidris canutus	Knot	17/03/1994 - 08/01/2014	NI Priority Species	0.08 SE	16 records, though this has species been recorded close to the scheme area it is unlikely to be important to this species.
Caradrina morpheus	Mottled rustic	23/06/2010 - 10/07/2016	NI Priority Species	0.75 ENE	38 records, larvae feed on nettle and dandelion. Found in a variety of habitats and has potential to occur on site.
Helotropha leucostigma	Crescent	13/08/2009 - 11/08/2013	NI Priority Species	0.75 ENE	Seven records, potential to occur on site, often found in wet woodland and wetland. Larvae feed on iris, rushes and sedges.
Ceramica pisi	Broom moth	15/06/2006	NI Priority Species	0.75 ENE	26 records, potential to occur on site. This species is found in

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
		- 04/07/2016			a variety of habitats and the larvae feed on broom, gorse, bracken, bramble and other plants.
Coenonympha pamphilus	Small heath	21/05/1960 - 14/06/2015	NI Priority Species	0.98 ENE	19 records.
Cuculus canorus	Cuckoo	09/05/2011 - 23/05/2017	NI Priority Species	0.56 SSW	Nine records.
Diarsia rubi	Small Square-spot	19/08/1997 - 30/08/2016	NI Priority Species	0.75 ENE	43 records, potential to occur on site. Larvae feed on dandelion and dock.
Ecliptopera silaceata	Small phoenix	18/05/2010 - 31/08/2015	NI Priority Species	0.31 NE	Eleven records, potential to occur on site. Larvae feed on willowherbs.
Emberiza citrinella	Yellowhammer	25/12/2010	NI Priority Species	0.98 ENE	One record, unlikely to use site.
Ennomos quercinaria	August thorn	19/08/1997 - 09/10/2015	NI Priority Species	0.75 ENE	Four records, potential to occur near scheme. Larvae feed on oak, beech, birch and hawthorn.
Entephria caesiata	Grey mountain moth	1941	NI Priority Species	0.56 SSW	One record, an upland species so unlikely to be present on site.
Erinaceus europaeus	Hedgehog	04/08/1995 - 01/10/2013	NI Priority Species	0.29 SE	Ten records, including from 0.46 N, 0.47 E, 0.53 ESE of the scheme. Potential to occur near the scheme.

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
Eugnorisma glareosa	Autumnal rustic	19/09/2016	NI Priority Species	1.22 NE	One record, a species of woodland, bogs and heaths. The larvae feed on a wide variety of plants. Potential to occur on site.
Graphiphora augur	Double dart	30/06/2012 - 11/07/2015	NI Priority Species	0.75 ENE	Twelve records.
Hepialus humuli	Ghost moth	27/06/2006 - 21/07/2012	NI Priority Species	0.75 ENE	Seven records.
Hipparchia semele	Grayling	04/09/1994	NI Priority Species	0.98 ENE	One record, this butterfly is usually found on heaths and sand dunes. Its larvae feed on fescues. It is unlikely to occur on site.
Hoplodrina blanda	Rustic	22/07/2006 - 11/07/2015	NI Priority Species	0.75 ENE	25 records, potential to occur in the area. This moth is found in a variety of habitats. Its larvae feed on plantains and docks.
Hydraecia micacea	Rosy rustic	08/08/2010 - 02/09/2016	NI Priority Species	0.75 ENE	33 records, potential to occur on site. Larvae feed on a variety of herbaceous plants.
Lasiommata megera	Wall	04/09/1994	NI Priority Species	0.98 ENE	One record, unlikely to occur on site, has declined severely in Northern Ireland. Larvae feed on a variety of grasses.
Leucania comma	Shoulder-striped Wainscot	01/06/2014 - 21/06/2016	NI Priority Species	0.75 ENE	Ten records, potential to occur in scheme area. Larvae feed on cock's-foot.
Limax	Ash-grey slug	20/09/1975	NI Priority Species	1.45 S	One record, a species recorded in old woodland, potential to

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
cinereoniger					occur on site.
Litologia literosa	Rosy minor	25/07/2014 - 26/07/2014	NI Priority Species	0.75 ENE	Two records, potential to occur on site, larvae feed on grasses.
Mniotype adusta	Dark brocade	11/06/2016	NI Priority Species	0.75 ENE	One record, potentially could occur near scheme, as found in wet woodlands and larvae feed on grass.
Orthonama vittata	Oblique carpet	06/06/2010	NI Priority Species	1.15 NE	One record, unlikely to occur on site, mostly a species of bog and marshland.
Orthosia gracilis	Powdered quaker	18/04/2010 - 29/04/2014	NI Priority Species	0.75 ENE	Three records, potential to occur near scheme. Larvae feed on oak and willow.
Passer domesticus	House sparrow	23/12/2002 - 23/05/2016	NI Priority Species	0.56 SSW	Three records, scheme area unlikely to be important to this species.
Passer montanus	Tree sparrow	20/12/2010	NI Priority Species	0.56 SSW	One record, limited potential to occur in area.
Pyrrhula pyrrhula	Bullfinch	17/12/2010 - 25/01/2011	NI Priority Species	0.56 SSW	Two records, potential to occur near the scheme.
Racomitrium canescens	Hoary Fringe-moss	August 1921- 12/05/1991	NI Priority Species	0.56 SSW	Three records, this is a lichen mostly recorded from sand dunes such as nearby Murlough. Unlikely to occur on site.
Salmo trutta	Trout	1970 - 2014	NI Priority Species	0.24 WNW	Four records, known to be present in the Shimna River

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
Scotopteryx chenopodiata	Shaded Broad-bar	02/08/2008 - 05/08/2016	NI Priority Species	0.75 ENE	Six records, this moth can be found by woodland edges and gardens. Its larvae feed on clovers and vetches. Potential to occur near scheme.
Spermodea lamellata	Plated snail	04/04/1975	NI Priority Species	1.35 S	One record, a woodland species, potential to occur in the scheme area.
Spilosoma lubricipeda	White ermine	12/06/2006 - 13/06/2016	NI Priority Species	0.75 ENE	57 records, likely to occur near scheme, feeds on variety of garden and wild plants
Spilosoma lutea	Buff ermine	31/05/2014 - 30/07/2016	NI Priority Species	0.75 ENE	61 records, potential to occur on site, feeds on a wide variety of herbaceous plants.
Stercorarius parasiticus	Arctic skua	13/08/1993 - 19/08/2011	NI Priority Species	0.87 E	Two records, unlikely to occur on site.
Tyria jacobaeae	Cinnabar	25/07/1999 - 14/06/2015	NI Priority Species	0.67 NE	40 records, likely to occur on site.
Vicia lathyroides	Spring vetch	07/10/1992	NI Priority Species	0.98 ENE	Two records, occur in Northern Ireland mostly found in sand dunes. Unlikely to occur on site
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	11/08/2009 - 12/08/2011	NI Priority Species	0.75 ENE	Two records, larvae feed on dock and bedstraws and are found in a variety of habitats. Potential to occur on site.
Tholera cespitis	Hedge rustic	19/08/2012 -	NI Priority Species	0.75 ENE	Five records, this moth is found in grassy habitats in coastal areas. Potential to occur on site.

Scientific name	Common name	Date	Designation	Closest distance (km) and direction	Association with the site
		28/08/2016			
Tringa totanus	Redshank	20/09/2008 - 06/08/2016	NI Priority Species	0.56 SSW	32 records, unlikely to occur in scheme area.
Turdus iliacus	Redwing	12/12/2010 - 05/02/2011	NI Priority Species	0.36 SE	16 records, unlikely to occur in area.
Turdus philomelos	Song thrush	24/11/2013	NI Priority Species	0.17 ESE	One record, potential to occur near the scheme.
Sturnus vulgaris	Starling	27/12/1995 - 18/07/2017	NI Priority Species	0.47 E	Eight records, potential to occur near the scheme.

