

Appendix C. Description of Constraints Map Legend



Millstreet Project

Phase One - Description of Constraints Map Legend

November 2010
EirGrid plc



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1. Introduction

1.1 Introduction

This report is an Appendix Report (Appendix C) to the *Phase One Lead Consultant's Site and Corridor Identification Report* for a proposed 220/110 kV substation and associated transmission infrastructure near Millstreet, County Cork and supports all project maps produced as part of the Millstreet project.

The aim of this report is to assist the reader in understanding the types of constraint found in the project study area to assist in viewing the project maps. This report provides a high level definition of each type of developmental or environmental constraint identified within the project study area and listed in the map legend/key.

The developmental or environmental constraints were obtained from the latest information from various sources including the National Parks and Wildlife Service (NPWS) of the Department of the Environment, Heritage and Local Government (DoEHLG), Archaeological Survey of Ireland (ASI), Geological Survey of Ireland (GSI), the Cork County Development Plan 2009 and the Kerry County Development Plan 2009-2015.

In accordance with the key/legend included in the drawings, definitions for the following constraints are provided.

- Study Area
- Existing 110 kV Garrow Substation
- Existing 220 kV Clashavoon-Tarbert Transmission Line
- Existing and Planned Windfarms
- Existing Operational Quarry
- Forestry
- Designated Sites (Special Areas of Conservation / Special Protected Areas / Natural Heritage Areas / proposed Natural Heritage Areas)
- Ecological Value
- Potential Bat Roost Sites
- Designated Scenic Landscapes and Scenic Routes
- Residential Amenity
- Cultural Heritage Sites (National Monuments / Record of Monuments and Places / Record of Protected Structures / Other Cultural Heritage Sites)

The identified constraints will show areas of opportunity and areas which should be avoided, where possible. This forms the basis for the identification of potential locations where the proposed infrastructure can be placed.

Some constraints can be considered more significant than others. For example, designations containing EU Habitats Directive Annex I and Annex II species or habitats must be protected.

1.2 Study Area

The project area was initially defined as a red rectangle of approximately 72 square kilometres. For the purposes of identifying suitable substation site and route corridor options, the project Study Area was subsequently refined to areas of 63 square kilometres and 9 square kilometres respectively with due regard to physical terrain and the developmental and environmental constraints discussed in this report.

The determination of the study area is discussed in detail in Chapter 2 (*Study Area and Constraints Identification*) of the *Phase One Lead Consultant's Site and Corridor Identification Report*.



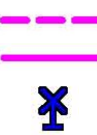










2. Description of Constraints Mapping Legend

2.1 Introduction

Constraints mapping for the Millstreet Project is presented in the *Phase One Lead Consultant's Site and Route Corridor Identification Report* and Appendix D (*Phase One – Drawing Register*), which are available to view on the EirGrid Millstreet Project website (www.eirgridprojects.com/projects/millstreet/).

A number of maps are provided in the aforementioned reports illustrating the key constraints associated with the project area. Table 2.1 below presents the key constraint legends, the data source for each key constraint and the criterion under which each constraint was considered, as appropriate.


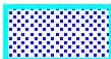






Table 2.1: Legend Key - Constraint Mapping

Constraints	Legend Key	Source	Characterisation Criteria
Existing 110 kV Garrow Substation		Aerial photography and OSI mapping	Defines the study area under consideration
Existing 220 kV Transmission Line		Aerial photography and OSI mapping	Defines the study area under consideration
Existing and Planned Windfarms		Aerial photography, OSI mapping, review of planning application drawings and review of Cork and Kerry County Council planning websites	Restricts the 110 kV overhead line connection options from Garrow substation
Existing Operational Quarry		Aerial photography, OSI mapping and a review of land registry data	Restricts the overhead line connection and suggests high soil resistivity values in close proximity
Forestry		Forestry Inventory and Planning System (FIPS), aerial photography and OSI mapping	Forestry provides visual screening. Buffer zones are required for transmission infrastructure
Designated Sites (Special Areas of Conservation/Special Protected Areas/Natural Heritage Areas /proposed Natural Heritage Areas)	 NHA/pNHA	National Parks & Wildlife Service	Special Areas of Conservation (SACs) and Special Protected Areas (SPAs) are protected areas of International Importance. Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHA's) are protected areas of national Importance
	 SPA		
	 SAC		
Ecological Value	Ecological Value  Low to Moderate  Moderate  Moderate to High	Assessment undertaken by ecological specialist	Ecological value denotes the value of non-designated ecological habitat within the study area in terms of its likely importance to flora and fauna
Potential Bat Roosts		Assessment undertaken by ecological specialist	Bats and their roosts are protected under EU legislation
Designated Scenic Landscapes and Scenic Routes		Review of the Cork County Development Plan 2009 and the Kerry County Development Plan	Establishes if there are any relevant landscape designations that may influence the assessment within the study area

Constraints	Legend Key	Source	Characterisation Criteria
		2009-2015	
Residential Amenity	GeoDirectory Data <i>(Data Sourced from An Post)</i> ★ Residential ☆ Commercial ☆ Both Residential & Commercial ☆ Unknown	GeoDirectory data, aerial photography and OSI	Considers the number of residential, commercial, combined and unknown buildings within the study area
Cultural Heritage Sites (National Monuments/Record of Monuments and Places/Record of Protected Structures/Other Cultural Heritage Sites)	● National Monuments ● Record of Monuments & Places ● Record of Protected Structures ● Other Cultural Heritage Sites	www.heritagedata.ie , www.archaeology.ie , www.archaeology.nra.ie , www.excavations.ie www.buildingsofireland.ie and www.logainm.ie websites, Archaeological Survey of Ireland (ASI), National Museum of Ireland (NMI), historical mapping, aerial photography and windshield surveys	Identifies National Monuments, Record of Monuments and Places (RMPs), and Record of Protected Structures which may be impacted either directly or indirectly by the proposed development. Other Cultural Heritage Sites (CHS) denotes previously unrecorded CHS revealed during a windshield survey of the study area

Table 2.2 below presents the key legends used to identify the proposed development; namely the proposed new substation site locations and the 220 kV and 110 kV route corridor options.

Table 2.2: Legend Key - Proposed Development

Proposed Development	Legend Key
Potential Substation Site Location	
Potential 220/110 kV Overhead Line Route Corridors	
Potential 220/110 kV Underground Cable Route Corridors	
Preferred Substation Site Location	
Preferred 110 kV Underground Cable Route	
Preferred 220 kV Underground Cable Route	
Preferred 110 kV Overhead Line Route	
Preferred 220 kV Overhead Line Route	

2.2 Developmental Constraints

A 110 kV connection is required from the proposed new substation site to the existing 110 kV substation at Garrow, County Kerry. A 220 kV connection is also required from the proposed new substation site to the existing 220 kV Clashavoon-Tarbert transmission line. The project area is defined by the location of these two developmental constraints.

An adequate design distance is required between wind turbines and overhead lines to reduce the risk of fallen wind turbines damaging overhead conductors and to prevent excessive wind disturbance of the lines caused by the wake of the turbine blades. Gneeves, Curragh and Coomacheo wind farms are located directly north, east and north east of Garrow substation. Planning permission has also been granted for a wind farm to the south east of Garrow.

A sandstone quarry, occupying approximately 28 acres, is located approximately 4 kilometres south of Millstreet. This quarry presents a physical constraint for development in the area. The quarry also suggests high soil resistivity in the area immediately surrounding the quarry.

2.3 Forestry

Forestry has economic and recreational potential and offers potential for visual screening of the proposed development. However, buffer zones are required for transmission infrastructure. Development through forested areas would necessitate a 60 metre wide buffer zone of cleared ground from the overhead line in order to facilitate line maintenance and reduce the risk of fallen trees damaging overhead conductors. In addition, the installation of an underground cable will require an appropriate buffer zone to be kept permanently clear of trees to prevent damage caused by tree root systems. The distance required will be dependant on the type of tree and expected future growth.

2.4 Designated Sites

2.4.1 Special Area of Conservation (SAC)

Special Areas of Conservation (SAC) are prime wildlife conservation areas, considered to be important on a European as well as an Irish level. Most SAC are in the countryside, although a few sites reach into town or city landscapes. The legal basis on which SAC are selected and designated is the EU Habitats Directive, transposed into Irish law in the European Union (Natural Habitats) Regulations, 1997 as amended in 1998 and 2005. The Directive lists certain habitats and species that must be protected within SAC.

Irish Habitats include raised bogs, blanket bogs, turloughs, sand dunes, machair (flat sandy plains on the north and west coasts), heaths, lakes, rivers, woodlands, estuaries and sea inlets. The 25 Irish species which must be afforded protection include Salmon, Otter, Freshwater Pearl Mussel, Bottlenose Dolphin and Killarney Fern.

The areas chosen as SAC in Ireland cover an area of approximately 13,500 square kilometres. Roughly 53% is land, the remainder being marine or large lakes. Across the EU, over 12,600 sites have been identified and proposed, covering 420,000 square kilometres of land and sea, and are the size of Germany.

As described in Chapter 2 (*Study Area and Constraints Identification*) of the *Phase One Lead Consultant's Site and Route Corridor Identification Report* the study area was defined in order to avoid development within designated conservation sites.

The closest SAC to the site is Mullaghanish Bog, which is located approximately 1 kilometre south of the study area. Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment and Blackwater River (Cork/Waterford) SACs are both located approximately 1.5 kilometres from the study area. Both Mullaghanish Bog and Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC designations overlap with pNHA designations.

As detailed in Appendix I.1 (Appropriate Assessment Screening Report) of the *Phase One Lead Consultant's Site and Route Corridor Identification Report* the Blackwater River (Cork / Waterford) SAC (Site code - 002170) is considered to be the only SAC site, which may possibly be impacted by the proposed development.

The Finnow River drains the study area and ultimately drains into the Blackwater River downstream. The Blackwater River (Site Code 002170) has been designated a candidate Special Area of Conservation (cSAC), which has the same level of protection as an SAC, however, it has not yet been formally ratified by the Minister of the Environment.

The key qualifying interests of the Blackwater River cSAC include:

- Priority habitats listed on Annex I of the EU Habitats Directive: alluvial wet woodlands and Yew wood.
- Habitats listed on Annex I of the EU Habitats Directive: floating river vegetation, estuaries, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, perennial vegetation of stony banks and old Oak woodland.
- The site is also selected for the following species listed on Annex II of the EU Habitats Directive: Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Crayfish, Twaité Shad, Atlantic Salmon, Otter and the plant, Killarney Fern.

2.4.2 Special Protection Areas (SPA)

The EU Birds Directive (79/409/EEC) requires designation of SPAs for:

- Listed rare and vulnerable species.
- Regularly occurring migratory species such as ducks, geese and waders.
- Wetlands, especially those of international importance, which attract large numbers of migratory birds each year. Internationally important means that 1% of the population of a species uses the site or more than 20,000 birds regularly use the site.

Since 1985 121 SPAs have been designated. 25 other sites enjoy legal protection and will shortly be designated as SPAs. However, further designations are required pursuant to the Birds Directive.

The closest SPA to the study area is the Mullaghanish to Musheramore Mountains SPA which is located immediately south of the study area. The main conservation objective of this SPA is to maintain the special conservation interest at favourable conservation status for Hen Harrier.

As detailed in Appendix I.1 (*Appropriate Assessment Screening Report*) of the *Phase One Lead Consultant's Site and Route Corridor Identification Report*, the Mullaghanish to Musheramore Mountains SPA (site code 004162) is considered to be the only SPA, which may possibly be impacted by the proposed development.

2.4.3 Natural (and proposed Natural) Heritage Areas (NHA/pNHA)

The basic designation for wildlife is the Natural Heritage Area (NHA). A NHA is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. To date, in Ireland, 75 raised bogs have been given legal protection, covering some 23,000 hectares. These raised bogs are located mainly in the midlands. A further 73 blanket bogs, mainly in the western areas, covering 37,000 hectares, are also designated as NHA's.

Under the Wildlife Amendment Act (2000), NHA's are legally protected from damage from the date that they are formally proposed for designation.

In addition to the NHA there are 630 proposed Natural Heritage Areas (pNHA) in Ireland. These were published on a non statutory basis in 1995, but have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats. Some of the pNHA are tiny, such as a roosting place for rare bats. Others are large – for example a woodland or a lake. The pNHA cover approximately 65,000 hectares and according to the NPWS, designation will proceed on a phased basis over the coming years.

Prior to statutory designation, pNHA are subject to limited protection, in the form of:

- Rural Environment Protection Scheme (REPS) plans which require conservation of pNHA and operate for a period of 5 years;
- Forest Service requirement for NPWS approval before they will pay afforestation grants on pNHA lands.
- Recognition of the ecological value of pNHA by Planning and Licensing Authorities.

As discussed previously, both Mullaghanish Bog and Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC designations overlap with pNHA designations.

2.5 Ecological Value

A review of aerial photography and a windscreen survey of the study area and surrounding area was undertaken to confirm the broad habitats present and to consider the ecological value of the study area in terms of the broad habitats and the fauna species likely to utilise these habitats. These areas are presented in Figure B.3 (Appendix B – Study Area Characterisation) of the *Phase One Lead Consultant's Site and Route Corridor Identification Report*.

Areas considered to be of moderate to high ecological value include areas of bog, heath and native woodland. Areas considered to be of moderate ecological value include areas of acid grassland and rocky heath with scattered trees and scrub. Areas considered to be of low ecological value contain areas of made or disturbed ground, fields improved for agriculture and managed plantation forestry.

No potential or confirmed hen harrier nest sites were noted during the survey of the study area in spring / summer 2010. Hen harriers were confirmed occasionally foraging in the study area during 2010.

A number of potential bat roost sites were surveyed in summer 2010 and no bat roosts were identified as being present. These sites are discussed in more detail in Chapter 5 (*Consultants Findings – Route Corridor Environmental Constraints*) and are presented in Figure B.3 (Appendix B – Study Area Characterisation) of the *Phase One Lead Consultant's Site and Route Corridor Identification Report*.

2.6 Scenic Routes and Landscapes

There is a need to protect and conserve views and prospects adjoining public roads and river valleys as these views are of high amenity value. In conserving views, a development, where permitted, should not seriously hinder or obstruct these views. Careful design and planning is needed to minimise their impact.

The area east and west of Millstreet has been designated a scenic landscape. In addition, a number of scenic routes run to the east and south of the study area.

2.7 Residential Amenity

The main settlements of the area are located in and around the town of Millstreet. Clusters of dwellings are also located adjacent to the R582 (Macroom / Millstreet) road.

According to information provided by the GeoDirectory (An Post), the study area includes 48 buildings. Of these 6 are listed as businesses, 2 are listed as combined business and residential, 28 are listed as residential and 12 are listed as unknown. No buildings are listed in the western half of the study area. However, it is known that this area includes Garrow substation and a number of wind farms and associated buildings.

2.8 Cultural Heritage Sites

The Cultural Heritage Sites (CHS) considered in the *Phase One Lead Consultant's Site and Route Corridor Identification Report* include:

- National Monuments;
- Record of Monuments and Places (RMP);
- Record of Protected Structures; and
- Other Cultural Heritage Sites.

There are no National Monuments located within the study area. The nearest National Monument No. 420 (a Five-Stone Stone Circle, SMR Number CO048-095002-) is located in Knockilla approximately 2.5 kilometres to the east of the study area.

There are 15 RMP located within the study area and a further 15 located within 250 metres of the study area boundary.

There are no sites listed in the Record of Protected Structures (RPS) or the National Inventory of Architectural Heritage (NIAH) for County Cork within the study area. The nearest Protected Structures are to the north of the study area; namely Cloghboola National School and Kilmeedy castle.

A field survey of the study area along the access ways revealed a further four unrecorded cultural heritage sites that may be impacted by the proposed development. These sites represent pre-famine homesteads consisting of vernacular dwellings with associated outbuildings. Three of these sites are located in Caherdowney townland the remainder is in Ballyvouskill. All these sites appear on the OS first edition map and all are presently extant with varying degrees of preservation. These sites are discussed in more detail in Chapter 5 (*Consultants Findings – Route Corridor Environmental Constraints*) and are presented in Figure B.2 (Appendix B – *Study Area Characterisation*) of the *Phase One Lead Consultant's Site and Route Corridor Identification Report*. Three of these sites correspond with the potential bat roost sites detailed in Section 2.5 (*Ecological Value*) of this report.