

# Natura Impact Statement for the filling of land with inert soil/subsoil and construction and demolition waste (Application area = 2.22 Ha, Volume of material = 24,950 tonnes) together with all associated ancillary site works and landscaping at Glennagoolagh, Co. Sligo

Environmental Services Consultancy

Reference no.: 19069-2, Appropriate Assessment – Natura Impact Statement



Client Name: Mullane Plant Hire Ltd.

Site Address: Glennagoolagh, Co. Sligo.

Project Type: Natura Impact Statement

Date: May 2020

Our Ref: 19069-2 Environmental Services Consultancy- Appropriate Assessment Screening

## Contents

1	Introduction .....	3
1.1	Background.....	3
1.2	Aim of this report.....	3
1.3	Regulatory context.....	4
1.3.1	Relevant legalisation.....	4
2	Methodology.....	6
2.1	Desk Studies .....	7
3	Screening.....	8
3.1	Project and site description.....	8
3.2	Natura 2000 sites identified .....	10
3.2.1	Natura sites considered .....	10
3.3	Identification of potential impacts.....	11
3.4	Screening conclusions .....	12
4	Stage II – Appropriate Assessment.....	13
4.1	Introduction .....	13
4.2	Natura 2000 sites identified .....	13
4.2.1	Ballysadare Bay SPA (004129) .....	13
4.2.2	Ballysadare Bay SAC (000622) .....	16
4.3	Identification of potential impacts.....	21
4.3.1	Surface water runoff.....	21
4.3.2	Dust deposition .....	21
4.4	Other Plans or Projects in the Area.....	22
5	Mitigation Measures.....	23
5.1	Findings of no significant effects .....	26
6	Appropriate Assessment Conclusion .....	27
7	Appendix 1.....	28
8	Appendix 2.....	29

# 1 Introduction

## 1.1 Background

This Natura Impact Assessment was prepared for the filling of land with inert soil/subsoil and construction and demolition waste (Application area = 2.22 Ha, Volume of material = 24,950 tonnes) together with all associated ancillary site works and landscaping at Glennagoolagh, Co. Sligo (see Figure 1 for site location, Figure 2 for local site location). Having regard to the location of the proposed development site and its proximity to Ballysadare Bay, a designated Special Area of Conservation (SAC) and Special Protection Area (SPA), an Appropriate Assessment of the proposed restoration works was prepared in accordance with Article 6 of the Habitats Directive.

The purpose of the assessment is to determine the appropriateness of the proposed project, in the context of the conservation status of the site or sites. In Ireland, an Appropriate Assessment takes the form of a Natura Impact Statement (NIS), which is a statement of the likely impacts of the plan or project on a Natura 2000 site. The NIS comprises a comprehensive ecological impact assessment of the plan or project, it examines the direct and indirect impacts that the plan or project might have on its own or in combination with other plans or projects on one or more Natura 2000 sites in view of the site conservation objectives.

## 1.2 Aim of this report

This Natura Impact Statement (NIS) has been prepared in accordance with the current guidance (DoEHLG, 2009, Revised February 2010), and provides an ecological impact assessment (EclA) for the filling of land with inert soil/subsoil and construction and demolition waste (Application area = 2.22 Ha, Volume of material = 24,950 tonnes) together with all associated ancillary site works and landscaping at Glennagoolagh, Co. Sligo.

An NIS provides information required in order to establish whether or not a proposed development is likely to have a significant impact on certain Natura sites in the context of their conservation objectives and specifically on the habitats and species for which the Natura 2000 conservation sites have been designated. In the case of this deposition site in Glennagoolagh, the Natura 2000 sites considered are Ballysadare Bay SAC (Site Code 000622) and Ballysadare Bay SPA (Site Code 004129).

Accordingly, a comprehensive assessment of the ecological impacts of this application was carried out in May 2020 by Julien Carlier (BSc Environmental Science, PhD Landscape Ecology). This assessment identified areas of potential ecological value and potential ecological constraints associated with the proposed reinstatement to be identified. It also enabled potential ecological impacts associated with the proposed

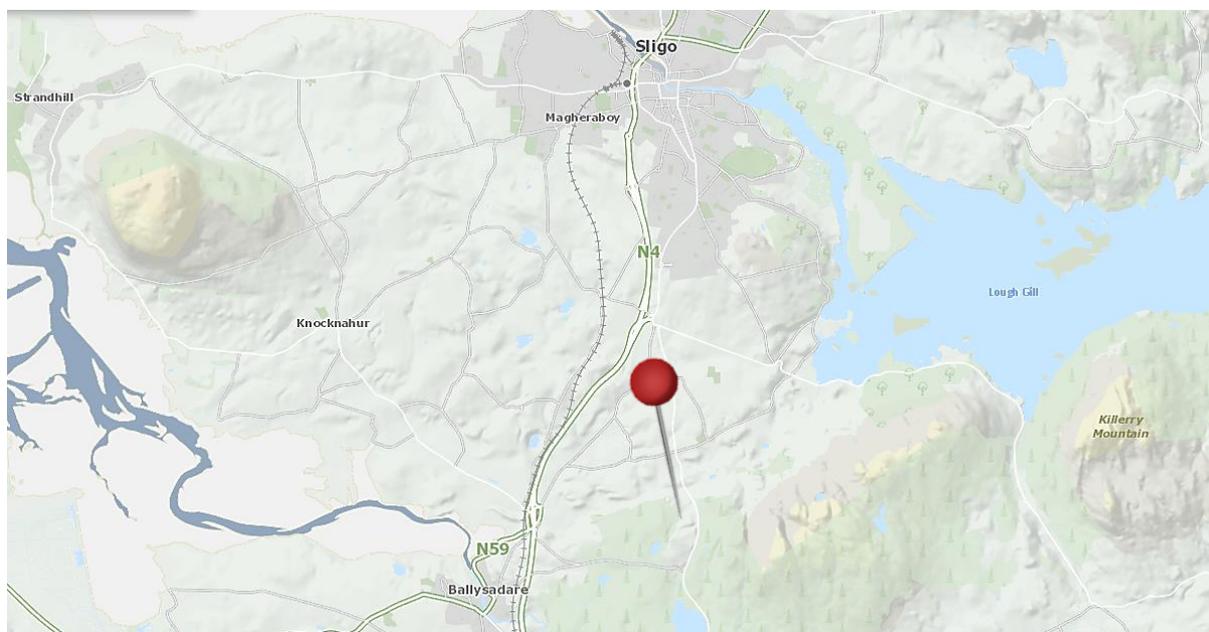


Fig. 1. Location of the deposition site at Glennagoolagh, Co. Sligo

reinstatement to be assessed and mitigated for.

## 1.3 Regulatory context

### 1.3.1 Relevant legislation

The Birds Directive (Council Directive 79/409/EEC) implies that particular protection is given to sites (Special Protection Areas) which support certain bird species listed in Annex I of the Directive and that surveys of development sites should consider the status of such species.

The EU Habitats Directive (92/43/EEC) gives protection to sites (Special Areas of Conservation) which support particular habitats and species listed in annexes to this directive. Articles 6(3) and 6(4) of this Directive call for the undertaking of an Appropriate Assessment for plans and projects likely to have an effect on designated sites. This is explained in greater detail in the following section.

The Wildlife Act 1976 (and its amendment of 2000) provides protection to most wild birds and animals. Interference with such species can only occur under licence. Under the act it is an offence to “wilfully interfere with or destroy the breeding place or resting place of any protected wild animal”. The basic designation for wildlife is the Natural Heritage Area (NHA). This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. Under the Wildlife Amendment Act (2000) NHAs are legally protected from damage. NHAs are not part of the Natura 2000 network and so the Appropriate Assessment process does not apply to them.

The Water Framework Directive (WFD) (2000/60/EC), which came into force in December 2000, establishes a framework for community action in the field of water policy. The WFD was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003). The WFD rationalises and updates existing legislation and provides for water management on the basis of River Basin Districts (RBDs). RBDs are essentially administrative areas for coordinated water management and are comprised of multiple river basins (or catchments), with cross-border basins (i.e. those covering the territory of more than one Member State) assigned to an international RBD. The aim of the WFD is to ensure that waters achieve at least good status by 2015 and that status doesn't deteriorate in any waters.

#### **Appropriate Assessment and the Habitats Directive**

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora – the ‘Habitats Directive’ - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. Natura 2000 sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC).

Articles 6(3) and 6(4) of the Habitats Directive sets out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment:

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

Article 6(4) deals with the steps that should be taken when it is determined, as a result of appropriate assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case.

Article 6(4) states:

"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

### **The Appropriate Assessment Process**

The aim of Appropriate Assessment is to assess the implications of a proposal in respect of a site's conservation objectives.

Appropriate Assessment is an assessment of the potential effects of a proposed plan - 'in combination' with other plans and projects - on one or more European sites. The 'Appropriate Assessment' itself is a statement which must be made by the competent authority which says whether the plan affects the integrity of a European site. The actual process of determining whether or not the plan will affect the site is also commonly referred to as 'Appropriate Assessment'.

If adverse impacts on the site cannot be avoided, then mitigation measures should be applied during the Appropriate Assessment process to the point where no adverse impacts on the site remain (European Commission, 2000, 2001).

The conclusions of the appropriate assessment report should enable the competent authority to ascertain whether the proposal would adversely affect the integrity of the site (European Commission, 2000, 2001).

Under the terms of the directive (European Commission, 2000, 2001), consent can only be granted for a project if, as a result of the appropriate assessment either (a) it is concluded that the integrity of the site will not be adversely affected, or (b) where an adverse effect is anticipated, there is shown to be an absence of alternative solutions, and there exists imperative reasons of overriding public interest for the project should go ahead.

## 2 Methodology

This preliminary Statement of Screening for Appropriate Assessment (Stage 1) has been prepared with reference to the following:

- European Commission (2000). Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- European Commission (2002). Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission (2006). Nature and Biodiversity Cases: Ruling of the European Court of Justice.
- European Commission (2007). Clarification of the Concepts of: Alternative Solution, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.
- Department of Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.

The EC Guidance sets out several principles as to how to approach decision making during the process. The primary one is 'the precautionary principle' which requires that the conservation objectives of Natura 2000 should prevail where there is uncertainty. When considering the precautionary principle, the emphasis for assessment should be on objectively demonstrating with supporting evidence that:

- There will be no significant effects on a Natura 2000 site;
- There will be no adverse effects on the integrity of a Natura 2000 site;
- There is an absence of alternatives to the project or plan that is likely to have an adverse effect to the integrity of a Natura 2000 site; and
- There are compensation measures that maintain or enhance the overall coherence of Natura 2000.

This translates into a four-stage process to assess the impacts, on a designated site or species, of a policy or proposal. The EC Guidance states that "each stage determines whether a further stage in the process is required". Consequently, the Council may not need to proceed through all four stages in undertaking the Appropriate Assessment. The four-stage process is:

- **Stage 1:** Screening – The process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether or not these impacts are likely to be significant;
- **Stage 2:** Appropriate Assessment – The consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;
- **Stage 3:** Assessment of Alternative Solutions – The process which examines alternative ways of achieving objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site;
- **Stage 4:** Assessment where no alternative solutions exist and where adverse impacts remain – An assessment of the compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

In complying with the obligations set out in Articles 6(3) and following the guidelines described above, this screening statement has been structured as a stage by stage approach as follows:

- Description of the proposed project;
- Identification of the Natura 2000 sites close to the proposed development;
- Identification and description of any individual and cumulative impacts on the Natura 2000 sites likely to result from the project;
- Assessment of the significance of the impacts identified above on site integrity. Exclusion of sites where it can be objectively concluded that there will be no significant effects;
- Screening statement with conclusions.

## 2.1 Desk Studies

Information on the site and the area of the proposed development was studied prior to the completion of this statement. The following data sources were accessed in order to complete a thorough examination of potential impacts:

- National Parks and Wildlife Service - aerial photographs and maps of designated sites, information on habitats and species within these sites and information on protected plant or animal species; conservation objectives, site synopses and standard data forms for relevant designated sites;
- Environmental Protection Agency (EPA)- Information pertaining to water quality, geology and licensed facilities within the area;
- Ordnance Survey of Ireland (GeoHive) - access to spatial mapping data and metadata, including historical layers.
- National Biodiversity Data Centre (NBDC) – Information pertaining to protected plant and animal species within the study area;
- Sligo County Council – Information on planning and planning history in the area, landscape characterisation;
- Water Matters – Catchment based information;
- Environmental Services Consultancy – Plans and information pertaining to the development.
- Google Streetview – for photointerpretation purposes, providing details on immediate and surrounding habitats, quality and land use
- HeritageMaps.ie – general background information relating to the study area.

## 3 Screening

### 3.1 Project and site description

The project involves the filling of land with inert soil/subsoil and construction and demolition waste [EWC 17 05 04 & 17 09 04] (Application area = 2.22 Ha, Volume of material = 24,950 tonnes) together with all associated ancillary site works and landscaping at Glennagoolagh, Co. Sligo [56 93 20 N: 83, 03,78] (see Figure 1 for site location, Figure 2 for local site location). The proposed activity is technically classed by national and European waste management legislation as 'recovery through deposition on land' and the proposed development is classified as a 'soil recovery facility'. The fill materials will be used to raise current field levels at the project site in order to improve its agricultural functionality. It is anticipated upon completion of the deposition of fill material, that the finished surface soil will be reseeded and restored to agricultural grassland habitat. The proposed application area is 2.22 ha and the fill area is 1.33 ha; the proposed fill volume will be <5000 tonnes per year and <25,000 tonnes overall. The site is in the vicinity of a



Fig. 2. Aerial image of proposed deposition site delineated in red.

Council depot facility. An existing farm lane will provide access to the site during the operation period.

The wider site landscape is predominantly of agricultural land-use within rural Sligo; specifically Sensitive Rural Landscape Character Area (Sligo County Development Plan 2017-2023).

The site gently slopes down in a north-eastward aspect towards the R284 and Sligo City, and is composed of wet grassland habitat (GS4) (Fossitt 2000 habitat classification). The wider landscape is of large Coillte-owned plantations of mixed conifer woodland habitat (WD3) and mixed broadleaf/conifer woodland (WD2). Small pockets of scrub (WS1) and emerging wet willow- alder- ash woodland (WN6) are also present in the surrounding landscape from agricultural land abandonment. Recently felled woodland (WS5) is also present locally from on-going timber harvesting. Closer to the roadway and adjacent to the site are fields of improved agricultural grassland (GA1), one-off houses (BL3) and amenity grassland (GA2). A small lake (Lough Arquilta) in proximity (c.350m) within nearby forestry is located at a higher elevation to the site. The immediate site grounds are delineated by earth banks (BL2), highly modified/non-native woodland (WD) and relict hedgerows (WL1).

Interrogation of the National Biodiversity Data Centre mapviewer determined records of Eurasian Red Squirrel, Eurasian Badger and Pine Marten within the relevant grid square (G6930). Given the extensive disturbances associated with the nearby Tip site and roadway, it is unlikely these species are present on-site. Fallow deer are also present, the only record of invasive species in this square.

The application site is within the Western River Basin District, the Ballysadare River Catchment area. The site is situated in proximity (c. 500 m) at lower elevation (see Appendix 2) from a stream flowing into the Ballydawley stream (a River Unshin Tributary). The most recent status of this river (River Waterbody WFD Status 2010-2015) is stated as 'good'. The site is intersected by another stream which flows into the Glennagoolagh River which ultimately flows into Ballysadare Bay.

The predicted soil types were podzols (gleys and peat) with granite bedrock. These soil types are poorly draining soils; with these poor drainage properties, groundwater is less likely to be a potential pollution receptor. However, these soil properties may result in lateral water movement making the surface waters a potential target for run-off pollution. Since the site is situated on a depression and at higher elevation (Appendix 2) to the nearby watercourse, potential run-off to nearby water sources is likely to occur.

## 3.2 Natura 2000 sites identified

In compliance with the Departmental Guidance, this screening assessment includes any Natura 2000 sites within or adjacent to the plan area, any sites within 15 km of the area (see Appendix 1), and depending on the likely impacts of the plan and the sensitivities of the receptors, could be further than 15 km away. In this case, due to the nature and size of the restoration works and the limited impacts of this project, no direct impacts are likely to occur at a distance more than 10 km away, therefore designated sites outside this range were not considered. Natura sites identified within a 10 km range of the quarry site are listed in Table 1 & 2 with reference to full spatial illustration available in Appendix 1. Sites were evaluated for the potential of impacts arising from the materials deposition, as an individual development or in combination with other plans or projects.

**Table 1.** List of Special Protection Areas within 10 km of the site

Special Protection Areas (SPA)	Evaluation	Potential Impact
Ballysadare Bay (004129) (Proximity: 2 km)	Site is intersected a stream which discharges into Ballysadare Bay.	Likely
Cummeen Strand (004035) (Proximity: 5.91 km)	No hydrological / geographical pathways or connections other than marine.	None

**Table 2.** List of Special Areas of Conservation within 10 km of the site

Special Area of Conservation (SAC)	Evaluation	Potential Impact
Ballysadare Bay (000622) (Proximity: 2 km)	Site is intersected a stream which discharges into Ballysadare Bay.	Likely
Cummeen Strand/Drumcliff Bay (Sligo Bay) (000627) (Proximity: 5.01 km)	No hydrological / geographical pathways or connections other than marine.	None
Union Wood (000638) (Proximity: 1.19 km)	No hydrological / geographical pathways or connections.	None
Unshin River (001898) (Proximity: 2.21 km)	No hydrological / geographical pathways or connections other than marine.	None
Lough Gill (001976) (Proximity: 2.26 km)	No hydrological / geographical pathways or connections other than marine.	None

### 3.2.1 Natura sites considered

Natura sites identified and considered in this screening assessment are presented in Table 3. A stream intersecting the site is illustrated in Figure 3; this stream flows into the Glennagoolagh River, which discharges into Ballysadare Bay. Since there is potential for pollution from surface water run-off into this stream, it is possible the site development and use may impact Ballysadare Bay SPA and SAC.

**Table 3.** List of Natura sites considered for appropriate assessment screening, including distance to the proposed Glampsite and respective site qualifying interests.

Site name/code	Dist. to site (km)	Site qualifying interests
Ballysadare Bay SPA (004129)	0.346 (north-west)	<ul style="list-style-type: none"> <li>▪ Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]</li> <li>▪ Grey Plover (<i>Pluvialis squatarola</i>) [A141]</li> <li>▪ Dunlin (<i>Calidris alpina</i>) [A149]</li> <li>▪ Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]</li> <li>▪ Redshank (<i>Tringa totanus</i>) [A162]</li> <li>▪ Wetland and Waterbirds [A999]</li> </ul>
Ballysadare Bay SAC (000622)	1.108 (north-east)	<ul style="list-style-type: none"> <li>▪ Estuaries [1130]</li> </ul>

- 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]
- Humid dune slacks [2190]
- *Vertigo angustior* (Narrow-mouthed Whorl Snail) [1014]
- *Phoca vitulina* (Harbour Seal) [1365]



**Fig. 3.** Aerial image of the location of the deposition site (delineated in red) intersected by a stream flowing into the Glennagoolagh River which ultimately discharges into Ballysadare Bay.

### 3.3 Identification of potential impacts

The proposed deposition site development and operation will occur in close proximity to a watercourse which flows into Ballysadare Bay, which is designated under Ballysadare Bay SAC and SPA. Therefore impacts upon the Ballysadare Bay SAC and SPA arising from the development and operation of this proposed site cannot be ruled out. Only those processes of the site development and operation that have the potential to affect the integrity and conservation objectives of the identified Natura sites and protected species have been considered. A number of factors were examined at this stage and dismissed or carried forward for Appropriate Assessment as relevant. The following factors were examined in relation to potential impacts arising from the proposed restoration works on the Natura 2000 sites identified:

- Deterioration of water quality in designated areas arising from the lateral movement of polluted surface water uphill and upstream from the site;

It should be noted that the site development and operation will not be carried out within any designated SAC or SPA site, lead to habitat loss, land-take or fragmentation of habitats. It is possible that the subsequent restored grassland will provide suitable habitat conditions to breeding waders complementary to the Ballysadare Bay conservation objectives, depending on farming intensity and grazing regime. There will be no interference with the boundaries of any designated area and no infilling of any designated area will occur.

### 3.4 Screening conclusions

The proposed development is not directly connected with or necessary to the nature conservation management of the designated site. Therefore, following consideration of the location of an adjacent stream that discharges into Ballysadare Bay SAC/SPA, its relation to the proposed deposition site development and operation in Glennagoolagh, and the potential impacts that may occur, this project should proceed to the next stage of Appropriate Assessment, namely the Natura Impact Assessment.

## 4 Stage II – Appropriate Assessment

### 4.1 Introduction

The main objective of this stage (Stage 2, Natura Impact Statement) in the Appropriate Assessment process is to determine whether the development or operation of a deposition site for inert soil and stones and mixed construction and demolition material at Glennagoolagh (either alone or in combination with other plans, programmes and projects) will result in significant adverse impacts to the integrity of the Ballysadare Bay SAC and SPA with respect to these sites structures, species, functions and/or conservation objectives. This stage also outlines the mitigation measures that should be taken in order to avoid any negative impacts of this application, should it receive consent.

In this section, the Natura 2000 site identified in the previous section will be described in greater detail in terms of its site characteristics and conservation objectives.

### 4.2 Natura 2000 sites identified

#### 4.2.1 Ballysadare Bay SPA (004129)

Ballysadare Bay extends for approximately 10 km westwards from the town of Ballysadare, County Sligo. It is the most southerly of three inlets that form the eastern part of the larger Sligo Bay complex. The estuarine channel of the Ballysadare River winds its way through the bay, finally reaching the open sea near the Strandhill Dunes sand spit. The bay is underlain by sedimentary rocks of limestones, sandstones and shales which are exposed as low cliffs and small sections of bedrock shore at several locations.

The bay contains extensive intertidal sand and mudflats. The flats support good populations of macro-invertebrates which are important food items for wintering waterfowl. Common species present include the polychaete worms *Hediste diversicolor*, *Arenicola marina*, *Lanice conchilega* and *Nephtys hombergii*, and the bivalves *Cerastoderma edule*, *Macoma balthica* and *Scrobicularia plana*. Also present on the intertidal flats are the vascular plants Eelgrass (*Zostera marina*) and Beaked Tasselweed (*Ruppia maritima*), which provide food for herbivorous wildfowl. Well-developed salt marshes, which provide roosting sites for birds at high tide, occur at several locations around the bay. The sandy beaches around the Strandhill peninsula are used by roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Grey Plover, Dunlin, Bar-tailed Godwit and Redshank. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Ballysadare Bay is important for a range of waterfowl species in autumn and winter. The population of Light-bellied Brent Goose (188) is of international importance (all figures are mean peak counts for four winters in the period 1995/96 to 1999/2000). The populations of four other species are of national importance, i.e. Grey Plover (70), Dunlin (1,420), Bar-tailed Godwit (251) and Redshank (435). A range of other species occurs, including Whooper Swan (15), Shelduck (55), Wigeon (617), Teal (179), Mallard (304), Goldeneye (17), Red-breasted Merganser (26), Cormorant (43), Oystercatcher (518), Ringed Plover (96), Golden Plover (301), Lapwing (467), Curlew (508), Greenshank (22), Turnstone (40), Black-headed Gull (261) and Common Gull (203). Ballysadare Bay SPA is of high ornithological importance - it supports a Light-bellied Brent Goose population of international importance as well as nationally important populations of four other wintering waterfowl species. The presence of Bar-tailed Godwit, Golden Plover and Whooper Swan is of particular note as these species are listed on Annex I of the E.U. Birds Directive. The site forms an important component of the larger Sligo Bay complex. Main habitat types and cover are listed in Table 4.

**Table 4.** Habitat composition of Ballysadare Bay SPA, including habitat classification and percentage cover.

Habitat class	% cover
N10: Humid grassland, Mesophile grassland	1
N06: Inland water bodies (Standing water, Running water)	1
N23: Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	1
N07: Bogs, Marshes, Water fringed vegetation, Fens	1
N04: Coastal sand dunes, Sand beaches, Machair	8
N02: Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	80
N16: Broad-leaved deciduous woodland	1
N08: Heath, Scrub, Maquis and Garrigue, Phygrana	1
N05: Shingle, Sea cliffs, Islets	2
N09: Dry grassland, Steppes	2
N03: Salt marshes, Salt pastures, Salt steppes	2
Total cover:	100

Ballysadare Bay is the most southerly of the three inlets of Sligo Bay. It is the estuary of the Ballysadare River, which receives the flows of the Unshin, Owenboy and Owenbeg rivers. The Ballysadare River flows through the small town of Ballysadare before entering the bay. It is a large site, extending along a 10 km south-east to west-north-west axis from Ballysadare town to the sea at Marley's Point. The bay has an average width of c. 2 km. A sand dune spit extends into the outer bay at Culleenamore, restricting the outlet to the sea to a width of c. 700 m. Other habitats present include salt marshes, small saline lakes or ponds, dry grassland, wet grassland, reed beds and scrub. Recreation is a main land use within the site.

This large site displays an excellent diversity of coastal habitats. The estuarine and intertidal sand and mud flat habitats are typical of the region and are extensive in area and of good quality. The sand dune system is highly dynamic, with the tip of the peninsula actively growing and displaying a good, though limited, example of embryonic shifting dunes. The shifting marram dunes are fairly extensive in area and are also displaying signs of growth. An area of fixed dunes of moderate size also occurs which has a flora typical of western dunes. A small area of humid dune slack remains. Actively developing dune systems are rare in western Ireland. Site is important for occurrence of the Annex II mollusc *Vertigo angustior*. A nationally important colony of *Phoca vitulina* also occurs. An excellent diversity of waterfowl winter at site, including two Annex I Bird Directive species (*Pluvialis apricaria*, *Limosa lapponica*). Six other species winter in nationally important numbers and there is an internationally important population of *Branta bernicla horta*. A number of localised insect species are known from the site. Threats and pressures known to the site are listed in Table 5.

**Table 5.** List of most important known impacts and activities with high effect on Ballysadare Bay SPA.

Threats and Pressures	Rank	In/External
Urbanised areas, human habitation	Med	Ex
Marine and Freshwater Aquaculture	Low	In
Grazing	High	In
Outdoor sports and leisure activities, recreational activities	Med	In
Fishing and harvesting aquatic resources	Med	In
Other human intrusions and disturbances	Med	In
Human induced changes in hydraulic conditions	low	In
Sport and leisure structures	Low	In&Ex
Abiotic (slow) natural processes	Low	In
Human induced changes in hydraulic conditions	Low	In
Invasive non-native species	Low	In

The NPWS Qualifying Interests and specific conservation objectives of the Ballysadare Bay SPA are listed in Table 6.

**Table 6.** List of Ballysadare Bay SPA qualifying interests and specific conservation objectives.

Site qualifying interests	Specific Conservation Objectives
<ul style="list-style-type: none"> <li>▪ Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]</li> </ul>	Long term population trend stable or increasing; no significant decrease in the range, timing and intensity of use of areas by light-bellied brent goose, other than that occurring from natural patterns of variation.
<ul style="list-style-type: none"> <li>▪ Grey Plover (<i>Pluvialis squatarola</i>) [A141]</li> </ul>	Long term population trend stable or increasing; no significant decrease in the range, timing and intensity of use of areas by grey plover, other than that occurring from natural patterns of variation.
<ul style="list-style-type: none"> <li>▪ Dunlin (<i>Calidris alpina</i>) [A149]</li> </ul>	Long term population trend stable or increasing; no significant decrease in the range, timing and intensity of use of areas by dunlin, other than that occurring from natural patterns of variation.
<ul style="list-style-type: none"> <li>▪ Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]</li> </ul>	Long term population trend stable or increasing; no significant decrease in the range, timing and intensity of use of areas by godwit, other than that occurring from natural patterns of variation.
<ul style="list-style-type: none"> <li>▪ Redshank (<i>Tringa totanus</i>) [A162]</li> </ul>	Long term population trend stable or increasing; no significant decrease in the range, timing and intensity of use of areas by redshank, other than that occurring from natural patterns of variation.
<ul style="list-style-type: none"> <li>▪ Wetland and Waterbirds [A999]</li> </ul>	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2130 hectares, other than that occurring from natural patterns of variation.

Other conservation objectives (generic) include the following:

Wetland and Waterbirds [A999] favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, are stable or increasing,
- 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,
- 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,
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future,
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

#### 4.2.2 Ballysadare Bay SAC (000622)

Ballysadare Bay extends for about 10 km westwards from the town of Ballysadare, Co. Sligo, and is the most southerly of three inlets of the larger Sligo Bay. The estuarine channel of the Ballysadare River winds its way through the bay, finally reaching the open sea near the spit at Strandhill dunes. The bay is underlain by sedimentary rocks of limestones, sandstones and shales, which are exposed as low cliffs and small sections of bedrock shore at several locations. Knocknarea Mountain overlooks the site.

Ballysadare Bay contains extensive intertidal sand and mudflats, approximately 1,500 ha in extent overall. The mud provides an abundance of food for wildfowl, in the form of colonising plants such as Eelgrass (*Zostera marina*) and Tasselweed (*Ruppia maritima*), as well as numerous species of invertebrates on which both wildfowl and waders feed. Well-developed salt marshes occur at several locations around the bay. Typical species of these areas are Sea Rush (*Juncus maritimus*), Saltmarsh Rush (*Juncus gerardi*), Creeping Bent (*Agrostis stolonifera*) and Parsley Water-dropwort (*Oenanthe lachenalii*). In hollows and ditches, Sea Arrowgrass (*Triglochin maritima*), Sea Club-rush (*Scirpus maritimus*), Sea Milkwort (*Glaux maritima*), Thrift (*Armeria maritima*), Sea Plantain (*Plantago maritima*), Sea Aster (*Aster tripolium*) and Red Fescue (*Festuca rubra*) occur. Particularly interesting species found on the salt marshes are Flowering Rush (*Butomus umbellatus*), Slender Spike-rush (*Eleocharis uniglumis*) and Hard Grass (*Parapholis strigosa*).

There is a large sand dune system at Strandhill which has been relatively undisturbed by grazers. The dune system is highly dynamic, with the tip of the peninsula actively growing and displaying a good, though limited, example of embryonic shifting dunes. The characteristic species found in this habitat type include Sand Couch (*Elymus farctus*), Spear-leaved Orache (*Atriplex prostrata*) and Sea Rocket (*Cakile maritima*). Shifting marram dunes are fairly extensive in the area also, occurring along the entire seaward side of the spit, and they are especially active towards the tip. While Marram (*Ammophila arenaria*) is the dominant species, Colt's-foot (*Tussilago farfara*), Red Goosefoot (*Chenopodium rubrum*) and Cat's-ear (*Hypochoeris radicata*) can also be found. The seaward dunes reach considerable heights (up to 20 m). They are very steep on the seaward edge, but to the east of this there is an undulating expanse of dune hills.

The largest proportion of the dune system is made up of fixed dunes, a priority habitat listed on Annex I of the E.U. Habitats Directive. Once one moves landward, in from the Marram dunes, there is a low-growing, closed sward which is particularly species-rich, with Field Wood-rush (*Luzula campestris*), Kidney Vetch (*Anthyllis vulneraria*), Bee Orchid (*Ophrys apifera*), Oxeye Daisy (*Leucanthemum vulgare*), Common Centaury (*Centaureum erythraea*), Wild Thyme (*Thymus praecox*), Harebell (*Campanula rotundifolia*), Burnet Rose (*Rosa pimpinellifolia*), Carlina Thistle (*Carlina vulgaris*) and Fairy Flax (*Linum catharticum*). The fixed dune areas are also rich in bryophytes and lichens. Moss species include *Tortula ruraliformis*, *Homalothecium lutescens*, *Ditrichum flexicaule* and *Hypnum cupressiforme*, while lichens (*Peltigera* spp. and *Cladonia* spp.) are also present. Some humid dune slacks occur amongst the fixed dunes. Characteristic species include Creeping Willow (*Salix repens*), Carnation Sedge (*Carex panicea*), Jointed Rush (*Juncus articulatus*) and the relatively uncommon Marsh Helleborine (*Epipactis palustris*).

A range of habitats fringe the bay, adding diversity to the site as a whole. Some of these areas have particular features of interest, e.g. the old oyster farm at Tanrego is important for waterfowl, while the uncommon plant species Ivy Broomrape (*Orobancha hederæ*) occurs in scrubland adjacent to the bay.

Two animals listed on Annex II of the E.U. Habitats Directive occur within the site: The Bay supports a colony of Common Seal (maximum count of 257 in the all-Ireland survey of 2003), and the rare snail, *Vertigo angustior*, occurs in dune slacks and hollows in the dunes at Strandhill.

Ballysadare Bay is important for a range of waterfowl species in autumn and winter and is part of the larger Sligo Bay complex. Brent Goose occur in internationally important numbers, while a further seven species have populations of national importance. These are as follows, with numbers referring to the average peaks over winters 1994/95 - 1997/98: Brent Goose (259), Red-breasted Merganser (48), Oystercatcher (796), Grey Plover (231), Dunlin (1129), Bar-tailed Godwit (431), Redshank (481) and Greenshank (24). The presence of

Bar-tailed Godwit, and also smaller numbers of Golden Plover (66), is of particular note as these species are listed on Annex I of the E.U. Birds Directive.

The bay is little-used for fishing or boating, but marsh shooting is common in the upper reaches. Aquaculture is little-developed in this bay compared to nearby Sligo and Drumcliff Bays. Dune systems are sensitive to developments which alter their structure. Grazing is also a critical factor; the correct level of grazing maintains an open, species-rich sward, but the presence of too many grazers causes damage to the vegetation and may exacerbate dune erosion. Agricultural improvement, and particularly the application of fertilisers, threatens dune vegetation, leading to the eventual loss of species diversity.

Ballysadare Bay is of high ecological value for its range of good quality coastal habitats. Actively developing dune systems are rare on the west coast and the sand dune system at Strandhill is of particular interest as a large and intact example of a habitat type which is under general threat from development. The rarity of intact dune systems is recognised in the listing of fixed dunes as a priority habitat on Annex I of the E.U. Habitats Directive. The salt marshes at Ballysadare Bay are relatively good examples for the west coast, and that at Abbeystown is unusual as it is forming on quarry waste. The presence of two Annex II species within the site adds further importance. Furthermore, the bay supports nationally important numbers of waterfowl. Main habitat types and cover are listed in Table 7.

**Table 7.** Habitat composition of Ballysadare Bay SAC, including habitat classification and percentage cover.

Habitat class	% cover
N10: Humid grassland, Mesophile grassland	1
N06: Inland water bodies (Standing water, Running water)	1
N23: Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	1
N07: Bogs, Marshes, Water fringed vegetation, Fens	1
N04: Coastal sand dunes, Sand beaches, Machair	8
N02: Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	80
N16: Broad-leaved deciduous woodland	1
N08: Heath, Scrub, Maquis and Garrigue, Phygrana	1
N05: Shingle, Sea cliffs, Islets	2
N09: Dry grassland, Steppes	2
N03: Salt marshes, Salt pastures, Salt steppes	2
Total cover:	100

Ballysadare Bay is the most southerly of the three inlets of Sligo Bay. It is the estuary of the Ballysadare River, which receives the flows of the Unshin, Owenboy and Owenbeg rivers. The Ballysadare River flows through the small town of Ballysadare before entering the bay. It is a large site, extending along a 10 km south-east to west-north-west axis from Ballysadare town to the sea at Marley's Point. The bay has an average width of c.2 km. A sand dune spit extends into the outer bay at Culleenamore, restricting the outlet to the sea to a width of c.700 m. Other habitats present include salt marshes, small saline lakes or ponds, dry grassland, wet grassland, reedbeds and scrub. Recreation is a main land use within the site.

This large site displays an excellent diversity of coastal habitats. The estuarine and intertidal sand and mud flat habitats are typical of the region and are extensive in area and of good quality. The sand dune system is highly dynamic, with the tip of the peninsula actively growing and displaying a good, though limited, example of embryonic shifting dunes. The shifting marram dunes are fairly extensive in area and are also displaying signs of growth. An area of fixed dunes of moderate size also occurs which has a flora typical of western dunes. A small area of humid dune slack remains. Actively developing dune systems are rare in western Ireland. Site is important for occurrence of the Annex II mollusc *Vertigo angustior*. A nationally important colony of *Phoca vitulina* also occurs. An excellent diversity of waterfowl winter at site, including two Annex I Bird Directive species (*Pluvialis apricaria*, *Limosa lapponica*). Six other species winter in nationally important numbers and there is an internationally important population of *Branta bernicla horta*. A number

of localised insect species are known from the site. Threats and pressures known to the site are listed in Table 8.

**Table 8.** List of most important known impacts and activities with high effect on Ballysadare Bay SAC.

Threats and Pressures	Rank	In/External
Urbanised areas, human habitation	Med	Ex
Marine and Freshwater Aquaculture	Low	In
Grazing	High	In
Outdoor sports and leisure activities, recreational activities	Med	In
Fishing and harvesting aquatic resources	Med	In
Other human intrusions and disturbances	Med	In
Human induced changes in hydraulic conditions	low	In
Sport and leisure structures	Low	In&Ex
Abiotic (slow) natural processes	Low	In
Human induced changes in hydraulic conditions	Low	In
Invasive non-native species	Low	In

The NPWS Qualifying Interests and specific conservation objectives of the Ballysadare Bay SAC are listed in Table 9.

**Table 9.** List of Ballysadare Bay SAC qualifying interests and specific conservation objectives.

Site qualifying interests	Specific Conservation Objectives
<ul style="list-style-type: none"> <li>▪ Estuaries [1130]</li> </ul>	The permanent habitat area is stable or increasing, subject to natural processes; Maintain the extent of the <i>Zostera</i> -dominated community, subject to natural processes; Conserve the high quality of the <i>Zostera</i> -dominated community, subject to natural processes; Conserve the following community types in a natural condition: Intertidal sand with <i>Angulus tenuis</i> community complex; Muddy sand to sand with <i>Hediste diversicolor</i> , <i>Corophium volutator</i> and <i>Peringia ulvae</i> community complex; Fine sand with polychaetes community complex; Sand with bivalves, nematodes and crustaceans community complex; Intertidal reef community complex; Subtidal reef community complex.
<ul style="list-style-type: none"> <li>▪ Mudflats and sandflats not covered by seawater at low tide [1140]</li> </ul>	The permanent habitat area is stable or increasing, subject to natural processes; Maintain the extent of the <i>Zostera</i> -dominated community, subject to natural processes; Conserve the high quality of the <i>Zostera</i> -dominated community, subject to natural processes; Conserve the following community types in a natural condition: Intertidal sand with <i>Angulus tenuis</i> community complex; Muddy sand to sand with <i>Hediste diversicolor</i> , <i>Corophium volutator</i> and <i>Peringia ulvae</i> community complex.
<ul style="list-style-type: none"> <li>▪ Embryonic shifting dunes [2110]</li> </ul>	Area stable or increasing, subject to natural processes, including erosion and succession. No decline or change in habitat distribution, subject to natural processes. Maintain the natural circulation of sediment and organic matter, without any physical obstructions. Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession. More than 95% of sand couch ( <i>Elytrigia juncea</i> ) and/or lyme-grass ( <i>Leymus arenarius</i> ) should be healthy (i.e. green

	<p>plant parts above ground and flowering heads present). Maintain the presence of species-poor communities with typical species: sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>). Negative indicator species (including non-native species) to represent less than 5% cover.</p>
<ul style="list-style-type: none"> <li>▪ Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]</li> </ul>	<p>Area stable or increasing, subject to natural processes, including erosion and succession. No decline or change in habitat distribution, subject to natural processes. Maintain the natural circulation of sediment and organic matter, without any physical obstructions. Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession. More than 95% of sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present). Maintain the presence of species-poor communities with typical species: sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>). Negative indicator species (including non-native species) to represent less than 5% cover.</p>
<ul style="list-style-type: none"> <li>▪ Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]</li> </ul>	<p>Area stable or increasing, subject to natural processes, including erosion and succession. No decline or change in habitat distribution, subject to natural processes. Maintain the natural circulation of sediment and organic matter, without any physical obstructions. Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession. Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes. Maintain structural variation within sward. Maintain range of subcommunities with typical species listed in Delaney <i>et al.</i> (2013). Negative indicator species (including non-native species) to represent less than 5% cover.</p>
<ul style="list-style-type: none"> <li>▪ Humid dune slacks [2190]</li> </ul>	<p>Area stable or increasing, subject to natural processes, including erosion and succession. No decline or change in habitat distribution, subject to natural processes. Maintain the natural circulation of sediment and organic matter, without any physical obstructions. Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession. Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground. Maintain structural variation within sward. Maintain range of subcommunities with typical species listed in Delaney <i>et al.</i> (2013). Negative indicator species (including non-native species) to represent less than 5% cover. Maintain less than 40% cover of creeping willow (<i>Salix repens</i>)</p>
<ul style="list-style-type: none"> <li>▪ <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014]</li> </ul>	<p>No decline. Adult or sub-adult snails are present in all three of the habitat zones on the transect (minimum four samples). Adult or sub-adult snails are present in at least six other places at the site with a wide geographical spread (minimum of eight sites sampled). At least 50m of habitat along the transect is classed as optimal and the remainder as at least suboptimal. Soils, at time of sampling, are damp (optimal wetness) and covered with a layer of humid thatch fo at least 50m along the transect. At least 45ha of</p>

---

	<p>the site in at least optimal/suboptimal condition. Optimal habitat is defined as fixed dune, species-rich grassland dominated by red fescue (<i>Festuca rubra</i>) and marram (<i>Ammophila arenaria</i>), with sparse oxeye daisy (<i>Leucanthemum vulgare</i>), dandelion (<i>Taraxacum</i> sp.), ribwort plantain (<i>Plantago lanceolata</i>) and other low growing herbs. Vegetation height 20- 50cm. Habitat growing on damp, friable soil covered with a layer of humid, open structured thatch. Sub-optimal habitat is defined as above but either vegetation height is less than 10cm or above 50cm; or the soil is dry and sandy; or the thatch is wetter with a denser structure.</p>
<ul style="list-style-type: none"><li>▪ <i>Phoca vitulina</i> (Harbour Seal) [1365]</li></ul>	<p>Species range within the site should not be restricted by artificial barriers to site use. Conserve the breeding sites in a natural condition. Conserve the moult haulout sites in a natural condition. Conserve the resting haulout sites in a natural condition. Human activities should occur at levels that do not adversely affect the harbour seal population at the site.</p>

---

## 4.3 Identification of potential impacts

The identification of potential impacts and the assessment of their significance typically require the identification of the type and magnitude of the impacts. For example, will the impacts be short term or long term, direct, indirect or cumulative and will they occur during construction or operation. This section will establish whether the impacts of the proposed development at Glennagoolagh that were identified in the previous section, are likely to occur and whether or not they are significant. These potential impacts will be examined with respect to the conservation objectives of the two Natura 2000 sites identified previously in section 4.2.

In the screening section of this report, the following possible future impacts on the Ballysadare Bay SAC and SPA were listed. These concerns are again listed below and they will be dealt with in more detail in this section.

- Deterioration of water quality in designated areas arising from the lateral movement of polluted surface water uphill and upstream from the site.

This may occur principally under the following conditions:

1. Surface Water Runoff from the site;
2. Dust deposition into surface waters off-site.

It should be noted that the site development and operation will not be carried out within any designated SAC or SPA site, lead to habitat loss, land-take or fragmentation of habitats. It is possible that the subsequent restored grassland will provide suitable habitat conditions to breeding waders complementary to the Ballysadare Bay conservation objectives, depending on farming intensity and grazing regime. There will be no interference with the boundaries of any designated area and no infilling of any designated area will occur.

### 4.3.1 Surface water runoff

There exists an inherent risk that surface water runoff may become contaminated with pollutants from the proposed filling area, transporting them to Ballysadare Bay via the watercourse that intersects the proposed site (see Fig. 3). In order to assess the significance of this risk, the following should be considered:

- The proposed fill material is inert soil and stones and mixed construction and demolition material [EWC 17 05 04 & 17 09 04]. No other fill material will be permitted to enter the site.
- The proposed site is c.2 km upstream from the boundary of Ballysadare Bay SAC and SPA. Any material that enters the intersecting the proposed site will undergo dilution before reaching Ballysadare Bay.

Despite these considerations, there remains uncertainty surrounding the quality of the incoming fill material (i.e. whether hazardous fill material is accidentally admitted to the site). There is also uncertainty surrounding the extent of the dilution that would take place as material from the proposed site travels downstream. The consequences of surface water contamination may or may not be significant. In this scenario the precautionary principle is employed, and the consequences are assumed to be significant in the absence of rigid alternative evidence.

### 4.3.2 Dust deposition

Activities arising from the development and operation of the deposition site are likely to create a certain level of dust, levels of which are expected to increase during periods of dry weather. Natura 2000 sites are

too far removed from the proposed site to be at risk of direct dust infiltration, but some dust particles may be deposited in the stream located along the lower eastern perimeter of the site.

As with surface water contamination (see Section (4.3.1) above), the significance of dust particle infiltration of the stream is uncertain. In the absence of evidence to the contrary, it is assumed to be significant.

#### 4.4 Other Plans or Projects in the Area

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first; through persistent additions or losses of the same materials or resource, and second, -through the compounding effects as a result of the coming together of two or more effects (Bowers-Marriott, 1997).

To make an overview assessment of cumulative impacts, an examination was made of other planning applications granted within the Glennagoolagh area for the past three years. One development has been granted permission in Glennagoolagh in that time and this included a domestic development. Housing density in Glennagoolagh and the surrounding townlands is low for a rural area. Cumulative impacts with agricultural activities in the area were also considered. As these activities are required to operate within the legalisation defined in S.I. 31 of 2014 regarding manure storage, minimisation of soiled water and general good agricultural practice, etc., cumulative impacts arising from the combined operation of these activities with the development and operation of the site are deemed negligible.

## 5 Mitigation Measures

In order to avoid any reductions in water quality in the area surrounding the quarry, a number of mitigation measures must be fully implemented and followed. Measures have also been suggested that will help to protect the local biodiversity of the surrounding area and to ensure the protection of local wildlife.

### Mitigation measures specific for Surface Water Runoff:

- The immediate local watercourses (drainage ditches) can play various roles for biodiversity, including serving as potential riparian corridors. It is vital that there is no deterioration in water quality in the watercourses in the vicinity of the restoration site. This will protect both habitats and species that are sensitive to pollution, especially siltation.

Strict controls of erosion, sediment generation and other pollutants associated with the site development and operation process must be implemented. Attenuation and treatment of run-off will include the provision of a 1 m x 1 m earthen berm preceded by swale of c. 1.5 m bottom width, c. 0.5 m depth, with sloped sides with a gradient no steeper than 1:3 to ensure all surface water runoff is contained on-site and entrapment or settlement of suspended solids. Where the longitudinal slope is greater than 3 %, check-dams shall be implemented. This combined attenuation system will be offset from the stream by a 5 metre buffer zone; within which natural vegetation will be maintained and encouraged. All surface water runoff from the filling area will be intercepted by the combination of the swale and berm. Further detail on the design and implementation of swales and bunds are available in the CIRIA SuDS Manual, available on-line.

The swale/berm attenuation system will be further enhanced with a silt fence installed along the adjacent stream outside the 5 meter aquatic buffer zone. This silt fence shall be inspected regularly and maintained in sound operating condition.

Surface water runoff will thus be attenuated onsite and will not lead to an increase of surface water run-off or discharge of silted waters, hydrocarbons or highly alkaline materials such as cement or any other pollutants to surface; it will not have the potential to infiltrate the stream which flows towards Ballysadare Bay. The protection of water quality in this area is vital.

### Mitigation measures for the control of dust:

- It is proposed that a water bowser will be maintained onsite, which will be used to periodically spray down the fill material, particularly during dry weather periods. The dampening of surfaces in this way is a common dust suppression technique, and is considered adequate in this scenario to minimise the risk of contaminating the adjacent stream.

### Other non-specific measures:

- A Pollution Prevention Plan and Emergency Response Plan shall be drawn up for the site with IFI included as a notifiable body in case of pollution to watercourses.
- Site contact details must be provided on the entrance to the site. A record of all material and their source will be maintained on site and made available for inspection. Only inert, permeable material which fits the criteria for inert soil and stones and mixed construction and demolition waste will enter the site. Crushed cement or other material likely to result in alkaline discharges must not be used as fill material. This site must be operated in accordance with a waste licence. The applicant must ensure that fill material conforms to of inert soil and stones and mixed construction and demolition material [EWC 17 05 04 & 17 09 04] and is imported by permitted waste contractors. It

should not be spread close to any local watercourse, including drainage ditches as it may result in an increase in the sediment load of such watercourses.

- No record of alien invasive species exists in the area; however, care must be taken to avoid the spread of non-native invasive species during the site development or operation works. This may occur through the import of fill material and through the use of machinery on-site and off-site. Best practice should be followed, e.g. 'Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads' (available online) and Best Practice Invasive Species Control Guidelines for Stakeholders available from the Invasive species and Biosecurity publications from Inland Fisheries.
- No new drains must be opened as part of the reinstatement to agricultural land.
- A low intensity of vehicular access of the site is anticipated; if an on-site wheel-wash is deemed necessary and is installed, all waste waters arising must be attenuated and treated to ensure no silt discharges to drains or surface waters.
- Stockpile areas of fill material must be kept to a minimum size, well away from the drains and watercourses.
- Fuels, oils, greases and hydraulic fluids required during the development and operation process must be stored in bunded compounds, away from watercourses. Bunded containers will be of 110% their capacity. Refuelling of machinery, etc., must also be carried out in bunded areas. A dozer will be on site infrequently to level received inert material. While on site the dozer will be restricted to the bunded area. The dozer will be inspected for fuel and oil weeps prior to accessing the project site and will only be permitted to access the site once free of such weeps. All vehicles transporting inert fill material to the site will be required to be free of fuel and oil weeps.
- Any bulk fuel storage tank must be properly bunded with a bund capacity of at least 110% of that of the fuel tank.
- All works associated with the development and operation of the site must be confined to the site.
- All activities related to site development and operation works must adhere to best practice.
- Although hedgerows do not appear to be present within the proposed site, these must be protected and maintained where they occur. They must be carefully cordoned off from the restoration activities on site. If possible, a natural verge must be allowed to remain along these hedgerows. Substantial research exists on the buffering effects of hedgerows, and their capacity for maintaining and enhancing biodiversity on the site once the development is operational.
- Trees must only be removed on site where absolutely necessary. Any tree lines and hedgerows that remain must be protected and maintained where possible by adopting, for example, management practices outlined in 'Conserving Hedgerows'-Heritage Council and 'The Complete Hedge Good Management Guide' – Hedgelink (both available online). They must be carefully cordoned off from the development activities on site. If possible, a natural verge of at least two meters should be allowed to remain along these hedgerows. This will encourage and maintain the biodiversity on-site once the development is operational. It is illegal to cut and remove hedgerows and trees during the bird nesting season (under the Wildlife Acts, hedgerows may not be cut during the period from 1st March to 31st August each year, coinciding with the bird-nesting season).

- Any future landscaping must involve the planting of native Irish species that are indigenous to the area. The characteristics of newly planted hedgerows should mimic those outlined in best practice, and incorporate species that are locally native and suitable to the soil/climatic characteristics for best results.
- Bare soil must be seeded as soon as possible with grass seed. This will minimise erosion into local drains and watercourses. Wildflower mixes should be avoided in a sensitive area such as this, as they can alter the genetic balance of the existing flora.

## 5.1 Findings of no significant effects

Name of project: Natura Impact Statement for the filling of land with inert soil/subsoil and construction and demolition waste (Application area = 2.22 Ha, Volume of material = 24,950 tonnes) together with all associated ancillary site works and landscaping at Glennagoolagh, Co. Sligo..

Name and location of Natura 2000 sites: site is within 2 km of Ballysadare Bay SPA and SAC respectively, and is intersected by a small watercourse that enters the Glennagoolagh stream that discharges into the Ballysadare Estuary.

Description of project: The project involves the filling of land with inert soil/subsoil and construction and demolition waste (Application area = 2.22 Ha, Volume of material = 24,950 tonnes) together with all associated ancillary site works and landscaping at Glennagoolagh, Co. Sligo..

Is the project directly connected with or necessary to the management of the site? No.

Are there other projects or plans that together with project being assessed could affect the site? No.

### The assessment of significance of effects

Describe how the project is likely to affect the Natura 2000 site: impact upon the water quality of Ballysadare Bay SPA and SAC.

Explain why these effects are not considered significant: Strict mitigation measures must be fully enforced to ensure that these impacts will not occur.

Describe how the project is likely to affect species designated under Annex II of the Habitats Directive. If the mitigation measures outlined in Section 5 are attached to any grant of planning permission and fully implemented, then any direct, indirect or cumulative impacts upon these species will be negligible.

### Data Collected to carry out the assessment

Who carried out the assessment: Julien Carlier (BSc Environmental Science, PhD Landscape Ecology).

Sources of data: NPWS, EPA, National Biodiversity Data Centre, Sligo County Council.

Level of assessment completed: stage II Appropriate Assessment – Natura Impact Statement.

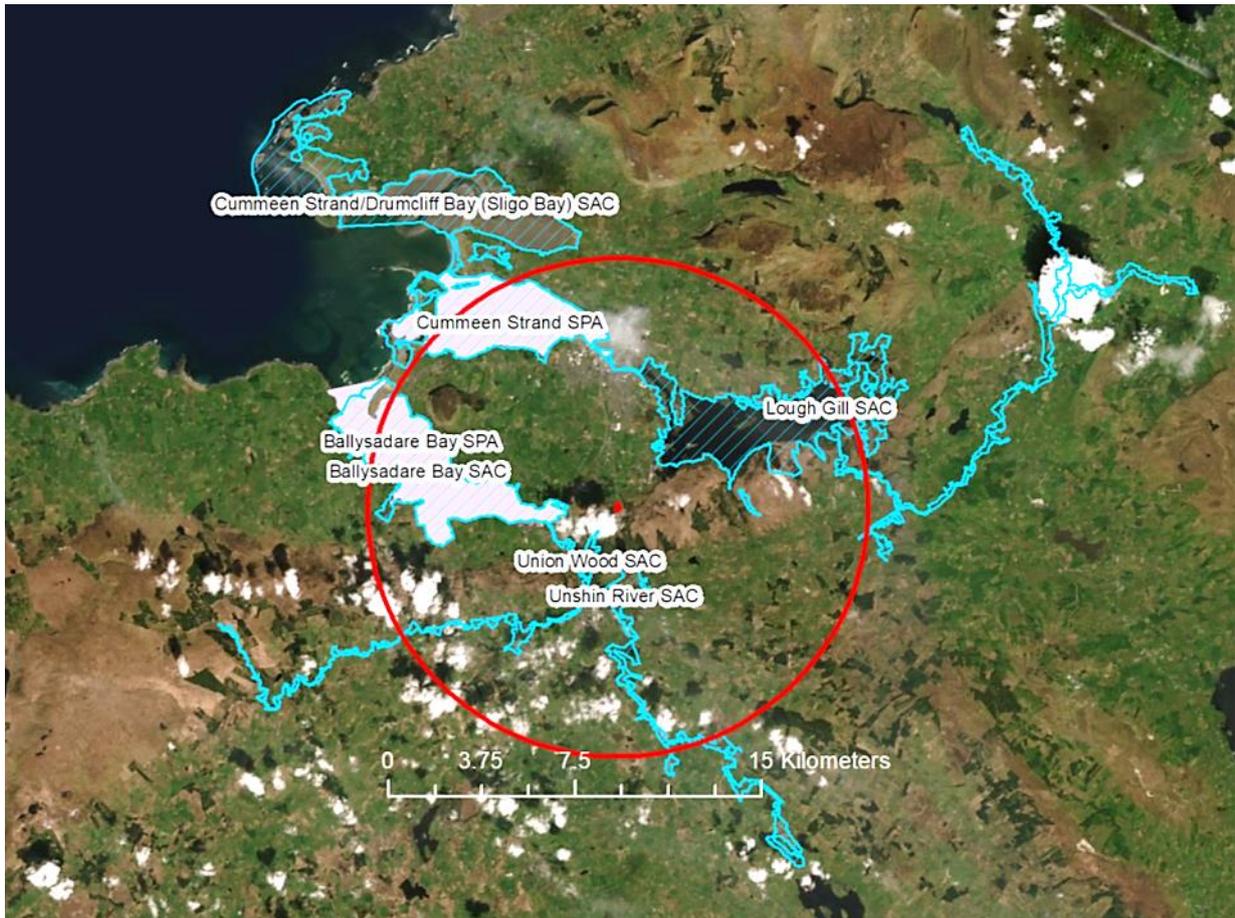
Where can the full results of the assessment be accessed and viewed: full results included in this document.

## **6 Appropriate Assessment Conclusion**

This Natura Impact Statement has concluded that with enforced and fully implemented mitigation measures and with due regard and care for the natural heritage of the surrounding area, that the development and operation of the deposition site at Glennagoolagh, Co Sligo will have no significant impacts (direct, indirect or cumulative) upon the Ballysadare Bay SAC and SPA.

## 7 Appendix 1

Site location (red centre dot) with Natura sites identified within a 10km buffer zone.



## 8 Appendix 2

Site location indicated (red arrow) with elevation contours (a) illustrating depression towards the roadway and 3D elevation visualisation (b).

