DURSEY ISLAND CABLE CAR AND VISITOR CENTRE

Natura Impact Statement
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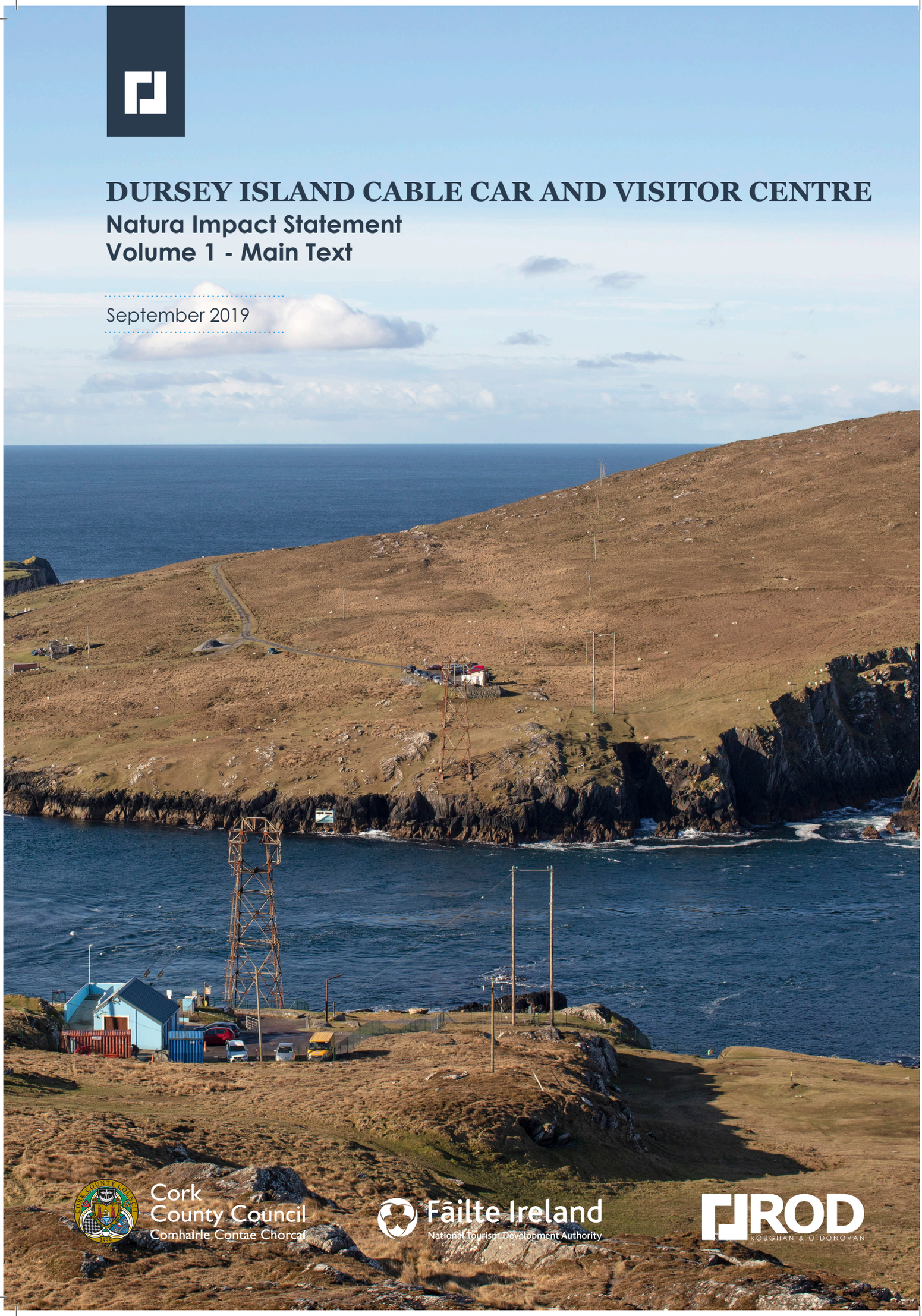

Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

ROD
ROUGHAN & O'DONOVAN

Dursey Island Cable Car and Visitor Centre

Natura Impact Statement

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1.0 INTRODUCTION

1.1 Background

Roughan & O'Donovan (ROD) Consulting Engineers was appointed by Cork County Council to provide engineering and environmental consultancy services in relation to the proposed Dursey Island Cable Car and Visitor Centre ("the proposed development"). The proposed development comprises the replacement of the existing Dursey Island cable car and the construction of a new visitor centre and parking facilities. It is also proposed to upgrade some aspects of the supporting infrastructural and utility systems in order to support the provision of improved facilities and the anticipated increase in visitor numbers.

In accordance with Article 6(3) of Council Directive 92/43/EEC of 21 August 1992 on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive"), as transposed into Irish law by Part 5 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) ("the Habitats Regulations") and Part XAB of the Planning and Development Act, 2000 (as amended) ("the Planning and Development Act"), an Appropriate Assessment (AA) Screening Report was prepared to assess whether or not the proposed development, either individually or in combination with other plans or projects, was likely to have a significant effect on one or more sites of Community importance for nature conservation ("European sites").

The AA Screening Report, which was prepared by ROD on behalf of Cork County Council, concluded, in view of best scientific knowledge and the Conservation Objectives of the sites concerned, that, in the absence of appropriate mitigation, the proposed development was likely to have a significant effect on two European sites, namely the Beara Peninsula SPA and the Kenmare River SAC. On the basis of that conclusion, Cork County Council, in its capacity as the Competent Authority at the screening stage, determined that AA was required in order to assess the implications of the proposed development for those sites.

In accordance with Section 177AE of the Planning and Development Act and following the determination by Cork County Council that AA was required in respect of the proposed development, the role of Competent Authority and responsibility for undertaking the AA was assumed by An Bord Pleanála ("the Board"). In order to assist the Board in carrying out its AA, Cork County Council is required to submit a Natura Impact Statement (NIS) in respect of the proposed development.

This document comprises the NIS in respect of the proposed development and has been prepared by ROD on behalf of Cork County Council. It contains an examination, analysis and evaluation of the likely impacts from the proposed development, both individually and in combination with other plans and projects, in view of best scientific knowledge and the Conservation Objectives of the European sites concerned. It also prescribes appropriate mitigation to ensure that the proposed development will not adversely affect the integrity of those sites. Finally, it provides complete, precise and definitive findings which are capable of removing all reasonable scientific doubt as to the absence of adverse effects on the integrity of the European sites concerned.

1.2 Legislative Context

The Habitats Directive and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds ("the Birds Directive") list habitats and species which are, in a European context, important for conservation and in need of protection. This protection is afforded in part through the

designation of sites which support significant examples of habitats or populations of species ("European sites"). Sites designated for birds are termed "Special Protection Areas" (SPAs) and sites designated for natural habitat types or other species are termed "Special Areas of Conservation" (SACs). The complete network of European sites is referred to as "Natura 2000".

In order to ensure the protection of European sites in the context of land use planning and development, Article 6(3) of the Habitats Directive provides for the assessment of the implications of plans and projects for European sites, as follows:

> "*Any plan or project not directly connected with or necessary to the management of the site* [or sites] *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* [...]*, 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* [...]*.*"

The requirements arising out of Article 6(3) are transposed into Irish law by Part 5 of the Habitats Regulations and Part XAB of the Planning and Development Act, and the assessment is referred to as "Appropriate Assessment" (AA).

The determination of whether or not a plan or project meets the two thresholds for requiring AA is referred to as "Stage 1" or "AA Screening". The first threshold is reached if the plan or project is not directly connected with or necessary to the management of one or more European sites. In its ruling in *Waddenzee*[1], the Court of Justice of the European Union (CJEU) interpreted the second threshold as being reached where "*it cannot be excluded, on the basis of objective information, that* [the plan or project] *will have a significant effect on that site*". Thus, in applying the Precautionary Principle, the CJEU interpreted the word "likely" to mean that, as long as it cannot be demonstrated that an effect will not occur, that effect is considered "likely". A likely effect is considered to be "significant" only if it interrupts or causes a delay in achieving the Conservation Objectives of the site concerned.[2]

Prior to approval of a plan or project which is the subject of AA (also referred to as "Stage 2"), it is necessary to "*ascertain*" that the plan or project will not "*adversely affect the integrity of the site*". In its guidance document (EC, 2001), the European Commission stated that "*the integrity of a site involves its ecological functions*" and that "*the decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives*". Regarding the word "ascertain", the CJEU, also in *Waddenzee*, interpreted this as meaning "*where no reasonable scientific doubt remains as to the absence of such effects*". Therefore, the legal test at Stage 2 is satisfied (and the plan or project may be authorised) when it can be demonstrated beyond reasonable scientific doubt that the plan or project will not interrupt or cause delays in the achievement of the Conservation Objectives of the site or sites concerned. AA is informed by a "Natura Impact Report" (NIR) in the case of plans or a "Natura Impact Statement" (NIS) in the case of projects.

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[1] Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse vereniging tot Bescherming van Vogels *v*. Staatssecretaris van Landbouw, Naturbeheer en Visserij (Waddenzee) [2004] C-127/02 ECR I-7405.

[2] Conservation Objectives are referred to, but not defined, in the Habitats Directive. In Ireland, Conservation Objectives are set for Qualifying Interests (the birds, habitats or other species for which a given European site is selected) and represent the overall target that must be met for that Qualifying Interest to reach or maintain favourable conservation condition in that site and contribute to its favourable conservation status nationally.

The CJEU has made a relevant judgment on what information should be contained within documents supporting AA[3] (in the NIR or NIS):

> "[The AA] *cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned.*"

The Irish High Court has also provided clarity on how competent authorities should undertake valid and lawful AA[4], directing that the AA:

> "*Must identify, in the light of the best scientific knowledge in the field, all aspects of the development project which can, by itself or in combination with other plans or projects, affect the European site in the light of its conservation objectives. This clearly requires both examination and analysis.*"
>
> "*Must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps. The requirement for precise and definitive findings and conclusions appears to require examination, analysis, evaluation and decisions. Further, the reference to findings and conclusions in a scientific context requires both findings following analysis and conclusions following an evaluation of each in the light of the best scientific knowledge in the field.*"
>
> "*May only include a determination that the proposed development will not* adversely *affect the integrity of any relevant European site where, upon the basis of complete, precise and definitive findings and conclusions made, the consenting authority decides that no reasonable scientific doubt remains as to the absence of the identified potential effects.*"

In accordance with Article 6(3) of the Habitats Directive, the responsibility to screen for and carry out AA lies solely with the "competent national authorities", i.e. those with responsibility for granting or refusing consent for plans and projects. In that respect, an AA Screening Report, NIR or NIS (if not prepared by the competent authority) does not in itself constitute a valid AA Screening or AA; it merely provides the competent authority with the information that it needs in order to screen for and carry out its AA. In Ireland, the competent authority for a given plan or project is the relevant planning authority, e.g. the local authority or An Bord Pleanála.

1.3 Methodology

On the basis of the objective information provided in the AA Screening Report and in view of the Conservation Objectives of the relevant European sites, Cork County Council, as the competent authority at that stage, determined that the proposed development, either individually or in combination with other plans and projects, was likely to have a significant effect on two European sites, namely the Beara Peninsula SPA and the Kenmare River SAC.

In accordance with the requirements for AA, this NIS assesses the likely effects of the proposed development on the integrity of the European sites "screened in" at Stage 1. This assessment is undertaken in six steps, as follows:

1. Step 1 involves gathering all of the information and data that will be necessary for a full and proper assessment. These include, but are not limited to, the details of all phases of the plan or project, environmental data pertaining to the area in which the plan or project is located, e.g. rare or protected habitats and species

[3] Sweetman *v.* An Bord Pleanála [2013] Case C-258/11.

[4] Kelly *v*. An Bord Pleanála [2014] IEHC 422.

or invasive species present or likely to be present, and the details of the European sites within the likely zone of impact.

2. Step 2 involves examination of the information gathered in the first step and detailed scientific analysis of the effects of the plan or project on the ecological structure and function of the receiving environment, focussing on European sites.
3. Step 3 evaluates the effects analysed in Step 2 against the Conservation Objectives of the relevant European site or sites, thereby determining whether or not they constitute adverse effects on site integrity.
4. Having established that the plan or project will adversely affect the integrity of one or more European sites, Step 4 involves the development of appropriate mitigation, including, where appropriate, monitoring and enforcement measures, to eliminate or minimise those effects such that they no longer constitute adverse effects on the integrity of the site(s) concerned, as well as consideration of the significance of any residual (post-mitigation) effects.
5. Step 5 involved the assessment of the significance of any residual effects arising from the proposed development in combination with other plans or projects.
6. Step 6 involves the final determination of whether or not the plan or project will adversely affect the integrity of one or more European sites. Notwithstanding the final recommendation made in the NIS, the responsibility for completing this step lies solely with the competent authority.

The following guidance documents informed the assessment methodology:

- EC (2001) *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*. Environment Directorate-General of the European Commission.
- EC (2018) *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. European Commission, Brussels.
- DEHLG (2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*. Department of the Environment, Heritage and Local Government, Dublin.
- NPWS (2010a) *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular Letter NPWS 1/10 & PSSP 2/10. Department of the Environment, Heritage and Local Government, Dublin.

1.4 Ecological Assessment

Desk Studies

During the desk study, the statutory consultee, the National Parks & Wildlife Service (NPWS), provided data on designations of sites, habitats and species of conservation interest. This included reporting pursuant to Article 17 of the Habitats Directive[5] (NPWS, 2019b,c) and Article 12 of the Birds Directive[6] (Eionet, 2019), as well as the Site Synopses and Conservation Objectives for the relevant European sites.

The desk study involved a thorough review of existing information relating to ecology in the vicinity of the proposed development and in the surrounding area. A number of

[5] Under Article 17, to report to the European Commission every six years on their status and on the implementation of the measures taken under the Directive.

[6] Every three years, Member States of the European Union are required by Article 12 of the Birds Directive to report on implementation of the Directive. The most recent reporting available is for the period 2008-2012.

web-based geographic information systems (GISs) were used to obtain information relating to the natural environment surrounding the proposed development. These included the NPWS *Map Viewer* (NPWS, 2019a), which provided information on the locations of protected sites, the National Biodiversity Data Centre's *Biodiversity Maps* (NBDC, 2019), which provided recent and historic records of rare and protected species in the area.

Records for birds listed in *Birds of Conservation Concern in Ireland* (Colhoun & Cummins, 2013) noted during the desk study included Chough (*Pyrrhocorax pyrrhocorax*), which is also listed on Annex I to the Birds Directive, and Fulmar (*Fulmarus glacialis*). Both of these species are Qualifying Interests of the Beara Peninsula SPA.

Field Surveys

Specific ecological surveys were carried out for the following:

- Habitats and vegetation;
- Breeding birds;
- Bats;
- Betony (*Betonica officinalis*); and,
- Invasive alien plant species (IAPS).

In addition, multidisciplinary site walkover surveys were carried out by the Project Ecologist on a number of occasions during 2018 and 2019. These surveys aimed to identify any occurrence of rare and protected habitats and species in the study area, including those for which specific surveys were not ultimately deemed necessary, including Badger (*Meles meles*) and Otter (*Lutra lutra*).

A habitat survey was conducted by the Project Ecologist on 7th September 2018 and habitats present were classified in accordance with *A Guide to Habitats in Ireland* (Fossitt, 2000). A specialist survey to identify the presence of species Betony (*Betonica officinalis*), which is protected under the Flora (Protection) Order, 2015, was carried out by the Project Ecologist on 25th October 2018. An invasive species survey was carried out on 19th October 2018 to identify and geo-locate all invasive species listed on Part 1 of the Third Schedule to the Habitats Regulations.

The surveys for protected habitats and species, and invasive species adhered to the methodology outlined in the Heritage Council's *Best Practice Guidance for Habitat Survey and Mapping* (Smith et al., 2011) and *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA, 2008).

Paul Murphy of EirEco Environmental Consultants was contracted as the Project Ecologist for the proposed development. Mr Murphy is a Chartered Environmentalist with over 25 years of experience carrying out ecological assessments. He holds an MSc degree in Environmental Science from Trinity College Dublin. Mr Murphy completed the surveys of habitats/vegetation and betony. Surveys of breeding birds were carried out principally by Paul Murphy, with assistance from three ROD employees, namely Ms Christina McKiernan, Mr Tadhg Twomey and Mr Jason Cahill, as well as sub-consultant ecologist Mr John Deasy.

Surveys of IAPS were carried out partly by Paul Murphy and partly by Mr Kyran Colgan of Invasive Plant Solutions. Mr Colgan has 5 years of experience in the identification and management of IAPS.

Surveys of Breeding Birds

Surveys of breeding birds for the 2019 breeding season (March to June) are complete. While all breeding birds in the likely zone of impact are included in the surveys, an emphasis is placed on Red-billed Chough (*Pyrrhocorax pyrrhocorax*), which is a Qualifying Interest of the Beara Peninsula SPA and is known to be present in the immediate vicinity of the proposed development. The areas surveyed included:

- The immediate vicinity of the proposed development on the mainland; and,
- The entirety of Dursey Island.

These surveys were completed according to the methodology set out in McKeever et al. (2010). The schedule of bird surveys is outlined in Table 1.1 below.

Table 1.1 Breeding bird survey schedule, indicating the activity phase of the focal species of the surveys, Chough

Date	Survey type	Chough activity phase
March 2019	Spring	Early breeding season. Mature adults making nests. Young choughs take up to 3 years to reach breeding age and over this sub-adult stage they join a flock of non-breeding birds.
April 2019	Breeding	Breeding commences early to mid-April. 1-6 eggs are laid in the wool-lined nest cup. The female is solely responsible for incubating the eggs and during this time the male forages alone returning to the nest periodically to feed the female and allowing her time to feed close to the nest.
May 2019	Breeding	Breeding season. Adults foraging locally.
June and July 2019	Fledging / dispersal	Nestlings start to fledge and form family group which remains within their breeding-season home range.
August to November 2019	Post-breeding	Family groups have formed flocks and communal roosting begins.

Data recorded during the surveys includes the following:

- Number of individuals of each bird species of conservation concern;
- How individuals are first detected (seen/heard; flying/on ground; distance from surveyor);
- Location (grid reference; place name; description);
- Behaviour (foraging; flying; preening; vigilant; loafing; breeding; heard only);
- Habitat use and micro-habitat patch use;
- Land use (grazed [specifying livestock type]; not grazed recently; ungrazed; cultivation);
- Weather (wind force; wind direction; visibility; occurrence of precipitation);
- General notes on other relevant observations, including:
    - Features of land use and habitats, including poaching, strip-grazing, out-wintering of livestock and the timing of agricultural activities such as spring grazing and cutting of silage; and,

- Behavioural aspects of individual birds, e.g. flight lines.

Survey of Bats

Bat surveys were carried out by Dr Tina Aughney of Bat Eco Services. The surveys in question were carried out throughout the day (including the entire night) on 29th and 30th September 2018. This falls within the optimum period to conduct bat surveys (mid-April to September). At this time, Dr Aughney held the relevant bat survey licences (C30/2017 to handle bats; 33/2017 to photograph/film bats; DER/BAT 2017-09 to disturb a roost). Surveys were carried out within the footprint of the proposed development, on both island and mainland sides. The daytime survey involved the examination of the site of the proposed development with a view to identifying potential bat roosting and foraging habitats. The night-time surveys involved the use of two bat detectors, namely a Wildlife Acoustics EchoMeter Touch 2 Pro and a Pettersson D200 Heterodyne, by the surveyor at dusk on 29th September. Additionally, two units of Wildlife Acoustic SongMeter 2 BAT+ Platform were set-up to record bat calls from fixed locations between sunset and sunrise. Recordings made by the latter were analysed using various software, including SongScope.

The corresponding report was developed in accordance with the following reports and guidelines:

- McAney, K. (2006) A conservation plan for Irish vesper bats. *Irish Wildlife Manuals* 20. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- Kelleher, C. and Marnell, F. (2006) Bat mitigation guidelines for Ireland. *Irish Wildlife Manuals* 25. National Parks & Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.
- DCHG (2017) National Biodiversity Action Plan 2017-2021. Department of Culture, Heritage and the Gaeltacht.

Assessment

The ecological baseline established was used to inform the assessment of the potential ecological effects of the proposed development, particularly with regard to European sites. Any assumptions that were made in view of gaps in the ecological data were made in accordance with the Precautionary Principle.

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 General Description

The location of the proposed development is directly adjacent to the existing cableway, which straddles the Dursey Sound, connecting the easternmost tip of Dursey Island with the townland of Ballaghboy, on the western end of the Beara Peninsula in west County Cork. The proposed cableway will run parallel to the existing alignment offset by c. 14 m to the north. The end-to-end length of the proposed cableway will be c. 375 m (roughly the same as that of the existing cableway).

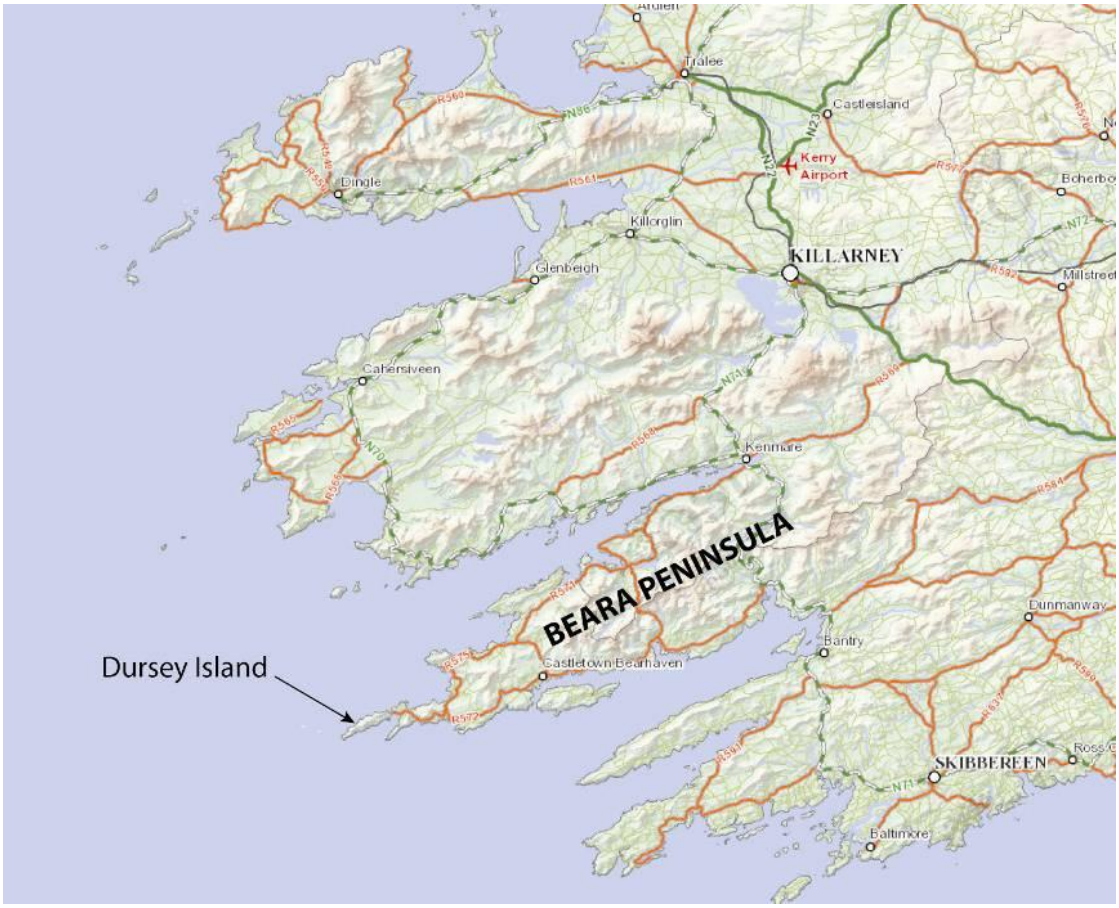

Plate 2.1 Location of Dursey Island in relation to the Beara Peninsula.

The Dursey Island cable car was originally commissioned in 1969 and provides transportation across the Dursey Sound between the mainland at the Beara Peninsula (Lambs Head) and Dursey Island in County Cork. The cableway was originally built to serve the needs of the islanders, who could be cut off from the mainland for weeks in bad weather due to the hazardous tidal race that flows at high speed through the Dursey Sound. The cableway still serves a small number of islanders but is now predominantly used by tourists and farmers. The carrier cabin was used to accommodate both passengers and livestock, but it was decided to cease the transportation of livestock via the cableway in January 2012.

British Ropeway Engineering Co. Ltd provided the original carrier cabin, which was subsequently replaced in 1981 and again in 2004, making the current carrier cabin the third incarnation. Due to corrosion of the steelwork, the pylons were dismantled, and two new galvanised steel structures were erected in their place in 1977. Apart from

these major replacements, minor upgrades, and the replacement of serviceable components such as ropes and fixings, many of the original components remain.

The proposed project will involve the decommissioning of the existing Dursey Island cableway, demolition of associated structures (with exceptions discussed below), and the construction of a new cableway and associated structures, including a visitor centre and café on the mainland. Cork County Council owns and operates the cableway. Some elements of the existing cableway infrastructure (the mainland pylon, the carrier cabin and a section of the hauling machinery on the mainland) will be retained on-site as relics of the historic cableway, in order to promote their industrial architecture and cultural heritage value.

Plate 2.2 Location of the existing Dursey Island cable car.

It is also proposed to upgrade supporting infrastructure and utilities within the study area and its surroundings to facilitate the provision of improved welfare facilities and to accommodate the anticipated increase in visitor numbers associated with the proposed development. It has been projected that the proposed development will facilitate an anticipated annual maximum of 100 000 visitors to the mainland side of the site by 2030 (with a maximum of 80 000 visitors making the cable car journey to Dursey Island).

The majority of the proposed works will be carried out on lands currently owned by Cork County Council, with the exception of some certain elements of the island-side works and improvement works to the R572 regional road which will necessitate the acquisition of private land by compulsory purchase order (CPO) in the areas in question. The proposed development also requires a Foreshore Licence, and an application for such has been made to the Department of Housing, Planning and Local Government's Marine Planning and Foreshore Unit.

2.2 Development Overview

The proposed development will include the construction/completion of the following elements at the site of the existing Dursey Island Cable Car:

- A two-car desynchronised reversible ropeway cableway (the "cableway")[7] with a capacity of 200-300 passengers per hour in each direction;
- Two supporting line structures (the "pylons") – one on the mainland and one on the island;
- A mainland-side drive station (the "mainland station") including all necessary operating machinery, facilities for operating staff, and a platform for embarking and disembarking;
- An island-side return station (the "island station") including all necessary operating machinery, platform for embarking and disembarking, a sheltered waiting area and welfare facilities;
- A mainland-side interpretive exhibition centre with a gift shop (the "Visitor Centre");
- A mainland-side café with seating for 40 indoor, an additional 44 seats on an outdoor terrace/balcony overlooking the Dursey Sound, and welfare facilities;
- A mainland-side visitor car park with approx. 100 parking spaces and 1 bus bay;
- Retention of the existing residents' car park on Dursey Island;
- Upgrades of associated utilities infrastructure (including mainland water supply and telecommunications connectivity and mainland and island wastewater treatment systems);
- Road improvement works (construction of 10 passing bays, a visibility splay at the Bealbarnish Gap and completion of a number of local improvements to improve visibility) on the mainland-side approach road R572;
- Demolition/removal of some elements of the existing cableway infrastructure (ropeway, island-side pylon), mainland-side visitor car park and island and mainland station buildings;
- Erection of interpretive signage at strategic locations;
- Erection of 4 Variable Message Signs (VMS) at a number of locations along the approach roads to the site (1. Bealbarnish Gap; 2. the R572 at Castletownbere; 3. the R575 at Eyeries Cross; and 4. the N71 at Glengarriff);
- Retention of the carrier cabin, mainland-side pylon and a section of the mainland-side hauling machinery of the existing cableway in order to facilitate ongoing appreciation of their industrial architectural and cultural heritage value;
- Soft and hard landscaping; and
- All other ancillary works.

2.3 Need for the Proposed Development

The proposed development is considered necessary for the following reasons:

- The capacity and turnover of the existing Dursey Island Cable Car cannot meet current or future demand for its use, and there is significant untapped tourism potential at the site. Replacement of the cableway with a state-of-the-art equivalent would allow a greater number of annual visitors to the site, and to Dursey Island. As a result, greater revenue would be generated by the attraction. Additionally, indirect economic benefits would likely also accrue to other businesses in the Beara Peninsula, West Cork and West Kerry, and other attractions on the Wild Atlantic Way (WAW). By delivering growth in the local

[7] The term "cable car" refers to the carrier cabin which conveys passengers to and from the island via the cableway.

and regional tourism sectors, the proposed development would contribute to achievement of objectives set out in a number of national, regional and local policy documents, including the *Action Plan for Rural Development 2017*, *People, Place and Policy Growing Tourism to 2025*, the *Draft Southern Regional, Spatial and Economic Strategy 2019-2031*, the *Cork County Development Plan 2014-2020*, the *Kerry County Development Plan 2015-2021*, the *Cork Tourism Strategy 2016: Growing Tourism in Cork – A Collective Strategy*, the *West Cork Municipal District Local Area Plan 2017* and the *West Cork Islands Integrated Development Strategy 2010*.

- The existing infrastructure is substantially corroded and non-compliant with European Standards for *The Safety Requirements for Cableway Installations Designed to Carry Persons*, SI No. 470/2003 or SI No. 766/2007. While there are no immediate safety concerns for those using the existing cableway, the infrastructure in its current form will need to be replaced in the short- to medium-term in order to maintain safe and convenient access to the island for island residents/farmers and visitors.
- At present, the Dursey Island Cable Car provides visitors with a suboptimal visitor experience. During the peak months of July and August, waiting times to board the carrier cabin of 2 hours and upwards are commonplace on the island and mainland. In terms of comfort and shelter, facilities are inadequate, with visitors sometimes having to queue outdoors during inclement weather. Furthermore, there are no welfare facilities (i.e. toilets) for visitors on the island. Visitors have also complained about a lack of information on Dursey Island regarding walking trails, history and natural heritage. The proposed development would offer a substantially enhanced visitor proposition without queues, with comfort and shelter, with interpretive information on cultural and natural heritage and activities on the island, and with adequate welfare facilities.
- As is stated in the *West Cork Islands Integrated Development Strategy 2010*, Dursey Island is threatened with permanent depopulation in the short-term and it is an explicit objective of the strategy to "*retain and enhance population levels on the* [West Cork] *islands*". At present, there are just two permanent residents living on the island and abandonment of homes and farmland is in evidence. As such, any development which makes permanent residence on the island more feasible is desirable. By improving ease-of-access to-and-from the island (i.e. shorter, more comfortable and safer journeys), the proposed development may contribute to the prevention of depopulation on the island. By increasing the number of annual visitors to the island, it will also create new opportunities for local businesses, which might also increase the viability of life on the island. Similarly, the proposed development may also increase the viability of farming on the island, which in turn would contribute to the maintenance of a sufficient area of suitable foraging habitat for Red-billed Chough.

2.4 General Site Layout

The site of the proposed development includes that of the existing Dursey Island cable car, on the Beara Peninsula and Dursey Island, and also takes in an 8 km stretch of the principal approach road to the site, the R572 regional road, between the cable car site and the R572-575 junction at the Bealbarnish Gap.

The proposed cableway will run along a parallel alignment to that of the existing cableway but offset 14 m to the north-west and stopping 40 m short of the existing station on the mainland side.

On the mainland site, an approx. 100-space split-level car park will be constructed with the lower tier at approximately +17 m AOD (above Ordnance Datum) on the footprint of the existing car park, and an upper tier at +19 m extending into undeveloped grassland to the northeast of the existing carpark. The car park will be accessed through the existing entrance at the east end of the site, via the R572.

As part of the proposed development, improvement works will be carried out on an 8 km stretch of the R572, between its junction with the R575 (at Bealbarnish Gap) and the existing cable car site. These works will involve the construction of 11 passing bays and completion of a number of local improvements to improve forward visibility. The locations of these improvements will be spaced (at intervals of approx. 100-200 m) so as to reduce the distances between two-way sections and passing bays and in order to allow opposing drivers to see each other in sufficient time to give way at one-way road sections.

The interpretative exhibition centre and gift shop will also be situated at approximately +17.6m AOD, with the café at approximately +17. m AOD and mainland station at approximately +18 m AOD. The mainland pylon will be located c. 40m south-west of the mainland station at an elevation of approximately +6m AOD and overall height of 33.5m. The existing cableway landing platform on the mainland will be converted into a lookout area.

On the island, the new station building will be constructed alongside the existing platform. The existing residents' car park (approx. 10 spaces) will be retained. The existing station platform will be converted into a lookout area.

The island station will be constructed at its existing grade (c. +21.5 m AOD) and the pylon will be located 35 m north-east of the station building at an elevation of +18m AOD, necessitating a 21.7 m high pylon on the island.

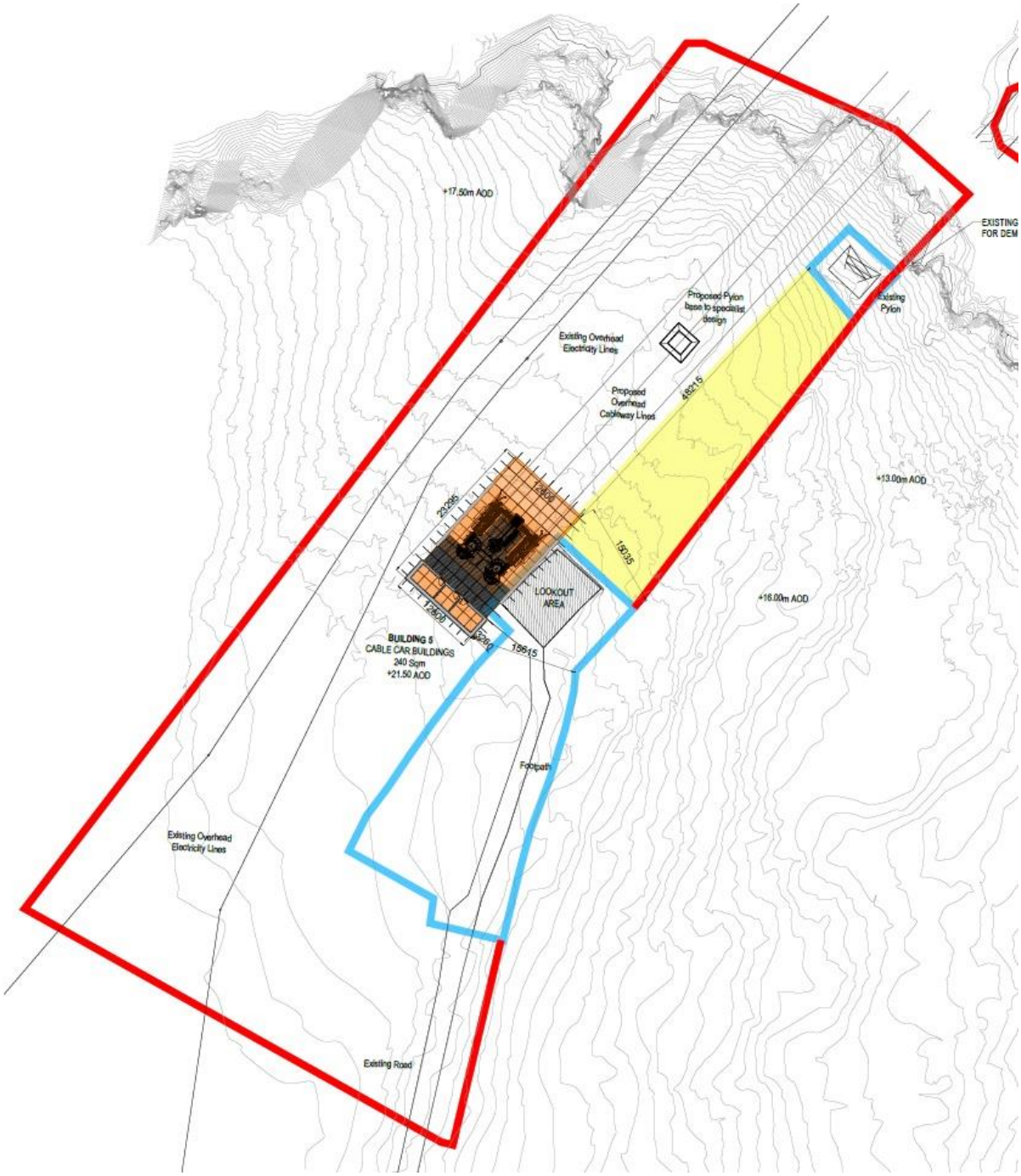

Plate 2.3 Layout of island side of the site.

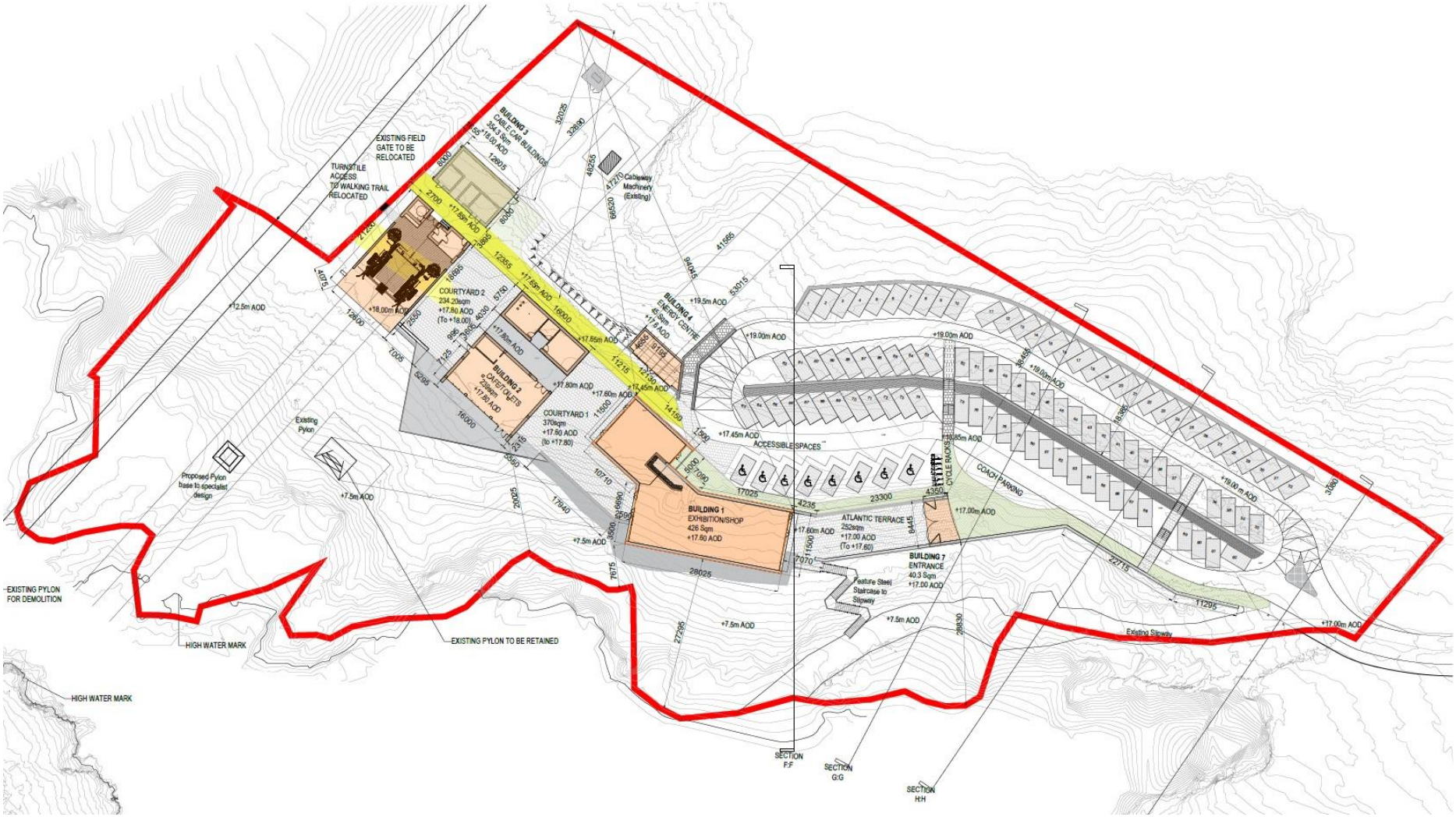

Plate 2.4 Layout of mainland side of the site (not including the R572 works).

2.5 Design of Structural Elements

Cableway Design

The principal technical components of the cableway infrastructure are: two passenger cable cars (Plate 2.5), the steel ropes which carry and convey them, the mainland and island pylons, driving machinery and landing platforms.

Plate 2.5 Indicative design of carrier cabins.

The ropeway technology selected to be used in the proposed development is a paired, reversible, desynchronised jig-back system with two carrier cabins. Each cable car is carried on its own ropeway, which is comprised of two steel ropes, one of which supports the cabin, while the other hauls. Cable cars can move forwards or backwards at varying rates independently of each other. Each cable car will accommodate c. 15 persons. Depending on the velocity of the cabins and the cabin layout, the cableway will be able to convey 200-300 persons per hour in each direction. Operation in normal daily use at nominal capacity will be possible in winds of up to 25 m/s, and in winds of up to 30 m/s using a degraded operation mode.

The existing cable car travels at a maximum speed of 0.9 m/s, conveying no more than 6 persons to or from the island in 6.5-7 minutes (one direction). The speed of the proposed cable cars can be varied between 1 m/s and 6 m/s. Generally speaking, it is proposed that the outbound journey will be made at 1 m/s, conveying no more than 15 persons to the island in c. 5-6 minutes. The reason for slower operation on the outbound journey is to maintain the experiential qualities of the cableway journey. It is proposed that, on the return journey, in case of emergency or at times when there are only residents/farmers travelling on the cable car (i.e. using it for practical rather than recreational reasons), it will operate at a faster rate (up to and not exceeding 6 m/s), as appropriate.

The pylons will be of a functional tubular steel appearance with a diameter of c. 1.2 m. Their role is to support the ropeway and to provide sufficient clearance between the bottom of the cable cars and the Dursey Sound below. Because of the open and exposed nature of the landscape at the site of the proposed development, it will not be possible to situate the pylons in a visually non-intrusive location. For this reason, the supporting pylons for the proposed development and the retained historic pylon will be painted to be in a colour which is aesthetically harmonious with their surrounding environmental. Both pylons will sit on a shallow reinforced concrete pad foundation.

The cable car landing platforms will comprise a mechanical assembly similar to that shown in Plate 2.6, comprised of concrete supports (not shown), pad foundations (not

shown), structural steel support frame, roller assemblies, work platforms and bull-wheels. In the mainland station, the landing platform will also contain a drive unit.

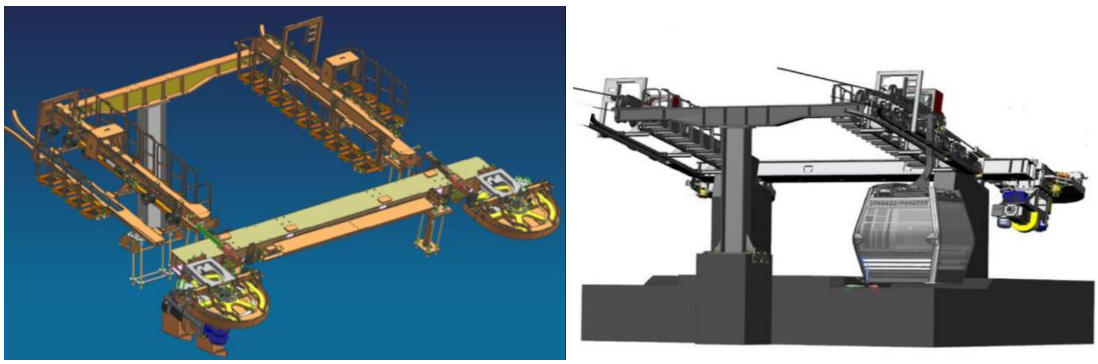

Plate 2.6 Typical mechanical assembly of cableway landing point.

The proposed cableway infrastructure will have roughly the same alignment and span as that of the existing infrastructure but offset c. 14 m to the north-east. This will allow the existing cableway to continue to operate (insofar as possible) while its replacement is constructed.

Building and Car Park Design

The design of the buildings reflects the intended mixed-use purpose and flexible nature of the spaces. Because of the exposed, coastal nature of the site of the proposed development, all structural elements of the proposed development will have to be designed for durability, using appropriate hard-wearing materials. Durable concrete mixes will be used. Exposed steelwork will have appropriate corrosion protection.

Visitor Centre and Café Buildings

The Visitor Centre's architecture is simple and spacious, and finished with natural, hard-wearing materials.

The design of the proposed mainland buildings (Visitor Centre and café (with toilet block)) is shown in Plate 2.7 below. The superstructure of these buildings will most likely be of reinforced concrete (RC) piers and unbraced structural steelwork. The architectural details and materiality will be common to all of the buildings to establish a common design language that makes them read as a set, while allowing room for each building to specialise to its specific function and siting.

Plate 2.7 Artist's impression of the mainland proposal in context.

Mainland Station

The mainland-side line station will be situated immediately west of the existing station building, to the north-west of the proposed visitor car park and north of the proposed visitor centre buildings, at +18 m AOD (see Plate 2.8 and Plate 2.9). The design and layout of the mainland station building is strongly informed by the cableway machinery to be contained within it. Since the majority of visitors' queuing time should be spent in the Visitor Centre, gift shop, café and associated outdoor areas, the mainland station space has been designed as a sheltered but uninsulated space to preserve the machinery but discourage visitors from lingering and obstructing embarkation / disembarkation of the cableway platforms. As a result, the building has a relatively minimalist design. It features platforms for embarking/disembarking the carrier cabins behind a turnstile, a rainscreen enclosure or perforated metal to shelter the platforms, cableway machinery and electrics, an office space for the cableway operator, and some support functions such as storage and a WC.

A public right of way will be maintained from the new car park to the lands on the western side of the development via a 3.9 m wide track. This track will have unrestricted headroom and passes between the cable car building and the workshop or storeroom. Access to the lands on the western side of the development will be controlled via a new 4 m wide field gate, relocated to tie in with the public right of way.

The station's lock system foundations will have to resist relatively large lateral forces and overturning moment. As the station is a standalone structure, the cableway steelwork and machinery itself has no significant self-weight to counter those forces. The proposed foundation solution will be a combination of dead-weight pad foundations with rock anchors, if necessary.

The structure itself will be founded on a combination of shallow foundations (combination of pad, strip and slab).

Plate 2.8 **Artist's impression of the mainland line station (with island line station in the distance) as seen from the north.**

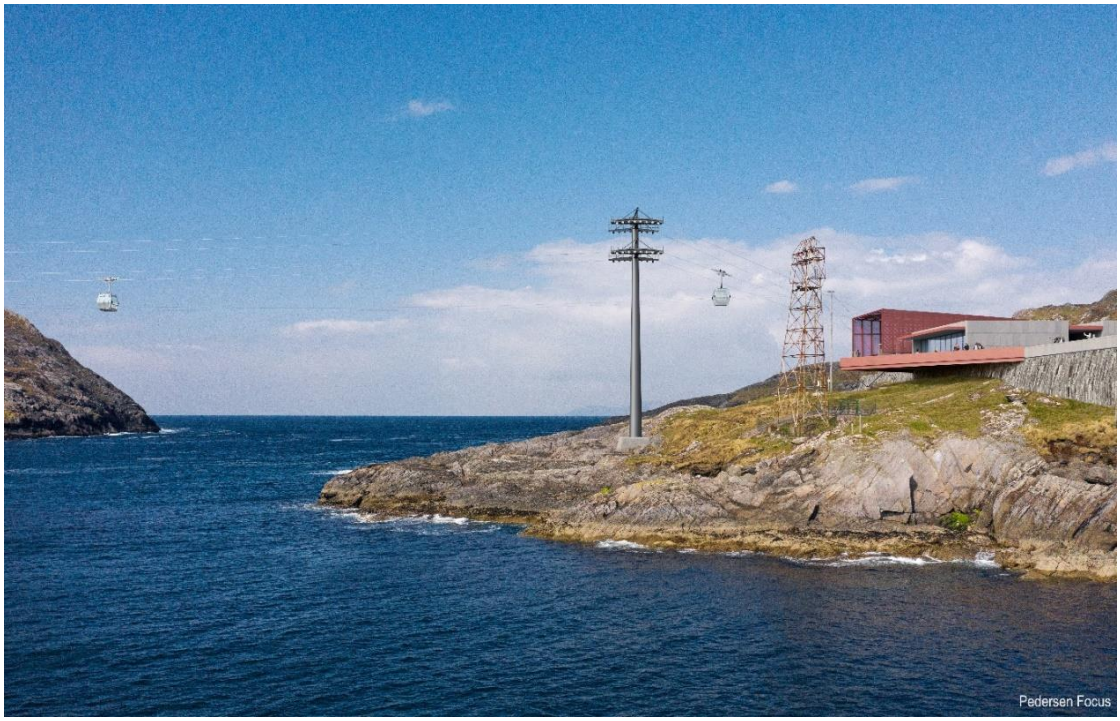

Plate 2.9 **Artist's impression of the mainland line station as seen from the water to the south.**

Island Station

The proposed island station is a simple, minimalist, stand-alone structure which largely mirrors the mainland station structure. It features platforms for the cable cars, a toilet block, and sheltered waiting area, with an oversailing rainscreen of metal construction with perforated metal panel cladding. As with the mainland station, the foundations of

the island station will likely comprise a combination of dead-weight pad foundations with rock anchors, if necessary, and the structure will be founded on a combination of shallow foundations (combination of pad, strip and slab).

Car Park Design

Mainland-side Visitor Car Park

The existing mainland-side visitor car park (Plate 2.10) is informal, with no delineated spaces, and accommodates a maximum of 70 cars. The proposed expanded visitor car park will feature approx. 100 parking spaces and a bus bay. In order to assimilate the structure with the undulating landform, it will be a two-tiered car park, with the lower tier at approx. +17.0 m AOD and an adjacent upper tier at approx. +19.0 m. It is calculated that 100 spaces are sufficient to accommodate the projected visitor numbers. the landscape is not amenable to a very large car park.

Plate 2.10 Existing informal visitor car park (mainland).

While the provision of a car park at the site is necessary, steps will be taken in design to minimise associated adverse visual impacts and harmonise the structure with the surrounding environment. Stone-clad screening walls (a continuation of the walls from the Visitor Centre) will be employed to screen the car park and mitigate against associated adverse visual impacts, as presented in Plate 2.11.

Plate 2.11 Proposed stone-clad screening walls.

The footprint of the new visitor car park will take in much of the existing car park and will also extend into undeveloped heathland to the north of the existing car park.

The new car park is presented at two levels to minimise cutting and thus optimise integration in the landscape. The parapet style walls which are provided to mitigate visual impact in local and wider views will be finished out with natural stone to reflect the local drystone walling styles. Bituminous blacktop paving will be used to surface the roadway running through the car park, while the parking spaces are to be finished out with a reinforced grass-crete system.

Road Improvement Works

Improvement works are required on the R572 regional road, the main access route to the site, in order to address existing congestion problems and facilitate anticipated volumes of traffic as a result of the proposed development. Accordingly, a series of 11 passing bays and a number of localised road improvements are proposed in order to prevent congestion and improve forward visibility.

Plate 2.12 Indicative design of passing bay to be constructed on the R572.

The locations of these improvements will be spaced (at intervals of c. 100-200 m) so as to reduce the distances between two-way sections and passing bays and in order to allow opposing drivers to see each other in sufficient time to give way at one-way road sections. The locations of the proposed passing bays are presented in Appendix A to this NIS. Existing passing bays will need to be lengthened to create sufficient capacity to accommodate a short queue of traffic, thereby reducing the likelihood that the road will become blocked and that cars will need to reverse to previous passing bays. It is proposed to acquire the sections of privately-owned roadside land required for these works by means of a CPO.

Lighting

In order to keep environmental light pollution (particularly of protected environmental areas and of the Kerry Dark-Sky Reserve) to a minimum, the lighting design will utilise lower brightness, unobtrusive lighting insofar as is possible. Outdoor lighting in particular will be kept to a minimum. There will be no roadside lighting. Bollards with low level lighting sufficient for safe access and egress will be used in the visitor car park.

The lighting design will be based on best practice and national and international industry standards, incorporating the following guidelines and regulations:

- Guide to Obtrusive light, The ILP Guidance Notes for the Reduction of Obtrusive Light GN01:2011;
- Building Research Establishment Information Paper - DG 529 Obtrusive Light from Proposed Developments (2013);
- Guidance Notes for The Reduction Of Obtrusive Light' Institution of Lighting Engineers, 2011;
- Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations;
- Energy & Efficiency & Performance Standard for Light Bulbs, Public Consultation Document, October 2008;
- National Rules for Electrical Installations, Electro-Technical Council of Ireland 2008 (including recent Amendments);
- BS 5489 (2013) Code of Practice for the Design of Road Lighting – Part 1:

- Lighting Roads and Public Amenity Areas;
- IS EN 12464-2, 2014 'Lighting for Work Places. Outdoor work places';
- IS EN 13201 (2015) Road Lighting – Part 2: Performance Requirements, CIBSE / SLL Lighting Handbook, 2012;
- S.I. 151 of 2011
- Building Control (Amended) Regulations 2014

Obtrusive light from floodlighting within the site boundary onto adjacent roads and local wild-life district shall be minimized taking into consideration the following; (a) sky glow (direct upward waste light), (b) light trespass (intrusive light and light into windows/windscreens), over illumination, glare (source intensity). External general, feature and emergency lighting will be designed in line with standard requirements with input from the Project Architect and in conjunction with Cork County Council.

Nett Zero-Energy Buildings

All new buildings are required to be "nett zero-energy buildings" (NZEBs) by 31st December 2020. In order to achieve NZEB compliance in the proposed development, the key focus will be minimising the Energy Performance Coefficient (EPC), which is the calculation of the primary energy of the actual building divided by the primary energy of a reference building. Getting this figure below 0.9 will allow us to have a Renewable Energy Ratio (RER) of 10% rather than the standard 20%.

Discussions are still ongoing with the Design team in terms of a final scheme. Once details are agreed, the NZEB modelling will get underway. The calculation tool used currently for NZEB Compliance is the SBEM 5.5 h BZEB Calculation Engine tool.

The active elements that will be utilised within the new building are as follows:

- Mechanical Services
  - Boiler Seasonal Efficiency > 95%
  - Toilet extract
  - Fans < 0.6 W/(l/s) @ 10 ach
  - Full metering and sub metering with BMS "Out of Range Values" controls
  - Secondary Circulation Losses for DHW < 15 W/m
- Electrical Services
  - Lighting power densities < 1.8 W/m^2/100 lx (1.3 W/m^2/100 lx for Open plan areas)
  - Addressable photoelectric (daylight sensing) controls in open plan areas
  - Occupancy controls in all ancillary areas i.e. toilets, stairwells etc.
  - Metering provision for lighting systems
- Renewable Technologies
  - Air-to-water heat pump
  - Photovoltaics array

Renewable and Innovative Technologies

Sustainable development practices offer an opportunity to create environmentally sound and energy-efficient buildings by using an integrated approach to the exemplar design, planning and construction. Sustainable development promotes resource conservation of our limited natural resources, which includes energy efficiency,

renewable energy, water conservation, waste minimisation and also considers the environmental impact of the operation of a building for its entire "life-cycle".

The process to maximise the environmental and sustainable performance of the proposed development is driven by a holistic appraisal of the future requirements for any new buildings under current and forecasted Building Regulations. The Building will be designed to exceed the provisions of the current Building Regulations: Part L 2017 and will offer a sustainable design to meet future provisions to these Standards.

Drainage

Currently, surface water runs off the existing areas of hard standing and either infiltrates to ground in the grassed areas or continues as overland flow over the cliff faces before discharging to the sea. A minor watercourse is culverted under the R572 eastern boundary of the proposed development. This subsequently discharges to sea over the cliff face. These existing surface water drainage pathways will be altered as a result of the proposed development. The existing drainage network will be upgraded and expanded to accommodate the anticipated increase in visitors.

The proposed surface water drainage system will comprise predominantly Sustainable Drainage Systems (SuDS) features which will attenuate and treat the surface water run-off from the site prior to discharging to ground by infiltration and percolation through the subsoil. The proposed retaining wall drainage will incorporate a hydrocarbon interceptor prior to discharging to the minor watercourse at the site's eastern boundary, as presented in Appendix A to this NIS.

Landscaping

Landscape proposals for the proposed development have been developed hand in hand with proposals for upgrading of the cableway, and the new Visitor Centre and car park. The proposed landscape masterplan is presented in Appendix A to this NIS. Landscape design inputs can be considered under the following headings:

Enhancement of Visitor "Experience of Place"

The architectural footprint for the new facilities gives rise to a series of outdoor spaces which are an integral part of the visitor experience. The key spaces are located within the curtilage of the Visitor Centre and cableway buildings which the visitor negotiates en-route to the mainland station.

The primary aim is the provision of spaces which facilitate circulation and informal stopping and gathering thus enhancing the overall visitor experience of the facilities and coastal landscape setting. Materials and finishes within the courtyards are informed by the local landscape components of rock, water and heath and are expressed in paving patterns and the inclusion of green areas which are finished out to reflect the surrounding natural heathland. Natural stone is the predominant paving material and planting proposals are based on the vegetation found in the surrounding heathland as well as on Dursey Island itself. Corten steel is used as a reference to the history of the cableway and heritage of the site, and timber is also used as a suitable natural material suitable for seating. Design inputs are based on the principles of restoration of habitat, robustness and fitness for purpose of materials and finishes, enhancement of sense of place and ease of movement for site users.

Conservation of Heathland

All areas of the site outside the immediate curtilage of the new buildings, car park and access roads are to be protected and restored to natural heathland under the guidance of the Project Ecologist or Ecological Clerk of Works. The objective is two-fold: firstly,

disturbance of existing heathland within the site is to be minimised; secondly, disturbed sections of ground (notably the access ramp to the existing island-side platform at the western extremity of the site) are to be restored to heathland. This will enhance the perception of the development as nestling in the natural landscape setting.

2.6 Construction Methodology

Tendering & Procurement Strategy

The estimated cost of the Dursey Island Cable Car and Visitor Centre Development is in the region of €9-10 million, exceeding the current €5 225 000 threshold for public works contracts. Therefore, it is proposed that this works contract will be advertised on eTenders and in the Official Journal of the European Union.

The procurement approach to be used will be decided by Cork County Council. The pre-selection criteria will be related and proportionate to the subject matter of the contract. The criteria will be geared towards selecting competent contractors with experience and appropriate technical and professional ability in building construction and fit-out of specialist equipment. The criteria will also be targeted towards selecting contractors with experience of working in environmentally sensitive locations.

It is proposed that the form of contract for the main building and civil works will be Employer-designed with the possibility of identifying the cableway supplier as a novated specialist requiring further consideration.

Overview of Works

The main elements of construction for the proposed development can be summarised as follows:

- Site preparation including establishment of boundary security, site clearance, and diversion, removal or protection of existing services as necessary;
- Approach road improvement works;
- Earthworks (cutting and filling);
- Construction of cableway infrastructure – 2 stations, 2 pylons and installation of cableway machinery, ropes and cable cars;
- Buildings and associated services and civils works:
    - Visitor Centre/gift shop;
    - Café with toilet block;
    - Mainland station building (drive station) with staff facilities, workshop and storage;
    - Energy centre;
    - Island station building (return station) with welfare facilities;
- Pavement and drainage and wastewater treatment installations;
- Landscaping and finishes.

Construction Sequence

The anticipated construction sequence is as follows:

General

1. Contractor mobilises on site and sets up the site compound at a location agreed with Cork County Council. The main compound will likely be located on the

mainland site in the existing car park with a smaller storage compound on the island site. Suitable site security measures will be implemented on both sites.

2. Temporary traffic management arrangements are implemented to facilitate ongoing access to existing cableway throughout the works as much as possible. Limited parking will be maintained. VMS will be put in place early in the contract to highlight the construction works to road users.
3. Suitable environmental protection measures are put in place on both sites. These are expected to include measures to prevent run-off from the site entering the Dursey Sound.
4. Site clearance works are carried out on the mainland site, island site and at the locations of all proposed passing bays along the R572.
5. Existing overhead lines at the mainland site are diverted or protected as necessary.
6. Approach road improvement works are commenced. The contract will include measures requiring that the new passing bays are completed before the beginning of the high season (May to September, inclusive) to prevent any possible congestion associated with construction traffic overlapping with high levels of visitor traffic. These works will include a combination of the following at each location:
    a. Traffic management;
    b. Site clearance;
    c. Earthworks;
    d. Pavement widening works;
    e. Signage and road markings (including installation of VMS); and,
    f. Boundary treatment – fencing and walls.
7. Construction of reinforced concrete retaining wall along the southern boundary of the mainland site.
8. Earthworks including rock breaking and backfilling are carried out to achieve the required formation levels for buildings, cableway and car park.

Cableway

9. In-situ reinforced concrete foundations for the cableway support structures are cast at the locations shown on the drawings (Appendix A).
10. Sections of tubular steel pylons and the cableway machinery are transported to site by road (and ferry for island-side), craned into position using mobile cranes and bolted and/or welded together on site.
11. Once the pylons have been erected and the cableway machinery assemblies are installed on both the mainland and island sites, the cableway ropes will be installed, and the cable cars raised onto the ropes.

Buildings

12. Development of site services, surface water drainage, foul drainage, water supply occurs at this stage. The most significant works relate to the installation of the mainland wastewater treatment system. This will include the installation of large pre-cast concrete tanks and importing material to form a percolation area.
13. Development of building substructures is carried out. This involves excavation for foundations and pouring of concrete.

14. Construction of building superstructures is carried out. The plant and workshop building to the rear of the mainland station will be constructed last in order to maintain access to the existing mainland station building for as long as possible.
15. Fit-out of all buildings and connection of services is carried out.

Car Park and Landscaping

16. Reinforced concrete wall separating upper and lower tiers of mainland car park and associated access steps are constructed.
17. Car park and other paved areas on mainland and island are paved.
18. Existing cableway is decommissioned and demolition of other existing components is carried out.
19. Landscaping, finishes and interpretive elements are completed.

Given that visitor numbers to the site are especially high during the summer months, it is proposed that the timing of more disruptive works will be carried out during the off-season (October to April, inclusive), where possible. Best efforts will be made to maintain access for the islanders and farmers to the existing cableway throughout the construction period, but general access for the public is likely to be restricted at certain points during the construction phase on health and safety grounds.

Construction Programme

It is expected that the construction work will commence in October 2021 and that the duration of the construction period will be approximately 18 months (see Table 2.1). Since visitor numbers to the site are especially high during the summer months, and since it will be necessary to maintain the operation of the existing cableway throughout the construction phase (insofar as possible), earthworks will be carried out during the off-season (October to April, inclusive), where possible.

The following is an envisaged indicative construction programme, assuming that each construction phase will follow on from the previous. This proposed phasing is an outline as to how the site is envisaged to be developed. This order of works, however, may be subject to change as development commences on site. Provided the construction programme unfolds accordingly, the envisaged first year of operation of the proposed development is 2023.

Table 2.1 Envisaged construction programme for the proposed development.

Element of works	Duration (months)	Expected completion date
Approach road improvement works	3	Jan 2022
Earthworks and retaining walls	4	April 2022
Cableway works (mainland and island)	2	June 2022
Buildings (mainland and island)	12	April 2023
Car park and landscaping	2	April 2023
Decommissioning of existing cableway and final landscaping	1	April 2023

Site Compound

A site construction compound will be required during the construction phase and will be situated completely within the mainland site. Initially, it will be located adjacent to the existing cableway in the widest section of the existing carpark. The compound will be established at the commencement of the contract and remain in place throughout the construction period. However, as earthworks progress it will be required to be moved within this confined site, at all times staying within the red line boundary of the site. The Contractor will also require a smaller set down area/storage compound on the island, which will be located within the red line boundary. Suitable site security measures will be implemented on both the mainland and island sites for the duration of the construction phase.

Potential impacts that need to be guarded against include:

- Accidental spillage of pollutants into surrounding water bodies; and,
- Dirt, mud and other materials being dropped from lorries and plant or spread onto approaching roads and car parking areas by traffic travelling to and from the site.

The exact location and mode of operation of the site compound will be chosen by the Contractor and agreed with Cork County Council. The location will have to comply with all of the requirements/underlying measures contained in this NIS, as well as any planning conditions. There will be early consideration given to locations for material stockpiles, which will be covered with geo-textile (or similar) to prevent mobilisation of suspended solids.

Site Preparation

Elements of the site preparation works may be conducted through an advance works contract to be completed before construction commences on site. Prior to any work commencing on the mainland or island sites, boundary security will be required to be established around the site to prevent unauthorised access. The boundary will be laid out so as to maintain safe access to the existing cableway and to maintain a portion of the existing parking facilities, where possible. Appropriate environmental protection measures will be put in place on both sites. These are expected to include measures to prevent run-off from the site entering the sound. Site clearance works will be carried out on the mainland site, island site and at the location of all proposed passing bays along the R572 approach road, over the extents indicated on the drawings. Existing overhead lines will be diverted or maintained and protected throughout the works as required by the contract. It is not expected that there will be any interruptions to local utility services as a result of any diversions carried out.

Approach Road Improvement Works and VMS

The design of the proposed development includes for approach road improvement works in the form of new passing bays and the formalisation and improvement of existing passing bays at various locations along the R572 approach road between the existing mainland station and the R572-R575 junction at Bealbarnish Gap. These works will include a combination of the following at each location:

1. Temporary traffic management;
2. Site clearance (including demolition of one disused building);
3. Minor earthworks;
4. Pavement widening works;
5. Signage and road markings; and,

6. Boundary treatment – reinstatement of fencing and walls.

It is also proposed to install four VMSs at the following locations:

1. Castletownbere town;
2. R575 and R571 junction south of Eyeries;
3. R572-575 junction at Bealbarnish Gap; and,
4. Glengarriff village.

These works will include site clearance, minor excavations for foundations, casting of concrete foundations and installation of VMS posts and displays. There is an existing electricity connection available at each of the proposed sites. The signs will be connected into the existing supply, which will necessitate the laying of a short length of new ducting and the installation of new mini-pillars.

Reinforced Concrete Retaining Wall

The rock excavated from the site will be used as backfill to the proposed retaining wall, which will run along the southern boundary of the site. Therefore, it is likely that the Contractor will construct the wall in advance of any rock-breaking so that the excavated material can be processed and deposited immediately, in order to avoid the need to stockpile the material for a period of time. Construction of the wall will include the following activities:

1. Earthworks to provide a flat formation level.
2. Steel fixing to form reinforcement cages. For higher sections of the wall it is likely that the Contractor will assemble the cages at ground level and crane them into position.
3. Shuttering and pumping of concrete.
4. Removal of formwork, waterproofing and installation of back-of-wall drainage.
5. Backfilling of walls using material won on site and/or imported fill material. Backfill material will be placed and compacted in layers as required by the contract specification.

Earthworks

Cutting will be required to the rear (north-east) of the existing carpark on the mainland site to expand existing parking facilities through the provision of an upper tier of parking. Backfilling will also be required to level the site along the seaward edge of the existing car park to accommodate the proposed buildings. The cutting will predominantly consist of rock-breaking. With careful planning it will be possible to balance the cut and fill volumes to some extent. It is highly likely that the excavated rock will form an acceptable fill material for levelling the site and for capping/pavement purposes. T opsoil will be stripped and reused, where possible. Relatively minor earthworks will be required on the island site and at some of the proposed passing bay locations along the R572. On the mainland, an approximation of the proposed volume of cut material is 6,500 m^3, while the requirement for fill to the required formation levels is 8,600 m^3. However, when the volume of the retaining walls is taken into account and bulking of the excavated material is allowed for (crushed rock has a greater volume than solid rock), the cut and fill volumes will approximately balance.

Cableway Works

Initially, reinforced concrete pad foundations will be constructed for the cableway pylons and stations. The stations will require relatively large concrete pads measuring approximately 9 × 9 m in plan by 1.2 m deep. The pylon foundations will measure

approximately 5 × 5 m in plan by 0.6 m deep. All pads will bear directly on the existing bedrock which is at high level throughout the site. Construction of the pads will include the following construction activities:

1. Earthworks will be required to excavate down to formation level, as the pad foundations will be buried.
2. Steel fixing to form reinforcement cages.
3. Shuttering and pumping of concrete. It is anticipated that ready-mix concrete will be delivered to site for the mainland works. On-site mixing will likely be necessary for the island site concreting works.
4. Striking of formworks and application of waterproofing system.
5. Backfilling of pad foundations.

Each pylon foundation will also include a raised concrete plinth which will be cast as one with the pad. The plinths will not be buried and therefore ensuring durability of these components poses a significant concern. Given the severity of exposure conditions at the proposed pylon locations, stainless steel reinforcement is proposed for the pylon plinths. The holding-down anchors for the pylons will be cast into the plinths.

The mainland and island pylons will be of tubular steel construction and will be 33.5 m and 21.7 m high, respectively. Sections of the tubular steel pylons and the cableway machinery will be transported to site by road (and ferry for island-side), craned into position using a mobile crane and bolted and/or welded together on site. In order to get a suitable crane sufficiently close to the lifting site, it may be necessary to construct a temporary access road branching off the existing road to the proposed pylon locations at both the mainland and island sites. Once the pylons have been erected and the cableway mechanical and electrical equipment installed on both the mainland and island sites, the cableway ropes will be hung and tensioned. As per normal practice, it is assumed that the cableway ropes will be airlifted into position using a helicopter. Finally, the cabins will be raised onto the ropes. Rigorous testing will be carried out at various stages throughout the process as well as prior to commissioning.

Buildings

The following buildings will be constructed as part of the proposed development:

Mainland Site

- Visitor Centre/gift shop;
- Café with toilet block;
- Mainland station building (drive station) with staff facilities, workshop and storage; and,
- Energy Centre.

Island Site

- Island station building (return station) with welfare facilities; and,
- Sheltered waiting area.

All buildings are single-storey structures and will include the following construction activities:

1. Development of site services, surface water drainage, foul drainage and water supply. The most significant works relate to the installation of the mainland

wastewater treatment system. This will include the installation of large pre-cast concrete tanks and importing material to form a polishing filter/percolation area.

2. Development of building substructures – excavation for foundations and pouring of concrete.
3. Construction of building superstructures. This will include the following works:
   - Construction of reinforced concrete floor slabs and walls;
   - Laying of concrete blockwork;
   - Cranage and installation of structural steelwork; and,
   - Installation of roofing systems.

   The plant and workshop building to the rear of the mainland station will be constructed last to maintain access to the existing mainland station building for as long as possible.
4. Installation of glazing and fixing of cladding systems.
5. Fit-out of all buildings and connection of services.

Careful sequencing of the building works will be required to ensure the existing cableway can remain operational throughout the construction works (insofar as possible). Construction equipment and machinery such as a tower crane may be installed on a temporary platform erected in the sloped area in front of the existing car park, minimising disruption and interference with the main access road.

Car Park and Landscaping

The following works are considered to be main construction activities for the car park and landscaping element of the development:

1. Construction of the reinforced concrete wall, faced in stone, separating upper and lower tiers of visitor car park and construction of access steps. The activities required for these works are the same as those described above for the southern boundary wall works.
2. Pavement works for car parks and other paved areas (mainland and island) will be carried out. Paving machinery and asphalt compacters/rollers will be required to lay the bituminous surfacing. The extents of bituminous paving have been minimised through the specification of permeable "green paving", e.g. grass-crete or similar, for parking spaces. Green paving is installed by pouring concrete onto preplaced patterned formers and mesh and levelled to the top of the formers. The formers are then melted away using a flame gun. The patterned voids left behind are then top soiled and seeded.
3. Decommissioning of the existing cableway and demolition of those existing components to be removed.
4. Landscaping finishes and interoperative elements. These works will include planting, grass seeding, and the installation and connection of low-level lighting bollards.

Existing Cableway Decommissioning and Demolition Works

Once the new cableway is operational, some components of the existing cableway infrastructure will be dismantled and disposed of, and others will be retained on site as landscaping features. Initially, the cabin will be taken down and set aside for re-use. It is proposed to retain this as an interpretive feature in the proposed visitor centre. Then the track ropes and hauling rope will be taken down and disposed of off-site to a licensed waste facility. On the mainland site, works will include the demolition of the

existing station building and associated civils, the adjacent reinforced concrete platform, and the access ramp. An initial asbestos survey noted that one electrical component in the mainland station building may contain asbestos containing materials (ACMs). Accordingly, a pre-demolition asbestos survey will be carried out by a competent inspector in advance of these works. The existing pylon, station frame and cableway machinery will be retained. The septic tank will have to be disconnected and removed earlier in the works as it is currently located under the proposed location for the mainland station building. Temporary welfare facilities will be provided from that time onwards. On the island site, the existing waiting room building, pylon and station frame will be demolished.

Demolition works for the island pylon will be carried out by component roped-access personnel with cutting equipment or by using a mobile elevated working platform (MEWP) where access permits. A paint chip analysis of the existing pylon and anchor frame steelwork has revealed the presence of a lead-based paint system. As a result, very onerous health and safety mitigation measures will be implemented in advance of any works to these structures. Temporary stability of the pylon structure during its demolition will be given careful consideration. All decommissioning works will be subject to a comprehensive temporary works design.

Existing paving will be broken up and disposed of. Waste materials generated during demolition works may contain hazardous materials and will be disposed of according to the relevant regulations.

All waste materials (where necessary, after in-situ reuse and recycling options have been fully considered) shall be disposed of offsite, under appropriate Duty of Care and subject to approvals/consents from the relevant statutory bodies. It is the responsibility of the main contractor to ensure than any company to whom waste is transferred is legal permitted to do so and that the facility they bring the waste to is licensing to hand that type of waste as outlined in the Waste Management Acts, 1996-2006.

Construction Traffic Routing

It is anticipated that marine access will not be used to deliver materials to the mainland side of the site, and therefore it will be necessary to transport materials (including significant pre-fabricated steel and/or concrete elements) to the site via the R572. This is the only access route to the mainland site until the junction of the R572 and R575 located 8 km east of the existing cableway at Bealbarnish Gap. At this point, construction traffic could come from the direction of Allihies (to the north) or Castletownbere (to the east). It is assumed that most of the construction traffic will come from the Castletownbere direction since it is on the main route from Cork City.

Marine access will be required for construction works on the island. There are existing piers and slipways in the vicinity of both sides of the site. The mainland pier is c. 250 m south-east of the mainland station and the island pier is c. 300 m south of the island station. It is anticipated that materials required for works on the island will be ferried from the mainland pier to the island pier. This crossing is c. 500 m long. From here materials will be transported up the existing pier access track to the location of the island works. However, the mainland pier is relatively exposed and, therefore, vulnerable to adverse weather and seafaring conditions, and its use may not be possible at all times. Consequently, the Contractor may at certain times need to depart from Garinish Point, a relatively sheltered pier and slipway located 1.8 km north-east of the cableway (3.6 km by road). This entails a 5 km trip by boat, provided seafaring conditions are suitable for passage through the Dursey Sound, or 20 km if it is considered necessary to circumnavigate the island due to unfavourable conditions.

Public Traffic and Access

It is proposed to carry out the majority of earthworks during the off-season months in order to minimise disruption to the operation of existing cableway. Some construction works will be carried out during the in-season months but these works will not require as much machinery/HGV traffic, so will lead to minimal disruption to regional traffic/operation of the existing cableway. Finalisation of the structural design of the proposed development will facilitate estimation of the increase in volume of HGV traffic over the construction period.

Public access will be maintained to three access routes (one of which is public) via the site throughout construction/operation. The existing cableway will remain operational throughout the works insofar as is possible to allow safe access to the cableway.

Site Utility Infrastructure

Water Supply

Mainland

Communications with Irish Water have confirmed that there is no water supply network system in place on the mainland side of the site. However, Cork County Council has confirmed that there is a well located in the existing visitor car park.

In order to support the anticipated peak mainland-side visitor demand of 12 705 L/day, a new water supply network will need to be created to service the visitor centre. There is a well located in the existing visitor car park, which will be tested as part of the site investigation. It is proposed to construct a new bored well adjacent to the existing well. Water will be pumped to reservoir tanks located within the mainland station building. The water distribution network will incorporate a new potable water treatment system and will be gravity fed, minimising the need for ongoing maintenance.

The treated potable mains water will be distributed to each building through a water meter that will be linked to the building management system. Hot water generation plant will be provided locally in each of the buildings. The distribution of hot, cold and mains water throughout the buildings will consist of horizontal distribution generally taken through the corridor ceilings to the user points.

Island

There is a small-scale water supply network system on Dursey Island. This supply serves approximately 25 private properties but does not extend to the island side cable car landing point (eastern end of the island). In this delivery system, spring water is stored in a raw water holding tank and disinfected on demand using chlorination and ultra-violet (UV) reactor (*Trojan PRO 10*) treatments.

It is proposed to utilise a new rainwater harvesting/grey water recycling system at the island-side cableway terminal to support the anticipated peak visitor demand of 1035 L/day. Raw rainwater/grey water will only be used in non-potable applications, e.g. flushing toilets, landscape maintenance. No potable water supply is to be provided at the island cableway terminal. Instead, potable water shall be brought to site, if required. Water distribution on the island-side development will be gravity fed, minimising the need for ongoing maintenance.

Wastewater Treatment

Mainland

Communications with Cork County Council have confirmed that wastewater from the cableway welfare facilities are being discharged to an on-site septic tank, which is periodically de-sludged.

In order to adequately treat anticipated volumes of wastewater from the mainland facilities of the proposed development, a superior wastewater discharge and treatment system will need to be put in place. In accordance with the EPA Code of Practise (EPA, 2009) a site suitability assessment was carried out. The results of the site suitability assessment indicate that the site is suitable for a packaged wastewater treatment system and polishing filter. It is proposed to construct a tertiary wastewater treatment system with a sand polishing filter to service the visitor centre facilities. Effluent discharge values achieved within a typical treatment system such as this would have a 20 mg/L biological oxygen demand (BOD), 30 mg/L suspended solids (SS) and 20 mg/L ammonium prior to discharge to the polishing filter for further treatment. The system will include a primary settlement tank, combined biological treatment and secondary settlement tank and pumping station. It is proposed that domestic wastewater at the proposed development be treated on-site by means of a proprietary Wastewater Treatment Plant (WWTP) with the final treated effluent discharged to groundwater through a sand polishing filter.

It should be noted that due to the high level of the rock in the area, it is likely that both the polishing filters/percolation areas on the mainland and the island would need to contained in raised beds rather than fully underground. It is proposed to incorporate these filters into landscaping to minimise any associated visual and environmental impacts on the surrounding environment. Ongoing maintenance of the treatment system will be required, as well as periodical de-sludging. A Groundwater Discharge Licence for the above development will be sought and obtained from the Local Authority once planning consent has been achieved, in accordance with EPA guidance. As is the norm, a programme of monitoring shall be undertaken by the Developer during the operational phase, to demonstrate compliance with the terms of the Discharge Licence from the Local Authority.

Soils and Waste pipework above ground level will form part of the Mechanical Services Installation and will consist of PVC piping with adequate cleaning eyes, vents, etc. The Soils & Wastes systems will be designed and installed in accordance with BS EN12056-2:2000.

Island

There are no public toilets available to visitors on the island side of the site. There is no formal wastewater drainage and treatment system in place on the island. Residences are serviced by private septic tanks.

The criteria for estimating the maximum additional wastewater hydraulic and BOD load based on the potential capacity of the proposed development was carried out with regard to expected growth in visitor numbers. For the island-side development it was assumed that 50% of all visitors would use the proposed toilet facilities which is considered reasonable given that the main development focus, including food and drink offerings, are to be located at the mainland site. It is anticipated that approximately 207 persons visiting the island in a day will use the island toilet facilities, the resultant wastewater hydraulic load would be c. 1035 L/day, with a total organic loading of 2070 g BOD per day (according to current Irish Water standards). It is proposed to construct a proprietary wastewater treatment system with a sand polishing

filter to service the facilities at the island-side line station. Due to the lack of subsoil at the island-side station, the proposed sand polishing filter will be raised and bunded above existing ground level and formed from imported suitable material. The proposed plan area of the sand distribution area will provide adequate assimilative capacity in the underlying groundwater.

Effluent discharge values achieved within a typical treatment system such as this would be 20 mg/L BOD, 30 mg/L suspended solids (SS) and 20 mg/L ammonium, prior to discharge to the polishing filter for further treatment. The system will include a primary settlement tank, combined biological treatment and secondary settlement tank and pumping station. It is proposed that the final treated effluent will be discharged to groundwater through a sand polishing filter and raised percolation area.

As is the norm, a programme of monitoring shall be undertaken by the Developer during the operational phase, to demonstrate compliance with the terms of the Discharge Licence from the Local Authority. Ongoing maintenance of the treatment system will be required, as well as periodical de-sludging. A Groundwater Discharge Licence for the above development will be sought and obtained from the Local Authority once planning consent has been achieved.

Again, the Soils and Waste pipework above ground level will form part of the Mechanical Services Installation and will consist of PVC piping with adequate cleaning eyes, vents etc. The Soils & Wastes systems will be designed and installed in accordance with BS EN12056-2:2000.

Telecommunications and Internet Connectivity

EIR's Network Design Bureau Services Office were consulted in relation to the location of phone lines in the vicinity of the proposed Visitor Centre. There is currently a phone line network system in place for the study area. However, there is no broadband connectivity at the site. It is proposed to introduce point-to-point high-speed overhead fibre broadband from Lehanmore Community Centre to the mainland Visitor Centre buildings. Consultation will continue with EIR during the detailed design of the proposed development.

The proposed overhead fibre broadband will necessitate the running of new fibre optic cable along the R572 Regional Road from Lehanmore Community Centre to the proposed development 4.3 km away. The new overhead line will utilise existing telephone poles with new fibre optic joint boxes (small black boxes) fixed to the poles at regular intervals. The broadband works will be carried out as part of a separate advanced works contract which will be complete before the main works commence.

Electricity

The site of the proposed development is serviced by a phase 3 supply connectivity. The energy provider to the existing cableway is SSE Airtricity. The meter point reference number (MPRN) is 1000 706 3245. The current maximum import capacity (MIC) is 15 kilovolt-amps (kVA). In order to meet increased electrical demand during the operational phase of the proposed development, it will be necessary to increase the MIC of the site's supply.

Following on from preliminary discussions with ESB Networks, it was agreed that a new/upgraded, dedicated ESB supply will be provided to the site. The ESB will be required to provide an increased 3 ph power supply at low voltage to the site. The new utility supply will terminate in a new ESB substation located at the rear of the site. This will be a purpose built ESB substation constructed in line with ESB Networks

requirements. The client intake/meter room will be located next to the ESB substation. This room will contain a new client intake panel containing the supply feeding the new mainland buildings and cable car.

The new incoming supply will enter the new main LV switch-room, located at ground level in the building from the client intake board. The final location of the new main electrical LV switch-room has been agreed with the architects and is indicated on the General Arrangement Drawings. Communications with ESB are ongoing and a review is scheduled to take place on-site. There is a requirement as part of the brief for a back-up generator set to supply the electrical load of the building and new cable car on mains failure. This is located at the rear of the site in a fenced enclosure. The generator comes with a built-in day tank with a run time capacity of 8 hours on full load. The generator control panel and automatic change-over panels will be located in the client intake room. Consideration will be made in the next stage of the project to providing a mobile plug-in generator point. Having a mobile plug-in point in addition to the permanent standby generator offers greater resilience for the system.

Fuel Supply Networks

Communications with Bord Gáis have confirmed that there is no gas networks supply system in place for the study area. In order to run the heating system for the mainland buildings, a fuel supply will be required. Although subject to detailed design, it is proposed at this stage that the heating system will be provided by a series of electrically driven Air to Water Heat Pumps. This negates the requirement for fossil fuel storage onsite. The installation of Heat Pump Technology will also satisfy the renewable energy requirements for the "Nearly Zero Energy Buildings". The Heat Pumps indoor unit will be located in the Mechanical Plant Room with the condenser unit located externally. The Heat Pumps will feed the low-pressure hot water heating installation and be distributed through corridor ceiling voids into the heated areas. It is intended to utilise a mix of underfloor heating and radiators at this stage of the project.

Construction Materials

The project requires the use of natural, local and tactile materials that can weather and age over time. Timber, oxidized steel and other metals, natural stone, cast concrete, rubber, wool, netting and textiles will be used in order to complete the proposed development.

It is proposed to use material excavated on-site for back-filling retaining walls and levelling the site. Tables 2.2 and 2.3 below, provide an overview of the materials to be imported and exported (respectively) during the construction phase of the proposed development.

Table 2.2 Volume of materials to be imported.

Nature of material	Volume
Concrete (buildings)	1200 m^3
Concrete (cableway foundations)	230 m^3
Concrete (retaining walls)	840 m^3
Granular fill	150 m^3
Steel reinforcement (buildings)	120 tonnes
Steel reinforcement (cableway foundations)	30 tonnes
Steel reinforcement (retaining walls)	130 tonnes

Nature of material	Volume
Structural steelwork (buildings)	50 tonnes
Structural steelwork (pylons)	20 tonnes

Table 2.3 Volume of materials to be exported.

Nature of material	Volume (m^3)
Concrete	25
Stone and rubble	20
Excavated material (including surfacing)	10

Working Hours

Normal working hours will be employed during the construction phase as follows:

- Monday to Friday: 7:00 a.m. to 7:00 p.m.
- Saturday: 8:00 a.m. to 4:30 p.m.
- Sunday and Bank Holidays: 8:00 a.m. to 4:30 p.m.

Works on Sundays and Bank Holidays will only be permitted with the approval of the Client. Similarly, emergency works outside of the normal working hours will only be permitted with the approval of the planning authority.

It is anticipated that there will be typically 20-30 personnel on site at any one time during the course of construction.

2.7 Maintenance and Operation

The envisaged first year of operation of the proposed development is 2023. The proposed development will be operated and maintained by Cork County Council. It is anticipated that the proposed cableway will continue to operate with roughly the same opening hours and days of operation as the existing cableway. It is expected that three employees will continue to serve as cableway operators. In addition, it is envisaged that 3-5 additional (likely seasonal) employees will be required to staff the Visitor Centre, gift shop and café. It is expected that the proposed Visitor Centre, gift shop and café will close during the off-season months (October-April), when the site is less popular among non-local users, although the specific opening weeks/months are yet to be determined. The cableway will continue to operate year-round, with associated operators retained. It is proposed to marginally increase ticket prices for cable car users, although the precise pricing is yet to be decided.

The maintenance and operation of the proposed cableway will be in line with the 2016 report for the existing cableway "*Safety Requirements for Dursey Island Cable Car – Precommissioning Inspection, Maintenance, Operational Inspection and Checks*".

The elements of the proposed development which are envisaged to be operated and maintained by Cork County Council are as follows:

- Landscaping maintenance of all landscaping areas;
- Road sweeping and de-icing operations of the carpark and approach road;
- Regular maintenance of the permeable pavements in the form of brushing and vacuuming;

- Resurfacing works of the carpark and approach road, as necessary; and
- Periodic inspection and maintenance of all civil infrastructure elements.

The maintenance and operation of the visitor centre and café will be undertaken by Cork County Council and will include the following:

- Maintenance of all mechanical and electrical (M&E) equipment located within each building; and
- Internal and external cleaning

It is expected that approximately 3 employees will continue to operate the cable car and another 3-5 employees will be employed to operate the visitor centre and café. A ticket pricing strategy will be developed in consultation with Fáilte Ireland and incorporated into the Visitor Management Plan.

A Visitor Management Plan is being developed by Cork County Council in communication with Fáilte Ireland to ensure the sustainable management of visitors and the visitor experience at the proposed development through appropriate management of marketing and parking facilities.

2.8 Decommissioning

Decommissioning of the Proposed Development

The proposed cableway and visitor centre development will need to be decommissioned at the end of its serviceable life. Decommissioning works will include the following steps:

- Cable cars will be removed from ropes;
- The ropes (track and haul) will be taken down;
- Cableway machinery will be dismantled;
- Pylons will be removed in sections using a mobile crane;
- Pylon and station concrete foundations will be broken up on site before removal;
- All buildings will be demolished by conventional means. These relatively low-rise structures have no particular requirements with regards to their demolition; and,
- Finishes and surfacing will be taken up and disposed of;

There is potential to re-use or recycle almost all of the materials generated from the decommissioning of the proposed facility. Where recycling is not feasible, waste material will be disposed of to a licensed waste facility according to the relevant regulations.

2.9 Receiving Natural Environment

Habitats

Dry-humid acid grassland (GS1) and dry siliceous heath (HH1), or a mosaic of the two, are the dominant habitat types in the study area, on both island and mainland. Sward heights are low, particularly on Dursey Island. The coastline is rocky and highly indented. At the mainland, the land rises abruptly from the exposed rocky coast to more gently sloping ground around the car park and along the R572 road. To the east of the road, the land continues to rise with numerous rock outcrops forming an undulating profile and giving rise to a considerable mixture of gradients and depths of soil which is reflected in the vegetation. On the island, the cableway pylon is located

at the top of a low broken cliff, and thereafter to the terminal building the land rises gently with a similar variation in rock outcrop and soil depth.

The mainland site is comprised of a mosaic of habitats associated with its rural, coastal location and the existing infrastructure at the site. There is a considerable element of buildings and artificial surfaces (BL3) associated with the access road which terminates in a car park at the cableway line station and the pylon footprint. In addition, there is a small pier (CC1) located to the southeast of the cable car with a steep access track leading from the road. A chain-link fence has been recently erected around the boundary of the Cork County Council land parcel on which the cableway is situated, and a low earth berm has been built along the seaward side of the carpark which has resulted in some disturbance and recolonising bare ground (ED3). These areas support a mixture of species associated with dry meadows and grassy verges (GS2) including Cock's-foot (*Dactylis glomerata*), thistles (*Cisium* spp.), Common Nettle (*Urtica dioica*) and Yarrow (*Achillea millefolium*).

To the south-east and at the boundary of the Council lands, a small drainage ditch (FW4) flows into the sea in a steep sided cut which is heavily vegetated with a mixture of Bramble (*Rubus fruticosus* agg.), Bracken (*Pteridium aquilinum*), Lady-fern (*Athyrium felix-femina*) and Royal Fern (*Osmunda regalis*), along with the non-native species Montbretia (*Crocosmia* × *crocosmiiflora*) and New Zealand Flax (*Phormium tenax*).

The majority of the lands to the east of the access road, within the Council lands, are a mixture of dry-humid acid grassland (GS3) with dry siliceous heath (HH1), with scattered exposed siliceous rock (ER1) outcrops. This community extends beyond the fence-line and northwards towards Garinish Point, and also extends to the west of the road/car park to the top of a low cliff finding the coast. The vegetation within the fenced enclosure is mainly ungrazed, and thus much more luxurious than that outside the enclosure, which is heavily grazed by sheep.

The dominant species in the dry-humid acid grassland are fescues (*Festuca rubra* and *Festuca ovina*), bents (*Agrostis* spp.), Sweet Vernal (*Anthoxanthum odoratum*), Yorkshire Fog (*Holcus mollis*), Yarrow, Mouse-ear (*Cerastium tomentosum*), Hawkweed (*Hieracium pilosella*), Tormentil (*Potentilla erecta*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Self-heal (*Prunella vulgaris*), clovers (*Trifolium* spp.), and Sheep Sorrel (*Rumex acetosella*).

The heath elements are dominated by Western Gorse (*Ulex gallii*), Bell Heather (*Erica cinerea*), Heather/Ling (*Calluna vulgaris*), Green-ribbed Sedge (*Carex binervis*), along with many of the species associated with the dry humid acid grassland. Purple Moor-grass (*Molinia caerulea*) occurs occasionally mainly associated with damper areas where drainage lines occur, along with small amounts of *Sphagnum* mosses (*Sphagnum* spp.) and New Zealand Willowherb (*Epilobium brunnescens*).

The coastline in the vicinity of the site is comprised of low cliffs with a wave-cut platform in the intertidal zone. The habitat conforms to exposed rocky shores (LR1), dominated by barnacles (*Semibalanus* and *Chthalmus* spp.) and mussels (*Mytilus edulis*), while the subtidal element is dominated by kelps (*Laminaria* spp.) and red seaweeds.

The vegetation on the island is also comprised primarily of a mosaic of dry siliceous heath and dry-humid acid grassland habitats. The vegetation here, however, is heavily grazed and, consequentially, quite stunted. The species composition of these habitats is similar to that of the mainland, though no evidence of Betony was found. There is some grassland along a drainage line to the north of the line station which is

intermediate with wet grassland and includes Jointed Rush (*Juncus articulatus*), Black Bog-rush (*Schoenus nigricans*), Blue Sedge (*Carex flacca*), Spearwort (*Ranunculus flammula*), Lousewort (*Pedicularis sylvatica*) and Lesser Skullcap (*Scutellaria minor*).

The low cliffs along the coast, especially at Foilnamuck (the small bay immediately north of the line station) supports a typical coastal cliff community including Thrift (*Armeria maritima*), Buck's-horn Plantain (*Plantago coronopus*), Samphire (*Crithmum maritimum*), Sea Beet (*Beta vulgaris*), Orache (*Atriplex patula*) and Sea-spurrey (*Spergularia rubicola*). Vegetation is confined primarily to the cliff top and large crevices.

Table 2.4 lists the habitats recorded on the mainland and island sides of the site of the proposed development during the habitat surveys carried out on 7th September 2018 and in May 2019 and describes the general character of the habitats in the study area. Mapping of these habitats is included in Appendix B to this NIS.

Table 2.4 Habitats recorded at the site of the proposed development (mainland and island sides) (classified in accordance with Fossitt, 2000)

Habitat type	Habitat code
Improved agricultural grassland	GA1
Dry meadows and grassed verges	GS2
Dry-humid acid grassland	GS1
Dry siliceous heath	HH1
Exposed siliceous rock	ER1
Drainage ditches	FW4
Rocky sea cliffs	CS1
Sea stacks and islets	CS2
Exposed rocky shores	LR1
Dry-humid acid grassland/Dry siliceous heath (mosaic)	GS1-HH1
Buildings and artificial surfaces	BL3

The heathland on both the mainland and island sites conforms in places to the Annex I habitat European dry heaths [4030], a Qualifying Interest of the Kenmare River SAC. However, the boundary of the SAC only extends to the high-water mark at the location of the proposed development. Dry siliceous heath and dry-humid acid grassland are foraging habitats for Chough, a Qualifying Interest of the Beara Peninsula SPA, while rocky sea cliffs are roosting/nesting habitat for this species.

Designated Sites

Table 2.5 lists sites in the vicinity of the proposed development which are designated as being of nature conservation interest.

Table 2.5 Designated sites.

Site name and NPWS code	Connection to the proposed development
European sites	
Beara Peninsula SPA [004155]	The proposed development intersects SPA.

Site name and NPWS code	Connection to the proposed development
Kenmare River SAC [002158]	This SAC extends to high water mark immediately adjacent to the proposed development.
Nationally-designated sites	
Dursey Island pNHA [000086]	The island side of the proposed development is located within this pNHA.
Garinish Point pNHA [001986]	The mainland side of the proposed development is located within this pNHA.
Firkeel Gap pNHA [001051]	The R572 approach road (which forms part of the proposed development) intersects this pNHA.

Fauna

The National Biodiversity Data Centre (NBDC) *Biodiversity Maps* (NBDC, 2019) was used to access records for rare and protected species in all of the 2 km × 2 km Grid Squares which intersect the likely zone of impact of the proposed development.

A wide variety of rare and protected marine species have been recorded in this area, including Basking Shark, a number of cetacean species, both Grey Seal and Harbour Seal, and Leatherback Turtle. Otters have been recorded along the coast and Common Lizard has been recorded on land. Notable bird species which have been recorded in this area include Peregrine, Great Northern Diver, Red-billed Chough, Merlin, Hen Harrier, Mediterranean Gull, Short-eared Owl, Northern Gannet, Skylark, Grasshopper Warbler, Linnet, Shag, Common Gull, Razorbill, Northern Goshawk, Manx Shearwater, Twite, Black-legged Kittiwake and Balearic Shearwater. Notable invertebrate species which have been recorded include the Kerry Slug and the Wall Brown butterfly.

Birds

Red-billed Chough

Red-billed Chough (*Pyrrhocorax pyrrhocorax*) occurs within the likely zone of impact of the proposed development, primarily on Dursey Island but also on Crow Head and Garinish Head. Choughs are corvids (members of the crow family) and are primarily associated with coastal areas. It is listed on Birdwatch Ireland's *Birds of Conservation Concern in Ireland* (BoCCI) Amber list and on Annex I to the Birds Directive, as well as being protected under the Wildlife Act. Extensive surveys to establish the numbers, distribution and behaviour of choughs in the study area.

Abundance of Choughs

The largest flock recorded during the surveys carried out to inform this NIS comprised 32 individuals. This flock included both adults and juveniles and was observed on the western end of Dursey Island in early July. This number is greater than the 20 birds observed by Berrow et al. (1993) in 1992 and less than the 46 birds observed by Gray et al. (2003) in 2002/03. Plate 2.13 below illustrates the trend over time.

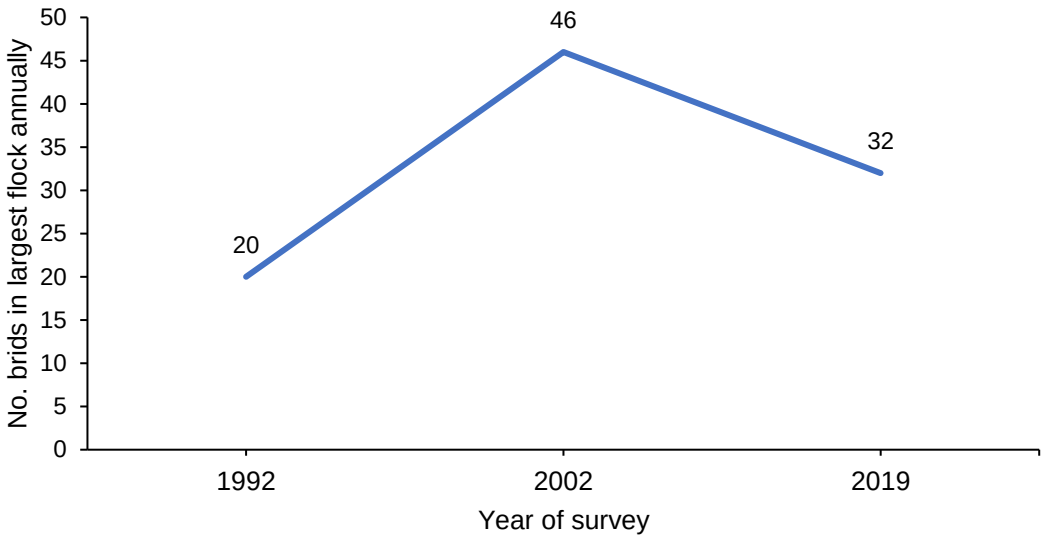

Plate 2.13 **Total number of chough recorded on Dursey Island, 1992-2019. Source: Berrow et al., 1993; Gray et al., 2003; ROD surveys.**

Breeding

Since chough are known to exhibit site fidelity when nesting, certain passages of text in this Section specifying the locations of potential/confirmed chough nest sites have been redacted in order to protect the sites and population in question. Six confirmed breeding pairs and their respective nest sites were identified during the 2019 surveys (see Table 2.6, below). This number is lower than the numbers recorded during previous chough surveys (10 potential breeding pairs in both 1992 (Berrow et al., 1993) and 2002/03 (Gray et al., 2003)).

Five of the six nests were located on Dursey Island. None of these were in the vicinity of the cable car, although a potential nest site at [redacted] was prospected by a pair which did not go on to breed (potentially a pair of non-breeders simulating breeding). No nest sites were identified on Garinish Head, although choughs were observed to forage here in small numbers. A single confirmed nest site was recorded on [redacted]. Most nest sites recorded are too remote to be at risk of human disturbance. However, the three known nest sites at the western end of the island [redacted] are potentially vulnerable in this respect.

Table 2.6 **Red-billed Chough nest sites with confirmed breeding in 2019.**

ID	Location	No. juveniles fledged	Date first recorded
1	Dursey Island [redacted]	2	17/05/2019
2	Dursey Island [redacted]	2	03/06/2019
3	Dursey Island [redacted]	4	05/06/2019
4	Dursey Island [redacted]	3	03/06/2019
5	Dursey Island [redacted]	4	13/06/2019
6	Crow Head [redacted]	2	24/05/2019

All six known breeding pairs successfully fledged 2-4 young (mean = 3). A total of 17 juveniles are known to have fledged in the study area during the surveys.

Foraging and disturbance

On Dursey Island, foraging during the breeding season has been concentrated on areas of unenclosed acid and maritime grassland. Virtually all the unenclosed parts of the island are grazed by sheep and, in combination with the shallow soils and maritime influence, much of the habitat on the island (a mosaic of heath and acid grassland) provides suitable foraging habitat for choughs. The enclosed fields, some of which are cattle grazed or cropped for silage, are also likely to provide foraging habitat during the winter period. It is considered that, with the exception of artificial structures, roads/paths and bracken (of which there is a negligible area), almost the entire area of the island (5.98 km^2) is suitable habitat for choughs at one time of the year or another. That being said, the western end of the island (which takes in the hills of *Maoil*, *Maoil Mhór* and *Maoil Bheag*) has an open short grassland sward and supported the greatest density of nesting pairs (three nests recorded consistently across all studies) and the highest levels of foraging activity. This key area may be regarded as a chough "hotspot" (see Plate 2.14 below).

At Garinish Head, foraging has been observed primarily in acid grassland immediately north of the cable car station and on the steep ground to the north of the trail. Foraging activity on Crow Head has been recorded mostly along the northern fringes of the land mass, where there is a strip of grassland. Much of the headland is covered with heath, and it appears that grazing of the area has reduced significantly in recent times, which has likely reduced its suitability for foraging. Choughs were observed to fly between the island and mainland on a number of occasions.

The average flushing distance ("*the distance at which a foraging bird or flock will fly off when approached [i.e. disturbed] by a person or group of persons*" - Keribiou et al., 2019, p. 658) observed in the study area was 31.6 m (*n* = 49; minimum = 10 m; maximum = 150 m; median = 30 m). Choughs were observed to call more frequently when within 50 m of walkers. Applying a 50 m buffer to the established paths and road on Dursey Island (30 m flushing distance + 20 m as a precautionary buffer), it has been estimated that c. 1.33 km^2 of potential chough foraging habitat (22% of total area) could be subject to human disturbance at peak visitor times (assuming that walkers are well distributed across the island's network of roads and paths) (see Plate 2.15 below). This is substantially lower than the equivalent area on Ouessant Island, where Keribiou et al. (2009) calculated that, during peak times, 97% of chough foraging habitat could be affected by human disturbance.

During the daytime, when there is plenty of visitor activity at the cable car site, chough were observed feeding in the grassland adjacent to the existing station on the mainland, within c. 15 m of the car park. On the western end of Dursey Island, there are no defined pathways for walkers and visitors tend to "spill out" across the open habitat, potentially disturbing foraging and nesting birds. Birds have been observed foraging in the vicinity of roads and paths elsewhere on the island and, while there is a risk of disturbance at these locations also, the visitors typically remain on the road or path, limiting the disturbance to a linear zone. Contrary to the case of Keribiou et al. (2009), while human disturbance of foraging choughs was observed, this disturbance did not appear to lead to any mortality of juveniles in the study area (all known pairs successfully fledged two or more offspring).

Flock-forming and roosting

From late June to early July, choughs were increasingly observed to gather in one or more flocks to forage at the western end of Dursey Island, especially around the hills *Maoil* and *Maoil Mhór*. Around this time, surveyors observed less chough activity

elsewhere on the island. This underscores the status of the western end of the island as a chough "hotspot".

The Site Synopsis for the Beara Peninsula SPA (NPWS, 2015) lists two regularly used chough roosting sites: one at Dursey Sound (maximum 17 birds) and another at Allihies copper mines (maximum 37 birds). The precise location of the roost within Dursey Sound is not recorded, but Foilnamuck, the inlet on Dursey Island immediately north-west of the cable car, is thought to be the site which is referred to. Surveys were conducted of this area and no evidence of it being used for roosting was found. *Cuas na gColúr* (an inlet on the south-eastern side of the island) and the cliffs of *Brann Righe* (on the south-western side of the island) were identified as potential communal roost sites (see Plate 2.14). Largely, however, birds were observed to roost at dusk in family groups near their respective nest sites. Since communal roosting occurs towards the end of the summer, ongoing bird surveys should serve to confirm the location of roost sites in the study area.

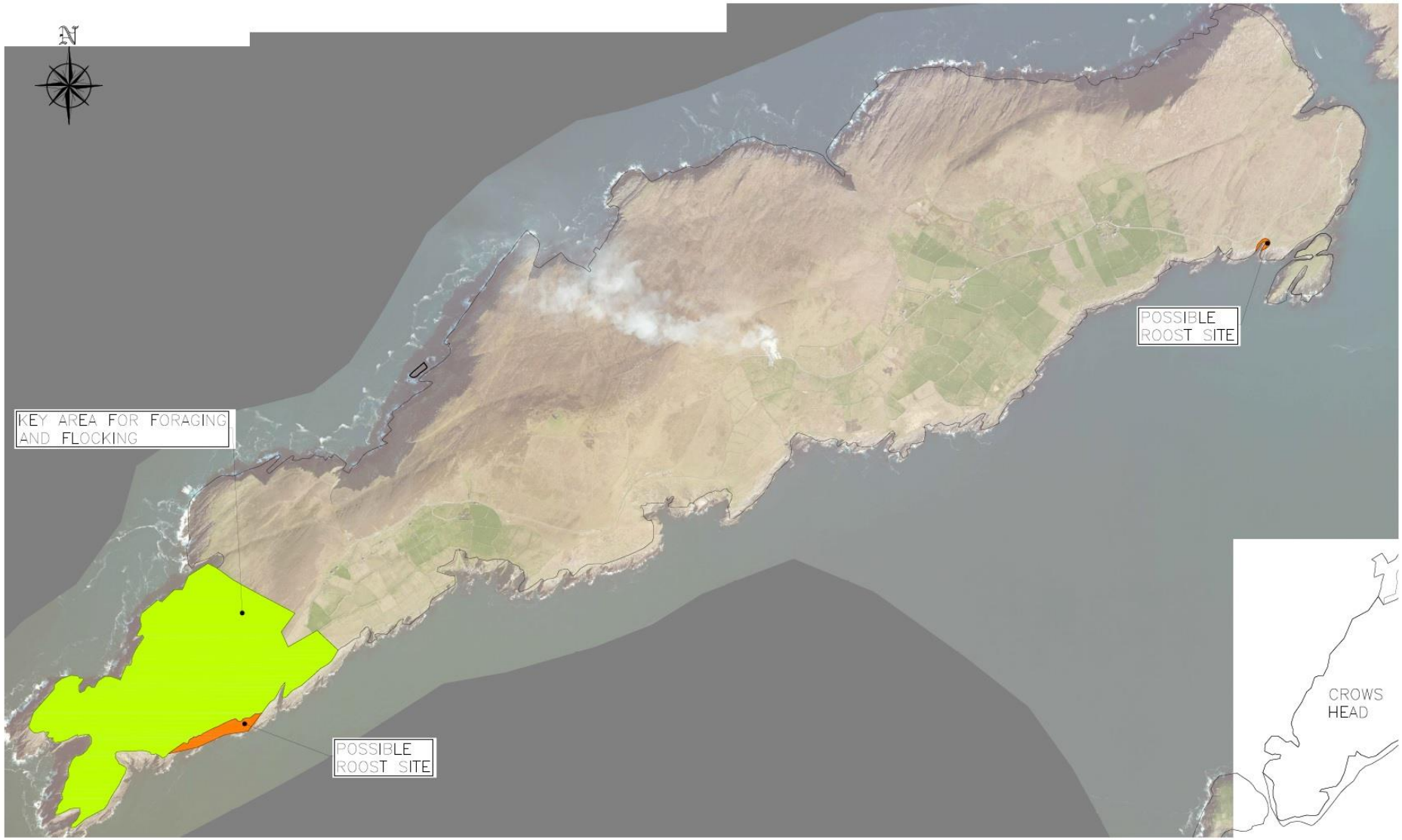

Plate 2.14 Key areas of chough habitat on Dursey Island [Locations of nest sites removed]

Plate 2.15 **Areas of Red-billed Chough foraging habitat on Dursey Island likely to be subject to human disturbance during peak visitor periods.**

Northern Fulmar

Northern Fulmar (*Fulmarus glacialis*) is known to occur within the likely zone of impact of the proposed development, mostly along the exposed sea cliffs of Dursey Island. The species is a Qualifying Interest of the Beara Peninsula SPA and is protected under the Wildlife Act, but not considered to be of conservation concern in Ireland.

Fulmars winter and feed at sea and nest and roost on sea cliffs and caves, occasionally on level ground or in artificial structures in coastal areas (BirdWatch Ireland, 2019b). Fulmars forage mainly on fish and crustaceans and are partly reliant on scavenged fish from commercial fishing vessels but also catch live prey (Phillips et al., 1999). The species was first recorded in Ireland in 1911 and is now found at sea and in coastal areas across the entirety of the Irish coastline (NBDC, 2019c).

The Beara Peninsula SPA supports a nationally important breeding population (575 pairs). A seabird survey of Dursey Island and Crow Head/Island was carried out in May 2016 and (to a lesser degree) May 2018 (Heardman, pers. comm., 2019). This survey identified a total of 487 individual fulmars on Dursey Island in 2016 (426 on the north coast of the island, 52 on the south coast, and 9 on the west coast). A flock of 12 individuals was also observed on Crow Head/Crow Island. Seven individuals were identified in the Dursey Sound area (the only area surveyed) in 2018.

During the surveys carried out to inform this NIS, fulmars were observed nesting at various locations on steep and isolated cliffs on the north, west and southern sides of Dursey Island, as well as on the southern side of Crow Head and the northern side of Garinish Head. This species is not considered to be vulnerable to disturbance by virtue of the isolated locations of their nests and their confinement to foraging at sea. During the surveys carried out to inform this NIS, fulmars did not appear to be at all perturbed by the presence of observers during the breeding bird surveys.

Peregrine

No evidence of breeding Peregrine (*Falco peregrinus*) was found during the surveys. However, individual peregrine(s) were observed flushing choughs and being mobbed by choughs in the study area on a number of occasions and it is likely that at least one individual is foraging in the area/vicinity.

Corvids

Choughs were observed to interact regularly with other corvids, particularly Raven (*Corvus corax*), which were frequently observed being mobbed by adult choughs. Antagonistic interactions between choughs and both Hooded Crow (*Corvus cornix*) and Magpie (*Pica pica*) were also observed.

Other bird species

Table 2.7 presents a list of avian species observed breeding in the study area during the bird surveys. Additionally, it is considered (in light of observations made during the surveys) that the species of birds listed in Table 2.8 may also breed in the likely zone of impact in small numbers (although no evidence of this was observed).

Table 2.7 Bird species confirmed to be breeding within the likely zone of impact during the 2019 bird surveys.

Common name	Scientific name
Rock Pigeon	*Columba livia*

Common name	Scientific name
Pheasant	*Phasianus colchicus*
Oystercatcher	*Haematopus ostralegus*
Barn Swallow	*Hirundo rustica*
Northern Wheatear	*Oenanthe oenanthe*
Eurasian Skylark	*Alauda arvensis*
Common Starling	*Sturnus vulgaris*
Great Cormorant	*Phalacrocorax carbo*
House Sparrow	*Passer domesticus*
Meadow Pipit	*Anthus pratensis*
Stonechat	*Saxicola torquatus*
Pied Wagtail	*Motacilla alba*

Table 2.8 Bird species considered to possibly breed in small numbers in the likely zone of impact.

Common name	Scientific name
Peregrine	*Falco peregrinus*
Wood Pigeon	*Columba palumbus*
Common Snipe	*Gallinago gallinago*
Black Guillemot	*Cepphus grylle*
House Martin	*Delichon urbicum*
Linnet	*Carduelis cannabina*
Kestrel	*Falco tinnunculus*
Razorbill	*Alca torda*
Yellowhammer	*Emberiza citronella*
Kittiwake	*Rissa tridactyla*

Flora

Betony

During the survey carried out on 25th October 2018, a total of five clusters of Betony (*Betonica officinalis*) were recorded in the vicinity of the mainland side of the proposed development. These were mainly situated at the north-eastern boundary of the site, near to a fence. No evidence of the plant was found on grassland surrounding the site on the mainland, probably as a result of intensive grazing in the area.

In order to prevent impacts on this protected species, these clusters of Betony were translocated in February 2019. Sods containing the plants were excavated using a spade and transferred in boxes to suitable reception sites outside of the footprint of the proposed development under the supervision of Paul Murphy, who then held an NPWS licence for the translocation of the species. The depth of sods was sufficient to contain the root systems of the plants. Reception sites were cleared of topsoil in preparation for the translocation and any gaps were filled with local topsoil. Translocation sites were marked with flags and fenced to exclude animals/people. Seeds from the plants

were collected and submitted to the National Botanic Gardens of Ireland in Glasnevin, Dublin. Inspections of the translocated plants are ongoing and will continue on a bi-monthly basis from July to October 2019 to ensure the establishment of the plants at their new locations.

Tourism on Dursey Island

A survey of visitors to Dursey Island was carried out during June and July of 2019. Survey sheets were distributed to visitors upon arriving back at the mainland after their trip to Dursey by the cable car operator. Key findings are as follows:

- 537 visitors participated in the voluntary survey.
- Of these, 68% of respondents stated that they left the established path/road at some point on the island.
- 68% of respondents (365 persons) marked their route on the island on the map provided. Of these:
    - Approximately 50% of visitors walked in and around the eastern half of the island only, in the Ballynacallagh and Kilmichael areas;
    - A further 23% walked as far as the signal tower and/or Tillickafinna area, but not onto the extreme western end of the island; and,
    - Approximately 26% of visitors reported walking to the extreme western end of the island. This group typically spent the longest amount of time on the island (≥3 hours).
    - Of the 95 persons who reported walking to the western end of the island, 42% stated that they left the established path at this point. In other words, of the 537 persons who participated in the visitor survey, 40 (7%) reported wandering onto open habitat in this chough "hotspot".
    - Plate 2.16 presents a heat map of visitor movements on the island.
- The average group size visiting the island is 3, and the median is 2.
- The average time spent on the island is 3.5 hours, and the median is 2.5 hours.
- Notes written by certain respondents on their survey forms indicate that:
    - Visitors are being allowed to bring dogs and bicycles onto the island.
    - A small proportion of visitors are camping overnight on the island.
    - Key complaints of visitors to the island are (i) the lack of information regarding walking routes and duration of walks on the island (some complained that they had ended up undertaking longer walks than they intended because they didn't realise how long the full loop walk would take) and (ii) very long queuing times on island and mainland.
- Visitors to the site also visit a number of other sites in the area during their trip, principally the Beara Way, Garinish Loop and the village of Allihies.

Invasive Alien Plant Species

Surveys for invasive alien plant species were carried out in October 2018 and May 2019. A total of five invasive alien plant species were identified in the study area, all of which are listed on the Third Schedule to the Habitats Regulations and thus subject to restrictions under Section 49 of those regulations. Subsequent field surveys carried out by Paul Murphy in July 2019 identified a further occurrence of Japanese Knotweed (*Fallopia japonica*) in a private garden on Dursey Island. Table 2.9 below presents the IFI-NBDC Non-native Species Application Based Risk Analysis (NAPRA) and NBDC Invasiveness Risk Ratings for each of the species identified.

Table 2.9 Risk ratings for invasive alien plant species identified in the study area.

Species	IFI-NBDC NAPRA Overall Risk Rating	NBDC Invasiveness Risk Rating
Rhododendron (*Rhododendron ponticum*)	Major - Massive	Risk of High Impact
Japanese knotweed (*Fallopia japonica*)	Not assessed	Risk of High Impact
Giant Rhubarb (*Gunnera tinctoria*)	Major	Risk of High Impact
Three-cornered Leek (*Allium triquetrum*)	Moderate	Risk of Medium Impact
Hottentot-fig, (*Carpobrotus edulis*)	Major	Risk of High Impact

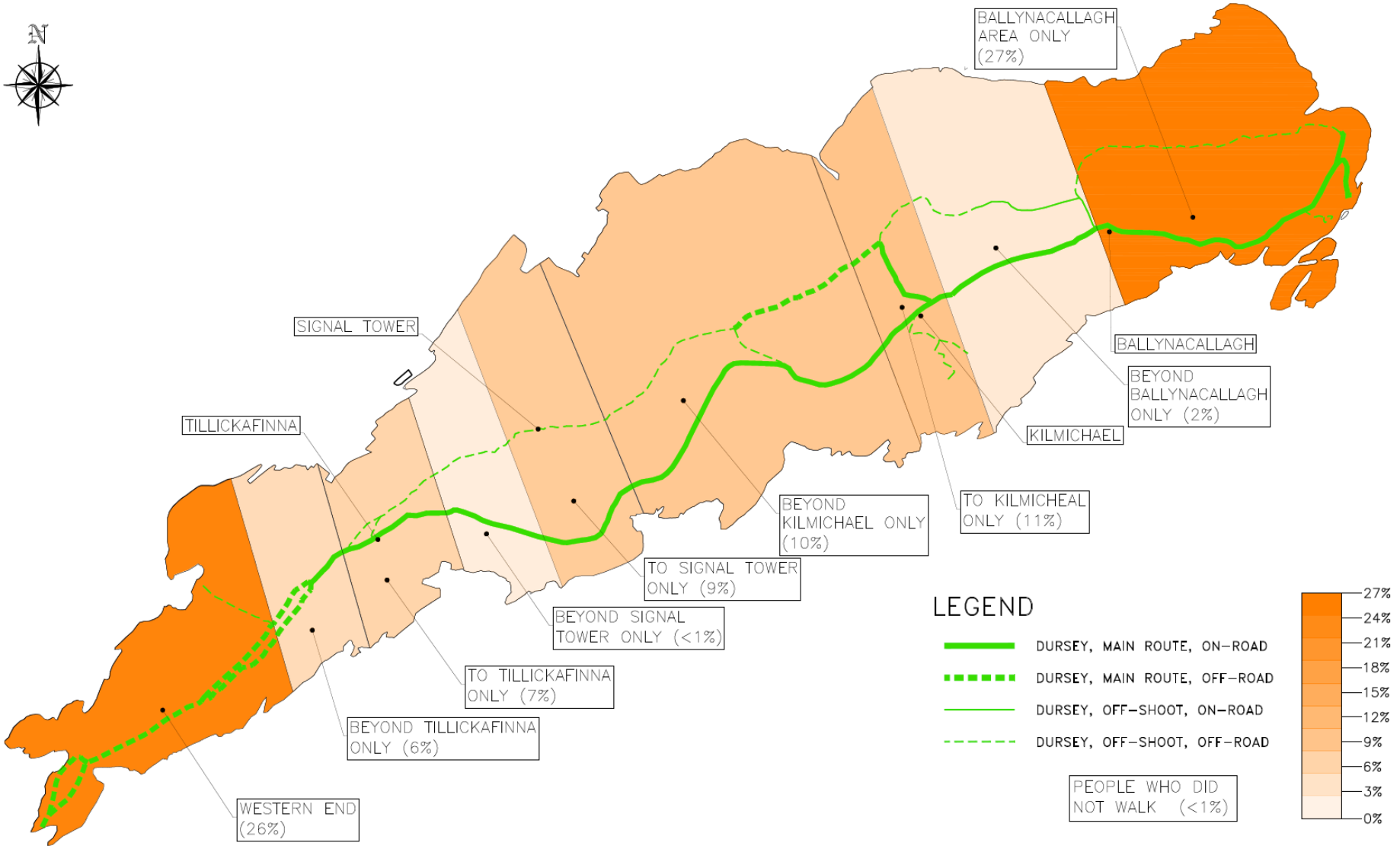

Plate 2.16 **Heat map illustrating the end point of walking routes taken by visitors to Dursey Island during June and July 2019.**

2.10 Likely Effects on the Natural Environment

The proposed development provides for permanent loss of a small area of coastal habitat types, such as dry-humid acid grassland, dry siliceous heath, rocky sea cliffs, artificial surfaces with dry meadows and grassy verges and drainage ditches, all of which are common on the Beara Peninsula and Dursey Island. This represents a risk of habitat loss for Betony, a rare plant species protected under the Flora (Protection) Order, 2015, and potentially loss of breeding and roosting habitat for seabirds such as Chough and Fulmar. Increased visitor numbers may also lead to effective habitat loss and fragmentation over a wider area due to disturbance impacts (described below).

Owing to the nature and scale of the proposed development and the machinery which will be required during its construction, there is potential for pollution impacts, e.g. spill of fuel or oil from machinery or mobilisation of suspended sediments in surface water run-off. During the operational stage, food and other items discarded by visitors may negatively affect the behaviour or health of birds such as Chough or gulls.

Owing to the nature and location of the proposed development, both its construction and its operation provide for disturbance to birds roosting and breeding. During the construction stage, machinery and personnel may cause disturbance through both physical presence and noise/vibration. This impact would be limited to the vicinity of the proposed development sites on the mainland and on Dursey Island, and to a lesser degree along land and marine haul routes. During the operational stage, the numbers of visitors to Dursey Island will increase and the numbers of walkers using routes such as the Crow Head Loop, Garinish Loop or Beara Way are also likely to increase. This poses the risk of adverse effects on habitats due to trampling of vegetation and long-term exposure to disturbance impacts on birds. Such impacts may lead to adverse effects on species such as Chough and Fulmar.

3.0 IDENTIFICATION OF ADVERSE EFFECTS

3.1 Establishing the Likely Zone of Impact

Section 3.2.3 of DEHLG (2010) outlines the procedure for selecting the European sites to be considered in AA. It states that European sites potentially affected should be identified and listed, bearing in mind the potential for direct, indirect and cumulative effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project. However, it advises that the following sites should generally be included:

- All European sites within or immediately adjacent to the plan or project area;
- All European sites within the likely zone of impact of the plan or project; and
- In accordance with the Precautionary Principle, all European sites for which there is doubt as to whether or not they might be adversely affected.

The "likely zone of impact" of a plan or project is the geographic extent over which ecological effects are likely to occur. In the case of plans, this zone should extend to a distance of 15 km in all directions from the boundary of the plan area. In the case of projects, however, the guidance recognises that the likely zone of impact must be established on a case-by-case basis, with reference to the following key variables:

- The nature, size and location of the project;
- The sensitivities of the ecological receptors; and,
- The potential for cumulative effects.

For example, in the case of a project that could affect a watercourse, it may be necessary to include the entire upstream and/or downstream catchment in order to capture all European sites with water-dependent features of interest.

Having regard to the above key variables, the likely zone of impact was defined as:

- The proposed development itself;
- The R572 approach road west of the Bealbarnish Gap and all of the proposed works (passing bays and visibility splays) along it;
- All established roads and walking routes west of the Firkeel Gap, including those on Dursey Island, Garinish Head, Crow Head and routes linking these; and,
- A 500 m buffer around all of the above.

A geographical representation of the likely zone of impact was produced in ArcGIS 10.5.1 using the proposed development boundary and publicly available Ordnance Survey Ireland maps. This was used in combination with NPWS shapefiles to identify the boundaries of European sites in relation to the likely zone of impact (Plate 3.1).

It was determined that two European sites occur within or adjacent to the likely zone of impact. Table 3.1 assesses if and how these sites are connected to the proposed development. Detailed descriptions of these sites are given in Section 3.2.

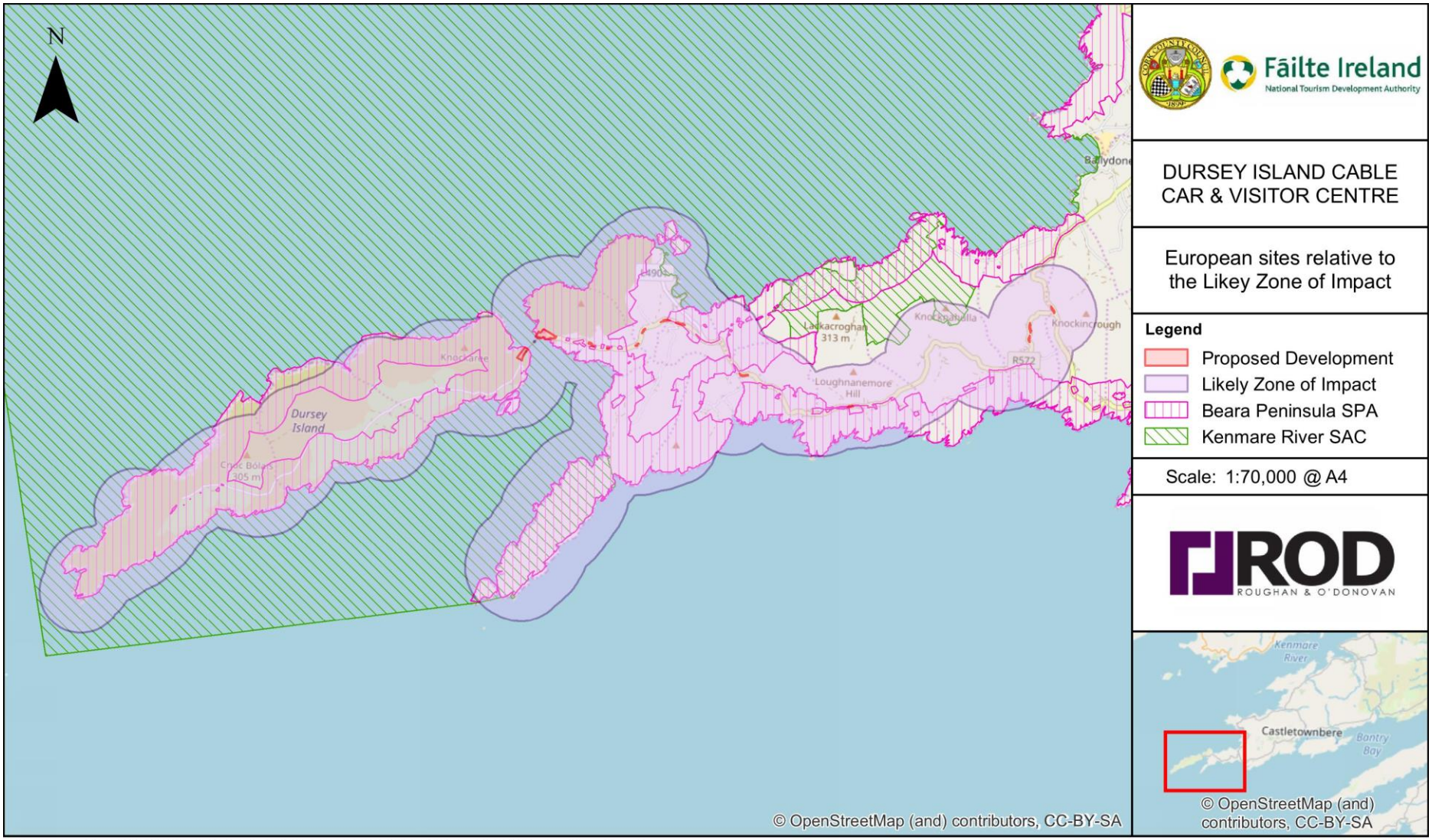

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Plate 3.1 Locations of European sites relative to the proposed development and its likely zone of impact.

Table 3.1 European sites located within and adjacent to the likely zone of impact.

European site [site code]	Are there potential pathways for impacts from the proposed development to this site? Explain.
Beara Peninsula SPA [004155]	**Yes.** The proposed development is located within this European site. Owing to this proximity, pathways for impacts are assumed to exist.
Kenmare River SAC [002158]	**Yes.** The proposed development is located directly adjacent to and passes over this European site. Owing to this proximity, pathways for impacts are assumed to exist.

3.2 Site Descriptions

3.2.1 Beara Peninsula SPA

Overview

The Beara Peninsula SPA is a coastal site situated on the west coast of Co. Cork, south-west of the town of Kenmare. It encompasses the high coast and sea cliff sections of the western end of the peninsula from Reenmore Point/Cod's Head in the north, around to the end of Dursey Island in the west, and as far east as Bere Island in the south.

The site is of special conservation interest for its internationally important breeding population of Chough (*Pyrrhocorax pyrrhocorax*), which is listed on Annex I to the Birds Directive, and a nationally important population of Fulmar (*Fulmarus glacialis*). Large flocks of Chough occur on Dursey Island, especially in the summer months, as well as in the uplands, in both summer and winter. Peregrine (*Falco peregrinus*), also listed on Annex I to the Birds Directive, occurs in this SPA.

Qualifying Interests

[A009] Fulmar (*Fulmarus glacialis*)

[A346] Chough (*Pyrrhocorax pyrrhocorax*)

Sensitivities

This European site is not currently subject to any significant threats or pressures. The main sensitivities of the Qualifying Interests of this site are to pollution and disturbance due to human activities. In particular, the foraging habitat of Chough is sensitive to agricultural practices and grazing regimes.

3.2.2 Kenmare River SAC

Overview

The Kenmare River SAC is a long, narrow, southwest-facing bay. It has a wide range of marine communities from exposed coast to ultra-sheltered areas. The site contains three marine habitats listed on Annex I to the Habitats Directive, namely reefs, large shallow bay and marine caves. There is also a very high number of rare and notable marine species present and some uncommon communities.

Qualifying Interests

[1160] Large shallow inlets and bays

[1170] Reefs

[1220] Perennial vegetation of stony banks

[1230] Vegetated sea cliffs of the Atlantic and Baltic coasts
[1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
[1410] Mediterranean salt meadows (*Juncetalia maritimi*)
[2120] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)
[2130] *Fixed coastal dunes with herbaceous vegetation (grey dunes)
[4030] European dry heaths
[5130] *Juniperus communis* formations on heaths or calcareous grasslands
[6130] Calaminarian grasslands of the *Violetalia calaminariae*
[8330] Submerged or partially submerged sea caves
[1014] Narrow-mouthed Whorl Snail (*Vertigo angustior*)
[1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*)
[1355] European Otter (*Lutra lutra*)
[1365] Common (Harbour) Seal (*Phoca vitulina*)

Sensitivities

Impacts arising from aquaculture, fishing, dumping of wastes and water pollution are the principal threats to the nature conservation interests of the Kenmare River. There are several resorts for water sports and a number of popular beaches within this large coastal site and impacts associated with such recreational activities may also pose a threat. Housing developments within the areas of dry heath present another possible threat to the integrity of the site.

3.3 Evaluation against Conservation Objectives

Tables 3.2 and 3.3 below detail the evaluation of the likely effects of the proposed development in view of the Conservation Objectives of the sites identified in Section 3.1 and described in Section 3.2. As explained in Sections 1.2 and 1.3, AA Screening is carried out in view of the Conservation Objectives of the relevant European sites, which are in turn defined by detailed Attributes and corresponding Targets. Therefore, the evaluation of whether or not a likely effect constitutes an adverse effect (in view of the Conservation Objective in question) is made with regard to these Attributes and Targets.

Where site-specific Conservation Objectives have not been set for a particular site, those set for another similar site are used in their place. This approach has been suggested by the NPWS in relation to other plans and projects.

Table 3.2 Evaluation of the likely effects of the proposed development on the Beara Peninsula SPA [004155].

Qualifying Interest	Conservation Objective as per NPWS (2018)	Does the proposed development provide for any potential delay or interruption in the achievement of this Conservation Objective?	Potential Adverse Effect
Fulmar (*Fulmarus glacialis*) [A009]	Site-specific Conservation Objectives have not been set for this site. Therefore, the objective of "*maintain the favourable conservation condition of Fulmar*" from the Saltee Islands SPA (NPWS, 2011b) is used.	Fulmar is resident in the area and breed on sea cliffs, but will nest on level ground, on buildings and in burrows and crevasses. Fulmar winter at sea but can be seen in the area throughout the year. There are areas of sea cliffs within 10 m of the proposed development on the mainland and within 15 m on the island. The proposed development will not result in any direct loss of breeding sites. However, due to the increased visitor numbers as a result of the proposed development, it has the potential to cause increased disturbance around breeding sites, potentially leading to reduced breeding success. Therefore, given the nature, scale and location of the proposed development and in view of this Conservation Objective, adverse effects on this Qualifying Interest cannot be ruled out at this stage.	Yes
Chough (*Pyrrhocorax pyrrhocorax*) [A346]	Site-specific Conservation Objectives have not been set for this site. Therefore, the objective of "*maintain the favourable conservation condition of Chough*" from the Castlemaine Harbour SPA (NPWS, 2011a) and the Trawbreaga Bay SPA (NPWS, 2014) is used.	Chough are found along the coast from Bere Island in the south to Reenmore Point/Cod's Head in the north, including Dursey Island. Chough forage mainly within 300 m inland of the cliff tops used for breeding. There are areas of sea cliffs within 10 m of the proposed development on the mainland and within 15 m on the island. The proposed development will not result in any direct loss of breeding sites. However, due to the increased visitor numbers as a result of the proposed development, it has the potential to cause increased disturbance (increased human activity affecting foraging behaviour) leading to reduced breeding success. Therefore, given the nature, scale and location of the proposed development and in view of this Conservation Objective, adverse effects on this Qualifying Interest cannot be ruled out at this stage.	Yes

Table 3.3 Evaluation of the likely effects of the proposed development on the Kenmare River SAC [002158].

Qualifying Interest	Conservation Objective as per NPWS (2013)	Does the proposed development provide for any potential delay or interruption in the achievement of this Conservation Objective?	Potential Adverse Effect
Large shallow inlets and bays [1160]	"*To maintain the favourable conservation condition of Large shallow inlets and bays in Kenmare River SAC*"	The entire marine area in the vicinity of the proposed development, including the Dursey Sound, which the proposed cable car crosses, corresponds to Large shallow inlets and bays. Owing to the proximity of the proposed development to this habitat type and the sensitivity of the latter to water quality impacts, which may arise during construction or operation, there is considered to be a risk of significant impacts on this habitat type arising from the proposed development. Therefore, given the nature, scale and location of the proposed development and in view of this Conservation Objective, adverse effects on this Qualifying Interest cannot be ruled out at this stage.	Yes
Reefs [1170]	"*To maintain the favourable conservation condition of Reefs in Kenmare River SAC*"	Much of the sea bed in the vicinity of the proposed development, including the Dursey Sound, which the proposed cable car crosses, corresponds to Reefs. Owing to the proximity of the proposed development to this habitat type and the sensitivity of the latter to water quality impacts, which may arise during construction, there is considered to be a risk of significant impacts on this habitat type arising from the proposed development. Therefore, given the nature, scale and location of the proposed development and in view of this Conservation Objective, adverse effects on this Qualifying Interest cannot be ruled out at this stage.	Yes
Perennial vegetation of stony banks [1220]	"*To maintain the favourable conservation condition of Perennial vegetation of stony banks in Kenmare River SAC*"	Perennial vegetation of stony banks is not located within or adjacent to the likely zone of impact, its nearest occurrence being c. 25 km northeast. As such, there are no pathways for impacts connecting the proposed development to any examples of this habitat type. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	"*To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Kenmare River SAC*"	The cliffs in the immediate vicinity of the proposed development correspond to Vegetated sea cliffs of the Atlantic and Baltic coasts. Owing to the proximity of the proposed development to this habitat type and the potential for increased erosion due to walkers and the risk of import of negative indicator species to the area, there is considered to be a risk of significant impacts on this habitat type arising from the proposed development. Therefore, given the nature, scale and location of the proposed development and in view of this Conservation Objective, adverse effects on this Qualifying Interest cannot be ruled out at this stage.	Yes
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	"*To maintain the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Kenmare River SAC*"	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) are not located within or adjacent to the likely zone of impact, the nearest potential occurrence being c. 8 km northeast. As such, there are no pathways for impacts connecting the proposed development to any examples of this habitat type. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No

Qualifying Interest	Conservation Objective as per NPWS (2013)	Does the proposed development provide for any potential delay or interruption in the achievement of this Conservation Objective?	Potential Adverse Effect
Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	"*To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Kenmare River SAC*"	Mediterranean salt meadows (*Juncetalia maritimi*) are not located within or adjacent to the likely zone of impact, the nearest potential occurrence being c. 8 km northeast. As such, there are no pathways for impacts connecting the proposed development to any examples of this habitat type. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]	"*To maintain the favourable conservation condition of Shifting dunes along the shoreline with* Ammophila arenaria *('white dunes') in Kenmare River SAC*"	Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) are not located within or adjacent to the likely zone of impact, their nearest occurrence being c. 16 km to the north. As such, there are no pathways for impacts connecting the proposed development to any examples of this habitat type. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No
***Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]**	"*To maintain the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Kenmare River SAC*"	Fixed coastal dunes with herbaceous vegetation (grey dunes) are not located within or adjacent to the likely zone of impact, their nearest occurrence being c. 16 km to the north. As such, there are no pathways for impacts connecting the proposed development to any examples of this priority habitat type. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No
European dry heaths [4030]	"*To maintain the favourable conservation condition of European dry heaths in Kenmare River SAC*"	The heath habitats in the immediate vicinity of the proposed development potentially correspond to European dry heaths. Owing to the proximity of the proposed development to potential examples of this habitat type and the potential for increased erosion due to walkers and the risk of import of negative indicator species to the area, there is considered to be a risk of significant impacts on this habitat type arising from the proposed development. Therefore, given the nature, scale and location of the proposed development and in view of this Conservation Objective, adverse effects on this Qualifying Interest cannot be ruled out at this stage.	Yes
Calaminarian grasslands of the *Violetalia calaminariae* [6130]	"*To maintain the favourable conservation condition of Calaminarian grasslands of the* Violetalia calaminariae *in Kenmare River SAC*"	Calaminarian grasslands of the *Violetalia calaminariae* are not located within or adjacent to the likely zone of impact, their nearest occurrence being c. 9 km to the northeast, at Allihies Mine. As such, there are no pathways for impacts connecting the proposed development to any examples of this habitat type. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No

Qualifying Interest	Conservation Objective as per NPWS (2013)	Does the proposed development provide for any potential delay or interruption in the achievement of this Conservation Objective?	Potential Adverse Effect
Submerged or partially submerged sea caves [8330]	"*To maintain the favourable conservation condition of Submerged or partially submerged sea caves in Kenmare River SAC*"	There are at least eight Submerged or partially submerged sea caves within or adjacent to the likely zone of impact, mostly on Crow Head and Dursey Island, the closest occurrence of this habitat type being c. 1 km west of the proposed development. However, as the proposed development will not impact directly on any example of this habitat type and given its scale and the low sensitivity of sea caves to the type of impacts likely to arise, the proposed development does not have the potential to cause any significant impacts on this habitat type. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No
Narrow-mouthed Whorl Snail (*Vertigo angustior*) [1014]	"*To maintain the favourable conservation condition of Narrow-mouthed Whorl Snail in Kenmare River SAC*"	Narrow-mouthed Whorl Snail is not known from within the likely zone of impact, its nearest known occurrence being c. 16 km north, at Derrynane. In addition, no suitable habitat for this species occurs within the likely zone of impact. Thus, there are no pathways for impacts connecting the proposed development to any populations of this species. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No
Lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1303]	"*To maintain the favourable conservation condition of Lesser Horseshoe Bat in Kenmare River SAC*"	Lesser Horseshoe Bat or suitable habitat for this species is not located within or adjacent to the likely zone of impact, the nearest likely occurrence of the same being > 40 km northeast of the proposed development, near Gleninchaquin. As such, there are no pathways for impacts connecting the proposed development and this species. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No
European Otter (*Lutra lutra*) [1355]	"*To restore the favourable conservation condition of Otter in Kenmare River SAC*"	Otters potentially commute through the likely zone of impact, along the shoreline and up to 250 m off shore and up to 150 m inland. However, given the nature of the habitats present, there are few opportunities for the establishment of holts, particularly within 500 m of the proposed development. Thus, the proposed development will not impact on the breeding or resting places of this species. Furthermore, the presence of otters in urban environments demonstrates that they habituate to human presence and, as such, any otters present in the likely zone of impact are unlikely to be subject to significant disturbance impacts as a result of the proposed development. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No
Common (Harbour) Seal (*Phoca vitulina*) [1365]	"*To maintain the favourable conservation condition of Harbour Seal in Kenmare River SAC*"	Harbour Seal (and also Grey Seal) are known to frequent the marine area within the likely zone of impact. However, there are no known haul-out sites, whether resting, breeding or moulting, from this area, the nearest known site being c. 15 km northeast, at Eyeries Island. Therefore, seals are unlikely to be subject to significant impacts as a result of the proposed development. Therefore, it can be concluded beyond reasonable scientific doubt that the proposed development will not adversely affect the Conservation Objective for this Qualifying Interest.	No

3.4 Summary of Potential Adverse Effects

In Section 3.1, it was established that two European sites, namely the Beara Peninsula SPA and the Kenmare River SAC, occur within the likely zone of impact of the proposed development and that there are no pathways for effects between the proposed development and any other European sites. The Beara Peninsula SPA and the Kenmare River SAC were described in detail in Section 3.2.

In Section 3.3, it was established, that the proposed development will has the potential to adversely affect certain Qualifying Interests of these European sites, in view of their Conservation Objectives. Table 3.4 below lists the Qualifying Interests potentially affected in each European site.

Table 3.4 Summary of the European sites potentially affected by the proposed development and the Qualifying Interests potentially affected in each.

European site	Qualifying Interest
Beara Peninsula SPA [004155]	Fulmar (*Fulmarus glacialis*) [A009] Chough (*Pyrrhocorax pyrrhocorax*) [A346]
Kenmare River SAC [002158]	Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030]

4.0 ASSESSMENT OF ADVERSE EFFECTS

4.1 Approach to Assessment

In Section 3.0 of this NIS, potential adverse effects on the Beara Peninsula SPA and the Kenmare River SAC were identified. In accordance with European Commission guidance (EC, 2001), the identification of these effects was focussed on and limited to the Conservation Objectives of the sites concerned.

Section 4.0 provides a detailed analysis and evaluation of the adverse effects identified in Section 3.0 (as summarised in Section 3.4). In order to fully assess the implications of the proposed development for the European sites concerned, each of the potential adverse effects is evaluated with reference to the Attributes and Targets which define the Conservation Objectives of those sites.

4.2 Beara Peninsula SPA

4.2.1 Northern Fulmar

Northern Fulmar is known to nest at various locations on steep and isolated cliffs on the north, west and southern sides of Dursey Island, as well as on the southern side of Crow Head and the northern side of Garinish Head. However, this species is not considered to be vulnerable to disturbance by virtue of the isolated locations of its nests and the fact that adults forage entirely at sea. During the surveys carried out to inform this NIS, fulmars did not appear to be at all disturbed by the presence of observers during the breeding bird surveys.

As no habitat for Northern Fulmar will be either lost or fragmentated as a result of the proposed development and as the proposed development does not provide for any disturbance to this species or its nest sites, it is concluded that there will be no adverse effect on this Qualifying Interest. Therefore, no mitigation is necessary.

4.2.2 Reb-billed Chough

Ireland supports over 60% of the total north-western European population of Red-billed Chough (Johnstone et al., 2007). The Beara Peninsula SPA supports an internationally important population. The peninsulas of west Co. Cork and Co. Kerry are a stronghold of the species, with each county supporting roughly 30% of the national population (Gray et al., 2003). During the breeding seasons of 2002 and 2003, Dursey Island had a total of 46 birds, with 10 pairs identified, of which 8 were confirmed to be breeding (Gray et al., 2003). Only two islands, Valencia and Achill, were found to have a greater absolute population size than Dursey (with 52 and 66 birds, respectively). Three islands had greater numbers of confirmed breeding pairs: Clare Island (10 confirmed breeders); Achill (11 confirmed breeders); and, the collective Aran Islands (9 confirmed breeders).

Between the 1992 (Berrow et al., 1993) and 2002/03 surveys (Gray et al., 2003), the chough populations in Counties Cork, Kerry, Mayo, Sligo and Donegal remained relatively stable while those in Wexford, Waterford and Galway decreased, and those in Clare and Leitrim increased. Overall, the national chough population incurred a decline of approximately 8% between 1992 and 2002/03. It should be noted that different methodologies were employed during the 1992 and 2002/03 surveys, and this is likely to account for some of the differences in numbers recorded. According to Trewby et al. (2006b), actual trends for the intervening years may have been of "*less severe decreases or even stability*".

It was found that while the south-west Cork region and the Beara Peninsula had both incurred chough population declines between 1992 and 2002/03 (of -33% and -25%, respectively), the Dursey Island population had more than doubled over the same period, from a total of 20 birds in 1992 (Berrow et al., 1993) to 46 birds in 2002/03 (Gray et al., 2003). Fifty-eight breeding pairs were recorded within the entire SPA in the 1992 survey and 54 in the 2002/03 survey (Trewby et al., 2006b). In the 1992 survey (Berrow et al., 1993), 2 confirmed breeding pairs, 3 probable breeding pairs and 5 possible breeding pairs (possible total of 10 breeding pairs) were recorded on Dursey Island. In the 2002/03 survey (Gray et al., 2003), 8 confirmed breeding pairs and 2 possible breeding pairs (possible total of 10 breeding pairs) were recorded on the island. According to Trewby et al. (2006b), breeding pairs on the Beara Peninsula are likely to have been under-recorded in 2002 and overestimated in 1992. Thus, "*in term of its breeding population, the picture for the Beara Peninsula seems to have remained relatively stable over the last decade*" (Trewby et al., 2006b).

A survey of the species in Britain and Ireland carried out in 1982 (Bullock et al., 1983) found that distribution was influenced by the quality of coastal foraging habitat, with birds exhibiting a strong preference for heavily grazed grassland. The presence of grazing animals (such as sheep and rabbits) seem to be of critical importance for chough populations (McCanch, 2000). Indeed, sheep's wool forms a key component of nests, and choughs have been observed to travel long distances to obtain the material (Holyoak, 1972).

According to Trewby and co-authors (2006b), "*Choughs occupy a relatively restricted niche in terms of both nesting and feeding habitat and species could be regarded as prone to localised extinction*". Bullock et al. (1983) reviewed nine factors affecting the abundance and distribution of chough in the British Isles: land use change, human disturbance, human persecution, geographical isolation and inbreeding, disease, toxic chemicals, climate, predation, and interspecific competition with other corvids. They concluded that land use change (i.e. de-stocking of land) represented the greatest threat to the conservation of the species. With respect to human disturbance, Bullock and colleagues (1983) state that, "*the species is extremely tolerant of human disturbance and continues to breed at several tourist spots. Prolonged disturbance, such as climbing in inland quarries in the vicinity of traditional nest sites, seems the only serious form of direct [human disturbance] threat*" (p. 395).

However, a more recent research paper (Keribiou et al., 2009), found that human disturbance constitutes a significant threat to the short-term viability of chough populations in heavily trafficked areas. They found that, on the French island of Ouessant, the number of visitors at any one time was negatively correlated with the foraging probability of choughs, and that juvenile survival rates were lowest in months when visitor numbers were greatest. Human disturbance has been identified as a potential threat to the choughs of Dursey Island (CAAS, 2018b): "*The potential risks to local bird population of current levels of visitors using the site are mainly centred on the risk of increased disturbance to Choughs which use the maritime grasslands along the peninsula to feed*".

Because of the lack of "honeypot" habitats (such as dune systems) in the area, flocking activity is considered to be less pronounced on the Beara Peninsula than elsewhere and choughs tend to disperse widely during the post-fledging and winter months with more cohesive flocks developing in the run-up to the breeding season (i.e. late winter). By contrast, large winter flocks were observed at the Derrynane dune system on the neighbouring Iveragh Peninsula (Co. Kerry). However, during the 2002/03 surveys, smaller, "ephemeral" communal roosts were identified at cliffs on the eastern end of the island, overlooking the Dursey Sound (12 birds observed) and at Allihies (30 birds

observed). The potential sensitivity of communal roosts to human disturbance has been highlighted (Trewby et al., 2006b).

Habitat Loss

Choughs generally nest on ledges in cliffs and in sea caves, but also occasionally in suitable artificial structures (e.g. derelict buildings) (Holyoak, 1972; Bignal et al., 1987; BirdWatch Ireland, 2019a) or on inland cliffs with suitable foraging habitat in their vicinity (Blanco et al., 1993; Gray et al., 2003). Research indicates that choughs distribute nesting site faithfulness, with some sites being used by successive generations (Kennedy et al., 1954). Choughs lay 2-6 eggs per clutch (Holyoak, 1972; Bullock et al., 1983; Bignal et al., 1987; Stillman et al., 1998), typically in late March and April (Holyoak, 1972; Keribiou & Julliard, 2007; BirdWatch Ireland, 2019a). There is evidence to indicate that the availability of suitable foraging habitat is a key limiting factor on survival of juveniles (Keribiou & Julliard, 2007; Keribiou et al., 2009).

Choughs in Ireland are known to forage principally on grazed grassland with short sward heights, earthen banks, coastal machair and maritime turf, and to a lesser degree, also on heathland, dunes, cliffs, improved grassland and tidewrack (Holyoak, 1972; Bullock, 1980; Bullock et al., 1983; Berrow et al., 1993; Robertson et al., 1995; Trewby et al., 2006a; 2006b). Dung, particularly cattle dung, is also thought to provide an important supply of invertebrate prey during the autumn months (Trewby et al., 2006b). Anthills and invertebrates associated with carrion have also been observed to be used by Irish choughs (Trewby et al., 2006b). Research has found evidence that Alpine Chough (*Pyrrhocorax graculus*) will forage opportunistically on food scraps left behind by humans (Holyoak, 1972) but there is no record in the academic literature of this behaviour in Red-billed Chough. On the contrary, research indicates that Red-billed Chough are particular in their choice of food items (Keribiou & Julliard, 2007).

Since the footprint of the proposed development on Dursey Island is almost identical to that of the existing development, habitat loss due to construction will be negligible here. The total area of habitat loss has been estimated at 0.8 ha. Furthermore, the small area of habitat that will be lost is remote from the chough "hotspot" at the western end of Dursey Island and from the known nest sites. In addition, the proposed development will not result in habitat fragmentation. Therefore, there will be no adverse effect in terms of habitat loss or fragmentation and, consequently, no mitigation is required in this regard.

Disturbance

Construction Phase

Noise and vibration generated by activities carried out during the construction of the proposed development (including earthworks and the use of marine vessels to transport materials to and from Dursey Island) may result in some moderate, temporary disturbance to birds in the vicinity. However, since the most disruptive elements will be carried out outside of the breeding season, when bird populations tend to be less susceptible to disturbance, it is not considered that the generation of noise/vibration associated with the construction of the proposed development will result in adverse effects on choughs.

Operational Phase

Disturbance to choughs during the operational phase of the proposed development is almost entirely accounted for by human disturbance associated with the likely increase in visitor numbers to Dursey Island and, to a lesser extent, Crow Head and Garinish

Head. Any other disturbance during the operational phase will be imperceptible and, therefore, not give rise to adverse effects.

There are contradictory reports with respect to the severity of the effect of human disturbance on Chough. Some research indicates that choughs are highly tolerant of human disturbance (Bullock et al., 1983) and can become behaviourally and physiologically habituated to human disturbance at tourist sites (Jiménez et al., 2011). However, a recent paper indicates that increasing visitor numbers on off-shore islands can threaten the short-term viability of resident chough populations (Keribiou et al., 2009). Since the proposed development is likely to cause a significant increase in visitor numbers on Dursey Island and on walking routes in the vicinity of the proposed development on the mainland (at Garinish Head and Crow Head), human disturbance is considered to present a risk of adverse effects on the resident chough population.

The current situation with respect to walking routes in the study area is as follows:

- On Dursey Island, there is a public road running to the south of the central high-elevation spine of the island from east to west. There are a number of informal paths on private land, which generally run in parallel to the public road, from east to west. Roads and paths are largely situated inland and not near potential chough nesting sites (i.e. sea cliffs). With the exception of the western end of the island (beyond Tillickafinna), walkways are fairly well defined. On the extreme western end of the island (a chough "hotspot"), there is no defined trail, creating a risk of walkers spilling out across the open habitat.
- At Garinish Head, the Garinish Loop walk is well defined and the trail attracts considerable numbers of visitors, not all of whom are likely to undertake the full route, but rather use the existing cable car car-park as a starting point. Between the cable car and Garinish Pier, the walk is on a well-defined walking trail, which is heavily eroded in a small number of localised areas. From Garinish Pier back to the cable car, the walk is on public roads.
- At Crow Head, the walkway is poorly defined, creating a risk of walkers spilling out over open habitat, though this walk appears to attract very few visitors.

Considering all of the above, in the absence of effective controls on the numbers or behaviour of visitors to the island during the operation of the proposed development, human disturbance has the potential to adversely affect the conservation status of the resident Red-billed Chough population. The western end of Dursey Island and Foilnamuck are especially sensitive. Visitors' dogs also pose a high risk of disturbance and it is likely that, in the absence of controls, the number of dogs being taken to the island would increase. Furthermore, if visitor movements on the island are not properly unmanaged, greater numbers of visitors might wander over open habitats, causing degradation of chough foraging habitat. Therefore, appropriate mitigation is required to manage the numbers and behaviour of visitors to the island during the operation of the proposed development.

Direct Mortality

The operation of the proposed development, specifically the use of glass facades and windows, has the potential to lead to bird mortality through collision. However, owing to the small scale of the buildings and the limited use of associated glass facades, it is concluded that this aspect of the proposed development does not present a risk of adverse effects on Red-billed Chough (or other bird species). Therefore, no mitigation is necessary in this regard.

The proposed new cableway poses an increased collision risk for certain bird species, particularly due to the increased number of cable cars (two cars as opposed to one at present), the increased maximum speed of the cable cars (c. 6 m/s as opposed to c. 0.9 m/s at present), and the presence of one additional ropeway. However, given that (i) the cable cars will not be entirely composed of reflective glass and, therefore, will be clearly visible to birds, (ii) the cable cars will still travel at a relatively slow speed (no more than 6 m/s or 21.6 km/h)[8] which birds will easily avoid, and (iii) the two ropeways will be in the same horizontal plane and, thus, will not present a significant additional obstacle. Furthermore, due to their flying ability and visual acuity, Red-billed Chough and other corvids are considered to be low-risk species in terms of collisions with cables and cable cars (Rose & Baillie, 1989). Given these characteristics of choughs and the location of the cableway on the opposite end of the island to the area of main sensitivity for chough, the addition of an extra ropeway, the increased frequency and velocity of cable car movements and the design of the cable car cabins do not provide for adverse effects on choughs. Therefore, no mitigation is necessary in this regard.

Increased traffic along the R572 and other roads on the Beara Peninsula as a result of the proposed development will also increase the likelihood of vehicular collisions with wildlife. However, as this increase in traffic will occur on the mainland only and c. 5 km from the most important chough foraging habitats, the risk of traffic collisions with choughs is minimal. Therefore, the likely increase in traffic as a result of the proposed development will not adversely affect chough and, thus, no mitigation is required.

4.3 Kenmare River SAC

4.3.1 Large shallow inlets and bays

The entire marine area in the vicinity of the proposed development and Dursey Island is classified as the Annex I habitat "Large shallow inlets and bays". The Conservation Objective for this Qualifying Interests is shown in Table 3.3 above and the Attributes of the same are summarised as follows:

- Habitat area; and,
- Community extent, structure and distribution.

Habitat Area

As the proposed development does not provide for any in-fill of, reclamation from or either temporary or permanent structures within the marine environment, it will not lead to any change in the area of this Annex I habitat type within the Kenmare River SAC. Therefore, no mitigation is required in this regard.

Community Extent, Structure and Distribution

As per mapping provided in NPWS (2013), the marine community types representative of this Annex I habitat which are present within the likely zone of impact are:

- Coarse sediment dominated by polychaetes community complex;
- Fine to medium sand with crustaceans and polychaetes community complex;
- Intertidal reef community complex;
- *Laminaria*-dominated community complex; and,
- Subtidal reef with echinoderms and faunal turf community complex.

[8] Although the maximum operating speed of the proposed cableway is 6 m/s, in order to maintain the experiential qualities of the cable car journey, the outbound cable car will continue to operate at the existing speed (except for when there are only residents in the cable car or in case of emergency).

The relevant Target of the Conservation Objective is to "*Conserve* [these] *communities in a natural condition*". The only impacts associated with the proposed development which are considered to have any potential to affect the condition of these marine communities are water quality impacts.

Construction

Water Quality

Construction activities in and near the coast can contribute to the deterioration of water quality and, by altering erosion and deposition rates in the vicinity of the development, affect coastal morphology. Construction activities can also lead to increased turbidity through re-suspension of sediments and release of new sediments from earthworks.

The main contaminants arising from construction run-off include:

- Sediment loading in construction site run-off – Increased sediment load can lead to long-term damage to marine ecosystems, e.g. by altering the nature of the substrate or clogging the gills of aquatic organisms. Increased sediment load:
  - Reduces light penetration, limiting the growth of algae and plants;
  - Limits dissolved oxygen capacity; and,
  - Reduces the overall ecological quality.

  Suspended sediments can exacerbate other water quality impacts/pressures by providing chemical contaminants a surface on which to bind, thereby increasing the bioavailability of these contaminants, eventually leading to ecological effects.
- Spillage of concrete, grout and other cement-based products – Cementitious materials are highly alkaline and extremely corrosive and can result in significant impacts on the aquatic environment, altering the pH, smothering the seabed and physically damaging aquatic organisms by burning and clogging of gills.
- Spillage of hydrocarbons – Vehicles, plant and equipment which will be used during construction rely on hydrocarbons such as diesel, petrol and lubricating oils. Leaks from poorly maintained vehicles, plant, equipment or storage tanks provide for a risk of input of hydrocarbons into the environment. Hydrocarbons can have direct toxic effects, including reducing the ability of organisms to absorb water and nutrients. Such changes have the potential to alter the biological composition of the habitat.
- Faecal contamination – Inadequate treatment of wastewater from on-site toilets and washing facilities also provides for potential water quality impacts leading to ecological effects. Faecal contamination in surface water can alter the nutrient balance, reducing oxygen levels and causing changes in biological communities.

The potential construction-stage water quality impacts outlined above present a risk of short-term significant negative impacts on the marine communities which occur in the Dursey Sound. However, due to the short duration and small extent of these impacts (relative to the total area of these habitats within the Kenmare River SAC), any such impacts would be unlikely to constitute adverse effects on the integrity of the Annex I habitat "Large shallow inlets and bays" within the site. Notwithstanding this, mitigation is required in order to ensure beyond reasonable scientific doubt that such effects do not occur as a result of the construction of the proposed development.

Invasive Alien Species

The use of a barge during the construction of the proposed development poses the risk of the import of invasive alien species to the marine environment in the Kenmare River SAC. Species of particular concern include Leathery Sea-squirt (*Styela clava*),

Carpet Sea-squirt (*Didemnum vexillum*), Slipper Limpet (*Crepidula fornicata*) and Japanese Wireweed (*Sargassum muticum*). These and other invasive alien species could, in the absence of adequate biosecurity measures, potentially be transported to the area and spread in the bilge water or ballast water of the barge or attached to the hull of the same. Any import of such species would lead to adverse effects on the biological composition and structure of the marine communities present within the likely zone of impact.

Operation

Water Quality

The proposed development provides for increased run-off from hardstanding areas such as roads, parking bays, roofs and footpaths. In the absence of appropriate mitigation, this would increase the rate of run-off of sediment-laden surface water and, potentially, hydrocarbons and other contaminants.

The existing drainage network will be upgraded and expanded to accommodate the anticipated increase in visitor numbers. New wastewater treatment systems (WWTS) will be implemented at both the mainland and island facilities. Treated effluent will discharge to ground. The mainland WWTS will require pumping to a raised infiltration area. There is a potential effect on the receiving environment should the pumps fail. Any discharge of untreated surface water into Dursey Sound poses a risk of significant impacts on the marine environment.

Salt and grit applications to trafficked surfaces to mitigate icy conditions will result in an increased salinity, pH, conductivity and total dissolved solids concentrations to receiving aquatic systems. However, it is anticipated that the use of salts and grits will be minimal due to the light trafficking during the winter months.

The proposed development will also require the draining of retaining walls, which will discharge to the small stream on the eastern boundary of the proposed development. Any water quality impacts arising from retaining wall drainage will not be significant.

The risk of pollution to both surface and groundwater resulting from accidental spillage is an issue considered in the development to be negligible. The cableway traffic is limited to pedestrians. It is not anticipated that any chemicals or hydrocarbons will ever be transported across the cableway. Therefore, it is not anticipated that the risk of spillage will occur. There was therefore no spillage risk identified as part of the spillage risk assessment.

The potential operational-stage water quality impacts outlined above present a risk of a significant negative impacts on the marine communities which occur in the Dursey Sound. Any such impacts would potentially constitute adverse effects on the integrity of the Annex I habitat "Large shallow inlets and bays" within the site. Therefore, mitigation is required in order to ensure beyond reasonable scientific doubt that such effects do not occur as a result of the construction of the proposed development.

Invasive Alien Species

The operational stage of the proposed development does not provide for any increased in marine traffic or other activities in the marine environment in the vicinity. Thus, there is no increased risk from invasive alien species to marine habitats arising from the operation of the proposed development. Therefore, no mitigation is required in relation to marine invasive alien species during the operational stage.

Conclusion

In the absence of mitigation, the proposed development provides for adverse effects on the integrity of the Kenmare River SAC, in view of its Conservation Objective for "Large shallow inlets and bays". These effects include water quality impacts on the marine communities present in the Dursey Sound, which have the potential to occur during both the construction and operation of the proposed development. The use of a barge during the construction stage poses the risk that invasive alien species may be introduced to the marine environment in the vicinity of the proposed development. Mitigation is, therefore, required in order to prevent such effects.

4.3.2 Reefs

Much of the seabed in the vicinity of the proposed development and Dursey Island is classified as the Annex I habitat "Reefs". The Conservation Objective for this Qualifying Interests is shown in Table 3.3 above and the Attributes of the same are summarised as follows:

- Distribution
- Habitat area; and,
- Community structure.

Distribution

As the proposed development does not involve any work on or permanent changes to the seabed, or any changes in sediment transport patterns, it will not lead to any change in the distribution of this Annex I habitat type within the Kenmare River SAC. Therefore, no mitigation is required in this regard.

Habitat Area

As the proposed development does not involve any work on or permanent changes to the seabed, it will not lead to any change in the area of this Annex I habitat type within the Kenmare River SAC. Therefore, no mitigation is required in this regard.

Community Structure

As per the Conservation Objectives Supporting Document for Marine Habitats and Species within the Kenmare River SAC, the marine community types representative of this Annex I habitat which are present within the likely zone of impact are:

- Intertidal reef community complex;
- *Laminaria*-dominated community complex; and,
- Subtidal reef with echinoderms and faunal turf community complex.

These three marine community types are also representative of the Annex I habitat "Large shallow inlets and bays" and the effects of the proposed development on the same are assessed with regard to that habitat in Section 4.3.2 above.

Conclusion

In the absence of mitigation, the proposed development provides for adverse effects on the integrity of the Kenmare River SAC, in view of its Conservation Objective for "Large shallow inlets and bays". These effects include water quality impacts on the marine communities present in the Dursey Sound, which have the potential to occur during both the construction and operation of the proposed development. The use of a barge during the construction stage poses the risk that invasive alien species may be introduced to the marine environment in the vicinity of the proposed development. Mitigation is, therefore, required in order to prevent such effects.

4.3.3 Vegetated sea cliffs of the Atlantic and Baltic coasts

The Annex I habitat "Vegetated sea cliffs of the Atlantic and Baltic coasts" is considered to occur along most of the extent of the coastline within the likely zone of impact. The Conservation Objective for this Qualifying Interests is shown in Table 3.3 above and the Attributes of the same are summarised as follows:

- Habitat length and distribution;
- Physical structure (functionality and hydrological regime);
- Vegetation structure (zonation; and, vegetation height); and,
- Vegetation composition (typical species and sub-communities; negative indicator species; and, Bracken and woody species).

Habitat Length and Distribution

No Annex I vegetated sea cliffs occur within the footprint of the proposed development. Thus, the proposed development does not provide for direct impacts on any example of this habitat. As such, there will be no reduction in the extent (in terms of either length or area) or change in the distribution of this Annex I habitat type within the Kenmare River SAC arising from the proposed development. Therefore, no mitigation is required in relation to these Attributes.

Physical Structure

The proposed development does not involve any permanent artificial structures in or in close proximity to Annex I vegetated sea cliffs. Thus, the proposed development does not provide for any barrier or alteration to the existing natural geomorphological and hydrological processes which are necessary for the maintenance of this habitat. Therefore, no mitigation is required in relation to this Attribute.

Vegetation Structure and Composition

Stretches of Annex I vegetated sea cliffs present within the likely zone of impact of the proposed development will potentially be subjected to significant increases in human disturbance (from walkers etc.) during the operational phase of the development. This is particularly the case along the north-western coast of Crow Head, at the south-western extremities of Crow Head and in places along Garinish Head, where existing walking trails are within 50 m of the cliffs. Owing to the informality of some of these trails, some walkers may stray onto the cliffs, potentially degrading the structure and composition of the cliff vegetation in these areas.

As the proposed development does not involve any construction within areas of Annex I vegetated sea cliffs and does not provide for any direct impacts on natural processes, i.e. erosion and succession, it can be concluded that the range of sub-communities and typical species present and the structural variation within the sward will not be adversely affected as a direct result of the proposed development. However, increased numbers of walkers using the trails in the vicinity of the proposed development during its operation pose a risk of indirect effects on the vegetation structure and composition by increasing trampling pressure and rates of erosion in the immediate vicinity of the trails. Mitigation is, therefore, required to manage visitor numbers and behaviour such that they do not adversely affect the conservation condition of this Annex I habitat.

While the cover of Bracken and woody species is not likely to increase as a result of the proposed development, the risk that other negative indicator species, particularly invasive alien plant species, may be introduced to or spread within examples of Annex I vegetated sea cliffs cannot be ruled out at this stage. This risk is associated with both

the construction phase, i.e. movement of materials, vehicles, plant, equipment and personnel, and the operational phase, movement of tourists/walkers along the trails in the vicinity of the proposed development. Species of particular concern in relation to vegetated sea cliffs are Giant Rhubarb and Hottentot-fig, both of which have been recorded within the study area. The introduction or spread of such species has the potential to adversely affect vegetation structure and composition of the vegetated sea cliffs within the likely zone of impact. Therefore, mitigation is required to control the risk of adverse effects associated with invasive alien plant species.

Conclusion

In the absence of mitigation, the proposed development provides for adverse effects on the integrity of the Kenmare River SAC, in view of its Conservation Objective for "Vegetated sea cliffs of the Atlantic and Baltic coasts". These effects are limited to direct effects arising from the introduction or spread of invasive alien plant species and indirect or cumulative impacts on vegetation structure and composition arising from increases in the number of people using the existing walking trails in close proximity to vegetated sea cliffs on Crow Head, Dursey Island and Garinish Head. Mitigation is, therefore, required in order to prevent such effects.

4.3.4 European dry heaths

The Annex I habitat "European dry heaths" occurs in a number of locations throughout the likely zone of impact, including on Dursey Island and on Garinish Head. However, these areas are not located within the Kenmare River SAC. The only area where the likely zone of impact contains this Annex I habitat within the SAC boundary is on Crow Head. While this habitat is present in poor condition at this location due to overgrazing and periodic burning, it is still considered representative of the Annex I type. There is potential for degradation of European dry heaths on Crow Head arising from increased footfall associated with the operation of the proposed development.

The Conservation Objective for this Qualifying Interests is shown in Table 3.3 above and the Attributes of the same are summarised as follows:

- Habitat area and distribution;
- Physical structure (free-draining, acidic, low-nutrient soil; and, rocky outcrops);
- Vegetation structure (dwarf shrub indicator species; senescent *Calluna vulgaris*; browsing; native trees and shrubs; disturbed bare ground; and, burning); and,
- Vegetation composition (positive indicator species; bryophyte and non-crustose lichen species; Bracken; weedy negative indicator species; non-native species; and, rare/scarce heath species).

Habitat Area and Distribution

No Annex I dry heaths occur within the footprint of the proposed development. Thus, the proposed development does not provide for direct impacts on any example of this habitat. As such, there will be no reduction in the area or change in the distribution of this Annex I habitat type within the Kenmare River SAC arising from the proposed development. Therefore, no mitigation is required in relation to these Attributes.

Physical Structure

Areas of Annex I dry heaths on Crow Head (and areas not included in the Kenmare River SAC on Dursey Island and, to a lesser extent, on Garinish Head) will likely be subjected to significant increases in human disturbance (from walkers etc.) during the operational phase of the development. Increased trampling of the habitat by walkers has the potential to cause soil compaction, leading to poorer drainage and increased

erosion. This represents an adverse effect in terms of the physical structure of the habitat, necessitating visitor management to mitigate this adverse effect.

Increased erosion due to greater numbers of walkers has the potential, depending on the size of the increase in footfall, to lead to an increase in the area of rock outcrops. This also represents an adverse effect in terms of the physical structure of the habitat, necessitating visitor management to mitigate this adverse effect.

Given that the impacts on Annex I dry heaths are limited to those arising from increased footfall, there will be no significant change to soil pH or nutrient status. Therefore, no mitigation is required in that regard.

Vegetation Structure and Composition

As previously explained, areas of Annex I dry heaths within and in close proximity to the Kenmare River SAC will likely experience significant increases in disturbance (trampling) during the operational phase of the proposed development. In the absence of effective visitor management, this will lead to habitat degradation in terms of the structure and composition of the heath vegetation in these areas.

The only works associated with the proposed development which will take place within areas of Annex I European dry heaths involve the installation of waymarkers and visitor information boards at strategic locations (see Section 5.2.1). These works do not pose any additional risk to the receiving habitats beyond that posed by increased visitor numbers. Therefore, the effects discussed below and any mitigation prescribed applies for both these works and increased visitor numbers.

Owing to the limited extent of the area potentially affected by increased visitor numbers and the ancillary works described above, the proposed development does not have the potential to significantly reduce the combined cover of at least two positive indicator species, e.g. Bell Heather (*Erica cinerea*) and Western Gorse (*Ulex gallii*) or the cover of cover of characteristic dwarf shrub indicator species, e.g. Ling (*Calluna vulgaris*), Bell Heather and Western Gorse. Similarly, the proposed development does not provide for decline in distribution or population sizes of rare/scarce species, including Kerry Lily (*Simethis planifolia*), Betony (see Section 2.5 above) and Juniper (*Juniperus communis*). Therefore, no mitigation is required in that regard.

As the proposed development does not provide for any change to the grazing regime, soil nutrient status or hydrological regime, it does not have the potential to cause any increase in the cover of senescent Ling, scattered native trees and shrubs or Bracken, or the number of long shoots of Bilberry (*Vaccinium myrtillus*) with signs of browsing. Therefore, no mitigation is required in that regard.

The ancillary works described above and the expected increase in visitor numbers during the operational phase of the proposed development does provide for potentially significant alterations in vegetation structure and composition in terms of the cover of agricultural weeds and non-native species. Of particular concern is the risk that invasive alien plant species, e.g. Japanese Knotweed, may be introduced to or spread within the likely zone of impact. This risk is associated with both the construction phase, i.e. movement of materials, vehicles, plant, equipment and personnel, and the operational phase, movement of tourists/walkers along the trails in the vicinity of the proposed development. Therefore, mitigation is required to control the risk of adverse effects associated with agricultural weeds and non-native plant species.

Ongoing increased trampling by walkers also poses a risk of deterioration in vegetation structure and composition in terms of the cover of bare ground and the number of lichen species present. A study of the effects of trampling on abundance and diversity of vascular plants, bryophytes and lichens in alpine heath vegetation in Sweden by Jägerbrand & Alatalo (2015) found that the species richness of lichens decreased significantly with proximity to trails. Increased cover of bare ground would likely lead to faster erosion and, consequently, habitat loss and fragmentation. Therefore, mitigation is required to manage the number and behaviour of visitors during the operational stage. As these effects are associated with ongoing trampling, any such effects which occur during the construction stage will not, in and of themselves, constitute adverse effects.

There are currently signs of burning within the European dry heaths on Crow Head. However, any burning being carried at present is not associated with the proposed development and it is extremely unlikely that any burning would arise as a result of the proposed development. Therefore, no mitigation is required in that regard.

Conclusion

In the absence of mitigation, the proposed development provides for adverse effects on the integrity of the Kenmare River SAC, in view of its Conservation Objective for "European dry heaths". These effects are limited to direct effects arising from the introduction or spread of invasive alien plant species and indirect or cumulative impacts on the physical structure, vegetation structure and vegetation composition of the habitats concerned arising from increases in the number of people using the existing walking trails which traverse areas of dry heath on Crow Head (and areas outside the Kenmare River SAC). Mitigation is, therefore, required in order to prevent such effects.

5.0 MITIGATION

5.1 Principles and Approach

Section 4.0 of this NIS identified adverse effects likely to arise from the proposed development on the specific Attributes and Targets which define the Conservation Objectives for a number of Qualifying Interests of the Beara Peninsula SPA and the Kenmare River SAC. This section (Section 5.0) prescribes measures and a protocol to ensure their full and proper implementation aimed at mitigating these adverse effects, thereby protecting the integrity of these European sites during the construction and operation of the proposed development.

The mitigation measures prescribed in this NIS have been designed according to the principle of a mitigation hierarchy, as outlined in the European Commission's guidance document *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* (EC, 2001). According to this hierarchy, the following mitigation approaches were adopted, in order of decreasing preference:

1. Avoiding impacts at their source;
2. Reducing impacts at their source;
3. Abating impacts on site; and,
4. Abating impacts at their receptor.

The mitigation measures are prescribed in Section 5.2 and a protocol to ensure their full and proper implementation is prescribed in Section 5.3. The significance of any residual effects following the inclusion of mitigation measures is evaluated in Section 5.4. As per the assessment of adverse effects in Section 4.0, this evaluation is made in view of the relevant Conservation Objectives.

5.2 Mitigation Measures

5.2.1 Visitor Management

Red-billed Chough

Visitor numbers

Current visitor numbers (2017/18) to Dursey Island are approximately 20 424 per year (Table 5.3; Figure 5.1). Visitor numbers are highly seasonal, with between 140 and 313 visitors per month during the winter months (November to February, inclusive; 2017/18) and 4954 and 4943 per month during the peak months of July and August, respectively, when the cable car operates continuously and at capacity from 9:30 a.m. to 7:30 p.m. seven days a week[9] (Figure 5.1). Thus, over the two peak months of the year, Dursey receives approximately 50% of its annual visitor numbers. If it were not for the limited capacity and turnover of the cable car, it is highly likely that more people would travel to the island during these peak months.

The proposed development will increase the capacity and turnover of the Dursey Island cable car substantially, allowing a greater number of visitors to the island. At the commencement of the Design Stage, Cork County Council decided that the proposed development should be designed to accommodate no more than 100 000 visitors annually, with no more than 80 000 of these being permitted to make the cable car journey to Dursey Island, in spite of the fact that the cableway infrastructure could

[9] From 9:30 a.m. to 9:30 p.m. on 5th-7th July and 2nd-5th August.

potentially accommodate many more[10]. Assuming the monthly profile of visitor numbers (Plate 5.1) were to remain the same, there would be a fourfold increase in visitor numbers during each month of the year (including during the chough breeding and fledging season). However, it is unlikely that this increase in visitor numbers would be distributed proportionately across the year. Rather, it is most likely that demand would continue to be concentrated during the summer months of July and August. Thus, without control measures in place, the number of visitors on the island during July and August (when choughs are breeding, nesting and fledging) could be over four times greater than it is at present.

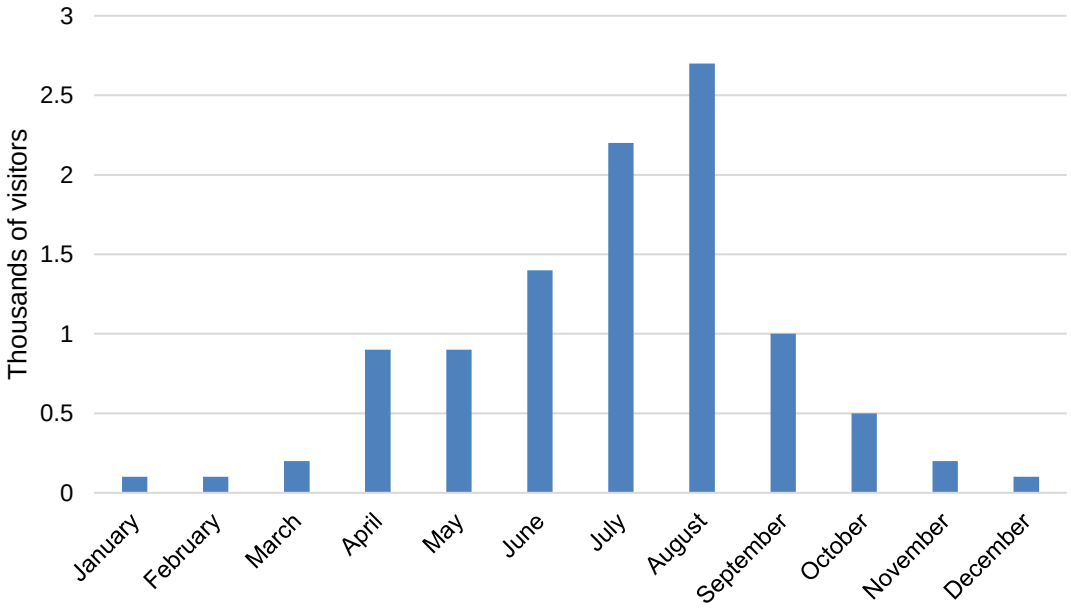

Plate 5.1 **Monthly visitor numbers to Dursey Island. Source: Numbers of cable car tickets sold in 2017.**

In their longitudinal study of the chough population of Ouessant Island, France, Keribiou et al. (2009) estimated a numerical carrying capacity for the island in terms of human disturbance of choughs. They did so by developing a numerical model based on data for chough breeding success and visitor numbers over a number of years. The study concluded that in order to sustain a viable chough population on Ouessant, the number of visitors to the island should not exceed 16 500 persons in August, the most sensitive period for the population in question.

The type and volume of data employed by Keribiou et al. (2009) to calculate a carrying capacity for Ouessant is not available for Dursey. Thus, the same methodology cannot be applied to calculate a carrying capacity for Dursey Island. It is possible, however, to extrapolate a carrying capacity based on one key variable, i.e. the area of chough foraging habitat (km^2). Dursey Island has an area of 5.98 km^2. The habitats on the island have been mapped and it is considered that, with the exception of roads, paths and artificial structures (which have a negligible area), the vast majority of land on the island constitutes suitable foraging habitat (although certain areas are somewhat less suitable than others). Ouessant Island is approximately 2.6 times the size of Dursey,

[10] Each carrier cabin in the proposed cableway will accommodate c. 15 persons. Depending on the velocity of the cabins and the cabin layout, the cableway will be able to convey between 170 and 330 persons per hour in each direction, and there are two carrier cabins in the proposed design. Given typical operating hours (10 hours per day), the cableway could transport between 3,400 and 6,600 persons to the island each day.

with an area of 15.4 km^2. However, on Ouessant, suitable chough foraging habitat is restricted to 7.7 km^2 of coastal habitat (Keribiou et al., 2009, S1; Keribiou, pers. comm., 2019). Thus, Ouessant Island has about 1.3 times the area of chough foraging habitat as Dursey. Extrapolating accordingly, it is concluded that Dursey should accommodate no more than 12 835 visitors per month. A breakdown of the calculations are presented in Tables 5.1 and 5.2 below.

Table 5.1 Information used to calculate the numerical carrying capacity of Dursey in terms of human disturbance to Red-billed Chough.

Information available	Quantum	Source
Carrying capacity of Ouessant for the month of August	16 500 persons	Keribiou et al. (2009)
Area of Ouessant	1541 ha = 15.41 km^2	Keribiou et al. (2009)
Area of chough foraging habitat on Ouessant	7.6875 km^2	Keribiou et al. (2009)
Area of Dursey	5.98 km^2	Google Maps (2019)
Area of chough foraging habitat on Dursey	~ 5.98 km^2	Habitat mapping of Dursey (2019)

Table 5.2 Extrapolation of the numerical carrying capacity of Dursey in terms of human disturbance to Red-billed Chough, following Keribiou et al. (2009).

Calculations
$\frac{\text{Area of chough forage on Ouessant}}{\text{Area of chough forage on Dursey}} = \frac{7.6875}{5.98} = 1.2855351171$
→ Ouessant has 1.2855351171 times the area of chough foraging habitat of Dursey.
$\frac{\text{Carrying capacity of Ouessant}}{\text{Ouessant:Dursey chough forage}} = \frac{16\,500}{1.2855351171} = 12\,835.121950788$
→ The carrying capacity of Dursey for August = 12 835 persons.

It is considered that this carrying capacity is a very conservative (precautionary) figure, owing to the fact that Ouessant differs substantially from Dursey in a number of respects which have adverse implications in terms of human disturbance of chough on Ouessant, including the following:

- Unlike on Dursey, the chough population on Ouessant is effectively restricted to the island and this isolation means that the birds are reliant on habitats on the island for their entire life cycle. Dursey lies c. 200 m from the mainland and baseline studies (2003/04) conducted on the Beara Peninsula indicated that there is movement between Dursey and the mainland, especially during the post-fledging period in July and August, when large post-fledgling flocks were recorded foraging on Western Gorse (*Ulex gallii*)-dominated dry heaths of the interior spine of the peninsula (Trewby et al., 2005). During the 2019 breeding season survey, choughs were observed to fly back-and-forth between island and mainland. Ouessant, in contrast, is located 20 km from the French coastline and this distance combined with the absence of a chough population on the adjacent mainland means the Ouessant choughs are effectively isolated to the island.

- The existing network of paths/roads on Ouessant (Plate 5.2) is much more extensive than that on Dursey. On Dursey, walking routes used by visitors are largely situated inland, along the high elevation spine of the island, while on Ouessant, there are cliff-side walking trails along the entire coastline. As such, a much greater proportion of chough foraging habitat is affected by human disturbance on Ouessant (up to 97% (Keribiou et al., 2009)) than on Dursey (22%). However, it should be noted that, while the current walking routes on the island are geographically fairly restricted, it cannot be guaranteed that visitors to Dursey Island will not forge new paths on the island in future.
- Ouessant has much more developed transport infrastructure than Dursey. The island has an airport and an extensive network of roads. Noise generated by cars and airplanes may cause some degree of disturbance of the Ouessant choughs. On Dursey, there is only one public road, which is restricted to the inland high elevation spine of the island and used only by residents and one private bus which operates seasonally.
- Results from breeding bird surveys indicate that the average flush distance of choughs on Dursey Island during the breeding season (31.6 m; Section 2.5) is less than that of choughs on Ouessant (147 m ± 23 m for flocks with juveniles and 75 m ± 9 m for flocks without juveniles), suggesting that the Dursey choughs may be more tolerant of or habituated to the presence of humans.

Plate 5.2 **Satellite image of Ouessant, showing the extent of roads and paths on the island. Source: Google Maps (2019).**

Thus, it is considered that, if visitors numbers to Dursey Island are capped at 12 835 per month, the viability of the resident chough population will not be threatened by human disturbance. This is assuming that (i) mitigation measures are implemented to minimise human disturbance (particularly to keep visitors on waymarked walking routes), and (ii) the existing grazing regime is maintained.

Assuming the current annual visitor number growth rate (24.67%; Plate 5.3) is maintained and that this growth rate is distributed evenly throughout the year, with the

exception of months when the capacity is limited by (a) the capacity of the existing cable car or (b) the proposed monthly carrying capacity, visitor numbers in the first and second year of operation would be c. 51 825 and 58 803, respectively (Table 5.3). Since it is anticipated that the proposed development will generate fresh interest in the site, and because enhanced facilities at the proposed development (e.g. toilets, shelter, café) are expected to broaden the peak of the current visitor profile (i.e. there will likely be more visitors outside of the traditional peak months of July and August), it is possible that annual growth will exceed 25% in the first few years of the operation of the proposed development. Resultant growth, however, is inestimable. Either way, visitor numbers can be restricted to 12 835 per month in each month of the year and (on Dursey Island) will not be allowed to exceed 80,000 in any one year, a level at which, as explained above, human disturbance will not jeopardise the viability of the chough population.

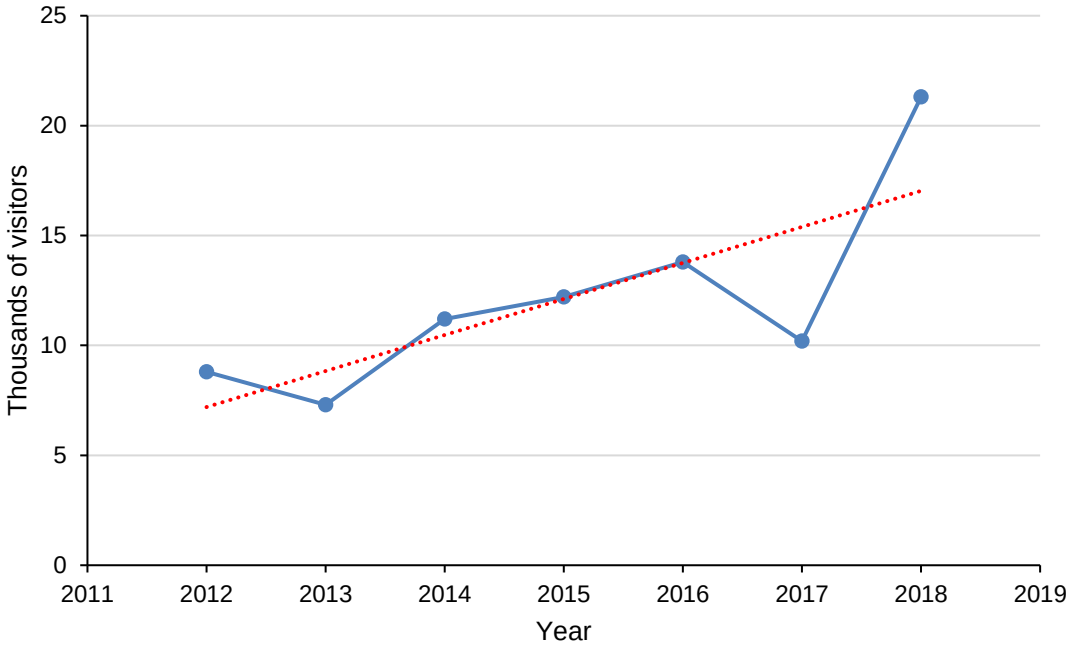

Plate 5.3 Annual number of trips made on the Dursey cable car from 2012 to 2018.

Since the cable car constitutes the only feasible means for visitors to access Dursey and a web-based ticketing system will be employed, constraining visitor numbers will be straightforward.

Table 5.3 Current and projected visitor numbers to Dursey Island, with the proposed monthly carrying capacity imposed during the operation of the proposed development, assuming annual growth of 24.67% distributed evenly across months. * = numbers constrained by existing cable car capacity and would otherwise be higher; ** = numbers constrained by imposed carrying capacity and would otherwise be higher.

Month	Year of operation (existing cable car)					Year of operation (proposed cable car)	
	2017/18	2019 projection	2020 projection	2021 projection	2022 projection	2023 projection [first year of operation]	2024 projection [second year of operation]
January	172	214	267	333	416	518	646
February	313	390	486	606	756	943	1175
March	613	764	953	1188	1481	1846	2302
April	1366	1703	2123	2647	3300	4114	5129
May	2844	3546	4420	4954*	4954*	6176	7700
June	2960	3690	4601	4954*	4954*	6176	7700
July	4954*	4954*	4954*	4954*	4954*	12 835**	12 835**
August	4943	4954*	4954*	4954*	4954*	12 835**	12 835**
September	1271	1585	1975	2463	3070	3828	4772
October	589	734	915	1141	1423	1774	2212
November	259	323	403	502	626	780	972
December	140	175	218	271	338	422	526
Total	**20 424**	**23 032**	**26 270**	**28 968**	**31 225**	**51 825**	**58 803**

Formalisation of existing walking trails

In order to minimise (i) the degradation terrestrial foraging habitat and (ii) disturbance of Red-billed Chough as a result of visitors walking on open grassland habitat, the following mitigation measures shall be implemented:

- Three looped, waymarked walking trails (as shown in Plate 5.4 below) shall be formalised on Dursey Island prior to the commencement of the operation of the proposed development. This approach is widely used in outdoor recreation areas (Slaymaker, 2017). According to the National Trails Office (NTO) *Guide to Planning and Developing Recreational Trails in Ireland* (2012), "*developing recreational trails is a very effective way of managing recreational activity in the outdoors and protecting the natural environment*". Research indicates that walkers tend to stick to established paths, even when they have the "right to roam" (Keirle & Stephens, 2004; Synge, 2004; Kuba et al., 2018).
- Formalisation of these trails shall not involve the creation of new paths, but rather the formal waymarking of routes on existing roads and paths. Formalisation of these paths shall involve the following:
    - Placement of suitably spaced colour-coded waymarker posts of recycled plastic, with directional arrows, at appropriate locations along the routes;
    - Erection of a mapboard at a clearly visible location at the trailhead (on Cork County Council lands near the island-side cable car station) displaying a map of colour-coded routes with:
        - Approximate length (in km);
        - Duration (in hours or minutes);
        - A conservative estimate of difficulty level from "Easy" to "Moderate" to "Strenuous" to "Very Difficult" (according to *Classification and Grading for Recreational Trails* (NTO, 2008)); and,
        - A message instructing walkers to stay on the trails.
    - Erection of "minimum impact behaviour" (MIB) signage at key sensitive locations for chough and/or habitat conservation along trails. Research from Portugal has shown that erection of such signage can effectively reduce the impact of human disturbance on breeding Little Tern (*Sterna albifrons*), with a 34-fold greater likelihood of breeding success at nest sites with such protective measures in place (Medeiros et al., 2007). At a minimum, this MIB signage shall include:
        - A note on the trailhead mapboard instructing visitors to stay on the trails; and,
        - A sign at the western end of the Tillickafinna/Signal Tower Loop instructing walkers not to venture any further westward onto the chough "hotspot".
- Research conducted on Bear Island, Maryland, USA (Hockett et al., 2010), found that principle reasons for visitors to leave the established trail were:
    - To view and/or photograph a scenic vista;
    - To pass other walkers on the trail;
    - To avoid challenging trail conditions; and,
    - Because of poor waymarking.

  Accordingly, trails should offer opportunities for scenic vistas/photos, should be well marked and should not be too challenging. The direction of all three looped trails shall be anticlockwise, with walkers travelling along the established off-road trails on the outbound journey and returning to the trailhead via the public road

on the return journey. Travelling in this direction, walkers undertaking the Tillickafinna/Signal Tower Loop will have had plenty of "photo opportunities" and will have completed the most strenuous portion of the trail (the "high route") by the time they reach Tillickafinna and, for these reasons, may feel less inclined to venture further westward. As stated previously, formalisation of these trails shall not involve the creation of any new paths but rather, will serve to encourage walkers to stay on existing, established paths/roads, and provide options for walkers of varying abilities. Provision of complete (and conservative) information on the nature and duration of routes, coupled with the provision of two shorter options, may discourage certain walkers from attempting the full loop and travelling to the western end of the island.

- Any existing signage which contradicts the waymarked trails shall be removed, as required. Cork County Council shall be responsible for the maintenance of these trails for the duration of the operation of the proposed development.
- Additionally, an existing informal walking trail on Crow Head shall be more clearly marked using recycled plastic waymarkers. However, no sign (or other indicator which might draw attention to the walk) should be erected. Responses to the visitor survey indicate that this is not a very popular walk and no undue attention should be drawn to it. Instead, efforts should be made to control the movements of those few walkers who do venture onto the headland. This approach is supported by success elsewhere. In the Hohe Tauern National Park in Austria, for example, "*staff have found that without a trail, people wander in all directions, but if there is a clear and unmistakable path, nearly all stick to it*" (Synge, 2004). Cork County Council shall be responsible for the maintenance of this trail.

Supporting mitigation measures

In order to further support and strengthen the mitigation measures relating to visitor numbers and walking trails described above, the following mitigation measures shall also be implemented:

- An education campaign shall be launched to inform visitors of the sensitivity of (a) choughs and ground-nesting birds to human disturbance and (b) habitats to degradation as a result of visitor footfall. The objective of the campaign is to discourage visitors from wandering off the established walking routes on the island, particularly at sensitive locations for chough (i.e. at the western end of the island and at Foilnamuck). The campaign shall have the following characteristics:
  - It shall be three-tiered in that it will be featured in (1) exhibition materials in the Visitor Centre, (2) an audio-visual presentation in the out-bound journey on the cable car and (3) signage on Dursey Island.
  - The educational materials used shall be aesthetically pleasing and emotionally engaging to encourage buy-in from visitors.
  - All outdoor signage should be designed for the exposed and corrosive nature of the site.
- Not including island residents/farmers, no more than 12 835 persons shall be permitted to travel to Dursey Island in any month of the year during the operation of the proposed development. This numerical carrying capacity shall be implemented using an appropriately designed ticketing system.
- Not including assistance dogs, pets and/or working dogs of island residents and farmers, dogs shall be prohibited from travelling to Dursey Island. restriction will be clearly displayed on the Dursey Island Cable Car and Visitor Centre website and promotional materials.

- In order to ensure the continued efficacy of these mitigation measures and facilitate adaptive management with respect to habitat destruction and/or disturbance of wildlife as a result of visitors walking in areas of open habitat:
    - Trail counters shall be installed at suitable locations on walking trails on Dursey Island, on the Garinish Loop walk and on the walk at Crow Head. On Dursey Island, a trail counter should be placed at an appropriate location on the western end of the island, so as to record approximately how many visitors leave the established trail and wander onto this key area for Red-billed Chough.
    - A visitor survey shall be carried out on an annual basis to establish approximately what proportion of visitors remain on established trails and vice versa.

Terrestrial Habitats

The mitigation measures prescribed above in relation to Red-billed Chough, i.e. those measures aimed at managing visitor numbers and behaviour during the operation of the proposed development, will provide more than adequate mitigation for the effects of increased visitor numbers on the Annex I habitats "Vegetated sea cliffs of the Atlantic and Baltic coasts" and "European dry heaths" set out in Sections 4.2.5 and 4.2.6.

Notwithstanding the adequacy of the above mitigation to prevent adverse effects on the Annex I habitat "European dry heaths" in the Kenmare River SAC, the following additional mitigation measure in relation to Betony (*Betonica officinalis*) shall apply:

- A pre-construction survey shall be carried out over the site of the proposed development and any individual plants or clusters of betony that are identified in vulnerable locations (where they are at risk of destruction as a result of the works) shall be translocated, under licence, by a suitably qualified and competent professional to appropriate locations. Additionally, if individual plants or clusters of betony (in addition to those already identified and translocated) are identified by the Ecological Clerk of Works at vulnerable locations during the construction phase, they shall be translocated as described previously. If necessary, works at these locations shall be suspended until the Ecological Clerk of Works considers it ecologically appropriate to carry out translocations.

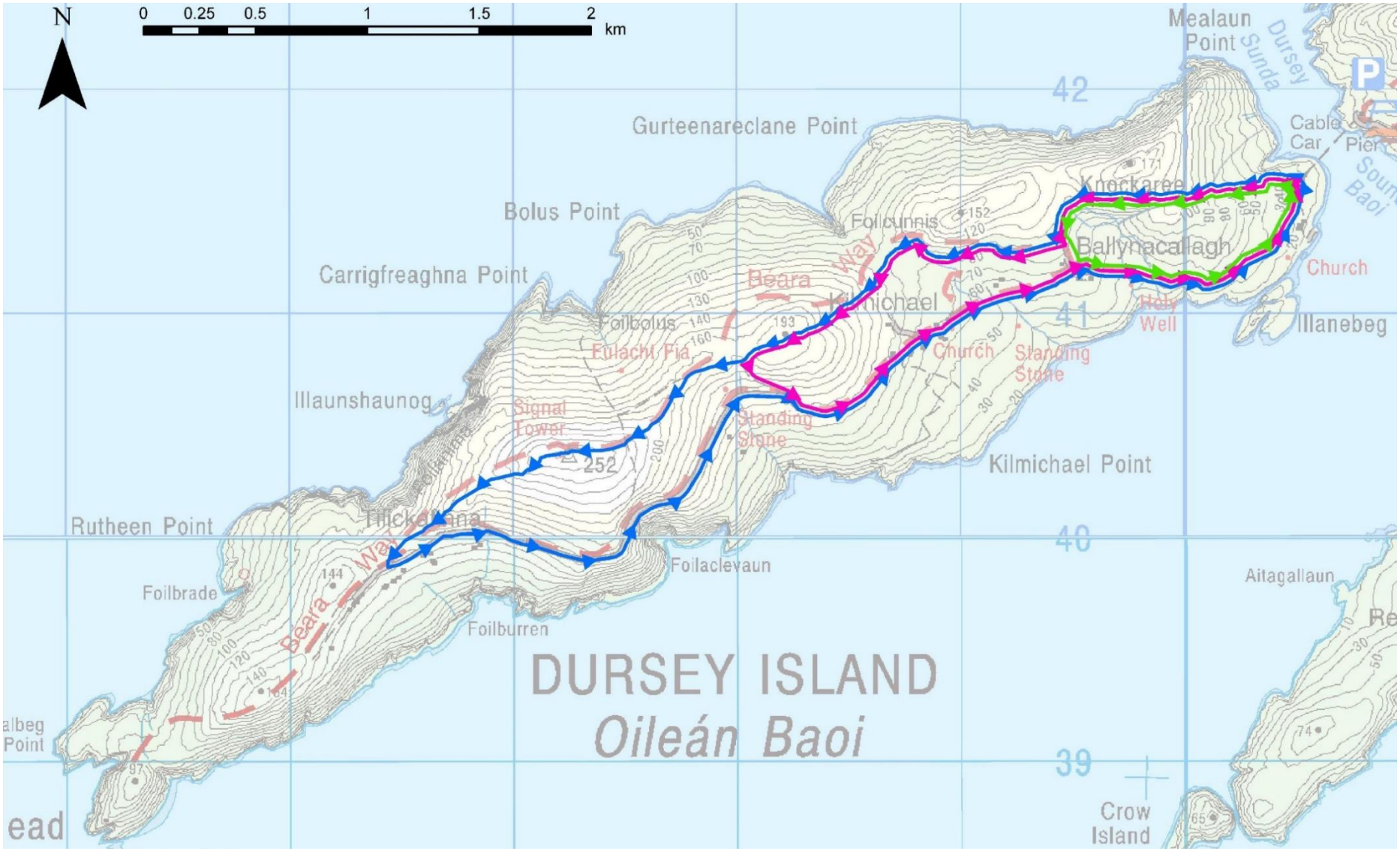

Plate 5.4 **Three proposed way-marked loop walks on Dursey Island. Ballynacallagh Loop (green) = 2.7 km; Kilmichael Loop (pink) = 6 km; Tillickafinna/Signal Tower Loop (blue) = 10 km.**

5.2.2 Water Quality

Construction

The following measures shall apply to all site works carried out in connection with the construction of the proposed development.

General Measures

- All site works shall be limited to the minimum extent necessary to construct the proposed development.
- As far as practicable, works shall take place within predetermined construction areas (to be determined by the Contractor) on a phased basis.
- Surface water flowing onto the construction area shall be minimised through the provision of berms, diversion channels or cut-off ditches.
- All discharge from the works site shall be treated such that it will not significantly alter water quality in the receiving environment.
- Foul drainage from all site offices and construction facilities will be contained and disposed of in an appropriate manner to prevent pollution.

Sedimentation and Surface Water Run-off

The measures prescribed above will minimise the risk of input of sediment-laden run-off into the marine environment during construction. However, the following measures shall also apply:

- Excess material stockpiles shall be managed so as to minimise the release of sediment to surface waters, e.g. by allowing the establishment of vegetation on exposed soil or by diverting run-off from stockpiles to settlement ponds.
- Any works within 10 m of the cliff top or rocky shore shall require measures to ensure that silt-laden or contaminated run-off from the compound does not discharge directly to surface waters.
- Riparian vegetation (if present) along the minor watercourse will be fenced off at a distance of 3 m either side of the proposed crossing point to provide a buffer zone for its protection.
- Protection of surface waters (both the sea and the minor watercourse along the development site boundary) from sedimentation shall be achieved by the use of timber fencing with silt fences or earthen berms to provide adequate treatment of surface water run-off.
- Settlement ponds, silt traps and bunds shall be used to contain surface water run-off. Where pumping of water is to be carried out, filters shall be used at intake points and discharge shall be through a sediment trap.
- The site compound and on-site storage facilities shall be fenced off not less than 10 m from the cliff top or rocky shore.

Cementitious Materials

The measures prescribed above will minimise the risk of input of cementitious material into the marine environment during construction. However, the following measures shall also apply:

- Hydrophilic grout and quick-setting mixes or rapid hardener additives shall be used to promote the early set of concrete surfaces exposed to water.
- When working in or near surface waters and the application of in-situ materials cannot be avoided, the use of alternative materials such as biodegradable shutter oils shall be used.

- Any plant operating close to the water shall require special consideration on the transport of concrete from the point of discharge from the mixer to final discharge into the delivery pipe (tremie). Care shall be exercised when slewing concrete skips or mobile concrete pumps over or near surface waters.
- Any and all placing of concrete near watercourses shall be supervised by the Ecological Clerk of Works.
- There shall be no hosing into surface water drains of spills of concrete, cement, grout or similar materials. Such spills shall be contained immediately and run-off prevented from entering the watercourse.
- Concrete waste and wash-down water shall be contained and managed on site to prevent pollution of all surface waters.
- On-site concrete batching and mixing activities shall only be permitted within the identified construction compound areas.
- Wash-out from concrete lorries, with the exception of the chute, shall not be permitted on site and shall only take place at the construction compound (or other appropriate facility designated by the manufacturer).
- Chute wash-out shall be carried out at designated locations only. These locations shall be signposted. The concrete plant and all delivery drivers shall be informed of their location with the order information and on arrival to site.
- Chute wash-out locations shall be provided with an appropriately designated, contained, impermeable area and treatment facilities including adequately sized settlement tanks. The clear water from the settlement tanks shall be pH corrected prior to discharge (which shall be by means of one of the construction stage settlement facilities) or alternatively disposed of as waste in accordance with the Contractor's Construction & Demolition Waste Management Plan.

Hydrocarbons and Other Chemicals

The measures prescribed above will minimise the risk of input of hydrocarbons or other chemicals into the marine environment during the construction. However, the following measures shall also apply:

- Protection measures shall be put in place to ensure that all hydrocarbons used during the construction phase are appropriately handled, stored and disposed of in accordance with the NRA/TII's *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes*.
- All chemical and refuelling locations shall be contained within bunded areas and set back a minimum of 20 m from surface waters.

Operation

The following measures shall apply to the design of the proposed development and the management of the development during the operational phase.

Run-off from Hardstanding Areas

The proposed surface water drainage system will comprise predominantly sustainable drainage systems (SuDS) features which will attenuate and treat surface water run-off from the site prior to discharge to sea. Permeable paving will allow infiltration to the underlying subsoils. Treatment of run-off will be provided within the pavement layers through the processes of filtration, biodegradation, adsorption of pollutants and the settlement and retention of solids within the pavement layers.

Failure of Foul Water Pumping Station

As stated in Section 4.3.1 above, any discharge of untreated foul water into Dursey Sound due to a pump failure in the WWTS would likely lead to significant water quality impacts. In order to minimise this risk and thereby prevent adverse effects on the marine environment, the pumping station shall provide 24-hour effluent storage in case of failure. Standby pumps shall also be provided.

Discharge of Pollutants in Storm Drainage

The SuDS features will attenuate and treat surface water run-off from the site prior to discharge to sea by percolation into the subsoil. The incorporation of a SuDS-based approach will ensure that discharge will be controlled, and treatment of run-off will take place within the SuDS components.

The proposed retaining wall drainage will incorporate a hydrocarbon separator prior to discharging to the minor watercourse. Physio-chemical water quality monitoring will be undertaken at the outfall location prior to and post-construction, as detailed in Section 7.3 below.

5.2.3 Biosecurity

Construction

In order to minimise the potential for adverse effects as a result of the introduction or spread of terrestrial invasive alien species during construction, all land-based construction works shall be executed in accordance with the National Roads Authority's *Guidelines on the Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads* (NRA, 2010). In particular, a strict biosecurity protocol shall be observed to ensure that all plant/equipment (including PPE) is free of invasive alien species or propagules of such.

As per Sections 4.3.1 and 4.3.2 above, the use of a barge during the construction of the proposed development poses the risk of the introduction of invasive alien species to the marine environment in the vicinity of the construction works. This has the potential to adversely affect the integrity of the Kenmare River SAC, in view of its Conservation Objectives for the Annex I habitats "Large shallow inlets and bays" and "Reefs".

In order to minimise the risk of either the introduction or spread of marine invasive alien species and thereby prevent, beyond reasonable scientific doubt, any adverse effects on the marine habitats in the vicinity of the proposed development, the owner/operator of the barge shall:

- Provide documentary evidence (in the form of a completed and signed Marine Institute "*Cleaning and Disinfection Declaration Form*") that the vessel was fully defouled within the six months immediately preceding its proposed engagement in the construction of the proposed development;
- Submit travel records relating to the vessel's movements during at least the six months immediately preceding its proposed engagement in the construction of the proposed development; and,
- Ensure that no bilge water or ballast water is discharged from the vessel within 5 km of the Kenmare River SAC.

In order to ensure full compliance with the above, authorisation to move the vessel to the construction area shall only be granted once the Ecological Clerk of Works has satisfied him/herself that the vessel does not pose a significant risk of importing marine invasive alien species to the Kenmare River SAC. He/she shall do so by:

- Boarding the vessel;
- Speaking with the skipper;
- Inspecting the relevant documents; and,
- Carrying out a final inspection of the vessel.

In addition, prior to commencement of any works on site, the Contractor shall prepare a detailed Biosecurity Statement describing his/her proposed approach to ensuring that invasive alien species are not imported or spread during the construction of the proposed development. The Contractor's Biosecurity Statement shall be in accordance with NRA/TII's *Guidelines on the Management of Noxious Weeds on National Roads* and subject to approval by the Ecological Clerk of Works prior to its acceptance and implementation.

Operation

The only biosecurity risk during the operation of the proposed development arises from the increased visitor numbers to the walking trails within the likely zone of impact. The measures prescribed in relation to visitor management in Section 5.2.1 above will mitigate for the risk to biosecurity during the operation of the proposed development.

Furthermore, an Invasive Alien Species Management Plan has been developed for the operation of the proposed development (see Appendix D). This plan has the objectives of, (i) where possible, eradicating invasive alien species (especially on Dursey Island), (ii) preventing the introduction of new invasive alien species to the area (especially Dursey Island), and (iii) in all other instances, managing existing occurrences of invasive alien species with a view to preventing their spread.

Landscaping of the proposed development shall use native species of plants only and, insofar as possible, soil reused from on-site excavations.

5.3 Implementation and Compliance

In order to ensure the full and proper implementation of the mitigation prescribed in Section 5.2 of this NIS, it should be a condition of any consent granted in respect of the proposed development that this mitigation be binding, during the construction phase, on the Contractor and, during operational phase, on Cork County Council. All construction-phase mitigation will be transposed into the relevant Contract Documents via a Construction Environmental Management Plan (CEMP), as per Section 5.3.1 below, and compliance with the same will be ensured by appropriate oversight, as per Section 5.3.2 below.

5.3.1 Construction Environmental Management Plan

Prior to the commencement of construction, demolition or excavation, the Contractor will be required to develop a Construction Environmental Management Plan (CEMP) in accordance with *Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan* (NRA, 2007). The CEMP will detail the Contractor's approach to managing environmental issues during the construction of the proposed development. In particular, the CEMP will detail how the Contractor intends to ensure full compliance with the following:

- The Schedule of Commitments.
- The mitigation prescribed in Section 5.2 of this NIS and Chapter 7 Biodiversity of the Environmental Impact Assessment Report (EIAR).

- Any conditions which might be attached to the proposed development's planning consent.
- Any requirements of stakeholders and statutory bodies, e.g. the NPWS.
- All applicable legislative requirements in relation to environmental protection.
- All relevant construction industry guidelines, including:
    - *C744 Coastal and marine environmental site guide - 2nd ed.* (CIRIA, 2015).
    - *C532 Control of water pollution from construction sites: guidance for consultants and contractors* (CIRIA, 2001).
- The Transport Infrastructure Ireland (TII) and National Roads Authority (NRA) Environmental Assessment and Construction Guidelines, specifically:
    - *Guidelines for the Treatment of Badgers prior to the Construction of a National Road Schemes.*
    - *Guidelines for the Treatment of Bats during the Construction of National Road Schemes.*
    - *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes.*
    - *Guidelines for the Testing and Mitigation of the Wetland Archaeological Heritage for National Road Schemes.*
    - *Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post-Construction of National Road Schemes.*
    - *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes.*
    - *Guidelines on the Management of Noxious Weeds on National Roads.*
    - *Guidelines for the Treatment of Noise and Vibration in National Road Schemes.*
    - *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes.*
    - *Management of Waste from National Road Construction Projects.*
    - *Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan.*

This list is non-exhaustive. All environmental commitments/requirements and relevant legislation and guidelines which are current at the time of construction will be followed.

The CEMP will contain the following information of general importance:

- An overview of the proposed development.
- An organisational chart illustrating the structure of the Contractor's project team and the duties and responsibilities of the various members.
- The Contractor's communications strategy.
- The contact details of relevant persons/entities, e.g. the Safety Officer, the Site Environmental Manager and the emergency services.
- A list of the documents which will have informed the CEMP, including all relevant legislation and construction/environmental guidelines.

In relation to environmental management, the CEMP will provide a full list of the Contractor's environmental commitments and will detail the Contractor's approach to the following:

- Management of waste arising from construction and demolition.
- Control of sediment, run-off, erosion and pollution.
- Minimisation of noise and vibration impacts.
- Minimisation of artificial lighting and shading.
- Management of risk from invasive alien species.
- Response to emergencies/other incidents, including environmental incidents.
- Awareness of the surrounding environment and the Contractor's environmental commitments among site personnel.
- Inspection and auditing of the Contractor's compliance with the environmental commitments.

Other topics covered by the CEMP will include the management of construction traffic and Health & Safety issues.

All of the mitigation measures prescribed in Section 5.2 of this NIS must be effectively transposed into the appropriate sections of Contractor's CEMP. In addition, it must be acknowledged that the receiving environment is not static. Therefore, in preparing the CEMP, the Contractor must have due regard to the results of pre-construction surveys.

An outline CEMP (included in Appendix C to this NIS) will be provided to the Contractor and it will be his/her responsibility to develop his/her own CEMP based on the outline provided. Prior to its acceptance and implementation, the Contractor's CEMP will be subject to approval by the Site Environmental Manager (described in Section 5.3.2 below) and the Employer's Representative. It shall also be submitted to the NPWS to ensure that all nature conservation requirements are satisfied.

5.3.2 Supervision

Site Environmental Manager

In order to ensure the successful development and implementation of the CEMP, the Contractor will appoint an independent Site Environmental Manager (SEM). The SEM must possess training, experience and knowledge appropriate to the role, including a National Framework of Qualifications (NFQ) Level 8 qualification or equivalent or other acceptable qualification in environmental science or management.

The principal functions of the SEM are:

- To ensure that the mitigation and environmental commitments referred to in Section 5.3.1 above are fully and properly implemented in the development and implementation of the CEMP; and,
- To monitor the effectiveness of the various aspects of the CEMP and provide independently verifiable audit reports in respect of the same.

Separate from the ongoing and detailed monitoring carried out by the Contractor, the SEM will carry out the following inspections and auditing on behalf of Cork County Council:

- Daily visual inspections of all outfalls from the construction site to surface waters and all surface waters in the vicinity of the site;

- Daily inspections of all construction site surface water treatment measures, e.g. ponds, tanks, mini-dams and sandbags;
- Daily inspections of material borrow/deposit areas while in operation and weekly inspections thereafter;
- Weekly inspections of the principal control measures described in the CEMP and reporting of findings to the Contractor;
- Weekly inspections of wheel-wash facilities;
- Weekly inspection of stockpiles (daily during filling or emptying); and,
- Frequent (at least fortnightly) auditing of the Contractor's monitoring results.

The results of the SEM's inspections and auditing will be stored in his/her monitoring file and will be made available for inspection or audit by Cork County Council or the NPWS at any time.

Ecological Clerk of Works

In order to ensure the successful development and implementation of the CEMP, the Contractor will appoint an independent Ecological Clerk of Works (ECoW) to supervise the entire proposed development. The ECoW must possess training, experience and knowledge appropriate to the role, including an NFQ Level 8 qualification or equivalent or other acceptable qualification in ecology or environmental biology.

The principal functions of the ECoW are:

- To develop and collect the necessary pre-construction baseline information; and,
- To carry out weekly inspections of the construction works and report on the implementation of the mitigation measures prescribed in this NIS and in Chapter 7 Biodiversity of the EIAR.

During the preparation of the Contractor's CEMP, the SEM may, as appropriate, assign other duties and responsibilities to the ECoW.

In exercising his/her functions, the ECoW will be required to keep a monitoring file and this will be made available for inspection or audit by Cork County Council or the NPWS at any time.

5.4 Residual Effects

5.4.1 Red-billed Chough

Given the full and proper implementation of the mitigation measures prescribed in Sections 5.2 and 5.3 of this NIS, any impacts arising from increased visitor numbers associated with operation of the proposed development will be slight or imperceptible.

Therefore, given the full and proper implementation of the mitigation prescribed in this NIS, it can be concluded beyond all reasonable scientific doubt that construction and operation of the proposed development will not adversely affect the integrity of the Beara Peninsula SPA in view of its Conservation Objectives for Red-billed Chough.

5.4.2 Annex I Habitats (Marine)

Given the full and proper implementation of the mitigation measures prescribed in Sections 5.2 and 5.3 of this NIS, any residual water quality impacts arising from the proposed development will be slight (and of a short duration) during the construction stage and imperceptible during the operational phase. Similarly, given the full and proper implementation of the biosecurity measures outlined in Section 5.2.3 of this

NIS, the risk of any import invasive alien species to the marine environment in the vicinity of the proposed development is negligible.

Therefore, given the full and proper implementation of the mitigation prescribed in this NIS, it can be concluded beyond all reasonable scientific doubt that construction and operation of the proposed development will not adversely affect the integrity of the Kenmare River SAC in view of its Conservation Objectives for "Large shallow inlets and bays" and "Reefs".

5.4.3 Annex I Habitats (Terrestrial)

Given the full and proper implementation of the mitigation measures prescribed in Sections 5.2 and 5.3 of this NIS, any residual erosion or disturbance impacts arising from the proposed development will be imperceptible during the operational phase. Similarly, given the full and proper implementation of the biosecurity measures outlined in Section 5.2.3 of this NIS, the risk posed by invasive alien plant species is negligible.

Therefore, given the full and proper implementation of the mitigation prescribed in this NIS, it can be concluded beyond all reasonable scientific doubt that construction and operation of the proposed development will not adversely affect the integrity of the Kenmare River SAC in view of its Conservation Objectives for "Vegetated sea cliffs of the Atlantic and Baltic coasts" and "European dry heaths".

6.0 IN-COMBINATION EFFECTS

6.1 Introduction

Article 6(3) of the Habitats Directive requires that AA be carried out in respect of plans and projects that are likely to have significant effects on European sites, "*either individually or in combination with other plans or projects*". Therefore, the combined effects of the plan or project under assessment and other past, present or foreseeable future plans or projects must also be examined, analysed and evaluated.

6.2 Methodology

The geographical scope for the identification of plans and projects to be included in the assessment of in-combination effects included the entire area within 15 km of the proposed development.

The following were the principal sources consulted in the identification of other plans and projects with potential in-combination effects:

- An Bord Pleanála website;
- Cork County Council Planning Department; and
- The Department of Housing, Planning and Local Government's EIA Portal.

Table 6.1 below details the assessment of the implications for the relevant European sites of the following:

- The residual effects likely to arise from the proposed development (see Section 5.4 above); in combination with,
- Effects likely to arise from other plans and projects identified as having potential in-combination effects.

This assessment has been undertaken in view of the Conservation Objectives of the relevant European sites.

6.3 Outcome

As shown in Table 6.1 below, the proposed development does not have the potential to adversely affect any European site in combination with other plans or projects.

Table 6.1 Assessment of adverse effects arising from the proposed development in combination with plans or projects.

Name of plan or project	Description of plan or project	Likely in-combination effects
Cork County Development Plan 2014-2020	This plan sets out Cork County Council's policies and objectives for the proper planning and sustainable development of the County from 2014 to 2020. Key strategic sites supporting and fostering entrepreneurship are promoted. The proposed development supports the Cork County Development Plan.	These are high-level strategic plans and, therefore, do not of itself provide for any real effects. Thus, they will not give rise to adverse effects in combination with the proposed development.
West Cork Municipal District Local Area Plan 2017	This plan sets out detailed planning strategy and land use zoning as appropriate for the towns and villages of the West Cork Municipal District from 2017. The policies, objectives and zoning objectives for existing and future development of the West Cork Municipal District have been considered as part of the proposed development.	
West Cork Islands Integrated Development Strategy 2010	This strategy seeks to provide a platform for a successful partnership between islanders and mainland authorities which will support the West Cork Islands to reach their full potential in terms of their physical, economic, social, community and cultural development. It sets out the overall vision and key goals for the islands and also deals with issues relating specifically to each of the islands concerned, namely Whiddy Island, Bere Island, Dursey Island, Heir Island, Long Island, *Oileán Chléire* (Clear Island) and Sherkin Island.	
Dunmanus-Bantry-Kenmare Flood Risk and Management Plan (CFRAM)	The purpose of this plan is to set out the strategy, including a set of proposed measures, for the cost-effective and sustainable, long-term management of flood risk in the Dunmanus-Bantry-Kenmare catchment, including the areas where the flood risk has been determined as being potentially significant. The proposed development will satisfy the proposals outlined in this plan.	
Lehanemore Community Co-operative Society Ltd [Planning Refs 09198, 12439 and 1973]	The Lehanemore Community Co-operative Society received permission to construct a car park with all associated site works in 2009. In July 2012, the society submitted a planning application for the construction of a car park, erection of safety barriers, construction of a vehicular entrance and associated site works. Permission was granted with conditions in September 2012. They then applied for planning permission for the construction of car park and vehicular entrance, erection of safety barriers and associate site works in February 2019 and are awaiting a result.	Notwithstanding the close proximity of this project to the proposed development (1.7 km northeast), due to its nature and small scale, it will not give rise to adverse in-combination effects.
Telefonica Ireland Ltd [Planning Ref. 14735]	In December 2014, Telefonica Ireland sought permission for the retention of an existing 30 m high telecommunications support structure carrying antennas and link dishes together with associated equipment containers and security fences which was previously granted under Planning Ref. 08/2030 and forms part of their cellular and digital broadband communications network at Knockaura, Coom, Allihies (11.3 km northeast of the proposed development). Telefonica Ireland was granted planning permission with conditions in March 2015.	Owing to the nature of these towers and their distances from the proposed development, they are not likely to give rise to adverse in-combination effects.

Name of plan or project	Description of plan or project	Likely in-combination effects
RTÉ Transmission Network Ltd [Planning Ref. 12691]	In November 2012, RTÉ Transmission Network sought permission for the retention of a 36 m high tower, concrete bases and chain-link fencing for the continuation of use as a communications station as granted in 2013. The tower is within an existing chain-link fence compound using an existing access route and is located 12 km northeast of the proposed development. This application is subsequent and subject to alterations to a previous grant of permission by Cork County Council Planning Ref. 07/2700.	
Allihies Parish Co-operative Society Ltd [Planning Ref. 10327]	Permission was granted in 2010 for the construction of a storage shed, outdoor seating and an exhibition area at the rear of Allihies Mine Museum Building, which is located 8.2 km northeast of the proposed development.	Owing to the nature and small scales of these projects and their distances from the proposed development, they are not likely to give rise to any in-combination effects.
Dzogchen Beara Trust [Planning Refs 10350 and 14517]	Permission was granted in 2010 for an expansion of the existing Dzogchen Beara Retreat Centre Facility, located 12.1 km southeast of the proposed development, consisting of a temple building 14.5 m in height, along with three adjacent single storey ancillary buildings and connection to existing on-site sewage and water facilities. Ancillary building No. 1 includes provision of two self-contained accommodation units (one for a caretaker of the temple building and one for a resident monastic). Ancillary building No. 2 provides toilet facilities, and ancillary building No. 3 provides additional storage for the temple building, and all ancillary site works. In 2014, permission was granted for the extension of the duration of this permission.	
Hutchison 3G Ireland [Planning Refs 09716 and 09717]	Permission was granted in September 2009 for the construction of a 12 m slim-line monopole with three 2.1 m panel antennas and one 0.6 m radio link dishes attached, equipment cabinet, fencing and associated site works, as part of the Irish Government's National Broadband Scheme, 12 km east of the proposed development, in Lickbarrahane. In September 2009, permission was also granted for the construction of a 24 m slim-line monopole with three 2.1m panel antennas and one 0.6 m radio link dishes attached, equipment cabinet, fencing and associated site works, as part of the same scheme, 15 km northeast of the proposed development, in Coulagh.	Owing to the nature and small scales of these projects and their distances from the proposed development, they are not likely to give rise to any in-combination effects.
Meat Packing Facility [Planning Ref. 12109]	Permission was granted with conditions for the construction of a meat packing facility and associated site works in August 2012. This project is located 10 km northeast of the proposed development, in Caherkeen.	Owing to the distance from this project to the proposed development, its construction or operation will not give rise to adverse in-combination effects.
Retention of Office, Hatchery and Seaweed Production [Planning Ref. 13162]	Planning consent was granted in June 2013 for the following, 15 km east of the proposed development, in Oakmount: retention of (a) office/toilet pre-fabricated unit and relocation of same within site boundaries, (b) two storage containers for general storage and permission to relocate same within site boundaries, (c) two vehicular entrances, (d) a hatchery unit, (e) a drier unit and	Owing to the nature and location of this project, it is not likely to give rise to adverse in-

Name of plan or project	Description of plan or project	Likely in-combination effects
	(f) septic tank system; and, permission for (a) alterations to an existing vehicular entrance, (b) closing of the second vehicular entrance and construction of a new vehicular entrance, (c) removal of three containers from site, (d) construction of a new agricultural building for seaweed line preparation and seaweed drying (existing hatchery unit and drier unit to be relocated and incorporated in this building) and (e) revision of the existing yard layout to include hard surfaced areas and open green areas, and all associated site works.	combination effects with the proposed development.
Proposed guesthouse and tourist facilities on Dursey Island – Barry O'Neill [Planning Ref. 19/473]	Permission had been sought for the construction of a detached tourist accommodation and facility building to incorporate (i) a café, (ii) guest accommodation and (iii) facilities for walkers and cyclists, and also for the installation of a wastewater treatment system and all associated site works at Ballynacallagh, Dursey Island, but the application for planning permission for this project was withdrawn on 30th August 2019. While it is considered likely that, at some point in the future, permission will again be sought for this project, no details are known of when or in what form any such application might be made. Therefore, it is neither possible nor appropriate to make a full assessment of the nature or significance of any potential adverse effects arising from this project in combination with the proposed development.	Owing to the nature and location of this project, there is potential for adverse effects on the Beara Peninsula SPA and the Kenmare River SAC in combination with the proposed development. However, if and when this project re-enters the planning system, the competent authority will, pursuant to the Habitats Directive and the Planning and Development Act, be required to assess any such effects.
Other tourism-related projects	Since the proposed development will promote economic development on Dursey Island and in the vicinity on the mainland, it is likely to encourage further development (particularly in relation to tourism and recreation) nearby, including on Dursey Island. As, at this stage, such projects are purely hypothetical, potential in-combination effects between these and the proposed development cannot be assessed at this time. It should be noted, however, that Cork County Council has every intention to manage development in the area in accordance with national, regional and local policies, including the West Cork Islands Integrated Development Strategy 2010, the Cork County Development Plan 2014-2020 and the West Cork Municipal District Local Area Plan 2017, the latter of which states that "*Development on [Dursey Island] will only be permitted where it is shown that it is compatible with the requirements of the Habitats Directive and the protection of these sites*". The knowledge acquired by Cork County Council in the preparation of the EIAR and NIS for the current proposed development regarding the environmental sensitivities and management requirements of Dursey Island and the surrounding area will be used to inform future decisions in respect of planning proposals in the area.	n/a (see column to the left)

7.0 MONITORING

While the mitigation measures proposed in Section 5.2 and implementation measures proposed in Section 5.3 are sufficient to conclude beyond reasonable scientific doubt that the proposed development will not adversely affect the integrity of either the Beara Peninsula SPA or the Kenmare River SAC, in view of their Conservation Objectives (see Section 5.4), it is proposed to monitor the status of the chough population, habitats and water quality. This monitoring is proposed not with a view to mitigating any adverse effects, but rather to inform future management of visitors and educational materials for the NPWS and Fáilte Ireland, and to provide further scientific evidence for related or similar projects in the future.

7.1 Red-billed Chough

It is proposed to monitor the conservation status of the chough population on Dursey Island on an annual basis (during the breeding season) for a period of 10 years. The monitoring programme shall involve, at a minimum, the determination (by a suitably qualified ecologist) of the following parameters:

- Number of breeding pairs (confirmed, probable and possible);
- Locations of nest sites; and,
- Productivity of the population.

A visitor survey shall be carried out on an annual basis for a period of 10 years to establish how visitors respond to MIB signage, what proportion of visitors follow each of the three looped trails, and what proportion of visitors remain on established trails and vice versa.

Scientific and educational monitoring will significantly contribute to the understanding and knowledge on the species and survey methods that will assist conservation organisations such as the NPWS and development organisations such as Fáilte Ireland in building a much more detailed knowledge of chough at the site for the period up to 2033.

7.2 Terrestrial Habitats

The conservation status of the habitats on Dursey Island and Crow Head shall be monitored on an annual basis for a period of 10 years. The monitoring programme shall involve, at a minimum, the determination (by a suitably qualified ecologist) of the following parameters:

- Visitor numbers and movements on Dursey Island and Crow Head;
- Identification of areas where the integrity of habitats is adversely affected by land use (especially grazing regime) or other pressures/threats.

7.3 Water Quality

Surface Water

It is envisaged that surface water sampling and chemical testing will be undertaken immediately downstream of the proposed outfall location in the minor watercourse. Surface water samples will be tested for physical and chemical parameters to assess water quality and indicate possible contamination at the site. The water samples will be tested for the following parameters:

- Biological oxygen demand (BOD);
- Chemical oxygen demand (COD);

- pH value;
- Suspended solids;
- Total coliforms;
- Ammonia (NH_3);
- Nitrates (NO_3^-);
- Nitrites (NO_2^-);
- Orthophosphates (PO_4^{3-}); and,
- Hydrocarbons.

The surface water monitoring regime will be undertaken prior to, during and after completion of the proposed works. Samples will be taken at fortnightly intervals from the minor watercourse, with a minimum of four samples taken prior to the works and six samples taken after completion of the works.

Groundwater

Groundwater sampling will also be undertaken prior to, during and after completion of the proposed works from the existing and proposed groundwater wells. Samples will be taken at fortnightly intervals from each well with a minimum of four samples taken prior to the works and six samples taken after completion. T he groundwater samples will be tested for a range of physical and chemical parameters listed above in order to assess water quality and indicate any possible contamination at the site.

8.0 CONCLUSION

This NIS has been prepared in accordance with the relevant provisions of the Habitats Directive, the Habitats Regulations and the Planning and Development Act, as well as the relevant case law and current guidance. It has demonstrated that, in the absence of appropriate mitigation, the proposed Dursey Island Cable Car and Visitor Centre, individually or in combination with other plans or projects, would adversely affect the integrity of two European sites, namely the Beara Peninsula SPA and the Kenmare River SAC. In light of this finding, this NIS has prescribed appropriate mitigation to eliminate or minimise such effects. Any residual effects, either individually or in combination with other plans or projects, have been assessed as not constituting adverse effects on the integrity of any European site. This assessment has been undertaken on the basis of the best scientific knowledge in the field and the Precautionary Principle and no reasonable scientific doubt remains as to the absence of such effects.

It is the considered opinion of ROD, as the author of this NIS, that, in making its AA in respect of the proposed Dursey Island Cable Car and Visitor Centre, An Bord Pleanála, as the Competent Authority in this case, should determine that, given the full and proper implementation of the mitigation prescribed in this NIS, the proposed development, either individually or in combination with other plans or projects, will not adversely affect the integrity of the Beara Peninsula SPA, the Kenmare River SAC or any other European site.

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APPENDIX A
Drawings

Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

ROD
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Appendix A – Drawings

Refer to Volume 2 of this NIS

APPENDIX B
Habitat Maps

Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

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APPENDIX B – Habitat Mapping

Please refer to Volume 2 of this NIS

APPENDIX C
Outline Environmental Management Plans

Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

ROD
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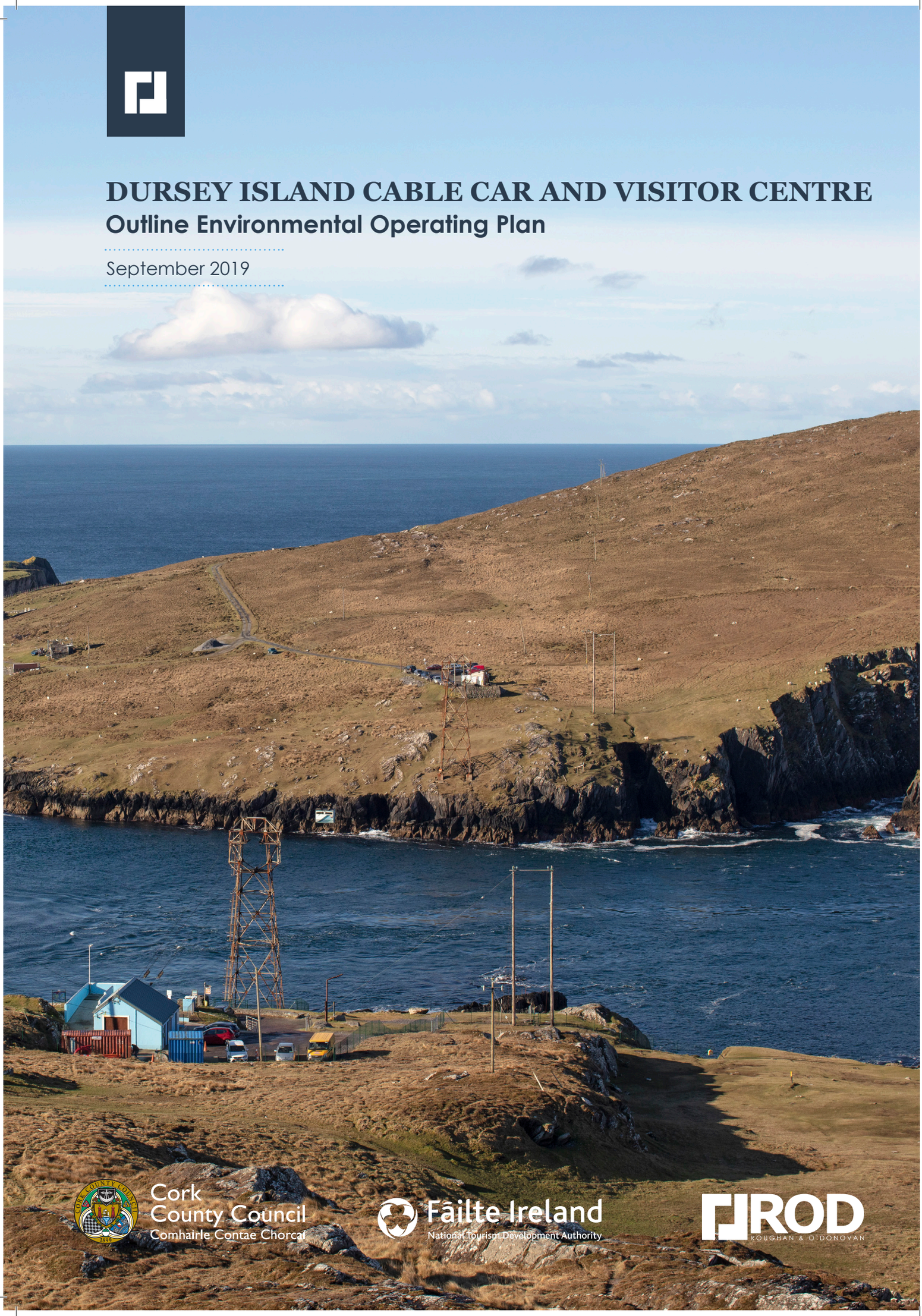
DURSEY ISLAND CABLE CAR AND VISITOR CENTRE

Outline Environmental Operating Plan

September 2019



Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

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Dursey Island Cable Car and Visitor Centre

Outline Environmental Operating Plan

TABLE OF CONTENTS

1.0 INTRODUCTION

This document is a project-specific outline Environmental Operating Plan (EOP). It is presented to inform and provide practical experience of developing, submitting and maintaining an EOP for the construction and operation of the Dursey Island Cable Car and Visitor Centre.

1.1 Purpose and Scope

This outline EOP sets out the mechanism by which environmental protection is to be achieved on the Dursey Island Cable Car and Visitor Centre. This outline EOP describes the Environmental Management System (EMS) of the proposed development, which will be devised according to the criteria of ISO 14001:2015 – Environmental Management Systems and developed in line with the NRA (now known for operating purposes as Transport Infrastructure Ireland (TII)) *"Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan".* This EOP will be complemented by General Procedures, Work Procedures and Operations Instructions. These documents will be in place within the site administration offices and appropriate site locations during works.

This outline EOP covers the activities of [*Successful Contractor Name*] and that of its sub-contractors. It outlines the environmental commitments in relation to the construction works and how these commitments are to be managed, including details of the monitoring systems and mitigation measures to be employed by the successful contractor. It also assigns responsibilities for ensuring the effective implementation of this EOP.

1.2 Environmental Policy Statement

Environmental management is fundamental to the successful operation of construction activities. Therefore, the Environmental Policy must, as a priority, be understood by all parties involved in the contract and adhered to throughout the course of the works to allow for legal compliance and continuous improvement.

[*Successful Contractor Name*]'s Environmental Policy Statement is detailed below.

[*Successful Contractor to insert policy statement*]

2.0 GENERAL PROJECT DETAILS

This section will be completed by the successful contractor once appointed:

- Brief overview;
- Location of the Project;
- Location of compounds;
- Contact Sheets for site, employer and third party contacts;
- Register of all applicable legislation, including relevant standards, Codes of Practice and Guidelines;
- Organisational chart; and,
- Duties and responsibilities.

Project details which have been identified prior to appointment of the contractor are described in the subsequent subsections.

2.1 Concrete Works

2.1.1 Introduction

There will be no use of concrete within any watercourse. The use and management of concrete close to watercourses must be carefully controlled to avoid spillage which can have a deleterious effect on water chemistry and aquatic habitats and species. Alternative construction methods have been proposed where possible, e.g. use of pre-cast units and permanent formwork will reduce the risks associated with concreting works. Where the use of in-situ concrete near watercourses cannot be avoided, the following control measures will be employed:

- When working near surface water and the application of in-situ materials cannot be avoided, the use of alternative materials such as biodegradable shutter oils shall be used;
- Hydrophilic grout and quick-setting mixes or rapid hardener additives shall be used to promote the early set of concrete surfaces exposed to water;
- Any plant operating close to the water will require special consideration on the transport of concrete from the point of discharge from the mixer to final discharge into the delivery pipe (tremie). Care will be exercised when slewing concrete skips or mobile concrete pumps near Dursey Sound;
- Placing of concrete near the watercourses will be carried out only under the supervision of the Ecological Clerk of Works (ECoW);
- There will be no hosing into surface water drains of spills of concrete, cement, grout or similar materials. Such spills shall be contained immediately, and runoff prevented from entering the watercourse;
- Concrete waste and wash-down water will be contained and managed on site to prevent pollution of all surface watercourses;
- On-site concrete batching and mixing activities will only be allowed at the identified construction compound areas;
- Washout from concrete lorries, with the exception of the chute, will only take place at the construction compound (or other appropriate facility designated by the manufacturer);
- Chute washout will be carried out at designated locations only. These locations will be signposted. The Concrete Plant and all Delivery Drivers will be informed of their location with the order information and on arrival on site; and,

- Chute washout locations will be provided with appropriate designated, contained impermeable area and treatment facilities including adequately sized settlement tanks. The clear water from the settlement tanks shall be pH corrected prior to discharge (which shall be by means of one of the construction stage settlement facilities) or alternatively disposed of as waste in accordance with the Contractor's Construction and Demolition Waste Management Plan.

2.2 Construction Compounds

2.2.1 Introduction

A site construction compound will be required during the construction phase and will be situated completely within the mainland site. Initially it will be located adjacent to the existing cableway in the widest section of the existing carpark. The compound will be established at the commencement of the contract and remain in place throughout the construction period. However, as earthworks progress it will be required to be moved within this confined site, at all times staying within the red line boundary of the site. The Contractor will also require a smaller set down area/storage compound on the island which will be located within the red line boundary. Suitable site security measures will be implemented on both the mainland and island sites for the duration of the construction phase.

The construction compound may include stores, a site office, material processing areas, plant storage, parking of site and staff vehicles, and other ancillary facilities and activities.

2.2.2 Control Measures

The construction compound will have appropriate levels of security to deter vandalism, theft and unauthorised access.

Suitable site security measures will be implemented on both sides of the site. Potential impacts that need to be guarded against include:

- Accidental spillage of pollutants into surrounding water bodies; and,
- Dirt, mud and other materials being dropped from lorries and plant or spread onto approaching roads and carparking areas by traffic travelling to and from the site.

Surface runoff from the compound will be minimised by ensuring that the paved/ impervious area is minimised. All surface water runoff will be intercepted and directed to appropriate treatment systems (settlement facilities and oil trap) for the removal of pollutants prior to discharge. The site compound will be fenced off and a silt fence erected and maintained on the site boundary.

Wastewater drainage from the site office and construction facilities will be contained and disposed of in an appropriate manner to prevent water pollution and in accordance with the relevant statutory requirements.

The storage of all fuels, other hydrocarbons and other chemicals shall be within the construction compound only and shall be in accordance with relevant legislation and best practice. In particular:

- Fuel storage tanks shall have secondary containment provided by means of an above ground bund to capture any oil leakage;

- All hazardous materials will be stored within secondary containment designed to retain at least 110% of the storage contents. Temporary bunds for oil/diesel storage tanks will be used on the site during the construction phase;
- Safe materials handling of all potentially hazardous materials will be emphasised to all construction personnel employed during construction; and
- Storage tanks and associated provision, including bunds, will conform to the current best practice for oil storage and will be undertaken in accordance with *Best Practice Guide BPGCS005 – Oil Storage Guidelines* (Enterprise Ireland).

The Incident Response Plan (IRP) (an outline IRP is located in Appendix A of this outline EOP) shall include arrangements for dealing with accidental spillage and relevant staff shall be trained in these procedures.

Mitigation measures during the construction phase will include implementing best practice to avoid sediment entering the watercourses, particularly Dursey Sound. Runoff will be controlled and treated to minimise impacts to surface water and groundwater, (refer to Chapters 9 and 10 in Volume 2 of this Environmental Impact Assessment Report (EIAR)).

2.3 Site Environmental Manager (SEM)

In order to ensure the successful development, implementation and maintenance of the EOP, the Contractor will be required to appoint an independent Site Environmental Manager (SEM) to provide independently verifiable audit reports.

The SEM must possess sufficient training, experience and knowledge appropriate to the nature of the task to be undertaken, a Level Eight qualification recognised by the Higher Education and Training Awards Council (HETAC), or a University equivalent, or other qualification acceptable to the Employer, in Environmental Science, Environmental Management, Environmental Hydrology, Engineering or other relevant qualification acceptable to the Employer. The SEM will demonstrate experience working in the protection of European Sites.

Separate from the on-going and detailed monitoring carried out by the Contractor as part of the EOP; the SEM shall carry out the inspection/ monitoring regime described below, and report to the Contractor. The results will be stored in the SEM's monitoring file and will be available for inspection/ audit by the Client and National Parks and Wildlife Service (NPWS) staff. All inspections/ monitoring/ results will be recorded on standard forms.

(i) Control measures for works near watercourses shall be inspected on a daily basis;

(ii) In-situ concrete operations near watercourses shall be supervised and designated chute washing out facilities shall be inspected on a daily basis;

(iii) Site compounds shall be inspected on a weekly basis;

(iv) Vibration monitoring is recommended during demolition works in order to ensure compliance with defined thresholds;

(v) Hydroacoustic monitoring will be undertaken for the full duration of the construction of the proposed development. The results will be frequently reviewed (at least fortnightly) by the Ecological Clerk of Works.

2.4 Ecological Clerk of Works (ECoW)

In order to ensure the successful development and implementation of the EOP, the Contractor will appoint an independent Ecological Clerk of Works (ECoW). The ECoW must possess training, experience and knowledge appropriate to the role, including:

- An NFQ Level 8 qualification or equivalent or other acceptable qualification in Ecology or Environmental Biology; and,
- Demonstrable experience in the protection of European sites.

The principal functions of the ECoW are:

- To provide ecological supervision of the construction of the proposed development and thereby ensure the full and proper implementation of all the mitigation measures relating to biodiversity prescribed in the EIAR and NIS;
- To regularly review the outcome of the specialist hydroacoustic monitoring and, on that basis, make any necessary adjustments to the mitigation; and,
- To carry out weekly inspections and reporting on the implementation of the Contractor's Biosecurity Protocol.

During the preparation of the Contractor's EOP, the SEM may, as appropriate, assign other duties and responsibilities to the ECoW.

In exercising his/her functions, the ECoW will be required to keep a monitoring file and this will be made available for inspection or audit by Cork County Council or the NPWS at any time.

3.0 PLANNING CONSENT

If planning permission is granted for the proposed development, the entire contents of the planning consent should be inserted here.

[*Successful Contractor to insert planning consent*]

4.0 SCHEDULE OF COMMITMENTS

The Schedule of Commitments comprises the mitigation measures as outlined in Chapter 18 Mitigation Measures in Volume 2 of this EIAR and any additional commitments arising during the EIA process up to and including the Oral Hearing.

The current Schedule of Commitments is as follows:

[*Successful Contractor to insert Schedule of Commitments*]

In addition, the Contract documents, the conditions imposed by An Bord Pleanála, the Schedule of Commitments, and relevant environmental legislation all prescribe environmental performance criteria.

The following table lists the complete suite of Environmental Commitments together with the relative specification and evidence of how each commitment will be met. An example of the layout of this table and potential entries are given below.

Table 1 Environmental Commitments

Environmental Commitment	Legislation / Specific Ref.	Action Owner	Evidence	Target Date	Close Date
Noise and Vibration	EIAR Volume 2, Chapter 12 Noise and Vibration; EIAR Volume 2, Chapter 18 Mitigation Measures	Env. Manager / Noise Specialist / Env. Designer / Site Agent / Foreman	Method Statement / Site Inspections / Monitoring Data / Environmental Control Measure Sheet	Ongoing	End of contract
Biodiversity	EIAR Volume 2, Chapter 7 Biodiversity; EIAR Volume 2, Chapter 18 Mitigation Measures	Env. Manager/ specialist ecologist/ Env. Designer / Site Agent / Foreman	Method Statement / Ecological Walkover / Pre-surveys / agreement from NPWS / Site Inspections	Ongoing	End of Contract

5.0 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

A Construction and Demolition Waste Management Plan (CDWMP) is prepared to ensure that waste arising during the construction and demolition phase of the development on site will be managed and disposed of in a way that ensures the provisions of the Waste Management (Amendment) Acts, 1996-2011 and associated Regulations (1996-2011) are complied with and to ensure that optimum levels of reduction, re-use and recycling are achieved.

An outline CDWMP, consistent with mitigation measures as contained within the EIAR and the Schedule of Commitments, is contained in Appendix C of this outline EOP.

6.0 INCIDENT RESPONSE PLAN

The Incident Response Plan (IRP) describes the procedures, lines of authority and processes that will be followed to ensure that incident response efforts are prompt, efficient, and appropriate to particular circumstances.

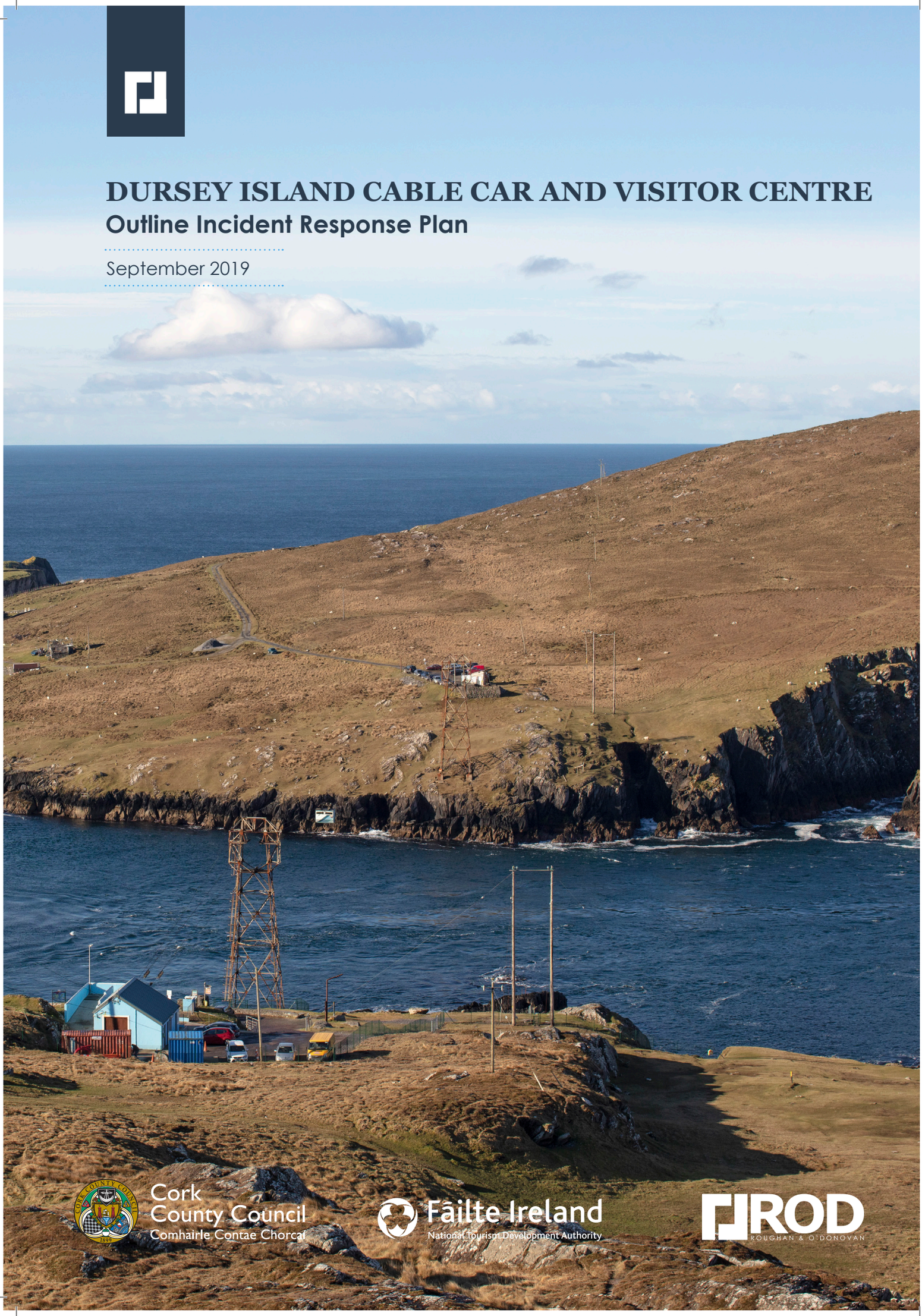
An outline IRP, consistent with mitigation measures as contained within the EIAR and the Schedule of Commitments, is contained in Appendix A of this EOP.

APPENDIX A
Outline Incident Response Plan

DURSEY ISLAND CABLE CAR AND VISITOR CENTRE

Outline Incident Response Plan

September 2019



Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

ROD
ROUGHAN & O'DONOVAN

Dursey Island Cable Car and Visitor Centre

Outline Incident Response Plan

TABLE OF CONTENTS

1.0 INTRODUCTION

This Outline Incident Response Plan (IRP) describes the procedures, lines of authority and processes that will be followed to ensure that incident response efforts during the construction stage of the proposed development are prompt, efficient, and appropriate to particular circumstances. It has been developed to provide the information that each employee may need in order to respond to an emergency and to handle it effectively.

2.0 OBJECTIVE OF PLAN

The primary objective of this document is to:

- Ensure the health and safety of workers and visitors at and in proximity to the site during the construction stage of the proposed development;
- Minimise any impacts to the environment as a result of works, and to ensure protection of the water quality and the aquatic species dependant on it;
- Protect property and operations at the proposed site and to minimise the impact on the continuity of business; and,
- Establish procedures that enable personnel to respond to incidents with an integrated multi-departmental effort and in a manner that minimises the possibility of loss and reduces the potential for affecting health, property and the environment.

3.0 RESPONSIBILITY

It is the responsibility of the Site Environmental Manager (SEM) to maintain and update this Outline IRP as required.

This Outline IRP shall be completed by the Contractor prior to the commencement of works. It will be reviewed on an ongoing basis and amended, as necessary, when one or more of the following occur:

- Applicable regulations are revised;
- The IRP fails in an emergency;
- The project changes in its design, construction, operation, maintenance, or other circumstance in a way that materially increases the potential for impacts on the environment, workers or visitors to the site during construction; and/or,
- Amendments are required by a regulatory authority.

4.0 OTHER PLANS

Cork County Council has a Major Emergency Plan prepared in accordance with the Government's Major Emergency Management Framework. This plan details the initial contact that should be made in the case of an emergency incident as well as those responsible for following up once an emergency event is declared. This plan will be available to the Contractor and may be referred to during both the construction and operation phases. The Major Emergency Plan is presented in Appendix A of this IRP.

5.0 OUTLINE INCIDENT RESPONSE PLAN

Name and address of the Client:

Cork County Council

County Hall, Carrigrohane Road, Cork

The contact within the Client organisation is Mr Liam Lynch (tel. 021 428 5939).

Site Location:

The proposed development is directly adjacent to the existing cableway, which straddles the Dursey Sound, connecting the easternmost tip of Dursey Island with the townland of Ballaghboy, on the western end of the Beara Peninsula in west County Cork (Appendix B Figure 1 Location Plan of this Outline IRP).

Overview of the activities on site:

The development comprises the following major elements:

- Erection of a two-car desynchronised reversible ropeway cableway ('cableway' hereafter)[1] with a capacity of 200-300 passengers per hour in each direction;
- Erection of two supporting line structures ('pylons' hereafter) - one on the mainland and one on the island;
- Construction of a mainland-side drive station ('mainland station' hereafter) including all necessary operating machinery, facilities for operating staff, and a platform for embarking/disembarking;
- Construction of an island-side return station ('island station' hereafter) including all necessary operating machinery, platform for embarking/disembarking, a sheltered waiting area and welfare facilities;
- Construction of a mainland-side interpretive exhibition centre with a gift shop ('Visitor Centre' hereafter);
- Construction of a mainland-side café with seating for 40 indoors, an additional 44 seats on an outdoor terrace/balcony overlooking the Dursey Sound, and welfare facilities;
- Construction of a mainland-side visitor car park with approx. 100 no. parking spaces and 1 no. bus bay;
- Retention of the existing residents' car park on Dursey Island;
- Upgrades of associated utilities infrastructure (including mainland water supply and telecommunications connectivity and mainland and island wastewater treatment systems);
- Completion of road improvement works (construction of 10 no. passing bays, 1 no. visibility splay at Bealbarnish gap (hereafter referred to as '11 no. passing bays') and completion of a number of local improvements to improve visibility) on an 8km stretch of the mainland-side approach road R572 (between the R572-R575 junction at Bealbarnish Gap and the mainland side of the cable car site);
- Demolition/removal of some elements of the existing cableway infrastructure (ropeway, island-side pylon), mainland-side visitor car park and island and mainland station buildings;
- Erection of interpretive/informative signage at strategic locations;
- Erection of 4 no. Variable Message Signs (VMS) at four locations along the approach roads to the site:
    1. Bealbarnish Gap;
    2. R572 at Castletownbere;
    3. R575 at Eyeries Cross; and
    4. N71 at Glengarriff;

[1] The term 'Cable Car' refers to the carrier cabin which conveys passengers to and from the island via the cableway.

- Retention of the cable car, mainland pylon and a section of the mainland-side hauling machinery of the existing cableway in order to facilitate ongoing appreciation of their industrial architectural and cultural heritage value;
- Soft and hard landscaping; and
- All other ancillary works.

Description of the proposed development and surrounding area:

The proposed development is located in a rural area of the Beara Peninsula in west County Cork, c. 145km from Cork City. The Dursey Sound is a rocky tidal channel dividing the Dursey Island from the peninsula, which is particularly dangerous to traverse by boats. As a result, a cableway is the only viable option of providing connection to, and from the island. The proposed development comprises the decommissioning of the existing Dursey Island cableway and the construction of a new cableway and associated structures, including a visitor interpretive centre and café on the mainland. Cork County Council owns and operated the cableway. Some elements of the existing cableway infrastructure will be retained onsite to promote their industrial architecture and cultural values. The proposed cableway will run parallel to the existing alignment offset by approximately 14m to the north. The end-to-end length of the proposed cableway will be approximately 375m which is slightly shorter than the length of the existing cableway. The majority of the proposed works will be carried out on lands currently owned by Cork County Council, with the exception of the island station, island pylon and improvement works to the R572 approach road which will necessitate the compulsory purchase order (CPO) of private land in these areas.

Potential Incidents:

Potential incidents requiring emergency response procedures include:

- Fuel and oil spills;
- Road traffic accidents involving chemical or biological spills;
- Earth slippages;
- Coastal flooding;
- Fires;
- Activities resulting in noise and vibration, air pollution, hazardous substances or impacts on water;
- Waste management; and,
- Discharge of effluent.

The Contractor will update the list of potential incidents based on their proposed construction methods and programme for the Dursey Island Cable Car and Visitor Centre and include, as a minimum, the following:

- The measures to be taken to avoid or reduce the risk potential;
- Procedures to be put in place to deal with the risk;
- Person responsible for dealing with incidents;
- Procedures for alerting key staff;
- Standby/rota systems;
- Clearly defined roles and responsibilities;
- Names of staff and contractors trained in incident response;
- The types and location of emergency response equipment available and appropriate personal protective equipment to be worn;
- A system of response coordination;
- Off-site support; and,
- Particular emergency service or persons to be notified in case of incident.

Date and version of the plan:	**Name or position of person responsible for compiling/approving the plan:**
August 2019 V1	

	Christine Murphy and Barry Corrigan Roughan & O'Donovan
Review Date:	**Date of next exercise:**

Objectives of the IRP:

To ensure works are carried out in such a way as to avoid injury, health hazards or pollution incidents, however, should any such incident occur, procedures and measures will be implemented to contain, limit and mitigate the effects as far as reasonably practicable.

List of external organisations consulted in the preparation of the IRP:

TBC by Contractor when preparing IRP

Distribution of the IRP

Recipient	No. of copies	Version

6.0 EXTERNAL CONTACTS

External Contacts		
Contact	**Office Hours**	**Out of Hours**
Castletownbere Fire Service	(027) 70976	999 / 112
Gardaí: Emergency	999 / 112	999 / 112
Gardaí: Castletownbere Garda Station	(027) 70002	(027) 70002
St. Joseph's Community Hospital, Derrymihin West	(027) 70004	(027) 70004
EPA Regional Inspectorate Cork	(021) 487 5545	-
Cork County Council Emergency Planning Department	(021) 480 0048	(021) 480 0048
ESB	1850 372 757	1850 372 999
Bord Gáis	1850 200 694 / 1850 20 50 50	1850 20 50 50
Waste Management Contractor	TBC	
Specialist Advice	TBC	
Specialist Clean up Contractor	TBC	
Cork County Council	(021) 427 6891	(021) 480 0048
National Parks & Wildlife Service		To be agreed with NPWS

7.0 INTERNAL (CONTRACTORS) CONTACTS

Internal Contacts		
Contact	**Office Hours**	**Out of Hours**
Names and positions of staff authorised/trained to activate and coordinate the IRP	TBC	
Other Staff	TBC	
Managing Director	TBC	
Site Manager	TBC	
Health & Safety Manager	TBC	
Site Environmental Manager	TBC	

8.0 CHEMICAL PRODUCT AND WASTE INVENTORY

Inventory of Chemical Products and Wastes						
Trade Name / Substance	**Solid / liquid / gas or powder**	**UN number**	**Maximum amount**	**Location marked on site plan**	**Type of containment**	**Relevant health and environmental problems**

9.0 POLLUTION PREVENTION EQUIPMENT INVENTORY

Inventory of Pollution Prevention Equipment (on- and off-site resources)			

10.0 DRAWINGS

A drawing showing the location of the proposed development is included in **Appendix B** of this Outline IRP.

Site Plan
Figure 1 - Location Plan

11.0 RESPONSE PLANNING

11.1 Incident Response Plan

The Contractor's Environmental Operating Plan (EOP) will include an Incident Response Plan, which will detail the controls to be adopted to manage the risk of pollution incidents and procedures to be followed in the event of any pollution incidents.

11.2 The Incident Response Plan will include the following, as appropriate:

- Reference to the Method Statements and Management Plans for other construction activities, insofar as they are relevant for the purposes of mitigating against health and safety and pollution incidents;
- Procedures to be adopted to contain, limit and mitigate any adverse effects, as far as reasonably practicable, in the event of a health and safety or pollution incident;
- Details of spill clean-up companies appropriate to deal with pollution incidents associated with the materials being used or stored on site.
- Procedures to be followed and appropriate information to be provided in the event of any incident, such as a spillage or release of a potentially hazardous material;
- Procedures for notifying appropriate emergency services, authorities, the Employer's Representative and personnel on the construction site;
- Procedures for notifying relevant statutory bodies, environmental regulatory bodies, local authorities and local water and sewer providers of pollution incidents, where required;
- Maps showing the locations, together with address and contact details, of local emergency services facilities such as police stations, fire authorities, medical facilities and other relevant authorities; and,
- Contact details for the persons responsible on the construction site and within the Contractor's organisation for pollution incident response.

11.3 Monitoring

The Contractor will investigate and provide reports on any health and safety or pollution incidents to the Employer's Representative, including, as appropriate:

- A description of the incident;
- Contributory causes;
- Adverse effects;
- Measures implemented to mitigate adverse effects; and,

- Effectiveness of measures implemented to prevent pollution.

The Contractor will undertake appropriate monitoring of the procedures and measures set out in the management plans for construction activities required to prevent health and safety or pollution incidents to ensure they are being adequately implemented.

The Contractor will monitor the effectiveness of the procedures and measures implemented in the event of an incident and the effectiveness of the response procedures set out in the IRP to identify any areas where improvement is required.

APPENDIX 4.1A - A
Cork County Council Major Emergency Plan

CORK COUNTY COUNCIL
MAJOR EMERGENCY PLAN

Valid From: 18th December 2018

ABRIDGED VERSION

Title:	**Major Emergency Plan**
Version:	**5.0**
Prepared By:	**Major Emergency Management Committee**
Approved By:	**James Fogarty, Divisional Manager**

Record of Issues and Amendments

Version No.	Date	Section Amended	Issued By
1.0	Sept. 2008	Original Issue	DH
2.0	Jan. 2011	All	DH
2.1	July 2012	Appendix 3 – Contact details amended Appendix 22 – EPA MoU added	DH
2.2	Aug. 2013	Appendix 5 – Flood Emergency Response Plan amended Appendix 11 – Port of Cork Emergency Plan amended Appendix 12 – Bantry Bay Port Emergency Plan amended	DH
2.3	Dec. 2013	Appendix 3 – Contact details Appendix 4 – Severe Weather Plan (excluding flooding) Appendix 10 –Cork Airport Plan Appendix 18 – Persons authorised to activate the major emergency plan	DH
3.0	Dec. 2014	Main plan (all sections) Appendix 1 – Mobilisation Procedure Appendix 3 – Contact details Appendix 4 – Severe Weather Plan Appendix 5 – Flood Emergency Response Plan Appendix 9 – Procedure for requesting DF Appendix 16 – Multiple Fatality Guide Appendix 18 – Persons authorised to activate the major emergency plan Appendix 20- Evacuation Guide Appendix 21 – Contact Centre arrangements Appendix 23 – Voluntary Emergency Services Guide	DH
3.1	Sept 2015	Appendix 3 – Contact details Appendix 18 – Persons authorised to activate the MEP	DH
3.2	Dec 2015	Appendix 3 – Contact details Appendix 4 – Severe Weather Plan Appendix 21 – Contact Centre Arrangements	DH
4.0	Dec 2016	Main plan (minor edits) Appendix 1 – Major Emergency Mobilisation procedure Appendix 3 – Contact details Appendix 4 – Severe Weather Plan Appendix 5 – Flood Emergency Response Plan Appendix 9 – Procedure for requesting DF Appendix 18 – Persons authorised to activate the MEP Appendix 24 – Inter-Agency Emergency Plan for Jack Lynch Tunnel added Appendix 25 – Oil & HNS Spill Plan added	DH
5.0	Dec 2018	Appendix 3 – Contact details (Updated) Appendix 4 – Severe Weather Plan (Updated) Appendix 5 – Flood Emergency Response Plan (Updated)	FM

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(ix) Novartis Ringaskiddy Ltd., Ringaskiddy Co. Cork

(x) BASF Ireland Ltd., Little Island. Co. Cork

(xi) Calor Tivoli, Tivoli, Cork

(xii) FloGas Tivoli, Tivoli, Cork

(xiii) Grassland Agro, Carrigrohane, Cork

Appendix 8: Regional Contact Details

Appendix 9: Procedure for requesting assistance from the Defence Forces

Appendix 10: Inter-Agency Emergency Plan for Cork Airport

Appendix 11: Port of Cork Emergency Plan

Appendix 12: Bantry Bay Port Emergency Plan

Appendix 13: Glossary of Terms and Abbreviations

Appendix 14: Regional Media Plan

Appendix 15: Site Management Arrangements

Appendix 16: Multiple Fatalities Guide (MEM Region South)

Appendix 17: Pre-nominated Lead Agencies for different Categories of Emergency

Appendix 18: List of Authorised Persons to activate Major Emergency Plan

Appendix 19: Format for Notifying DHPCLG of Declaration of a Major Emergency

Appendix 20: Evacuation Guide (MEM Region South)

Appendix 21: Cork County Council's Contact Centre Arrangements)

Appendix 22: Memorandum of Understanding between NDFEM & EPA

Appendix 23: Voluntary Emergency Services Guide (MEM Region South)

Appendix 24 – Inter-Agency Emergency Plan for Jack Lynch Tunnel

Appendix 25 – Oil and Hazardous & Noxious Substances Spill Contingency Plan

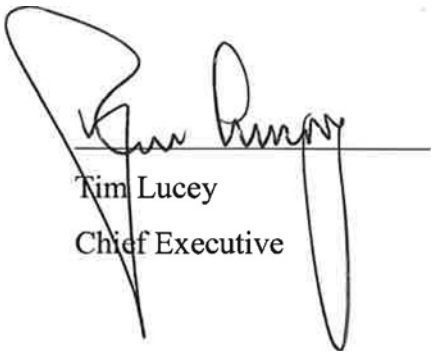
Foreword

This forth issue of Cork County Council's Major Emergency Plan takes effect from noon on the 22nd December 2016. The plan has been prepared and reviewed in accordance with the *Frameworkfor Major Emergency Management.*

Under the Framework, a network of robust arrangements for the management of major emergencies has been developed and put in place in Local Authorities, An Garda Síochána and the HSE at local, regional and national level. The Framework emphasises a systematic approach to major emergency management and the *Major Emergency Plan* itself is a critical document underpinning our preparedness to deliver a first class response should disaster strike. It is a priority of the Council to be at all times prepared to measure up to best international standards in major emergency management.

While no contingency plan can cater for every possible scenario the procedures set out in the *Major Emergency Plan* will ensure that staff at all levels are aware of their responsibilities and that appropriate actions are initiated in a timely and effective manner to deal with a major emergency through all its phases.

The *Major Emergency Plan,* and indeed the many more specific plans that support it, will be subject to regular review and appraisal under the terms of the Framework. In particular, the lessons to be learned from emergencies that occur in County Cork and elsewhere will be captured and used to continually improve and strengthen our arrangements.



Tim Lucey
Chief Executive

THIS SECTION HAS BEEN
OMITTED FROM THIS VERSION FOR
CONFIDENTIAL
REASONS

CORK COUNTY COUNCIL
MAJOR EMERGENCY PLAN

Cover Sheet for Munster Regional Communications Centre

On activation of the Cork County Councils Major Emergency Plan by an Authorised Officer, MRCC will:

1) **Mobilise the Fire Brigade according to Control Room Procedures and inform RSFO.**
2) **Notify Principal Response Agencies (PRA's)**

Where MRCC receive notification of a Major Emergency from another PRA, MRCC as part of pre-set actions, confirm to the other 2 PRA's involved that the Cork County Councils Major Emergency Plan has been activated.

3) **Notify RSFO (N&E), Cork County Fire Service**
4) **Notify RSFO (S&W), Cork County Fire Service**
5) **Notify RSFO (Serious Incidents) Cork County Fire Service**
6) **Notify Chief Fire Officer, Cork County Fire Service**
7) **Notify Chief Executive or Divisional Manager by phone.**
8) **Notify All of Cork County Council's Major Emergency Staff via Saadian Text Alert**

Section 1 - Introduction to Plan

1.1 Cork County Council

Cork County Council is the local authority responsible for local government in County Cork.

1.2 Purpose

The purpose of this plan is to put in place arrangements that will enable the three Principal Response Agencies (PRA's) for the area, An Garda Síochána, the Health Service Executive and the Local Authority to co-ordinate their efforts whenever a major emergency occurs.

1.3 The Objectives of the Major Emergency Plan

The objective of this Major Emergency Plan is to protect life and property, to minimise disruption to the community and to provide immediate support for those affected. To achieve this objective the Plan sets out the basis for a co-ordinated response to a major emergency and the different roles and functions to be performed by the various agencies. The fact that procedures have been specified in the Plan should not restrict the use of initiative or common-sense by individual officers in the light of prevailing circumstances in a particular emergency. The priorities of Cork County Councils response in an emergency are;

- Protection and care of the public at times of vulnerability.
- Clear leadership in times of crisis.
- Early and appropriate response.
- Efficient, coordinated operations.
- Realistic and rational approach, capable of being delivered.
- Transparent systems, with accountability.
- Harnessing community spirit.
- The ethos of self protection.
- Maintenance of essential services.
- Safe working.

1.4 The scope of the Major Emergency Plan and the situations / conditions in which the Plan will be activated.

This Major Emergency Plan provides for a co-ordinated response to major emergencies that may arise, for example, from fires, explosions, gas releases, transportation accidents, spillages of dangerous substances and from severe weather. The types of emergency normally resulting from oil supply crises, electrical power blackouts, industrial disputes etc. are of a different nature and are not catered for in this Plan. It is recognised, however, that such emergencies could result in a situation, such as a major gas explosion, requiring activation of the Major Emergency Plan.

This plan consists of **two** distinct parts;

- the plan proper is intended to provide uniform procedures in relation to those matters which can be standardised nationally e.g. activation of Plan, control of operations, allocation of functions etc.;
- the appendices which are attached to this Plan which contain further specific procedures and protocols relevant to the operation of the Plan;

1.5 The relationship / inter-operability of the Major Emergency Plan with other emergency plans.

An Garda Síochána, the Health Service Executive and Cork County Council are the PRA's charged with managing the response to emergency situations which arise at a local level in Cork County Councils functional area.

In certain circumstances, the local response to a major emergency may be scaled up to a regional level response, requiring the activation of the Plan for Regional Level Co-ordination

The Major Emergency Plan also contains specific sub-plans such as the Severe Weather Plan, Flood Emergency Response Plan, Drinking Water Incident Response Plan and External Emergency Plans for Upper Tier Establishments coming under the Seveso Regulations. *See Appendices 4, 5, 6 & 7.*

1.6 The language / terminology of the Plan

A full set of relevant terms and acronyms are provided in *Appendix 13*, which should be used by **all** agencies.

1.7 The distribution of the Plan

Full Copies of the plan will be distributed in hardcopy or electronic format to all appropriate officers and departments of Cork County Council.

Name / Organisation
Cork County Council • Chief Executive • Divisional Managers • Director of Services • Heads of Function • County Engineer • Senior Engineers • Area Engineers • Media Liaison Officers • Chief Fire Officer • Rostered Senior Fire Officers • Civil Defence Officer's • Local Co-ordination Room • Crisis Management Team Room • Each Fire Station
Other Local Authorities Available via Inter-Agency Emergency Management Office website www.iaemo.ie
An Garda Síochána Available via Inter-Agency Emergency Management Office website www.iaemo.ie
Health Service Executive (South) Available via Inter-Agency Emergency Management Office website www.iaemo.ie
Munster Regional Communications Centre
Department of Housing, Planning, Community & Local Government
Defence Forces Available via Inter-Agency Emergency Management Office website www.iaemo.ie
Airports / Ports Available via Inter-Agency Emergency Management Office website www.iaemo.ie

1.8 The status of the Plan and when and how it will be reviewed / updated

This Plan will be reviewed annually or as required.

1.9 Public access to the Plan

An abridged version of the Major Emergency Plan is available to the public on Cork County Councils website at www.corkcoco.ie

Section 2 - Cork County Council and its Functional Area

2.1 Functional area of Cork County Council

The functional area of Cork County Council is the administrative area of Cork County. The county is served by 55 councillors, representing eight Municipal Districts and is the largest elected assembly outside of Dublin. The main administrative office is located at County Hall, Carrigrohane Road, Cork. There are three divisional offices in Mallow, Clonakilty & Skibbereen, 8 Municipal District Offices, 22 Area Offices and 21 Fire Stations in County Cork. Other premises include Local Enterprise Offices, Environmental Laboratories, Water & Wastewater Treatment Plants, Pumping Stations, Libraries, Road Design Offices and the Energy Office. Cork County Council employs over 2,000 people with an annual revenue budget of approximately €300 million.

Cork County Council delivers its functions and services through the structure outlined in Section 4.1.

2.2 Boundaries and characteristics of the area.

County Cork covers an area of 7,459 square kilometres (2,880 square miles), which is 11% of the Irish State and makes Cork, Ireland's largest county. In the 2016 census, the population of County Cork was 416,574 which represents a 4.2% increase over the 2011 Census. County Cork has a coastline of 1,100 km and has seven inhabited islands. The County has a number of major rivers including the Munster Blackwater, River Lee and River Bandon. There are a number of mountain ranges in the County including the Caha, Slieve Mish, Derrynasaggart, Boggeragh and Knockmealdown mountains. There is a strong agricultural base in the county with much of north Cork lying within the "Golden Vale" which is a fertile dairy-farming region. Cork Harbour is one of the largest natural harbours in the world and the Port of Cork is a busy commercial port with seasonal ferry crossings to France. Cork International Airport has direct flights to the UK and Europe and connecting flights to other International destinations. County Cork has a strong industrial base, particularly in the Cork Harbour area where a high number of chemical, pharmaceutical and petrochemical companies are based primarily in Ringaskiddy, Little Island, Carrigtwohill and Whitegate. (*See Cork County Council - Risk Assessment in Major Emergency Management for a more detailed assessment of the characteristics of the area).*

2.3 Partner Principal Response Agencies

Other agencies responsible for Emergency Services in this area are:-

- Health Service Executive (South): comprising of counties Kerry, Cork, Waterford, Wexford, Carlow, Kilkenny and South Tipperary.
- An Garda Síochána: Cork City Division, Cork North Division & Cork West Division.
- Cork City Council (A City/County Agreement is in place for Fire Service cover in the Cork City environs area of the County).

Assistance may be required by other agencies such as the Irish Coastguard, Defence Forces, Civil Defence, Irish Red Cross, Mountain Rescue etc.

2.4 Regional Preparedness

Under certain specific circumstances regional level major emergencies may be declared and the Plan for Regional Level Co-ordination activated. This will provide for mutual aid, support and co-ordination facilities to be activated in a region, the boundaries of which are determined to suit the exigencies of the particular emergency. There are eight regions in total that have been created for Major Emergency purposes. The regions are shown in the Map below.

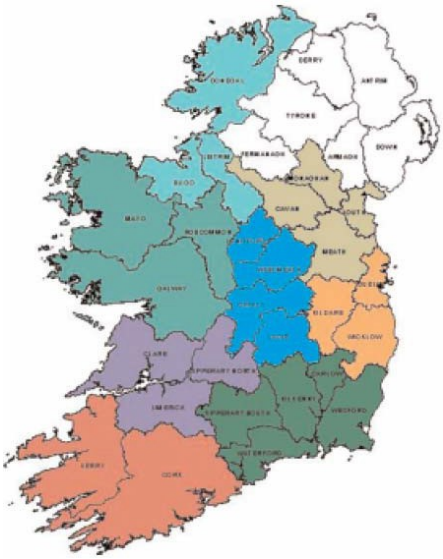


Figure 2.1

Map of the Major Emergency Management regions

Cork County Council is part of the Major Emergency Management South Region. The Principal Response Agencies for the region include:

- Cork County Council
- Cork City Council
- Kerry County Council
- H.S.E. (South)
- An Garda Síochána (Cork City Division, Cork North Division, Cork West Division & the Kerry Division)

An inter-agency Regional Steering Group has been established for the South Region. This group is representative of the senior management from each of the Principal Response Agencies (PRA's) with the chair of the group rotating every two years between agencies.

A Regional Working Group on Major Emergency Management has also been established to support the work of the Steering Group. The membership of the Regional Working Group is drawn from key operational personnel in the Principal Response Agencies and also representatives from the Defence Forces, Irish Coastguard and the Port of Cork. The Chairperson of the group also rotates every two years between agencies.

Section 3 - Risk Assessment for the Area

3.1 History of area in terms of emergency events

To prepare effectively to deal with potential emergencies it is necessary to have regard to specific risks faced by a community. Risk Assessment is a process by which the hazards facing a particular community are identified and assessed in terms of the risk which they pose. (*See Cork County Council - Risk Assessment in Major Emergency Management for detailed Risk Assessment)*

A number of Major Emergencies and large scale serious incidents have occurred within County Cork or off the Cork coast over the years including:

- Glounthaune Bus Crash, 1978
- Whiddy Island Disaster, 1979
- Buttevant Rail Crash, 1980
- Air India, 1985 (off south-west coast)
- Hickson's Pharmachem Fire, Ringaskiddy, 1993
- Manx2 Air-crash, Cork Airport, 2011

3.2 The general and specific risks that may be faced locally and regionally

Cork County Council has undertaken a Risk Assessment in accordance with the Framework for Major Emergency Management and A Guide to Risk Assessment in Major Emergency Management. A Regional Risk Assessment has also been undertaken by the Principal Response Agencies in the South Region and approved by the Regional Steering Group. (*See MEM Risk Assessment – Region South for detailed information)*

3.3 Scenarios

The following have been selected as exemplars on which preparedness for Major Emergencies in Cork County Council has been based.

- Flooding & Severe Weather
- Aircraft Collision / Loss
- Water Contamination / pollution incident
- Fire / Explosion / Toxic Cloud release at industrial site
- Fire/ Major Crowd Safety incident

- Major Road / Rail Incident
- Marine Emergency in Port (passenger ferry)
- Hazardous materials incident (Transportation)
- Loss of critical infrastructure
- Pandemic Influenza outbreak

3.4 Site / event specific emergency plans associated with the Major Emergency Plan

Associated with this PLAN are site/event specific emergency plans for Cork County Council and other agencies/sites. *(See Appendices 4, 5, 6, 7, 10, 11 &12)*

- Severe Weather Plan (excluding flooding)
- Flood Emergency Response Plan
- Drinking Water Incident Response Plan
- External Emergency Plans for Upper Tier Seveso Sites
- Inter-agency Emergency Plan for Cork Airport
- Inter-Agency Emergency Plan for the jack Lynch Tunnel
- Port of Cork Emergency Plan
- Bantry Bay Port Emergency Plan

Section 4 - Resources for Emergency Response

4.1 Structure / resources / services of the Council, which may be used for emergency response

Cork County Council delivers its functions and services through the following Divisions and Directorates.

- Roads & Transportation
- Municipal District Operations & Rural Development
- Housing
- Environment & Emergency Services
- Planning & Development
- Economic Development, Enterprise & Tourism
- County Engineer & Water Services
- Corporate Services
- Finance
- Personnel
- ICT

All or any part of the above directorates may be called upon in the event of a major emergency event occurring in County Cork.

Fire Service

The Fire Service will usually form Cork County Councils primary response to a Major Emergency and is structured as follows:

Headquarters:-

- Ballincollig

4 Divisional offices:–

- Midleton, Mallow, Carrigaline and Bantry

21 Retained Fire Stations in four divisions:-

- South – Ballincollig, Bandon, Carrigaline, Crosshaven, Kinsale, Macroom
- North - Charleville, Fermoy, Kanturk, Mallow, Millstreet, Mitchelstown.
- West – Bantry, Castletownbere, Clonakilty, Dunmanway, Schull, Skibbereen
- East – Cobh, Midleton & Youghal

Personnel (Full-Time):-

The Fire and Building Control Department of Cork County Council is comprised of 261 staff as follows:

- 31 Senior Fire Officers each holding a professional qualification
- 11 Administrative Staff
- 21 Station Officers
- 21 Sub-Station Officers
- 174 Fire-fighters
- 3 Fitter Mechanics/Technician Staff

Vehicle Fleet

37 No. Water tenders (Class B Appliances), 1 No. Hydraulic Platform, 3 No. Water Carriers, 3 No. Emergency Tenders, 4 No. 4X4 vehicles,3 No. Mobile Workshops, 3 No. General Purpose Vans.

Rostered Senior Fire Officers

There are three Rostered Senior Fire Officers on-call at any one time and these officers will be available to respond to a Major Emergency including:

- Rostered Officer (North & East)
- Rostered Officer (South & West)
- Serious Incidents Rostered Officer

4.2 Special staffing arrangements during a Major Emergency

Cork County Council will call-in off-duty staff on a voluntary basis to assist the organisation in the response to a Major Emergency. In addition, the Civil Defence under the Authority of Cork County Council can be mobilised by the Civil Defence Officer for the area. However, the Civil Defence response is dependent on the availability of volunteers, *see section 4.4.1.*

4.3 Other organisations / agencies that may be mobilised to assist in the response to a Major Emergency

There are a number of organisations and agencies which may be called upon to assist the PRA's in responding to major emergencies in addition to specialist national and local organisations. These organisations are as follows;

- Defence Force

- Civil Defence
- Irish Coast Guard
- The Irish Red Cross
- Voluntary Emergency Services such as Mountain Rescue groups, River Rescue, SARDA (Search and Rescue Dog Association), I.C.R.O. (Irish Cave Rescue Organization), Order of Malta.
- Community Volunteers
- Utility companies (ESB, Bord Gáis, Bus Éireann etc)
- Communications providers (Eircom, Vodafone, O2, Three etc)
- Private contractors

(See Appendix 8 – Regional Contact Details & Appendix 23- – Voluntary Emergency Services Guide)

4.3.1 Civil Defence

There are three branches of Civil Defence within Cork County's region. These are based in Mallow, Kinsale & Skibbereen. In the event of a Major Emergency, Civil Defence units will report to their respective headquarters and be at the disposal of the Local Authority Controller of Operations. Civil Defence ambulance units based close to Cork City will report to Ambulance Control, Kinsale Business Park, Kinsale Road, if requested.

Civil Defence Skills\Capabilities

The skills\capabilities available within Civil defence include the following:

- First aid – ambulance based
- Search and rescue – land based
- Search and recovery – water based
- Radiation monitoring
- Radio communications
- Auxiliary Fire Service
- Portable fire pump skills
- Welfare provision

See Appendix 23- – Voluntary Emergency Services Guide

4.3.2 The Defence Forces

The Defence Forces can provide a significant support role in a major emergency response. However, there are constraints and limitations, and their involvement has to be pre-planned. It should not be assumed that local military units have personnel available, with either the skill set or equipment to undertake specialist tasks. Provision of Defence Forces capabilities is dependent on the exigencies of the service and within available resources at the time.

It is recognised that assistance requested from the Defence Forces should be either in Aid to the Civil Power (An Garda Síochána) or in Aid to the Civil Authority (Local Authority or Health Service Executive). The major distinguishing feature between the two types of Aid is that the Defence Forces response to requests for Aid to the Civil Power is primarily an armed response while Defence Forces response to requests for Aid to the Civil Authority will be unarmed.

4.3.3 The Irish Red Cross

The Irish Red Cross is established and regulated under the Red Cross Acts, 1938-54. These statutes define a role for the Irish Red Cross as an auxiliary to the state authorities in time of emergency and also provide a specific mandate to assist the medical services of the Irish Defence Forces in time of armed conflict. The main relationship with the principal response agencies in major emergency response is as an auxiliary resource to the ambulance services. Subsidiary search and rescue and in-shore rescue units of the Irish Red Cross support An Garda Síochána and the Irish Coast Guard.

4.3.4 Voluntary Emergency Services Sector

See Appendix 23- – Voluntary Emergency Services Guide)

4.3.5 The community affected

In emergency situations, such as flooding, land-slides, bog and forest fires, a sense of solidarity and community prompts people to become involved.

Individuals acting in this way are termed "community volunteers" in major emergency management and they can provide a valuable resource to the Principal Response Agencies, as well as to casualties and those needing assistance. It is

recognised that communities that are empowered to be part of the response to a disaster, rather than allowing themselves to be simply victims of it, are more likely to recover and to restore normality quickly, with fewer long-term consequences.

The activities of the "community volunteer" may fall into two categories:

- those which are instinctive and unplanned in the immediate aftermath of an emergency occurring; and
- those which are part of a planned response to a situation (such as a search for missing persons).

In the first case, the involvement of community volunteers could give rise to conflict with the designation of cordons as part of site management arrangements. It is important that at an early stage the On-Site Co-ordinator, in association with the other Controllers, should determine if on-going assistance is required from community volunteers, so that An Garda Síochána cordoning arrangements can take account of this.

Where the On-Site Co-ordinator determines that community volunteers should be integrated into the response, it is recommended that the service tasking them, or confirming them in tasks on which they are engaged, should request volunteers to form teams of three, four or five persons, depending on the tasks, with one of their number as team leader. Where available, orange armbands emblazoned with the word 'Volunteer' or suitable abbreviation, e.g. 'VOL', will be issued by Civil Defence with whom they will be offered a temporary volunteer status.

4.3.6 Utilities

Utilities are frequently involved in the response to emergencies, usually to assist the principal response agencies in making situations safe. They may also be directly involved in restoring their own services, for example, electricity supply in the aftermath of a storm. It is important that there is close co-ordination between the principal response agencies and utilities involved in or affected by an emergency. Utilities operate under their own legislative and regulatory frameworks but, during the response to an emergency, they need to liaise with the On-Site Co-ordinator. It is also recommended that representatives of individual utilities on-site should be invited to provide a representative for the On-Site Co-ordination Group. It is recommended that individual utilities be invited to attend and participate in relevant work of Local Co-ordination Groups. *(See Appendix 8 – Regional Contact Details)*

4.3.7 Private Sector

Private sector organisations may be involved in a major emergency situation in two ways. They may be involved through, for example, ownership of the site where the emergency has occurred or through ownership of some element involved in the emergency e.g. an aircraft, bus, factory, etc. They may also be called on to assist in the response to a major emergency by providing specialist services and equipment, which would not normally be held or available within the Principal Response Agencies.

4.4 Mutual-aid

In the event that resources within Cork County Council are not sufficient to bring a situation under control, or the duration of an incident is extended such that additional resources are required, then support may be obtained from neighbouring counties. Local Authorities will support each other on a mutual aid basis. Support is most likely to be requested from;

- Cork City Council
- Kerry County Council
- Limerick County Council
- Tipperary County Council
- Waterford County Council

4.5 Regional level co-ordinated response

Cork County Council is one of three Local Authorities in the South Region, *see section 2.5*. In certain circumstances, the local response to a major emergency may be scaled up to a regional level emergency. This may occur where the nature of an emergency is such that:

- the resources available in the local area where the incident occurs do not appear to be sufficient to bring the situation under control in an expeditious and efficient manner; or,
- the consequences of the emergency are likely to impact significantly outside of the local area; or,
- the incident(s) is spread over the area of more than one Local Authority or Division of An Garda Síochána; or,

- the incident occurs at or close to a boundary of several of the Principal Response Agencies.

The Chair of the Local Co-ordination Group may declare that a regional level major emergency exists and activate the Plan for Regional Level Co-ordination. The key provision for ensuring co-ordination of the extended response is the activation of a Regional Co-ordination Group. The primary function of the Regional Co-ordination Group is to maintain co-ordination of the principal response agencies involved from the extended "response region". The boundaries of the actual "region" for response purposes should be determined by the lead agency, which has declared the regional level emergency, in light of the circumstances prevailing, or likely to develop. The lead agency which has declared the regional level emergency will convene and chair the Regional Co-ordination Group.

Note: The regions for response purposes need not necessarily coincide with the designated regions for preparedness.

4.6 National / International assistance

In the event that the scale of the emergency becomes too large, complex or long in duration a request may be made to seek assistance from neighbouring or other regions of the country, or from outside the state. This decision should be made by the lead agency in consultation with the other Principal Response Agencies at the Regional Co-ordination Centre.

The Regional Co-ordination Group shall identify and dimension the level/type of assistance likely to be required and its duration. It shall also seek to identify the possible options for sourcing such assistance, be that from neighbouring regions, elsewhere in the state, the United Kingdom or from other EU member states.

The Regional Co-ordination Group may also request assistance from Government. National resources will be available in the event of a major emergency at local or regional level. Requests for assistance should be developed at local or regional co-ordination level and directed by the lead agency to the lead Government Department.

The European Union has established a Community Mechanism to facilitate the provision of assistance between the member states in the event of major emergencies. Requests for such assistance should be made by the chair of the Local or Regional Co-ordination Group to the National Liaison Officer at the Department of Housing, Planning Community & Local Government.

Section 5 - Preparedness for Major Emergency Response

5.1 Assignment of responsibility for Major Emergency Management

The Chief Executive is responsible for Cork County Councils Major Emergency Management arrangements and preparedness, as well as for the effectiveness of the agency's response to any major emergency which occurs in its functional area.

5.2 Documentation of a Major Emergency Management Programme

The responsibility for overseeing the implementation of the Major Emergency Management Programme within Cork County Council is assigned to the Divisional Manager (West), supported by the Major Emergency Management Committee including sub-groups and support teams across the whole organisation.

5.3 Key roles identified in the Major Emergency Plan

Cork County Council has nominated competent individuals and alternates to the following key roles.

- Controller of Operations
- On-Site Co-ordinator
- Chair of Crisis Management Team
- Chair of Local Co-ordination Group
- Information Management Officers / Action Management Officers
- Media Liaison Officers

See Appendix 3(i) for list of nominations and contact details

5.4 Support teams for key roles

Support teams will be mobilised and tasked by the Crisis Management Team to support and assist individuals in key roles in the response to a Major Emergency.

5.5 Staff development programme

The provisions of the Framework and the tasks arising from the new major emergency management arrangements involve a significant level of development activity, both within Cork County Council and jointly with our regional partners.

In parallel with risk assessment and mitigation processes and the preparation of the Major Emergency Plan, Cork County Council has initiated an internal programme to develop its level of preparedness, so that in the event of a major emergency it will be in a position to respond in an efficient and effective manner and discharge the assigned functions in accordance with the Framework.

5.6 Training programme

Training is a key element in the development of preparedness for Cork County Council, to ensure the provision of an effective, co-ordinated response to major emergencies when required. There are many levels of training, ranging from general awareness of the major emergency management arrangements to equipping people with knowledge and skills to perform key roles.

The training programme encompasses the following areas:

- Information Management
- On-Site Co-ordinator / Controller of Operations
- Crisis Management Team
- Media skills
- Inter-Agency Training

5.7 Internal exercise programme

Internal exercises and training is used to raise awareness, educate individuals on their roles and the roles of others and promote co-ordination and co-operation, as well as validating plans, systems and procedures.

5.8 Joint / inter-agency training and exercise programmes

Joint inter-agency training and exercises are provided at a regional level, co-ordinated by the Regional Working Group. The aims of the training and exercising programme are to improve awareness and educate all involved in the roles and responsibilities of Principal Response Agencies in the event of a major emergency.

5.9 The allocation of specific resources including a budget for preparedness

Cork County Council provides a budget for major emergency preparedness, which reflects the expenditure required to meet the costs of implementing Cork County

Councils internal preparedness, as well as Cork County Councils contribution to regional level inter-agency preparedness.

5.10 Procurement and use of resources (including engaging third parties) to assist in response to major emergencies

The Crisis Management will sanction the use of emergency funds to assist in the response to a Major Emergency.

5.11 Annual appraisal of preparedness

Cork County Council will carry out and document an annual internal appraisal of its preparedness for major emergency response. The appraisal shall be undertaken in accordance with *A Guide to undertaking an Appraisal* and shall be sent for external appraisal to the Regional Steering Group and the Department of Housing, Planning, Community & Local Government.

Section 6 - The Generic Command, Control and Co-ordination Systems

6.1 Command arrangements

Cork County Council shall exercise command over its own services in accordance with its normal command structure. Control of Cork County Councils services at the site of the emergency shall be exercised by the Controller of Operations. *See also Section 6.2.2 for control of other services.*

6.2 Control arrangements

Cork County Council shall appoint a Controller of Operations at the site (or at each site) of the emergency. The officer-in-charge of the initial response of each Principal Emergency Service shall be the agency's Controller of Operations until relieved through the agency's pre-determined process.

In certain situations, e.g. where an emergency affects an extensive area or occurs near the borders of Divisions of An Garda Síochána or areas of the Health Service Executive or of the Local Authorities, there may be response from multiple units of the Principal Response Agencies. There should be only one Controller of Operations for each of the three Principal Response Agencies and it will be necessary to determine from which unit of the Principal Response Agencies the Controller of Operations should come.

In the case of Local Authorities, which are statutorily empowered in respect of their functional areas, procedures for resolving such issues may already be set out in what are referred to as Section 85 Agreements (Local Government Act 2001). Where they are not so covered and the issue cannot be resolved quickly in discussion between the responding officers of the different units of those services, the Local Authority Controller of Operations should be the designated person from the Local Authority whose rostered senior fire officer was first to attend the incident.

6.2.1 Control of all services / sections of the Council which respond

The Controller of Operations is empowered to make all decisions relating to his/her agency's functions, but must take account of decisions of the On-Site Co-ordination Group in so doing.

6.2.1.1 Controller of Operations

The role of the Controller of Operations is set out below:

- To make such decisions as are appropriate to the role of controlling the activities of his/her agency's services at the site (Controlling in this context may mean setting priority objectives for individual services; command of each service should remain with the officers of that service.);
- To meet with the other two controllers and determine the lead agency;
- To undertake the role of On-Site Co-ordinator, where the service s/he represents is identified as the lead agency;
- To participate fully in the site co-ordination activity, including the establishment of a Site Management Plan;
- Where another service is the lead agency, to ensure that his/her agency's operations are co-ordinated with the other principal response agencies, including ensuring secure communications with all agencies responding to the major emergency at the site;
- To decide and request the attendance of such services as s/he determines are needed;
- To exercise control over such services as s/he has requested to attend;
- To operate a Holding Area to which personnel from his/her agency will report on arrival at the site of the major emergency and from which they will be deployed;
- To requisition any equipment s/he deems necessary to deal with the incident;
- To seek such advice as s/he requires;
- To maintain a log of his/her agency's activity at the incident site and decisions made;
- To contribute to and ensure information management systems operate effectively;
- To liaise with his/her Principal Response Agency's Crisis Management Team on the handling of the major emergency.

6.2.1.2 On-Site Co-ordinator

The On-Site Co-ordinator is mandated to make decisions, as set out below. Decisions should be generally be arrived at by the consensus of the On-Site Co-ordinating Group. Where consensus is not possible, the On-Site Co-ordinator should only make decisions after hearing and considering the views of the other two Controllers. Where circumstances permit, the On-Site Co-ordinator should refer decision reached without consensus to the Local Co-ordination Group.

The mandate of the On-Site Co-ordinator is set out below:

- To assume the role of On-Site Co-ordinator when the three Controllers determine the lead agency. Once appointed s/he should note the time and that the determination was made in the presence of the two other controllers on site;
- To inform all parties involved in the response that s/he has assumed the role of On-Site Co-ordinator;
- To determine which facility should be used as the On-Site Co-ordination Centre. Depending on the circumstance, this may be
    - a vehicle, or
    - a tent or other temporary structure, or
    - an appropriate space/building adjacent to the site, which can be used for co-ordination purposes;
- To ensure involvement of the three Principal Response Agencies and the Principal Emergency Services (and others, as appropriate) in the On-Site Co-ordination Group;
- To ensure that mandated co-ordination decisions are made promptly and communicated to all involved;
- To ensure that a Scene Management Plan is made, disseminated to all services and applied;
- To determine if and what public information messages are to be developed and issued;
- To ensure that media briefings are co-ordinated;
- To ensure that pre-arranged communications (technical) links are put in place and operating;

- To ensure that the information management system is operated, including the capture of data for record-purposes at regular intervals;
- To develop an auditable list of Actions (an Action Plan) and appoint an Action Management Officer where necessary;
- To ensure that the ownership of the lead agency role is reviewed, and modified as appropriate;
- To ensure that inter-service communication systems have been established and that communications from site to the Local Co-ordination Centre have been established and are functioning;
- To exercise an over-viewing role of all arrangements to mobilise additional resources to the site of the major emergency, and to track the status of mobilisation requests, and deployment of additional resources;
- To ensure that, where the resources of an individual Principal Response Agency do not appear to be sufficient to bring a situation under control, or the duration of an incident is extended, support is obtained via mutual aid arrangements with neighbouring principal response agencies;
- To determine, at an early stage, if ongoing assistance is required from community volunteers, so that An Garda Síochána cordoning arrangements can take account of this;
- To co-ordinate external assistance into the overall response action plan;
- To ensure that, where appropriate, pastoral services are mobilised to the site and facilitated by the principal response agencies in their work with casualties;
- To work with the Health Service Executive Controller to establish the likely nature, dimensions, priorities and optimum location for delivering any psycho-social support that will be required, and how this is to be delivered and integrated with the overall response effort;
- To decide to stand down the major emergency status of the incident at the site, in consultation with the Controllers of Operations and the Local Co-ordination Group;
- To ensure that all aspects of the management of the incident are dealt with before the response is stood down; and,
- To ensure that a report on the co-ordination function is prepared in respect of the major emergency after it is closed down, and circulated (first as a draft) to the other services that attended.

6.2.1.3 Local Co-ordination Group

Once the Local Co-ordination Group has been activated the mandate is as follows:

- To establish high level objectives for the situation and give strategic direction to the response;
- To determine and disseminate the overall architecture of response co-ordination;
- To anticipate issues arising;
- To provide support for the on-site response;
- To resolve issues arising from the site;
- To ensure that the information management system is operated, including the capture of data for record-purposes at regular intervals;
- To take over the task of co-ordinating the provision of information for the public as soon as it meets, and use all available channels to make concise and accurate information available;
- To decide and to take action to manage public perceptions of the risks involved, as well as managing the risks during emergencies that threaten the public;
- To co-ordinate and manage all matters relating to the media, other than on-site;
- To establish and maintain links with the Regional Co-ordination Centre (if involved);
- To establish and maintain links with the lead Government Department/National Emergency Co-ordination Centre;
- To ensure co-ordination of the response activity, other than the on-site element;
- To decide on resource and financial provision; and
- To take whatever steps are necessary to start to plan for recovery.

6.2.1.4 Crisis Management Team

The Crisis Management Team is a strategic level management group within each Principal Response Agency which is assembled during a major emergency is to:

- Manage, control and co-ordinate the agency's overall response to the situation;
- Provide support to the agency's Controller of Operations on-site and mobilise resources from within the agency or externally as required;
- Liaise with relevant Government Departments on strategic issues; and
- Ensure appropriate participation of the agency in the inter-agency co-ordination structures.

The members of Cork County Councils Crisis Management Team, who are detailed in Appendix 3, will convene at the Crisis Management Centre in County Hall when a Major Emergency is declared.

The use of Crisis Management Teams within each of the Principal Response Agencies facilitates the mobilisation of senior staff to deal with the crisis in light of the evolving situation, rather than leaving multiple roles to a small number of individuals who hold key positions. In this way, the objectives of prioritising and managing a protracted crisis can be dealt with effectively, while keeping the day-to-day business running.

The Crisis Management Team provides support to the Local Authority Representative on the Local Co-ordination Group, supports their own Controller of Operations on site and maintains the agency's normal day-to-day services.

6.2.2 Control of external organisations / agencies mobilised to assist the Council

There are a number of organisations and agencies, which may be called on to assist the Principal Response Agencies in responding to major emergencies.

At the site of an emergency, Cork County Council will exercise control over not only its own services but any additional services that Cork County Council mobilises to the site.

6.2.3 Support arrangements for the Control function

An On-site Co-ordination centre will be established at the site of a major emergency, which will be attended by a Controller of Operations from each of the Principal Response Agency's and each agency's support team.

6.3 Co-ordination Arrangements

The co-ordination of the efforts of all services is recognised as a vital element in successful response to major emergencies, so that the combined result is greater than the sum of their individual efforts (*see section 6.2.1 of this document for Co-ordination arrangements).*

6.3.1 Lead agency for co-ordination purposes

One of the three Principal Response Agencies will be designated as the lead agency for any emergency and thereby assume responsibility for leading co-ordination. Therefore, while the responsibility for co-ordination may be shared, in any given situation responsibility for leading cooperation belongs specifically to one of the three Principal Response Agencies. The lead agency has both the responsibility and mandate for the co-ordination function.

The mechanisms for determining and designating the lead agency in any situation are set out below. Two mechanisms, which should be applied in sequence by the three Controllers of Operations at the site, are envisaged to determine the lead agency for any emergency.

1. The first is by pre-nomination. (Details given in the *Appendix 17,* pre-nominated lead agencies for common incident types are presented, and this should be the primary basis for determining the lead agency)

2. The second is a default arrangement, where the categorisations in the table in *Appendix 17* do not seem to apply and the lead agency is not obvious. In these situations, which should be rare, the Local Authority will be the "default" lead agency.

6.3.2 On-Site Co-ordination function, including arrangements for support teams

On-site Co-ordination is facilitated by the On-Site Co-ordinator and the On-Site Co-ordination Group. The roles of the On-site Co-ordinator and the On-Site Co-ordination Group have been outlined in *section 6.2.1 of this document*.

6.3.3 Co-ordination function at the Local / Regional Co-ordination Centres

When a major emergency has been declared and the lead agency determined, the relevant officers of the lead agency should implement a Local Co-ordination Group mobilisation procedure. The representative of the lead agency will Chair the Local Co-ordination Group, which will be located in the Local Co-ordination Centre, and will exercise the mandates associated with this position. The Local Co-ordination Group will comprise representatives of the other two Principal Response Agencies, an Information Management Officer, a Media Liaison Officer, an Action Management Officer (where considered appropriate), representatives of other agencies and specialists and support teams as appropriate.

The Chair of the Local Co-ordination Group may declare a regional level emergency and activate the Plan for Regional Level Co-ordination. The key provision in ensuring co-ordination of the extended response is the activation of a "Regional Co-ordination Group". The primary function of the Regional Co-ordination Group is to maintain co-ordination of the Principal Response Agencies involved from the extended "response region".

Any one of the nominated Local Co-ordination Centres may be used as a Regional Coordination Centre, or a specific Regional Centre may be designated for this purpose. The choice of location will be determined in each situation by the Chair of the Local Co-ordinating Group declaring the regional level emergency and will depend on the location and nature of the emergency and any associated infrastructural damage.

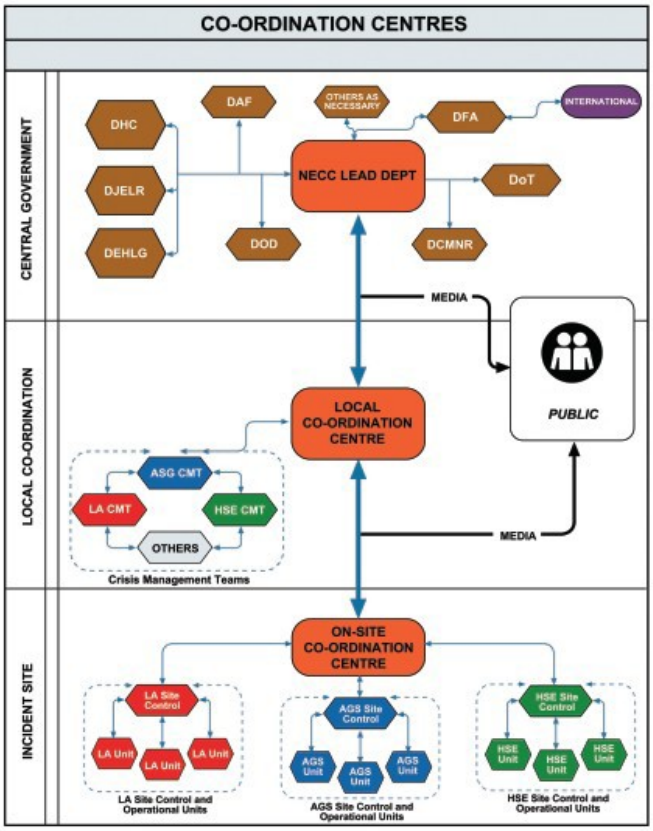


Figure 6.0 Schematic Diagram Illustrating
Command, Control and Co-ordination Levels and Information Flows

6.3.4 Mutual aid and regional level co-ordination

The Controller of Operations for Cork County Council shall ensure that, where the Council's resources do not appear to be sufficient to bring a situation under control, or the duration of an incident is extended, support is obtained via mutual aid arrangements with neighbouring Local Authorities (*See section 4.5 and 4.6 of this document).*

6.3.5 Multi-site or wide area emergencies

Multi-site or wide area emergencies may require the declaration of a regional level emergency and activate the Plan for Regional Level Co-ordination *see section 6.3.3 of this document.*

6.3.6 Links with National Emergency Plans

This Major Emergency Plan will operate will operate as an integral part of any National plans which may be activated in a National Emergency.

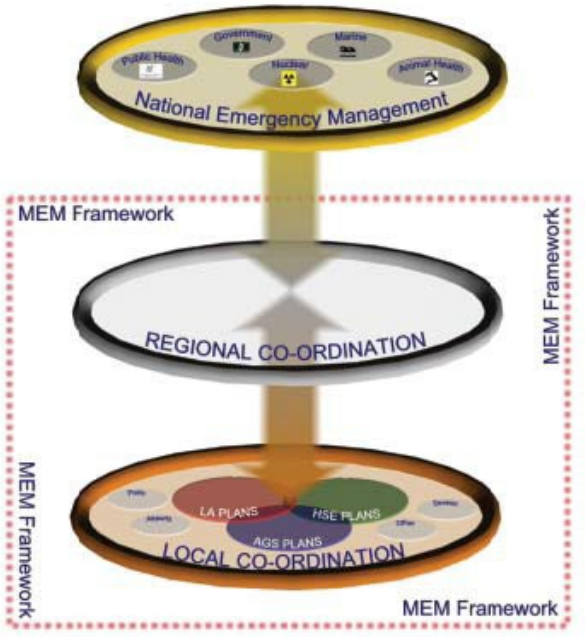


Figure 6.1: Linking Major Emergency Plans with National Plans and Other Plans

6.3.7 Links with National Government

Where assistance from Government is required, such assistance may be requested by the Regional Co-ordination Group. National resources will be available in the event of a major emergency at local or regional level.

Section 7 - The Common Elements of Response

7.0 Sub-sections setting out how the following common elements of the response to any major emergency will be implemented

7.1 Declaring a Major Emergency

7.2 Initial Mobilisation

7.3 Command, Control and Communication Centres

7.4 Co-ordination Centres

7.5 Communications Facilities

7.6 Exercising the Lead Agency's Co-ordination Roles

7.7 Public Information

7.8 The Media

7.9 Site Management Arrangements

7.10 Mobilising Additional Resources

7.11 Casualty and Survivor Arrangements

7.12 Emergencies involving Hazardous Materials

7.13 Protecting Threatened Populations

7.14 Early and Public Warning Systems

7.15 Emergencies arising on Inland Waterways

7.16 Safety, Health and Welfare Considerations

7.17 Logistical Issues/ Protracted Incidents

7.18 Investigations

7.19 Community/ VIPs/ Observers

7.20 Standing-Down the Major Emergency

Section 7.1 - Declaring a Major Emergency

7.1.1 Declaring a Major Emergency
(Refer to the COMMON PAGE Page 1)

A Major Emergency will be declared by an Authorised Officer of whichever Principal Response Agency (PRA) considers that the criteria in the definition of a 'Major Emergency' below have been satisfied.

A message declaring a Major Emergency shall follow the format in the **ACTIVATION SECTION** set out at the beginning of this plan (Pages 1-2).

Only an Authorised Officer of a Principal Response Agency can declare that a Major Emergency exists.

A Major Emergency is any event, usually with little or no warning, causes or threatens death or injury, serious disruption of essential services or damage to property, the environment of infrastructure beyond the normal capabilities of the Principal Emergency Services in the area in which the event occurs, and requires the activation of specific additional procedures and the mobilisation of additional resources to ensure an effective, co-ordinated response.

7.1.2 Activating the Major Emergency Plan

The Major Emergency Plan will immediately be activated when a Major Emergency is declared. The Plan will be activated by whichever of the following agencies first becomes aware of the declaration:-

- Health Service Executive
- Local Authority
- An Garda Síochána

The Major Emergency Plan will also be activated in other specific circumstances as follows:

- On request from a national body acting under the provisions of one of the following National Emergency Plans:
    - National Emergency Plan for Nuclear Accidents,
    - Public Health (Infectious Diseases) Emergency Plan,
    - Animal Health Plan;

- In response to a request from the Irish Coast Guard following a threatened or actual emergency in the Irish Maritime Search and Rescue Region
- In response to a request from a Minister of Government in light of an emergency/crisis situation.

7.1.3 Arrangements for activation of Major Emergency Plan by Fire Service personnel (other than Rostered Senior Fire Officers)

The Fire Service Incident Commander who makes the decision that it is necessary to activate the Major Emergency Plan will alert the appropriate Rostered Senior Officer (N&E or S&W) through the Munster Regional Communications Centre and provide details of the incident using the ETHANE Message format.

E	**EXACT LOCATION OF THE EMERGENCY**
T	**TYPE OF EMERGENCY (TRANSPORT, CHEMICAL, ETC.)**
H	**HAZARDS, PRESENT AND POTENTIAL**
A	**ACCESS/EGRESS ROUTES**
N	**NUMBER AND TYPES OF CASUALTIES**
E	**EMERGENCY SERVICES PRESENT AND REQUIRED**

Note: Any Fire Officer who is for the time being, in charge of an incident is authorised to request the activation of the Major Emergency Plan.

However, it is only the Rostered Senior Fire Officer (or other authorised officer) who can f o r m a l l y declare the Major Emergency using the instructions in the 'Activation Section' of the plan.

Section 7.2 - Initial Mobilisation

7.2.1 Major Emergency Mobilisation Procedure

The initial mobilisation of Cork County Council resources will be facilitated through the Munster Regional Communications Centre. The initial fire brigade response to the activation of the major emergency plan will be the pre-determined attendance (PDA) of:

- 3 Water Tenders,
- 1 Emergency Tender,
- 1 Control Unit
- 1 Brigade Mechanic's Van
- 1 Rostered Senior Fire Officer (RSFO) (S&W)
- 1 Rostered Senior Fire Officer (RSFO) (N&E)
- 1 Roster Senior Fire Officer for Serious Incidents

The Crisis Management Team will be notified of the activation of the major emergency plan by text alert or phone call by the Munster Regional Communications Centre.

In some situations, there may be an early warning of an impending emergency. Mobilisation within Cork County Council may include moving to a standby/alert stage for some of its services or specific individuals until the situation becomes clearer.

Section 7.3 - Command, Control and Communication Centres

7.3.1 Command, control and communication centre to be used

The Munster Regional Communications Centre located in Limerick shall be the control centre to mobilise, support and monitor the Fire Service and other services requested/required by Cork County Council. The Munster Regional Communications Centre shall notify the other Principal Response Agencies of the activation of the major emergency plan. The Munster Regional Communications Centre will also notify all other appropriate personnel in Cork County Council as required by the Rostered Senior Fire Officer.

Section 7.4 - Co-ordination Centres

7.4.1 On-Site Co-ordination

Fire Service operations will be supported by the Incident Command Unit located in Ballincollig Fire Station. On-site co-ordination is to be supported by means of the Inter-Agency On-Site Co-ordination Unit which is located in Bandon Fire Station. The Munster Regional Communications Centre will mobilise these Control Units in accordance with the Pre-determined Attendance (PDA) on the activation of the major emergency plan. It may also be possible to use a suitable building (with appropriate facilities) near the incident for On-site Co-ordination.

7.4.2 Crisis Management Team

Cork County Councils Crisis Management Team will convene at Floor 2, Extension, County Hall ready to assist the Chair of the Local Co-ordination group and the Controller of Operations.

(Please refer to Appendix 3 for details regarding the personnel nominated to form the Crisis Management Team).

7.4.3 Location of pre-determined Local Co-ordination Centre

The Local Co-ordination Group will meet at Cork County Council's Local Co-ordination Centre, Floor 2, County Hall, Carrigrohane Road, Cork or such other Local Authority facility as determined by the Local Co-ordination Group.

7.4.4 Location of the predetermined Regional Co-ordination Centre(s)

The Chair of the Local Co-ordination Group may declare a regional level emergency and activate the Plan for Regional Co-ordination if required. Any one of the nominated Local Co-ordination Centres in the region may be used as a specific Regional Co-ordination Centre, or a specific Regional Centre may be designated for this purpose. The choice of location will be determined in each situation by the Chair of the Local Co-ordinating Group and will depend on the location and nature of the emergency.

7.4.5 Information Management

Key personnel have been identified to act as information managers in the event of a Major Emergency event occurring and are listed in *Appendix 3.* Information is to be received from the On Site Co-ordinator / Controller of Operations, disseminated into key information points for the Local Co-ordinating Group and developed into key actions for the Crisis Management Team or for the On Site Co-ordinator / Controller of Operations.

Section 7.5 - Communications Facilities

7.5.1 Communications systems

Fire services communication facilities:

- Main appliance radio system (VHF)
- Handheld portable radio sets (UHF)
- Internet / Intranet facilities / Email
- Mobile Phones

Communication facilities available at Local co-ordination Centres:

- Fixed Landlines
- Fire Service base radio (VHF)
- Tetra radio
- Internet / Intranet / Email
- Mobile Phones
- Fax

7.5.2 Inter-agency communication on site, including protocols and procedures

When On-Site Co-ordination is established, hand-held portable radios will be used for communication between the Controllers of Operations. In any case, all three Controllers of Operations shall be located in close proximity to each other at the On-site Co-ordination centre.

7.5.3 Communications between Site and Co-ordination Centres

Communications between the site and co-ordination centres are to be by any/all of the following: Fire Service radio, tetra radio, fixed landlines, mobile phones, fax or amateur radio emergency network.

All communication between On-site Co-ordination Centre and the Local Co-ordination shall pass between the Controller of Operations / On-site Co-ordinator to the Local Co-Ordination group, supported by the work of trained Information Management Officers at the scene and at the co-ordination centres.

Section 7.6 - Exercising the Lead Agency's Co-ordination Roles

7.6.1 Lead Agency Concept

The Framework for Major Emergency Management provides that one of the three Principal Response Agencies will be designated as the lead agency for any major emergency and thereby assume responsibility for leading co-ordination. The lead agency has both the responsibility and mandate for the co-ordination function.

There are two mechanisms for determining and designating the lead agency, which are to be applied in sequence by the three Controllers of Operations at the Site. They are as follows:

1. Pre-nomination in accordance with the table provided in *Appendix 17*. This method pre-nominates the lead agency for various types of incident and this should be the primary method of determination for the lead agency
2. In the event that the emergency does not fall into the categorisations of the table in Appendix 17 then the lead agency by 'default' will be Cork County Council.

Rapid determination of the lead agency is essential as this in turn determines which of the three Controllers of Operations is to act as the On-Site Co-ordinator.

The Controller of Operations for the Lead Agency is to act as the On-Site Co-ordinator.

> The On-Site Co-ordinator should note the time that the determination of the lead agency was made in the presence of the other two Controllers of Operations. The determination is to be communicated to all parties involved in the response.

7.6.2 Review & transfer of Lead Agency role

The lead agency role may change over time, to reflect the changing circumstances of the emergency. Ownership of the lead agency mantle should be reviewed at appropriate stages of the major emergency.

All changes in lead agency designation emanating from the site, and the timing thereof, will be by agreement of the three Controllers of Operations at the site and should be recorded and communicated as per the initial determination.

7.6.3 Cork County Councils Co-ordination function as Lead Agency

In the event of Cork County Council being assigned the Lead Agency role, it will be assigned the responsibility for the co-ordination function (in addition to its own functions) and it should lead all the co-ordination activity associated with the emergency both on-site and off-site, and make every effort to achieve a high level if co-ordination. The function of the lead agency for any emergency includes:

- ensuring involvement of the three Principal Response Agencies and the Principal Emergency Services in sharing information on the nature of the emergency situation;
- ensuring involvement of the range of organisations (other than Principal Response Agencies) who may be requested to respond in co-ordination activities and arrangements;
- ensuring that mandated co-ordination decisions are made promptly and communicated to all involved;
- ensuring that site management issues are addressed and decided;
- ensuring that public information messages and media briefings are co-ordinated and implemented;
- ensuring that pre-arranged communications (technical) links are put in place and operating;
- operating the generic information management systems;
- ensuring that the ownership of the lead agency role is reviewed, and modified as appropriate;
- ensuring that all aspects of the management of the incident are dealt with before the response is stood down;
- ensuring that a report on the co-ordination function is prepared in respect of the emergency after it is closed down, and circulated (first as a draft) to the other services which attended.

Section 7.7 - Public Information

7.7.1 Cork County Councils role in situations where early warning and special public warning arrangements are needed.

In certain situations, it may be crucial for the Principal Response Agencies to provide timely and accurate information directly to the public on an emergency situation. This is especially important where members of the public may perceive themselves and their families to be at risk and are seeking information on actions which they can take to protect themselves and their families.

The Local Co-ordination Group should take over the task of co-ordinating the provision of information to the public as soon as it meets. This activity should be co-ordinated by the Lead Agency.

The Local Co-ordination Group may establish a sub-group for this purpose and use all available channels to make concise and accurate information available. This may include the use of dedicated "help-lines", web-pages, automatic text messaging, as well as through liaison with the media.

The On-Site Co-ordinator or Local Co-ordination Group may request the media to carry ***Public Information Notices*** during a Major Emergency to disseminate important messages to the public such as:

- Hazard Warnings to the Community
- Road Traffic Control information
- Requests for Specialist Assistance

7.7.2 Provision of telephone / help line / information line contact numbers

In situations where early warning and special public warning arrangements are required the Media Liaison Officer shall make provision for contacting the appropriate media outlets contained in *Appendix 8* for the dissemination of warning(s) on behalf of the Cork County Council

The appointed Media Liaison Officer shall make arrangements to publicise the emergency telephone numbers and/or the location of public information offices. The Media Liaison Officer/Crisis Management Team shall also make provision for telephone/help-line/information line contact numbers and the handling of contacts with dedicated telephone lines. *(See Appendix 21 - Cork County Council's Contact Centre Arrangements)*

Section 7.8 - The Media

7.8.1 Arrangements for liaison with the media

The Garda Press Office will lead media liaison in the first hour(s) of the response to a Major Emergency irrespective of the nature of the incident or the lead agency.

Thereafter, whenever Cork County Council is the Lead Agency in the response to a Major Emergency, Cork County Councils Media Liaison Officer will lead media liaison. *(See Appendix 14 - Regional Media Plan for further instructions including in an initial Press Statement)*

7.8.2 Arrangements for media on-site

Each Principal Response Agency should designate a Media Liaison Officer at the site and the activities of the Media Liaison Officers on site should be co-ordinated by the Media Liaison Officer of the lead agency.

The Media Liaison Officer must keep accurate and timely information on the emergency so that:

- He/she can be the point of contact for all media enquiries.
- He/she can answer information queries from the general public.
- He/she can prepare media statements for the approval of the On-Site Co-ordination Group

All statements to the media should be cleared with the On-Site Co-ordinator or his/her Media Liaison Officer.

7.8.3 Arrangements for media at Local and / or Regional Co-ordination Centres

The Local Co-ordination Group should take the lead in terms of working with the media, away from the site, during a major emergency. As with arrangements at the site, each Principal Response Agency should designate a Media Liaison Officer at the

Local Co-ordination Centre and the activities of the Media Liaison Officers should be co-ordinated by the Media Liaison Officer of the lead agency. All statements to the media at this level should be cleared with the chair of the Local Co-ordination Group.

Media Centre

A Media Centre will be established in County Hall (if necessary). Facilities will be made available for the media in the staff library and media briefings will take place at regular intervals in the foyer or other suitable location.

Regular media briefings should be scheduled to suit television and radio broadcasts.

These briefings should also be used to promulgate help-line telephone numbers and necessary public information messages. Background information that has been compiled before the event can be used to inform holding statements for use during the early stages of the incident.

7.8.4 Arrangements for media at other locations associated with the Major Emergency

In many situations media attention will move quickly away from the site to other locations, including hospitals where casualties are being treated and mortuaries and, therefore, arrangements for the media at or adjacent to these locations will need to be provided.

Section 7.9 - Site Management Arrangements

7.9.1 Generic site management elements/arrangements

Cork County Council shall appoint a Controller of Operations at the site (or at each site) of the emergency, *see section 6.2 of this document*. The initial important task of the Controller of Operations in association with the other two Controllers is the development of a Site Management Plan. Once agreed, the resulting site plan should be implemented and disseminated to all responding groups.

The main components of a typical Site Management Plan should contain some or all of the following: *(See Appendix 15 for detailed information on Scene Management)*

- Inner, Outer and Traffic Cordons (established by An Garda Síochána after decision by and/or agreement with On-site Co-ordinator).
- A Danger Area, if appropriate
- Cordon and Danger Area Access Points
- Rendezvous Point
- Site Access Point
- Holding Areas
- Site Control Point
- On-Site Co-ordination Centre
- Casualty Clearing Station
- Ambulance Loading Area
- Body Holding Area
- Survivor Reception Centre
- Friends and Relative Reception Centre

7.9.2 Control of Access and Identification of personnel

Identification of personnel

In order to control access to a Major Emergency site cordons will be established as quickly as possible at the site of a major emergency for the following reasons;

- to facilitate the operations of the emergency services and other agencies;
- to protect the public, by preventing access to dangerous areas; and
- to protect evidence and facilitate evidence recovery at the site.

Three cordons will be established. An Inner, Outer and Traffic Cordon, along with access cordon points *see Appendix 15 for detailed information*. This will be done by An Garda Síochána after a decision by agreement with the On-site Co-Ordination Group.

A Danger Area may also be declared where there is a definite risk to rescue personnel, over and above that which would normally pertain at emergency operations.

Identification of Personnel at the Site of a Major Emergency

All uniformed personnel, responding to the site of a major emergency, should wear the prescribed uniform, including high visibility and safety clothing, issued by their agency. The service markings on this clothing should be made known in advance to the other organisations that may be involved in the response.

Senior personnel who are acting in key roles, such as the On-Site Co-ordinator and the Controllers of Operations, should wear bibs designed and coordinated as follows:

Organisation	Bib Colour	Wording
Health Service Executive	Green and White Chequer	HSE Controller
Local Authority	Red and White Chequer	Local Authority Controller
An Garda Síochána	Blue and White Chequer	Garda Controller

When the lead agency has been determined, the On-Site Co-ordinator should don a distinctive bib with the words On-Site Co-ordinator clearly visible front and back. Below is an example of how the bibs should look for each of the responding agencies.

Garda Controller

Local Authority Controller

H.S.E. Controller

Non-Uniformed Personnel

Non-uniformed personnel from Cork County Council should attend the scene in high visibility jacket with the name Cork County Council and their job function clearly displayed.

All Cork County Council personnel responding to an emergency shall wear (or carry) the form of identification issued to them and shall ensure that their vehicles are adequately identified. Access beyond Cordons will not be permitted in the absence of the appropriate identification.

7.9.3 Air exclusion zones

Where the Principal Response Agencies consider it appropriate and beneficial, the On-Site Co-ordinator may request, through An Garda Síochána, that an Air Exclusion Zone be declared around the emergency site by the Irish Aviation Authority. When a restricted zone above and around the site is declared, it is promulgated by means of a "Notice to Airmen" - NOTAM - from the Irish Aviation Authority.

Contact details for the Irish Aviation Authority are provided in *Appendix 8 – Regional Contact Details.*

Section 7.10 - Mobilising Additional Resources

7.10.1 Arrangements for mobilising other organisations

The Voluntary Emergency Services sector can provide additional equipment and support in the event of a major emergency. Details of the local Voluntary Emergency Services, the resources they can provide and contact details is outlined in *Appendix 23 – Voluntary Emergency Services Guide (MEM Region South)*

Voluntary Emergency Services will link to the Principal response Agencies in accordance with the following Table below.

Principal Response Agency	**Linked Voluntary Emergency Service**
An Garda Síochána	Irish Mountain Rescue Association Irish Cave Rescue Association Search and Rescue Dogs Sub-Aqua Teams River Rescue
Health Service Executive	Irish Red Cross Order of Malta Ambulance Corps St. John's Ambulance
Cork County Council	Civil Defence

Each Principal Response Agency with a linked Voluntary Emergency Services is responsible for the mobilisation of that service and their integration into the overall response. The internal command of volunteer organisations resides with that organisation

7.10.1.1 Mobilisation of Civil Defence

Civil Defence

Contact the Civil Defence Officer for the area concerned.

Please refer to section 4.4.1 of this document, details also given in Appendix 23 – Voluntary Emergency Services Guide (MEM Region South)

7.10.1.2 Mobilisation of Defence Forces

Defence Forces

The On-Site Co-ordinator shall, in consultation with the other Controllers of Operations:

- determine the requirements to be requested, in terms of Defence Forces resources, for the site response and, once Defence Forces resources have been committed, the tasks to be requested and the procedures for the altering of such requirements or tasks as the situation requires;
- determine where and to whom the Defence Forces will report and also determine communication links for ongoing reporting on the status of the Defence Forces response;
- include for the provision to the Defence Forces commander of a communication system, to enable effective communications and the provision of reports as requested;
- provide for the Defence Forces being stood down from the site as the situation warrants; and
- include procedures for requesting operational debriefing and reporting of all activity undertaken by the Defence Forces.

Please refer to *Appendix 9 - Procedure for Requesting Assistance from Defence Forces*

Provision of Defence Forces capabilities is dependent on the exigencies of the service and within available resources at the time.

The Defence Forces - incorporating the Army, Air Corps, Naval Service and Reserve Defence Forces will operate under their own command and control structure.

7.10.1.3 Mobilisation of the Irish Red Cross

Irish Red Cross

Please refer to section 4.4.3 of this document, details also given in Appendix 23 – Voluntary Emergency Services Guide (MEM Region South)

7.10.1.4 Mobilisation of Voluntary Emergency Services

The Voluntary Emergency Services sector can provide additional equipment and support in the event of a major emergency. Details of the local Voluntary Emergency

Services, the resources they can provide and their mobilisation procedure are outlined in *Appendix 23 – Voluntary Emergency Services Guide (MEM Region South)*

7.10.1.5 Mobilisation of Utilities

Utilities are frequently involved in the response to emergencies, usually to assist the principal response agencies in making situations safe. They may also be directly involved in restoring their own services, for example, electricity supply in the aftermath of a storm. Utilities operate under their own legislative and regulatory frameworks but, during the response to an emergency, it is important that they are involved in the co-ordination arrangements. Utilities may be requested to provide representatives and/or experts to the On-Site Co-ordination Group, the Local Coordination Group and/or the Regional Co-ordination Group, as appropriate. A list of utilities and their emergency/out of hours contact arrangements are listed in *Appendix 8. Please refer to section 4.4.6 of this document for further details.*

7.10.1.6 Mobilisation of Private Sector

Private sector organisations may be involved in a major emergency through ownership of the site where the emergency has occurred or through ownership of some element involved in the emergency e.g. an aircraft, bus, factory, etc. They may also be called on to assist in the response to a major emergency, by providing specialist services and/or equipment. Private sector representatives and/or experts may be requested to support the work of the On-Site Co-ordination Group, the Local Co-ordination Group and/or the Regional Co-ordination Group, as appropriate.

7.10.2 Arrangements for identifying and mobilising additional organisations

Arrangements for identifying and mobilising additional organisations that it may be appropriate to mobilize will be determined by the on-site co-ordinator in conjunction with the Controller of Operations from the other principle response agencies.

7.10.3 Arrangements for liaison with utilities

Please refer to section 4.6 of this document, details also given in Appendix 8 – Regional Contact Details

7.10.4 Arrangements for integration of community volunteers as appropriate

Where Community Volunteers are available and deemed necessary by the On Site Co-ordination team, some form of identification in terms of arm bands etc. should be issued. Where available, orange armbands emblazoned with the word 'Volunteer' or suitable abbreviation, e.g. 'VOL', will be issued by Civil Defence. It should be noted that while initially they may be of some assistance; their usefulness will lessen due to lack of training, experience and PPE.

7.10.5 Arrangements for command, control, co-ordination and demobilisation of organisations mobilised to the site

Each Principal Response Agency with a linked Voluntary Emergency Services/Organisation is responsible for the mobilisation of that service and their integration into the overall response. The internal command of the organisations resides with that organisation.

Please refer to section 4.4.1 through 4.4.7 and section 7.10.1 of this document.

7.10.6 Mutual aid arrangements

Please refer to section 4.5 of this document.

7.10.7 Requests for out-of-region assistance

Out-of-region / International assistance will be requested through the Local Co-ordination Centre upwards through regional and national structures.

Cork County Councils Crisis Management Team shall ensure that, where the resources of the authority do not appear to be sufficient to bring a situation under control, or the duration of an incident is expected to be extended, support is obtained via mutual aid arrangements with neighbouring authorities.

Where resources that are held at a national level are required, as part of the management of the incident, requests for those resources should be directed by the lead agency to the Lead Government Department.

The decision to seek assistance from outside the state should be made by the lead agency, in association with the other Principal Response Agencies, at the Local/Regional Coordination Centre. The Local/Regional Co-ordination Group

should identify and dimension the level/type of assistance likely to be required and its duration.

The European Community has established a Community Mechanism to facilitate the provision of assistance between the member states in the event of major emergencies. The chair of the Local/Regional Coordination Group should make requests for such assistance to the National Liaison Officer in the Department of the Environment, Heritage and Local Government.

7.10.8 Requests for international assistance

A Regional Co-ordination Group may also request assistance from Government. National resources will be available in the event of a major emergency at local or regional level. Requests for assistance should be developed at local or regional co-ordination level and directed by the lead agency to the lead Government Department. *Please refer to section 4.7 of this document.*

Section 7.11 - Casualty and Survivor Arrangements

7.11.1 General

The primary objective of any response to a major emergency is to provide effective arrangements for the rescue, care, treatment and rehabilitation of all of the individuals who are affected by the emergency. These individuals may be divided into two main categories as follows: Casualties, including persons who are killed or injured, and Survivors. Survivors will include all those individuals who are caught up in an emergency but not injured, such as, uninjured passengers from a transport accident or evacuees.

As well as making provision for casualties and survivors, the Principal Response Agencies should also make arrangements for the reception, facilitation and support of the friends and relatives of some or all of these individuals

7.11.1.1 Casualties and Survivors and the Council's role in this

The On-Site Co-ordinator, in association with the other Controllers, will need to make an early assessment of the casualty situation and identify if there are particular aspects which may impact on casualty management, such as, significant numbers of disabled, sick or immobile persons involved, and take action accordingly.

Individuals may be divided into two main categories as follows:

- Casualties, including persons who are killed or injured,
- Survivors. These include all those individuals who are caught up in an emergency but not injured, such as, uninjured passengers from a transport accident or evacuees.

7.11.2 Injured

At the site of a major emergency, the priorities of the Principal Emergency Services are to save life, prevent further injury, rescue those who are trapped or in danger, triage casualties, provide them with appropriate treatment and transport them to the appropriate hospital(s) where necessary.

The injured need to be rescued from the scene and cared for as quickly and safely as possible by the rescuers, who must be mindful of the requirement of the ambulance and medical teams on site. Ambulance paramedics and emergency medical

technicians then need to be able to administer the appropriate pre-hospital treatment before the patients are taken to the receiving hospitals.

7.11.2.1 Arrangements for triage

Once injured casualties have been rescued or found, they should be assessed or triaged as quickly as possible. Casualties are often found some distance from the primary site and search teams, co-ordinated by An Garda Síochána, should be established where it is considered that this may be necessary.

Triage is a dynamic process of assessing casualties and deciding the priority of their treatment, using a two-stage process of triage sieve and triage sort. Following initial triage, casualties will normally be labelled, using Triage Cards, and moved to a Casualty Clearing Station. The purpose of this labelling is to indicate the triage category of the casualty, to facilitate the changing of that category, if required, and to record any treatment, procedure or medication administered. A standard card with Red (Immediate), Yellow (Urgent), Green (Delayed) and White (Dead) sections is normally used for this purpose.

7.11.2.2 Arrangements for transporting lightly injured and uninjured persons from the site, and the Council's role in this

It should be noted that while some casualties will be transported to the receiving Hospital(s) by the Ambulance Service, some casualties may leave the site by other means and may arrive at the designated receiving Hospital(s), or other hospitals, in cars, buses, etc.

In circumstances where lightly injured or uninjured persons are to be transported from the site, the Civil Defence may be requested to aid in this task.

7.11.2.3 Arrangements for a Casualty Clearing Station and Ambulance Loading Point

The **Casualty Clearing Station** is established at the site by the Ambulance Service, in consultation with the Health Service Executive Controller and the Site Medical Officer. Here, casualties are collected, further triaged, treated, as necessary, and prepared for transport to hospital. The H.S.E. Controller will, in consultation with the Site Medical Officer and the designated receiving hospitals, decide on the hospital destination of casualties.

7.11.3 Fatalities

The bodies of casualties, which have been triaged as dead, should not be moved from the incident site unless this is necessary to effect the rescue of other casualties. The only other circumstance where bodies should be moved, before the Garda evidence collection process is complete, is if they are likely to be lost or damaged due to their location or the nature of the incident.

Bodies to be moved should be photographed first and their original position clearly marked and recorded. The recovery of the dead and human remains is part of an evidence recovery process and, as such, is the responsibility of An Garda Síochána acting as agents of the Coroner. Cork County Councils may assist An Garda Síochána in this function.

When a doctor has pronounced an individual dead, arrangements in respect of the body are the responsibility of the local Coroner's Office, in conjunction with An Garda Síochána.

7.11.3.1 Coroners role

The Coroner is an independent judicial officer, who has responsibility for investigating all sudden, unexplained, violent or unnatural deaths. It is the task of the Coroner to establish the 'who, when, where and how' of unexplained death. All such deaths in Ireland are investigated under the Coroners' Act, 1962. There are three Coroner districts in County Cork:

- Cork North
- Cork South
- Cork West

The Coroners' Act, 1962

S 17.—Subject to the provisions of this Act, where a coroner is informed that the body of a deceased person is lying within his district, it shall be the duty of the coroner to hold an inquest in relation to the death of that person if he is of opinion that the death may have occurred in a violent or unnatural manner, or suddenly and from unknown causes or in a place or in circumstances which, under provisions in that behalf contained in any other enactment, require that an inquest should be held.

The Coroner has overall responsibility for the identification of bodies and remains ands/he is entitled to exclusive possession and control of a deceased person until the facts about their death have been established. A full post-mortem and forensic examination will be carried out on every body from a major emergency and each death will be subject of an Inquest. The post-mortem is carried out by a Pathologist, who acts as the 'Coroners Agent' for this purpose.

7.11.3.2	**Arrangements for dealing with fatalities, both on and off-site, including Body Holding Areas and Temporary Mortuaries, and the Council's role in this**

The On-Site Co-ordinator, in association with the other Controllers, will decide if it is necessary to establish a Body Holding Area at the site. The Body Holding Area, if established, should be situated close to the Casualty Clearing Station. Members of An Garda Síochána will staff this area and they will maintain the necessary logs to ensure the continuity of evidence.

It should be noted that the Body Holding Area is not the appropriate place for the prolonged storage of the dead and appropriate arrangements should be made to ensure minimal delay in moving bodies to a mortuary (temporary or otherwise).

Further information and procedures for the deployment of the Inter-agency Body Storage Support Unit is contained *Appendix 16 - Multiple Fatalities Guide (MEM Region South)*

Temporary Mortuaries

The Local Co-ordination Group in consultation with the Coroner is mandated to request the activation of the National Mass Fatality Plan (working draft). It is the responsibility of the Local Authority to provide arrangements to support the operation of any Temporary Mortuary established in support of the national plan.

The likely commissioning time for a Temporary Mortuary is of the order of twenty-four hours, and this may extend to forty-eight hours when victim numbers are extensive. It should be noted that a Temporary Mortuary might be required to operate for weeks or months after an incident.

Full information on procedures for dealing with multiple fatalities is set out in the *Working Draft Mass Fatality Plan* available on the Councils MEM SharePoint Site.

7.11.3.3 Arrangements for identification of the deceased, and the Council's role in this

The Coroner, with the assistance of An Garda Síochána, has overall responsibility for the identification of bodies and remains and s/he is entitled to exclusive possession and control of a deceased person until the facts about their death have been established. A full post-mortem and forensic examination will be carried out on every body from a major emergency and each death will be the subject of an Inquest. The post-mortem is carried out by a Pathologist, who acts as the 'Coroners Agent' for this purpose.

7.11.4 Survivors

A Survivor Reception Centre shall be designated and established at the earliest possible opportunity if necessary. Transport from the Survivor Reception Centre to home/meet relatives/safe place will be arranged as soon as it is practicable. This responsibility will lie with the Local Authority.

7.11.4.1 Arrangements for dealing with uninjured survivors who require support, including the designation and operation of Survivor Reception Centres

The On-Site Co-ordinator, in conjunction with the other Controllers, shall determine if a Survivor Reception Centre is to be established, and its location in the site management plan. It will be the responsibility of the Local Authority to establish and run this centre.

Cork County Councils has identified the following as suitable buildings for setting up a survivor centre;

- Hotels
- Recreation Centres
- Parish Halls
- Local Schools
- Any other building that is large enough to accommodate large amounts of people.

Further details are included in Appendix 20 – Evacuation Guide (MEM Region South)

All those who have survived the incident uninjured can be directed to the Survivor Centre, where their details will be documented and collated by An Garda Síochána. Provision should be made at this centre for the immediate physical and psychosocial needs of survivors (e.g. hot drinks, food, blankets, telephones, first aid for minor injuries, etc.).

The assistance of the voluntary ambulance services may be required to provide a variety of services at the Survivor Reception Centre. The Survivor Reception Centre should be secure from any unauthorised access and provide the maximum possible privacy for survivors.

7.11.5 Casualty Information

Gathering of casualty information will be the responsibility of An Garda Síochána

7.11.5.1 Casualty Bureau

In the event of a major emergency involving significant numbers of casualties, An Garda Síochána will establish a Casualty Bureau to collect and collate the details (including condition and location) of all casualties and survivors. To facilitate this process, a liaison/casualty officer will normally be sent by An Garda Síochána to each hospital where casualties are being treated.

All other services should ensure that any information collected on any casualty is transferred via A Garda Síochána to the Casualty Bureau.

The Casualty Bureau is the central contact point for the matching of information available on casualties with requests from all those seeking or providing information about persons involved in the incident. The media will be asked to promulgate the contact numbers for the Bureau so that the public can make enquiries and provide information.

7.11.5.2 Assistance by Cork County Councils to An Garda Síochána in the collection and collation of casualty information

Cork County Councils may assist in the collection and collation of casualty data. Any information collected on any casualty is transferred via An Garda Síochána to the Casualty Bureau, who will generally set up an information hot line, in order that concerned family and friend may inquire about 'loved ones'.

7.11.6 Friends and Relatives Reception Centres

Some incidents may warrant the establishment of Friends' and Relatives' Reception Centres at appropriate locations associated with the emergency, in addition to those provided at the hospitals where the injured are being treated.

The Local Co-ordination Group should determine the need for and arrange for the designation and operation/staffing of such centres.

The purpose of a reception centre is to provide a comfortable area where friends and relatives of those involved in the incident (primarily the casualties and survivors) can be directed for information. A building used as a Friends and Relatives' Reception Centre should be secure from media intrusion and contain sufficient room to afford privacy to families receiving information about relatives.

There will also be a need for a reliable process to establish the credentials of friends and relatives.

7.11.7 Foreign National Casualties

In some incidents an emergency may involve significant numbers of casualties from other jurisdictions. In such circumstances the Local Co-ordination Centre should notify the relevant embassy if the nationality of the victims is known. The Department of Justice should be approached if assistance is required in obtaining interpreters from private sector providers. The Department of Foreign Affairs (which operates an out of hours Duty Officer System) should also be approached for appropriate assistance and liaison purposes.

7.11.7.1 Foreign language communication resources

Advice may be sought from An Garda Síochána as to the use of interpreters. Generally the local Garda Station will have a list of approved interpreters which may be call upon in the event of an emergency. Advice may also be sought from the Department of Foreign Affairs. *See Appendix 8 – Regional Contact Details*

7.11.8 Pastoral and Psycho-social Care

The On-Site Co-ordinator needs to ensure that, where appropriate, pastoral services are mobilised to the site and facilitated by the Principal Response Agencies in their work with casualties and survivors. Similarly, individual services should make arrangements for necessary pastoral services at any other locations associated with the emergency, such as hospitals.

Pastoral and psycho-social support arrangements for casualties and other affected members of the public are the responsibility of the Health Service Executive.

Section 7.12 - Emergencies involving Hazardous Materials

7.12.1 Arrangements for dealing with major Hazardous Materials incidents

The Local Authority is designated lead agency for the response to hazardous materials incidents with the exception of those involving biological agents. The Fire Service will respond to incidents involving hazardous materials in accordance with Standard Operational Guidance (SOG's). Site arrangements shall generally be in accordance with Figure 7.12 below.

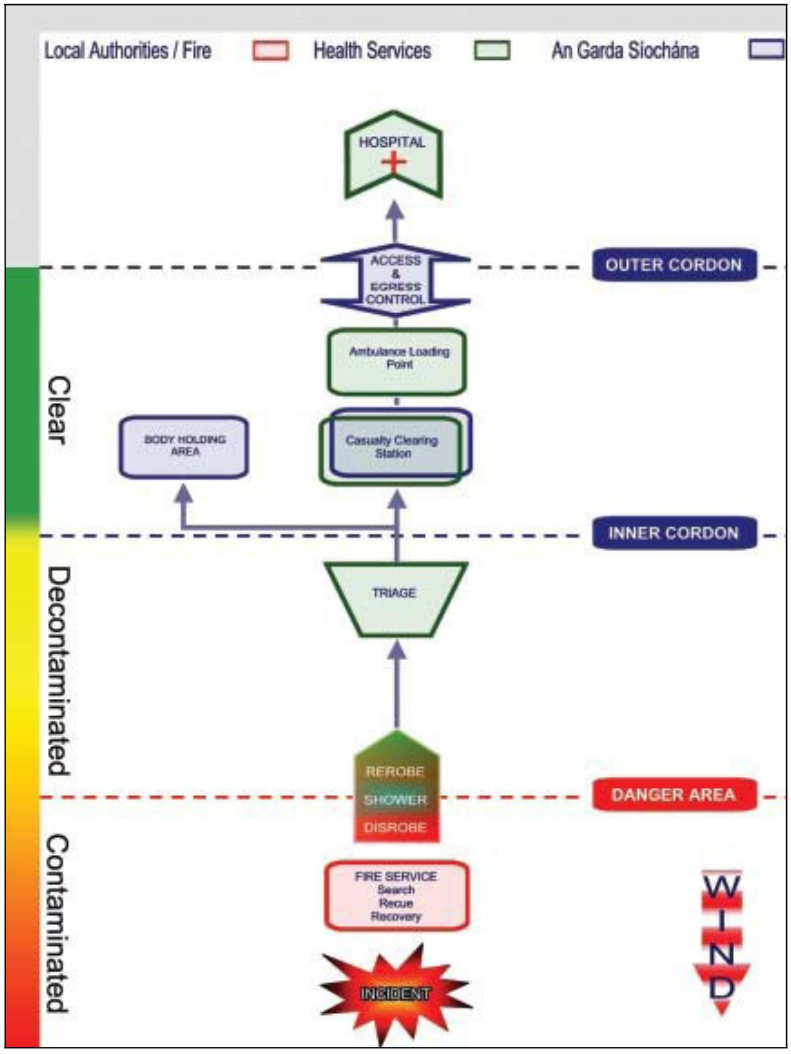


Figure 7.12

7.12.2 Arrangements for dealing with CBRN incidents and the Council s role in this

CBRN is an acronym meaning incidents involving; C - chemical substances; B - biological agents; R - radiological and N - nuclear material. Where terrorist involvement is suspected, An Garda Síochána will act as the lead agency. The Defence Forces, when requested, will assist An Garda Síochána in an Aid to the Civil Power role with Explosive Ordnance Disposal teams.
Further guidance is outlined in the *Protocol for responding to a malign CBRN incident* published by the Office of Emergency Planning

7.12.3 Biological incidents

The HSE has been identified as the lead agency in any biological incidents. Details of the specific actions to be taken in the event of a Biological incident are detailed in the *Protocol for responding to a malign CBRN incident* published by the Office of Emergency Planning.

7.12.4 National Public Health (Infectious diseases) Plan

Details of specific actions to be taken in the event of an activation of the National Public Health (Infectious Diseases) Plan are detailed in the Public Health Emergency Plan published by the Department of Health.

7.12.5 National Emergency Plan for Nuclear Accidents

The National Emergency Plan for Nuclear Accidents has been prepared in accordance with Article 37 of SI 125 of 2000, Radiological Protection Act, 1991 (Ionising Radiation) Order under which the Department of the Environment, Heritage and Local Government has the lead responsibility for coordinating the emergency response arrangements among other Government Departments and Agencies. The National Plan for Nuclear Accidents is available to download from http://www.environ.ie/en/Environment/EnvironmentalRadiation/PublicationsDocuments/FileDownLoad,1323,en.pdf

7.12.6 Arrangements for clinical, personnel and mass decontamination and the Council s role in each

The On-Site Co-ordinator, in association with the other Controllers of Operations, will establish the need for decontamination. The Health Service Executive has responsibility for providing clinical decontamination and medical treatment to casualties affected by hazardous materials. The fire services have responsibility for providing other forms of physical decontamination of persons at the site. The Health Service Executive will be responsible for decontamination where required to protect health service facilities, such as hospitals, from secondary contamination.

Where emergency decontamination of the public is required, the fire service may use its fire-fighter decontamination facilities, or improvised equipment may be used prior to the arrival of dedicated equipment. Where it is decided that persons should undergo this practice, it should be carried out under the guidance of medical personnel. It should be noted that emergency contamination carries risks for vulnerable groups, such as the elderly and the injured. It may be more appropriate in certain circumstances for outer clothing to be removed and blankets provided as a temporary measure to alleviate potential harm through surface contact with contaminants.

Section 7.13 - Protecting Threatened Populations

7.13.1 Threatened Populations

There are circumstances when it may be necessary to protect members the public who are in the vicinity of an emergency event. This protection is usually achieved by moving people temporarily to a safe area, by evacuation where appropriate or feasible, or by advising affected individuals to take shelter in an appropriate place.
The On-Site Co-ordinator will take the decision on how best to protect a threatened population, after consultation with the other Controllers of Operations.
In some situations, it can be anticipated that there will be a level of self evacuation, and this may need to be considered as part of the emergency management considerations.

7.13.2 Evacuation arrangements including evacuee reception centres, accommodation and welfare arrangements, and the Council s

Evacuation is usually undertaken on the advice of the Fire Service or Health Service Executive. Where decided upon, the process of evacuation will be undertaken by An Garda Síochána, with the assistance of the other services. In some circumstances, personnel from all services may have to assist in carrying it out. A suitable evacuation assembly point will need to be established at/near the site of the emergency and the Local Authority will provide transportation from assembly points to Rest Centres near the site.
Personnel from Cork County Councils and from voluntary agencies will staff the Rest Centre(s). The centres will provide security, welfare, communication, catering and medical facilities. Evacuees should be documented and basic details passed to the casualty bureau. Cork County Councils will assist in this role.
Please see Appendix 20 – Evacuation Guide (MEM Region South) and Sections 7.11.4.1 and 7.17.3 for further details.

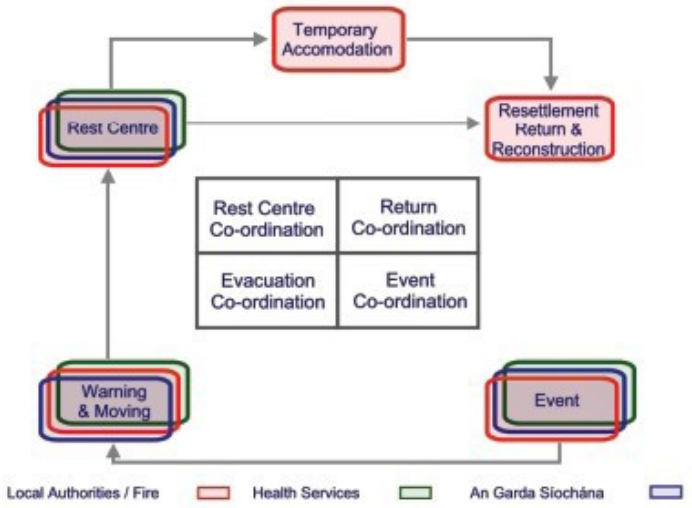


Figure 7.2: Structure of Evacuation

7.13.3 Arrangements for the involvement of The Public Health Service

Where an emergency results in a real or perceived threat to public health by, for example, the release of chemical, radioactive or biological agents, the contamination of water or food supplies, or the spread of contaminated flood water, it can be anticipated that there will be considerable concern among both the persons immediately affected and the wider public. In such situations, the HSE Controller of Operations shall ensure that the local public health services are informed of the situation as soon as possible so that they can become involved in the response at the earliest possible stage.

Section 7.14 - Early and Public Warning Systems

7.14.1 Monitoring potentially hazardous situations

Met Éireann operates a Public Service Severe Weather Warning service for dissemination of weather warnings to Local Authorities and other agencies. Met Éireann also provides a 24-hour service, which may be consulted for general or specific weather forecasts. *Please refer to Section 11.1 of this document.*

Upper Tier SEVESO establishments have arrangements in place for warning the public in the immediate vicinity of their sites of major accidents (usually by community siren*)*. The Site Operators have informed the public (within a specified area agreed with the HSA) of the actions to take in the event of an alert. *See Appendix 7 for further details.*

7.14.2 Specify how warnings are to be disseminated

Warnings to the public will primarily be disseminated by the Principal Response Agencies through the media (TV, National & Local Radio).

However, warnings may also be issued to the public by use of some or all of the following:

- Door to Door
- Leaflet drop
- Local helpline / information line
- Web services and internet services
- Automated Text services
- Site specific warning systems

Section 7.15 - Emergencies arising on Inland Waterways

7.15.1 Arrangements for liaison with the Irish Coast Guard

Cork County Councils can provide assistance in the form of the Civil Defence for water rescue / recovery on Inland Waterways. *Please refer to Appendix 8 – Regional Contact Details.*

7.15.2 Responsibility of The Irish Coastguard

The Irish Coast Guard has responsibility for receiving 112/999 calls and the mobilising of resources to Inland Waterway emergencies. An Garda Síochána shall be designated as the 'lead agency' to undertake initial co-ordination at inland waterway emergencies. After the initial response, this role may be re-assigned, following consultation between the Irish Coast Guard and An Garda Síochána.

Section 7.16 - Safety, Health and Welfare Considerations

7.16.1 Safety, health and welfare of staff

Cork County Council (and other responding agencies) are responsible for the Safety, Health and Welfare of its staff responding to emergencies and shall operate its own safety (including personal protective equipment) and welfare management procedures.

7.16.2 Safety of Cork County Councils rescue personnel

When working in the environment of a Major Emergency the On-Site Co-ordinator will apply normal incident and safety management arrangements. A 'Safety Officer' will generally be appointed having responsibility for the oversight and management of the safety of the Council's rescue personnel. All other relevant officers will continue to exercise command over their own personnel working in the area.

7.16.3 Working within the Danger Area

A 'Danger Area' may be declared at the site where there is a definite risk to rescue personnel over and above that which would normally pertain at emergency operations. The activities of all agencies within the "Danger Area" shall be under the overall control and direction of the senior fire officer at the incident.
However, the persons in charge of the activities of these agencies shall, subject to the above, continue to exercise operational control over their agencies activities and shall ensure that all necessary safety and welfare measures and procedures are implemented.

7.16.4 Evacuation signal for the Danger Area

Where a situation deteriorates to a point where the officer in charge of the Danger Area decides that it is necessary to withdraw response personnel from a Danger Area, a signal, comprising repeated sounding of a siren for ten seconds on, ten seconds off, will be given. All personnel should withdraw on hearing this signal to a pre-determined safe zone.

7.16.5 Physical welfare of responders (food, shelter, toilets)

Cork County Councils Controller of Operations shall ensure that appropriate rest and refreshment facilities are provided for response personnel at the site, as well as for survivors.

These facilities may include the provision of food and drink, rest facilities and sanitary facilities.

Please refer to section 7.17.3 of this document.

7.16.6 Psycho-social support for its own personnel

Critical Incident Stress Management services will be provided to staff through the arrangements in place in Cork County Council.

Section 7.17 - Logistical Issues/ Protracted Incidents

7.17.1 Arrangements for rotation of front line rescue / field staff

Front line rescue / field staff will be relieved at protracted incidents in accordance with agreements for rest and recuperation. Crews from neighbouring authorities in the region may be called upon to assist and support the emergency.

7.17.2 Arrangements for re-organising normal emergency and other services cover in areas depleted by commitments to the

The re-organisation of fire service cover will be undertaken by the Rostered Senior Fire Officer. The Crisis Management Team will ensure all other services of the Council are re-organised to ensure that essential services of the Council continue during the emergency. However, it may not be possible for Cork County Council to deliver the full range of services to the public during the course of the major emergency. The public will be kept informed of any temporary disruption to services via the media, website or direct by phone to Cork County Council offices.

7.17.3 Arrangements for initial and ongoing welfare for field staff

Cork County Councils Controller of Operations shall ensure that appropriate rest and refreshment facilities are provided for response personnel at the site, as well as for survivors. Staff welfare will be considered at all times. Civil Defence may be called upon to provide or aid in the administration of such needs. Welfare facilities such as toilets etc. may also be required and shall be supplied by Cork County Council if necessary. Food and hot drinks shall be provided at all meal times to field staff or every 4/5 hours during an incident.

Section 7.18 - Investigations

7.18.1 Investigations arising from the emergency

An Garda Síochána will retain control of the site and lead the investigations arising from the emergency. It may be necessary for Cork County Councils staff to provide statements to the investigative agencies on their involvement in the major emergency response.

7.18.2 Minimise disruption of evidence

An Garda Síochána will need to obtain evidence of the highest possible standard and will require that all evidence is left in situ, unless a threat to life or health prevents this.

Cork County Council will have some role to play in the site clearance, demolition, clean-up operations, removal and disposal of debris and such activity is only to be done following consultation with and approval of An Garda Síochána (or other investigative body) to avoid the possible unnecessary destruction of evidence.

7.18.3 Other parties with statutory investigation roles

Depending on the nature of the Major Emergency, agencies other than An Garda Síochána may require access to the site for the purposes of carrying out an investigation. These agencies include the Health and Safety Authority (HSA), the Air Accident Investigation Unit (AAIU) and the Environmental Protection Agency (EPA). An Garda Síochána is responsible for carrying out criminal investigations.

If there is reason to believe that a criminal act was a contributory factor to a major emergency, An Garda Síochána will begin an investigation, in parallel with the emergency response.

The preservation of the site of a major emergency, which results from criminal action, is of paramount importance and should receive a priority rating from the outset. The first member(s) of An Garda Síochána to arrive at the site of a major emergency where a suspected crime has been committed automatically incurs the responsibility of preserving the site.

Note: The priority of the response remains the protection of life.

Any agency with an investigative mandate should liaise in the first instance with the On-Site Co-ordinator, who will direct them to the Garda Controller of Operations. One of Cork County Councils functions is to provide support for An Garda Síochána forensic work. This should also extend to investigations carried out by other agencies as appropriate.

Section 7.19 - Community / VIPs / Observers

7.19.1 Communities affected by an emergency

Links will be established with the communities affected through their community centres, local community organisations and ethnic organisations. This will be co-ordinated by the Local Co-Ordination / Crisis Management Team and the Key personnel located at the Survivor and Friends & Relatives Reception Centres.

7.19.2 Arrangements for receiving VIPs who wish to visit

Public representatives and other dignitaries may wish to attend the site of the emergency, as well as associated facilities, such as hospitals, to express sympathy on behalf of the public to the injured and bereaved, and to support the emergency response workers.

Visits by dignitaries will usually require security arrangements and liaison with the media. It is important that the organisation of such visits does not distract from the response effort.

All requests for visits to the site or facilities associated with it are to be referred to the Local Co-ordination Group.

Requests for visits to agency specific locations are to be referred to that agency's management. As a general rule, VIPs are to be advised not to visit sites where dangers still exist or where ongoing rescues are in progress.

7.19.3 Arrangements for national / international observers

National and international observers may request to attend the incident. The presence of experts from other regions or jurisdictions, who wish to act as observers at an incident, can greatly enhance the operational debriefings and facilitate the process of learning lessons from the emergency. The Local Co-ordination Group should make arrangements for any such observers.

Section 7.20 - Standing-Down the Major Emergency

7.20.1 Standing down the Major Emergency

A decision to stand down the major emergency status of the incident at the site shall be taken by the On-Site Co-ordinator, in consultation with the other Controllers of Operations at the site and the Local Co-ordination Group. Where organisations other than the Principal Response Agencies have responded, they should be informed of the decision to stand them down by the Controller of Operations of the agency which mobilised them.

A great deal of activity may continue at locations other than the site (such as the hospitals, temporary mortuary, etc.) after the major emergency is stood down at the site. The Local, Regional or National Co-ordination Groups may need to continue their work after activities at the site have ceased.

7.20.2 Operational debriefing and reporting

Following the stand down of the Major Emergency the Local Authority is to carry out an operational debriefing of its involvement in the response and document this debriefing in a report.

A multi-agency debrief will then be held and lessons learned will be incorporated into this Plan. This review should be hosted by the lead agency and involve all services which were part of the response.

Multi-agency debriefs should consider the contribution provided by other, non-emergency service agencies to expand the knowledge and learning process that debriefs should collate. This is notwithstanding the potential conflict of interest that may result in later investigations. This aspect should be considered when inviting agencies other than emergency services to the debrief.

The purpose of the review should be to formulate the lessons learned from the incident in relation to co-ordination and to document these.

A composite report, based on appropriate input from each Principal Response Agency's internal report and the report on co-ordination, on every declared major emergency is to be compiled by the principal response agency which was the initial lead agency for submission within a reasonable timescale to the relevant Regional Steering Group and the National Steering Group.

Section 8 - Agency Specific Elements and Sub-Plans

Cork County Council has prepared a number of specific Sub-Plans of the Major Emergency Plan and these plans can be activated whether a major emergency has occurred or not. *See Appendices 4, 5, 6 & 25*

The existing sub-plans include:

- Severe Weather Plan (other than flooding)
- Flood Emergency Response Plan
- Drinking Water Incident Response Plan
- Oil and Hazardous & Noxious Substances Spill Contingency Plan

Section 9 - Plan for Regional Level Co-ordination

9.1 Introduction

In some situations where a major emergency has been declared and the Major Emergency Plans of the Principal Response Agencies have been activated, it may be appropriate to consider scaling up from a local response to a regional level response. This may occur when:

- the resources available in the local area where the incident has happened do not appear to be sufficient to bring the situation under control in an expeditious and efficient manner; or
- the consequences of the emergency are likely to impact significantly outside of the local area; or
- the incident(s) is spread across more than one Local Authority or Division of An Garda Síochána; or
- the incident occurs at or close to a boundary of several of the principal response agencies.

9.2 Decision to Scale up to a Regional Level response

The decision to scale up from a local to a regional level response will be taken by the chair of the Local Co-ordination Group, in consultation with the chair of the On-Site Co-ordinating Group and the other members of the Local Co-ordination Group. This consultation may occur at a meeting of the Local Co-ordination Group, where such a group is in session or, alternatively, by means of a telephone conference call.

This decision will, by definition, involve specifying those extra principal response agencies which are to be involved in the regional response.

Note: In many Major Emergency situations, neighbouring Garda Divisions, HSE Areas and Local Authorities will provide support and resources to the Garda Division, HSE Area and Local Authority, which are primarily involved in the response. Such support is not equivalent to the activation of the Plan for Regional Level Co-ordination and, in fact, will often precede the activation of the regional plan.

9.3 Response Region

The areas covered by the Principal Response Agencies which are activated under the Plan for Regional Level Co-ordination will constitute the response region for the emergency.

Note: The response region for a regional level major emergency need not coincide (and in many cases will not coincide) with one of the predetermined Major Emergency Management Regions set out in Appendix F4 of the Framework.

9.4 Activation

Once the decision has been taken, the chair of the Local Co-ordination Group will declare that a regional level emergency exists and will activate the Plan for Regional Level Co-ordination by:

- notifying each of the principal response agencies involved that the Plan for Regional Level Co-ordination has been activated;
- requesting that each of the principal response agencies, which has not already activated its Major Emergency Plan, should do so;
- delivering an information message to each principal response agency using the mnemonic METHANE; and
- providing each of the Principal Response Agencies involved with a list of the agencies which are being activated to form the regional response

9.5 Command, Control and Co-ordination of Response

The command and control arrangements at the site(s) of a regional major emergency will be the same as those for a standard major emergency including:

- three Controllers of Operation[1];
- a lead agency determined in accordance with the Framework; and
- an On-Site Co-ordinating Group
- an On-Site Co-ordinator

[1]In situations where more than one principal response agency from a particular service is represented at the site, there will be only one Controller of Operations from that service and the unit from which the Controller of Operations will come should be determined in accordance with the guidance provided in Appendix F7 of A Framework for Major Emergency Management

9.6 The Regional Co-ordination Group

The mobilisation and operation of the Regional Co-ordination Group will be as per the arrangement for Local Co-ordination Groups set out in *Appendix 2*.

Regional Co-ordination Group arrangements for the following issues will be as for a Local Co-ordination Group.

- the mobilisation of other organisations/agencies;
- requesting mutual aid from neighbours;
- requesting national/international assistance where required;
- dealing with multi site or wide area emergencies;
- linkage to national emergency plans;
- links with Government;
- support for chairs by Information Managers, etc; and
- communication arrangements with the site and with other groups

9.7 Wide Area Emergencies

Some major emergency events (e.g. severe storms, extensive flooding and/or blizzards) may impact over a wide area and, in such a situation, a number of Local Co-ordination Groups may be activated. Where the chair of a Local Co-ordination Group, which has been activated in response to a major emergency, becomes aware that one or more other Local Co-ordination Groups have also been activated, contact should be made with the other chair(s) with a view to considering the establishment of a Regional Co-ordination Centre.

Such a Regional Co-ordination Centre will normally be located at the Local Co-ordination Centre which, in the view of the chairs, is best positioned (in terms of resources, communications and geography) to co-ordinate the activity of the different Local Co-ordination Groups which are active. In such a situation, these Local Co-ordination Groups will continue to act as per standard arrangements and will communicate with the Regional Co-ordination Centre through their chairs.

Note: During a wide area major emergency, each Local Co-ordination Group will be in contact with the lead Government Department (in accordance with Section 5.4.5.5 of the Framework) and, in such a situation, the decision on whether the activities of a

number of Local Co-ordination Groups should be co-ordinated via a Regional Co-ordination Centre or via the lead Government Department will be taken in light of the prevailing circumstances.

The Chair of the Local Co-ordination Group may declare a regional level emergency and activate the Plan for Regional Level Co-ordination. The key provision in ensuring co-ordination of the extended response is the activation of a "Regional Co-ordination Group". The primary function of the Regional Co-ordination Group is to maintain co- ordination of the principal response agencies involved from the extended “response region”.

(Please refer to section 6 of this document for a more in-depth look at a Regional Level Major Emergency Response)

Section 10 - Links with National Emergency Plans

10.1 Activation of Major Emergency Plan on request from a body acting under the provisions of one of the following National Emergency Plans:

National Emergency Plan for Nuclear Accidents National Public Health (Infectious

Each Principal Response Agency should provide for working with appropriate national bodies and responding to and activating appropriate aspects of their Major Emergency Plan following requests arising from national emergency situations. *Please refer to section 6.3.4.4/ 6.3.4.5 of this document for further details.*

10.1.1 National Emergency Plan for Nuclear Accidents

Details of specific actions to be taken in the event of a radiological or nuclear emergency are contained in the National Emergency Plan for Nuclear Accidents and the Protocol for Multi-Agency Response to Radiological/ Nuclear Emergencies (Draft).

10.1.2 National Public Health (Infectious Diseases) Plan

Details of specific actions to be taken in the event of an activation of the National Public Health (Infectious Diseases) Plan are detailed in the Dept. of Health Public Health Emergency Plan.

10.1.3 Animal Health Plan

The Department of Agriculture and Food has an emergency plan designed to contain outbreaks of avian influenza in poultry or Foot and Mouth disease should an outbreak occur in this country. Cork County Council will provide assistance under the direction of the lead government department.

10.1.4 Activation on request from Irish Coast Guard

The Major Emergency Plans of the principal response agencies may be activated in response to a request from the Irish Coastguard.

10.1.5 Activation on request from a Minister of Government

The Major Emergency Plans of the principal response agencies will be activated in response to a request from a Minister of Government in light of an emergency/crisis situation.

Section 11 - Severe Weather Plans

11.1 Sub-Plan for responding to:
Flood Emergency Response Plan
Severe Weather Conditions (excluding Flooding Emergencies)

Severe weather emergencies may involve significant threats to infrastructure and support may be required for vulnerable sections of the community. It has been pre-determined the Local Authority will be the lead agency for co-ordinating the response to severe weather events within its functional area.

Arrangements have also been put in place by Met Éireann to issue public service severe weather warnings to the Local Authorities. The target time for the issuing of a warning is 24 hours before the start of the event, but a warning may be issued up to 48 hours in advance when confidence is high. On Fridays before a holiday period it may be appropriate to issue a preliminary warning or weather watch to Local Authorities.

Cork County Council will ensure that effective arrangements are in place to receive and respond promptly to public service severe weather warnings issued by Met Éireann.

The Local and/or Regional Co-ordination Centres for Major Emergency Management may be activated to manage the response to a severe weather event, whether a major emergency is declared or not.

11.1.1 Flooding Emergencies

See Appendix 5 – Flooding Emergency Response Plan

11.1.2 Severe Weather Conditions (Excluding Flooding Emergencies)

See Appendix 4 – Severe Weather Plan (excluding flooding)

Section 12 - Site and Event Specific Arrangements and Plans

12.1 Site and Event Specific Emergency Plans

There are both legislative and procedural arrangements, which require that emergency plans be prepared for specific sites or events (e.g. SEVESO sites, airports, ports, major sports events, etc.). Arising from the risk assessment process described in *Section 3*, Cork County Councils Major Emergency Plan has identified sites/events where specific plans/ arrangements exist for responding to emergencies. These include the following;

- Inter-Agency Emergency Plan for Cork Airport
- Inter-Agency Emergency Plan for the Jack Lynch Tunnel
- Port of Cork Company Emergency Plan
- Bantry Bay Port Emergency plan

The generic response arrangements set out in the *Section 7*, will govern the Principal Response Agencies response to such sites/events and whether a major emergency is declared or not.

12.2 Seveso (COMAH) Sites

The Principal Response Agencies are required to prepare External Emergency plans for upper tier SEVESO establishments under the European Communities (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2006.

In total, there are currently eleven upper tier sites in County Cork. External Emergency Plans are in place for ten upper tier establishments and one is in currently in development for a recently notified site.

Upper Tier SEVESO Sites

No	Company Name	Address
1	Zenith Energy Bantry Bay Terminals Ltd.	Bantry, Co. Cork
2	Calor Gas (Whitegate) Ltd.	Whitegate. Co. Cork
3	Irving Oil (formerly Phillips66) Whitegate Refinery Ltd.	Whitegate. Co. Cork.
4	MarinoChem Ireland Ltd.	Marino Point, Cobh. Co. Cork
5	Eli Lily	Dunderrow, Kinsale. Co. Cork
6	Irish Distillers Ltd.	Midleton. Co. Cork
7	GlaxoSmithKline	Currabinny, Carrigaline. Co. Cork
8	Pfizer Ireland Pharmaceuticals	Ringaskiddy, Co. Cork
9	Novartis Ringaskiddy Ltd.	Ringaskiddy Co. Cork
10	BASF Ireland Ltd.	Little Island. Co. Cork
11	Irish Distillers Ltd.	Dungourney, Co. Cork

There are a total of three upper tier sites located in Cork City Council's function area. These sites are located close to the boundary with Cork County Councils functional area and have the potential to impact on people and property in County Cork

Upper Tier Seveso sites located within Cork City's functional area but with a potential impact on Cork County Council's functional area

No	Company Name	Address
1	Calor Gas (Tivoli) Ltd.	Tivoli Industrial Estate
2	Flogas Plc	Tivoli Industrial Estate.
3	Grassland Agro	Carrigrohane Road, Cork

Lower Tier SEVESO Sites

There are a total of 9 Lower Tier sites in Cork County Councils area. There is no requirement for an External Emergency Plan for lower tier installations. However, the operator is required to have an internal emergency plan in place.

No	Company Name	Address
1	BOC Gases Ireland Ltd.	Little Island. Co. Cork
2	LPGas Filling Services Ltd.	Quarterstown, Industrial Estate, Mallow, Co. Cork
3	ESB Aghada Power Station	Whitegate, Aghada, Midleton, Co. Cork
4	Irish Oxygen Co. Ltd.,	Waterfall, Co. Cork
5	Pfizer Ireland Pharmaceuticals	Little Island, Co. Cork
6	Hovione	Loughbeg, Ringaskiddy, Co. Cork
7	Tervas Ltd.,	Knockburden, Co. Cork
8	Merck Millipore Ireland Ltd.	Carrigtwohill, Co. Cork
9	Janssen Pharmaceutical	Little Island, Cork
10	Carbon Group	Ringaskiddy, Co. Cork

Section 13 - The Recovery Phase

13.1 Support for Individuals and Communities

Although the emergency response stage may have passed, the recovery stage is also important and includes consideration of many strategic issues, which need to be addressed, at both individual principal response agency and inter-agency level, during this phase. The recovery phase can typically include:

- Assisting the physical and emotional recovery of victims;
- Providing support and services to persons affected by the emergency;
- Clean-up of damaged areas;
- Restoration of infrastructure and public services;
- Supporting the recovery of affected communities;
- Planning and managing community events related to the emergency;
- Investigations/inquiries into the events and/or the response;
- Restoring normal functioning to the principal response agencies; and
- Managing economic consequences.

A structured transition from response to recovery is critical for agencies, both collectively and individually. The recovery stage may be as demanding on Cork County Councils resources and staff as the emergency itself, as work may extend for a considerable time after the incident.

13.1.1 Support for individuals and communities during the Recovery Phase

Following an emergency incident, assistance will be required by the victims of the emergency – not only those directly affected, but also family and friends, who may suffer bereavement or anxiety. A major emergency will have a serious effect on a community. The recovery phase should provide support and long term care for individuals involved in the incident and the communities affected by the incident.

It is imperative that Cork County Council restores its services to a pre-emergency state as quickly and efficiently as possible.

The services and staff that Cork County Council can provide are based upon a wide range of skills and resources drawn from its day-to-day operations such as;

- Technical and engineering support
- Building control
- Road & Water services
- Public health and environmental issues
- Provision of reception centres
- Re-housing and accommodation needs
- Transport
- Social services
- Psychosocial support
- Help lines
- Welfare and financial needs

There are specific requirements for each agency in the recovery process. These requirements are:

Local Authority

- Clean-up;
- Rebuilding the community and infrastructure;
- Responding to community welfare needs (e.g. housing); and
- Restoration of services.

An Garda Síochána

- Identification of fatalities;
- Preservation and gathering of evidence;
- Investigation and criminal issues;
- Dealing with survivors;
- Dealing with relatives of the deceased and survivors; and
- Provision of an appropriate response to the immediate public need.

Health Service Executive

- Provision of health care and support for casualties and survivors;
- Support for relatives of casualties and survivors;
- Responding to community welfare needs; and
- Restoration of health services.

13.1.2 Managing of public appeals and external aid

There is a need for the co-ordination of emerging recovery issues, such as managing public appeals and external aid, from the earliest stages of the response phase. For this reason, the arrangements for co-ordination of response should continue to operate during the transition from response stage to recovery stage. At a point when the issues on the agendas of Co-ordination Groups are largely recovery focussed, it may be appropriate to re-title the group as the Local, Regional or National Recovery Co-ordination Group. From the earliest stage, it may be appropriate also for the Local, Regional or National Co-ordination Group to appoint a Recovery Working Group to plan ahead.

Cork County Councils Crisis Management Team will continue to function until the issues arising in the recovery phase are more appropriately dealt with by the agency's normal management processes.

13.2 Clean-Up

In the aftermath of an emergency the clean-up operation in public areas will be the responsibility of Cork County Council (and Site Operator / Landowner if relevant). The removal of debris and contaminated waste is one of the principal concerns for Cork County Council. In consultation with the site operator and the EPA, Cork County Council will commence clean up of a site as soon as possible but without hindering the investigation process. Careful consideration must be provided for the removal of decontaminated debris to locations that will not affect communities.

13.3 Restoration of Infrastructure and Services.

Cork County Council will ensure that its critical services are restored as quickly as possible after a Major Emergency.

13.3.1 Procedures and arrangements for monitoring the situation

At a point when the issues on the agendas of Co-ordination Groups are largely recovery focused, it may be appropriate to re-title the group as the Local, Regional or National Recovery Co-ordination Group. From the earliest stage, it may be appropriate also for the Local, Regional or National Co-ordination Group to appoint a Recovery Working Group to plan ahead. These groups will be responsible for the co-

ordination of the recovery phase, managing resources and monitoring the situation until the issues arising are more appropriately dealt with by the normal management processes.

13.3.2 Procedure for liaison with utilities

The utility companies may need to be mobilised in the recovery phase in order to provide essential services such as gas, water and electrical supplies and communications facilities.

13.3.3 How the order of priorities are to be determined

It is the responsibility of the Local, Regional or National Recovery Co-ordination Group together with the Recovery Working Group to priorities events during the recovery phase.

It should be noted that staff welfare arrangements need to be given priority in the recovery stage of an incident, so that the needs of all staff, both emergency response teams and general staff (including management), are catered for. In addition, the needs of staff that are not directly involved in responding to the incident should also be considered.

Section 14 - Review of the Major Emergency Plan

14.1 Internal review process

An internal review of the Major Emergency Plan will be undertaken by Cork County Council on an annual basis, the review should be held every September or on the annual date of implementing the plan. The review should include;

- Updating the roles of individuals that hold key positions in the Major Emergency plan
- Updating the risk holders within the functional area of Cork County Council
- Update names and numbers of utility companies, private companies etc
- Review current risk assessments and update as required.
- Plan exercises

14.2 External Review process

Cork County Councils appraisal will be reviewed and validated by the Regional Steering Group on Major Emergency Management. This appraisal will also be reviewed and validated by the Department of the Environment, Community and Local Government. Any issues arising from the review should be referred back to Cork County Council for appropriate action. In cases of disagreement between Cork County Council and the Regional Steering Group, the National Steering Group should be consulted and should decide on the issue.

The regional level report will also be reviewed and validated by the National Steering Group. Any issues arising from the review should be referred back to the Regional Steering Group on Major Emergency Management for appropriate action.

14.2.1 Review by the Department of Housing, Planning, Community & Local Government

In addition to Cork County Councils Major Emergency Plan being reviewed locally and regionally on an annual basis it must also be reviewed and validated by the Department of Housing, Planning, Community & Local Government. Any issues arising from the review should be referred back to Cork County Council for appropriate action.

14.3 After every activation, the Major Emergency Plan should be reviewed and reported upon

Once the Major Emergency Plan has been stood down, each of the services and agencies involved in the incident will hold a series of operational hot-debriefs. Initially these will be confined to each particular service, but later a multi-agency cold-debrief will be held (Multi-agency debriefs should consider the contribution provided by other, non-emergency service) and lessons learned will be incorporated into future planning preparedness.

14.3.1 How Cork County Councils performance of its functions will be reviewed and reported upon internally

In addition to the review process outlined in the sections above, which takes place annually on a local, regional and national level, the Major Emergency Plan for Cork County Council and the performance of the Cork County Council as a Principal Response Agency will also be reviewed following a major incident within the county/ region or even national, when there is learning to be gained. Should any new risks become apparent in the County, the plan will be reviewed to reflect this.

14.3.2 How the co-ordination function will be reviewed and reported upon externally and jointly with other principal response agencies

Multi-agency debriefs should consider the contribution provided by not only each other but also other, non-emergency service agencies. This is notwithstanding the potential conflict of interest that may result in later investigations. This aspect should be considered when inviting agencies other than emergency services to the 'debrief'.

Multi agency reviews must also be conducted on an annual basis between the principle response agencies on both a local and regional level basis. This will include reviewing and reporting on the co-ordination function of the agencies.

Section 15 - Appendices

Appendix 1: Major Emergency Mobilisation Procedure

Appendix 2: Local Co-ordination Group Representative Mobilisation Procedure

Appendix 3: Confidential Contact Details

(i) Cork County Council personnel & designation of key roles
(ii) Regional Steering Group Contact List
(iii) Regional Working Group Contact List
(iv) Local Co-ordination Centre & Crisis Management Team Centre Phone-lines

Appendix 4: Severe Weather Plan (other than Flooding)
Appendix 5: Flood Emergency Response Plan
Appendix 6: Drinking Water Incident Response Plan
Appendix 7: External Emergency Plans for Upper Tier Seveso Establishments

(i) Zenith Energy Bantry Bay Terminals Ltd., Bantry, Co. Cork
(ii) Calor Gas (Whitegate) Ltd., Whitegate. Co. Cork
(iii) Irving Oil (formerly Phillips66) Whitegate Refinery Ltd., Whitegate. Co. Cork
(iv) MarinoChem, Ireland Ltd., Marino Point, Cobh. Co. Cork
(v) Eli Lily., Dunderrow, Kinsale. Co. Cork
(vi) Irish Distillers Ltd., Midleton. Co. Cork
(vii) GlaxoSmithKline, Currabinny, Carrigaline.
(viii) Pfizer Ireland Pharmaceuticals, Ringaskiddy Drug Substance Plant, Ringaskiddy,
(ix) Novartis Ringaskiddy Ltd., Ringaskiddy Co. Cork
(x) BASF Ireland Ltd., Little Island. Co. Cork
(xi) Calor Tivoli, Tivoli, Cork
(xii) FloGas Tivoli, Tivoli, Cork
(xiii) Grassland Agro, Carrigrohane, Cork

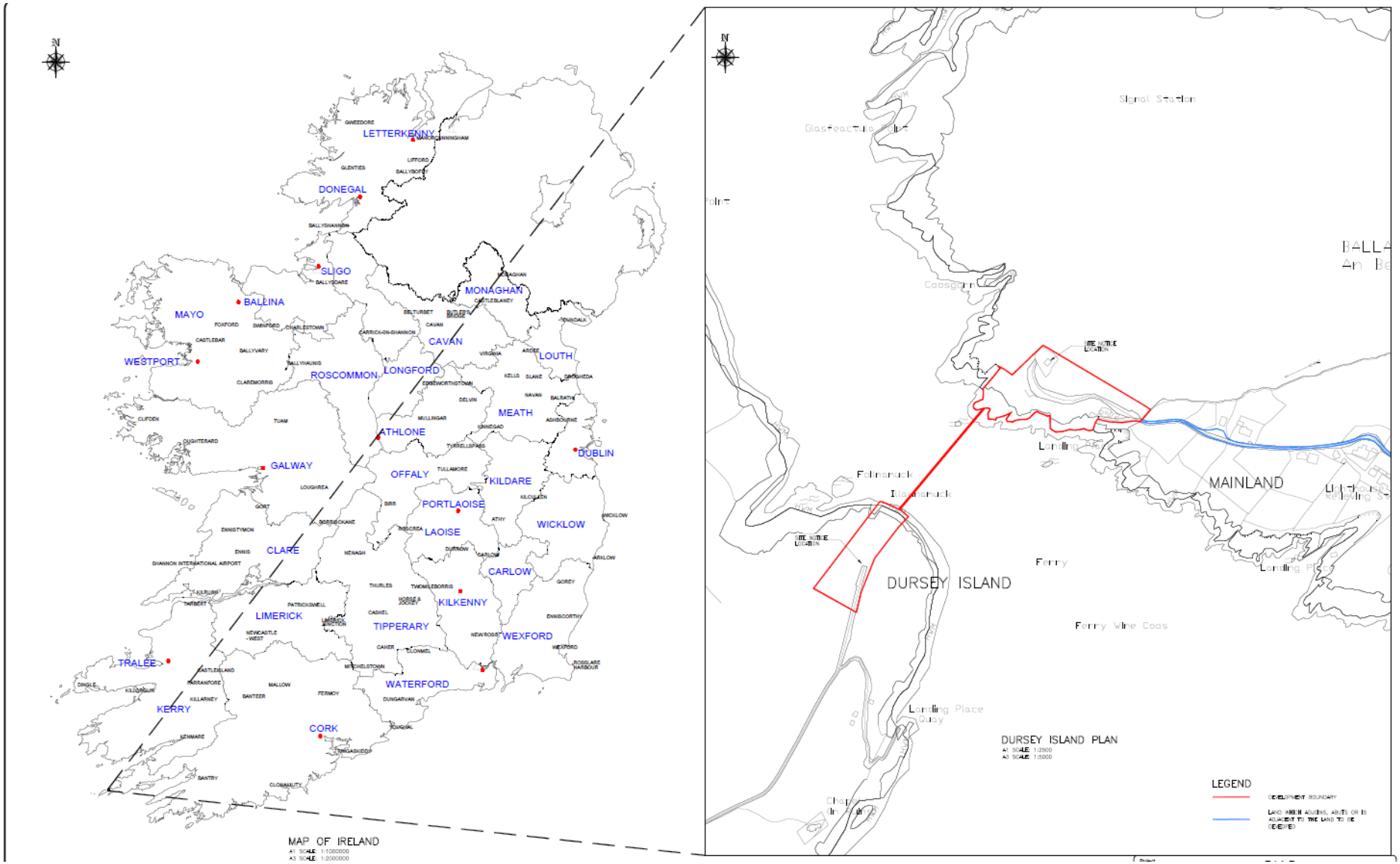
Appendix 8: Regional Contact Details

Appendix 9: Procedure for requesting assistance from the Defence Forces

Appendix 10: Inter-Agency Emergency Plan for Cork Airport

Appendix 11: Port of Cork Emergency Plan
Appendix 12: Bantry Bay Port Emergency Plan
Appendix 13: Glossary of Terms and Abbreviations
Appendix 14: Regional Media Plan
Appendix 15: Site Management Arrangements
Appendix 16: Multiple Fatalities Guide (MEM Region South)
Appendix 17: Pre-nominated Lead Agencies for different Categories of Emergency
Appendix 18: List of Authorised Persons to activate Major Emergency Plan
Appendix 19: Format for Notifying DHPCLG of Declaration of a Major Emergency
Appendix 20: Evacuation Guide (MEM Region South)
Appendix 21: Cork County Council's Contact Centre Arrangements)
Appendix 22: Memorandum of Understanding between NDFEM & EPA
Appendix 23: Voluntary Emergency Services Guide (MEM Region South)
Appendix 24 – Inter-Agency Emergency Plan for the Jack Lynch Tunnel
Appendix 25 – Oil and Hazardous & Noxious Substances Spill Contingency Plan

APPENDIX 4.1A - B
Figure 1 Location Plan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LIMERICK
TIPPERARY
WEXFORD
TRALEE
WATERFORD
KERRY
CORK
MAP OF IRELAND
N
MAINLAND
DURSEY ISLAND
Ferry
Landing Place
Quay
DURSEY ISLAND PLAN
LEGEND

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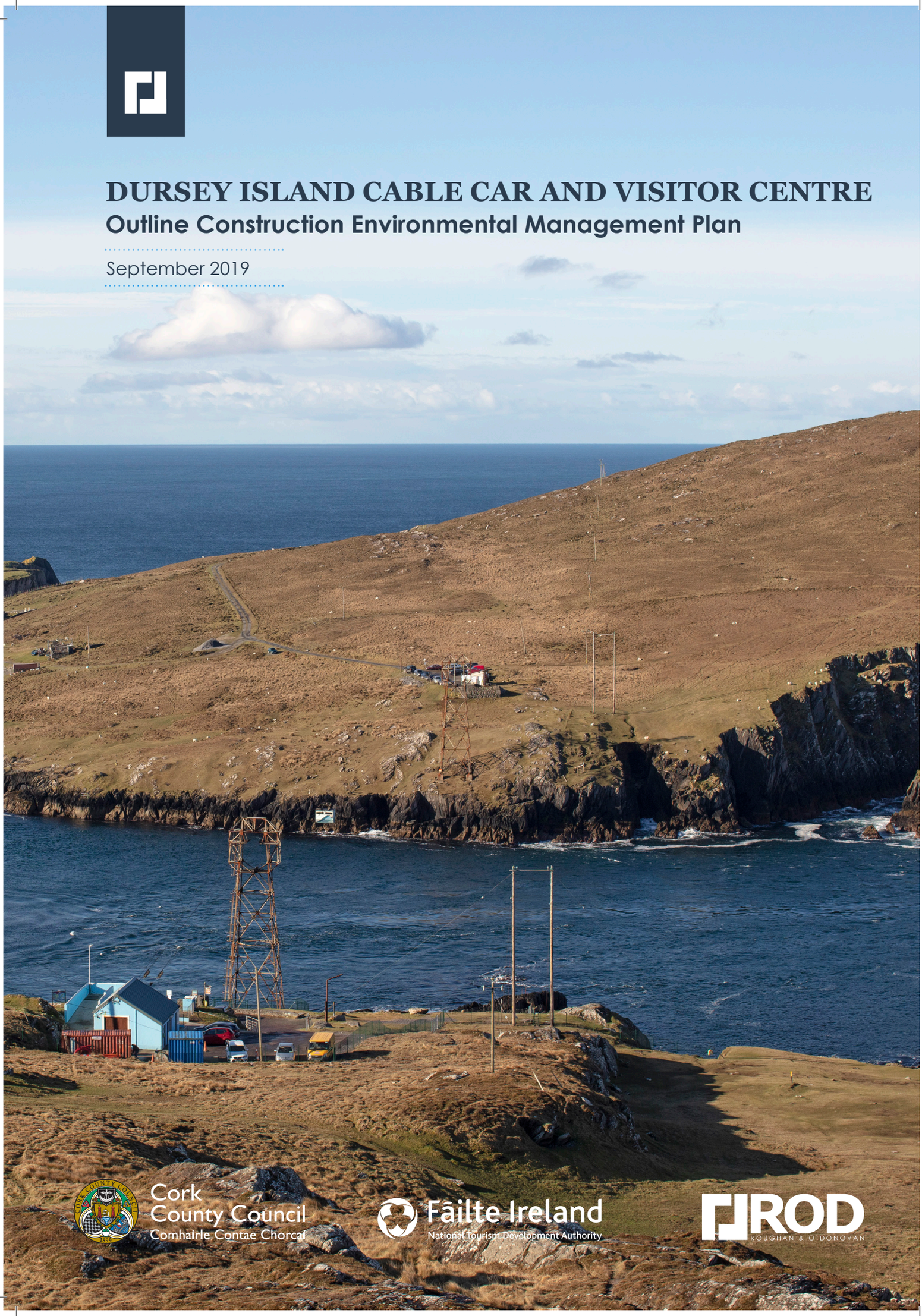
APPENDIX B
Outline Construction Environmental Management Plan

DURSEY ISLAND CABLE CAR AND VISITOR CENTRE

Outline Construction Environmental Management Plan

September 2019



Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

ROD
ROUGHAN & O'DONOVAN

Dursey Island Cable Car and Visitor Centre

Outline Construction Environmental Management Plan

TABLE OF CONTENTS

1. INTRODUCTION

This document sets out the Outline Construction Environmental Management Plan (CEMP) for the construction of the Dursey Island Cable Car and Visitor Centre Project on behalf of Cork County Council.

This OCEMP applies to all works associated with the construction of the proposed civil works, including the pre-construction site clearance works.

As a contractor has not yet been appointed, the CEMP has not been formally adopted and further development and commitment to the Outline CEMP will be undertaken following selection of the Contractor and before commencement of site works.

The Outline CEMP provides the environmental management framework for the appointed Contractors and Sub Contractors as they incorporate the mitigating principles to ensure that the work is carried out with minimal impact on the environment. The construction management staff as well as Contractors and Sub Contractors staff must comply with the requirements and constraints set forth in the Outline CEMP in developing their CEMP. The key environmental aspects associated with the construction of the Dursey Island Cable Car and Visitor Centre and the appropriate mitigation and monitoring controls are identified in this Outline CEMP and its supporting documentation.

The implementation of the requirements of the Outline CEMP will ensure that the construction phase of the project is carried out in accordance with the commitments made by Cork County Council in the planning application process for the development, and as required under the conditions of the planning approval. Once commenced, the CEMP is considered a living document that will be updated according to changing circumstances on the project and to reflect current construction activities. The CEMP will be reviewed on an ongoing basis during the construction process and will include information on the review procedures.

1.1 Roles and Responsibilities

The Contractor is responsible to ensure that all members of the Project Team, including sub-contractors, comply with the procedures set out in the CEMP. The Contractor will ensure that all persons working on site are provided with sufficient training, supervision and instruction to fulfil this requirement.

The Contractor will ensure that all persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood. The principal environmental responsibilities for key staff can be identified as follows:

1.1.1 Site Manager

The Site Manager's environmental management responsibilities include but are not limited to:

- preparation and implementation of the CEMP;
- close liaison with the Site Environmental Manager (SEM) to ensure adequate resources are made available for implementation of the CEMP;
- ensuring that the risk assessments for control of noise and environmental risk are prepared and effectively monitored, reviewed and communicated on site; and

- managing the preparation and implementation of method statements; and
- ensuring that the SEM reviews all method statements and that relevant environmental protocols are incorporated and appended.

1.1.2 Site Environmental Manager (SEM)

The responsibilities of the SEM include, but are not limited to:

- Maintaining environmental records;
- Providing guidance for the site team in dealing with environmental matters, including legal and statutory requirements affecting the works;
- Reviewing environmental management content of method statements;
- Reporting environmental performance to the Site Manager;
- Liaison with statutory and non-statutory bodies and third parties with an environmental interest in the scheme; and
- Collection and collation of CEEQUAL (Civil Engineering Environmental Quality Assessment and Award Scheme) evidence.

1.1.3 Engineering Staff

The engineering staffs' environmental management responsibilities include but are not limited to:

- Reporting any operations and conditions that deviate from the CEMP to the Site Manager;
- Taking an active part in site safety and environmental meetings; and
- Ensuring awareness of the contents of method statements, plans, supervisors' meetings or any other meetings that concern the environmental management of the site.

1.1.4 Supervisors

The supervisors' environmental management responsibilities include but are not limited to:

- Ensuring all personnel affected by a method statement are briefed and fully understand its content. Monitor operatives for compliance, including sub-contract operatives;
- Implementation of environmental management activities required by the CEMP and works method statements; and
- Ensuring that all inspections are carried out as prescribed in the CEMP.

1.2 Training and Induction

1.2.1 Site Induction

All personnel involved in the proposed development will receive environmental awareness training. The environmental training and awareness procedure will ensure that staff are familiar with the principles of the CEMP, the environmental aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

1.2.2 Specific Training and Awareness Raising

A project specific training plan that identifies the competency requirements for all personnel allocated with environmental responsibilities will be produced by the Contractor. Training will be provided by the Contractor to ensure that all persons working on site have a practical understanding of environmental issues and

management requirements prior to commencing activities. A register of completed training is to be kept by the SEM. The Site Manager will ensure that environmental emergency plans are drawn up and the SEM will conduct the necessary training/inductions.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Project Description

The proposed development comprises the construction of a new cableway connecting the easternmost tip of Dursey Island with the townland of Ballaghboy, on the western end of the Beara Peninsula in west County Cork. The development of associated structures, including a visitor interpretive centre and café on the mainland as well as the decommissioning of the existing Dursey island cableway will also take place. The proposed cableway will run parallel to the existing alignment offset by approximately 14m to the north, with the end-to-end length of 375m.

The proposed development will include the construction/completion of the following elements at the site of the existing Dursey Island cableway:

- Erection of a two-car desynchronised reversible ropeway cableway ('cableway' hereafter)[1] with a capacity of 200-300 passengers per hour in each direction;
- Erection of two supporting line structures ('pylons' hereafter) - one on the mainland and one on the island;
- Construction of a mainland-side drive station ('mainland station' hereafter) including all necessary operating machinery, facilities for operating staff, and a platform for embarking/disembarking;
- Construction of an island-side return station ('island station' hereafter) including all necessary operating machinery, platform for embarking/disembarking, a sheltered waiting area and welfare facilities;
- Construction of a mainland-side interpretive exhibition centre with a gift shop ('Visitor Centre' hereafter);
- Construction of a mainland-side café with seating for 40 indoors, an additional 44 seats on an outdoor terrace/balcony overlooking the Dursey Sound, and welfare facilities;
- Construction of a mainland-side visitor car park with approx. 100 no. parking spaces and 1 no. bus bay;
- Retention of the existing residents' car park on Dursey Island;
- Upgrades of associated utilities infrastructure (including mainland water supply and telecommunications connectivity and mainland and island wastewater treatment systems);
- Completion of road improvement works (construction of 10 no. passing bays, 1 no. visibility splay at Bealbarnish gap (hereafter referred to as '11 no. passing bays') and completion of a number of local improvements to improve visibility) on an 8km stretch of the mainland-side approach road R572 (between the R572-R575 junction at Bealbarnish Gap and the mainland side of the cable car site);

[1] The term 'Cable Car' refers to the carrier cabin which conveys passengers to and from the island via the cableway.

- Demolition/removal of some elements of the existing cableway infrastructure (ropeway, island-side pylon), mainland-side visitor car park and island and mainland station buildings;
- Erection of interpretive/informative signage at strategic locations;
- Erection of 4 no. Variable Message Signs (VMS) at four locations along the approach roads to the site:
    1. Bealbarnish Gap;
    2. R572 at Castletownbere;
    3. R575 at Eyeries Cross; and
    4. N71 at Glengarriff;
- Retention of the cable car, mainland pylon and a section of the mainland-side hauling machinery of the existing cableway in order to facilitate ongoing appreciation of their industrial architectural and cultural heritage value;
- Soft and hard landscaping; and
- All other ancillary works.

2.2 Pre-Construction

Site Preparation

Elements of the site preparation works may be conducted through an advance works contract to be completed before construction commences on site. Prior to any work commencing on the mainland or island sites, boundary security will be required to be established around the site to prevent unauthorised access. The boundary will be laid out so as to maintain safe access to the existing cableway, to maintain the aforementioned public right of way, and to maintain a portion of the existing parking facilities, where possible. Appropriate environmental protection measures will be put in place on both sites. These are expected to include measures to prevent run-off from the site entering the sound. Site clearance works will be carried out on the mainland site, island site and at the location of all proposed passing bays along the R572 approach road, over the extents indicated on the drawings. Existing overhead lines will be diverted or maintained and protected throughout the works as required by the contract. It is not expected that there will be any interruptions to local utility services as a result of any diversions carried out.

Sourcing of Materials

There are several registered/authorised quarries near the proposed development which may be utilised in the sourcing of the required imported granular fill material. Only those quarries that conform to all necessary statutory consents will be used in the construction phase.

2.3 Construction Stage

The main construction elements and activities of the development are as follows:

- Site preparation including establishment of boundary security, site clearance, and diversion, removal or protection of existing services as necessary;
- Approach road improvement works;
- Earthworks (cutting and filling);
- Construction of cableway infrastructure – 2 no. stations, 2 no. pylons and installation of cableway machinery, ropes and cable cars;
- Buildings and associated services and civil works:

  - Visitor Centre / gift shop;
  - Café with toilet block;
  - Mainland station building (drive station) with staff facilities, workshop and storage;
  - Energy Centre;
  - Island station building (return station) with welfare facilities;
- Pavement, drainage and wastewater treatment installations;
- Landscaping and finishes

Approach Road Improvement Works and VMS

These works will include a combination of the following at each location:

1. Temporary traffic management;
2. Site clearance (including demolition of 1 no. disused building);
3. Minor earthworks;
4. Pavement widening works;
5. Signage and road markings; and,
6. Boundary treatment – reinstatement of fencing and walls.

It is also proposed to install 4 no. VMS at the following locations:

1. Castletownbere town;
2. R575 and R571 junction south of Eyeries;
3. R572-575 junction at Bealbarnish Gap;
4. Glengarriff village.

These works will include site clearance, minor excavations for foundations, casting of concrete foundations and installation of VMS posts and displays. There is an existing electricity connection available at each of the proposed sites. The signs will be connected into the existing supply, which will necessitate the laying of a short length of new ducting and the installation of new mini-pillars.

Reinforced Concrete Retaining Wall along Southern Boundary of Mainland Site

The rock excavated from the site will be used as back-fill to the proposed retaining wall, which will run along the southern boundary of the site. Therefore, it is likely that the Contractor will construct the wall in advance of any rock-breaking so that the excavated material can be processed and deposited immediately, in order to avoid the need to stockpile the material for a period of time. Construction of the wall will include the following activities:

1. Earthworks carried out to provide a flat formation level.
2. Steel fixing put in place to form reinforcement cages for higher sections of the wall. It is likely that the Contractor will assemble the cages at ground level and crane them into position.
3. Shuttering and pumping of concrete is carried out.
4. Formwork is removed, and waterproofing and back-of-wall drainage is installed.
5. Backfilling of walls using material won on site and/or imported fill material is carried out. Backfill material will be placed and compacted in layers, as required by the contract specification.

Earthworks

Cutting will be required to the rear (north-east) of the existing mainland car park in order to provide space for the proposed upper tier of parking. Backfilling will also be required to level the site along the seaward edge of the existing car park to accommodate the proposed buildings. The cutting will predominantly consist of rock-breaking. With careful planning it will be possible to balance the cut and fill volumes to some extent. It is highly likely that the excavated rock will form an acceptable fill material for levelling the site and for capping/pavement purposes. Topsoil will be stripped and reused, where possible. Relatively minor earthworks will be required on the island and at some of the proposed passing bay locations along the R572. On the mainland, an approximation of the proposed volume of cut material is 6,500m^3, while the requirement for fill to the required formation levels is 8,600m^3. However, when the volume of the retaining walls is taken into account and bulking of the excavated material is allowed for (crushed rock has a greater volume than solid rock), the cut and fill volumes will approximately balance.

Cableway works

Initially, reinforced concrete pad foundations will be constructed for the cableway pylons and stations. The stations will require relatively large concrete pads measuring approximately 9 x 9 m in plan by 1.2 m deep. The pylon foundations will measure approximately 5 x 5 m in plan by 0.6 m deep. All pads will bear directly on the existing bedrock which is at high level throughout the site. Construction of the pads will include the following construction activities:

1. Earthworks will be required to excavate down to formation level, as the pad foundations will be buried.
2. Steel fixing will be put in place to form reinforcement cages.
3. Shuttering and pumping of concrete will be carried out. It is anticipated that ready-mix concrete will be delivered to site for the mainland works. On-site mixing will likely be necessary for the island site concreting works.
4. Striking of formworks and application of waterproofing system will be carried out.
5. Pad foundations will be backfilled.

Each pylon foundation will also include a raised concrete plinth which will be cast as one with the pad. The plinths will not be buried and, as such, the durability of these components poses a significant concern. Given the severity of exposure conditions at the proposed pylon locations, stainless steel reinforcement is proposed for the pylon plinths. The holding-down anchors for the pylons will be cast into the plinths.

The mainland and island pylons will be of tubular steel construction and will be 33.5 m and 21.7 m high, respectively. Sections of the tubular steel pylons and the cableway machinery will be transported to site by road (and by ferry for island works), craned into position using a mobile crane and bolted and/or welded together on site. In order to get a suitable crane sufficiently close to the lifting site, it may be necessary to construct a temporary access road branching off the existing road to the proposed pylon locations at both the mainland and island sites. Once the pylons have been erected and the cableway mechanical and electrical equipment installed on both the mainland and island sites, the cableway ropes will be hung and tensioned. As per normal practice, it is assumed that the cableway ropes will be airlifted into position using a helicopter. Finally, the cable cars will be raised onto the ropes. Rigorous testing will be carried out at various stages throughout the process as well as prior to commissioning.

Buildings

The following buildings will be constructed as part of the proposed development:

Mainland site:

- Visitor Centre (including gift shop);
- Café (including toilet block);
- Mainland station building (drive station) with staff facilities, workshop and storage area to rear; and,
- Energy Centre.

Island site:

- Island station building (return station) with welfare facilities; and,
- Sheltered waiting area.

All buildings are single storey structures and will include the following construction activities:

1. Development of site services, surface water drainage, foul drainage and water supply. The most significant works relate to the installation of the mainland wastewater treatment system. This will include the installation of large pre-cast concrete tanks and importing material to form a polishing filter/percolation area.
2. Development of building substructures – excavation for foundations and pouring of concrete will be required.
3. Construction of building superstructures – this will include the following works:
   - Construction of reinforced concrete floor slabs and walls;
   - Laying of concrete blockwork;
   - Cranage and installation of structural steelwork; and,
   - Installation of roofing systems.
4. The plant and workshop building to the rear of the mainland station will be constructed last to maintain access to the existing mainland station building for as long as possible.
5. Installation of glazing and fixing of cladding systems will be carried out.
6. Fit-out of all buildings and connection of services will be carried out.

Careful sequencing of the building works will be required to ensure the existing cableway can remain operational throughout the construction works (insofar as possible). Construction equipment and machinery such as a tower crane may be installed on a temporary platform erected in the sloped area in front of the existing car park, minimising disruption and interference with the main access road.

Cark Park and Landscaping

The following works are considered to be main construction activities for the car park and landscaping element of the development:

1. Construction of the reinforced concrete wall, faced in stone, separating upper and lower tiers of visitor car park and construction of access steps: the activities required for these works are the same as those described above for the southern boundary wall works.
2. Pavement works for car parks and other paved areas (mainland and island) will be carried out. Paving machinery and asphalt compacters/rollers will be

required to lay the bituminous surfacing on the roadway running through the car park. Permeable grasscrete will be employed for parking spaces. The grasscrete elements will be put in place by pouring concrete onto pre-placed patterned formers and mesh, and levelled to the top of the formers. The formers will then be melted away using a flame gun. The patterned voids left behind are then top soiled and seeded.

3. Decommissioning of the existing cableway and demolition of those existing components to be removed.
4. Landscaping finishes and interpretive elements are completed. These works will include planting, grass seeding, and the installation and connection of low-level lighting bollards.

Project Programme

It is expected that the construction work will commence in October 2021 and that the duration of the construction period will be approximately 18 months (see Table 2.1). Since visitor numbers to the site are especially high during the summer months, and since it will be necessary to maintain the operation of the existing cableway throughout the construction phase (insofar as possible), earthworks will be carried out during the off-season (October – April), where possible.

The following is an envisaged indicative construction programme, assuming that each construction phase will follow on from the previous. This proposed phasing is an outline as to how the site is envisaged to be developed. The order of works, however, may be subject to change as development commences on site. Provided the construction programme unfolds accordingly, the envisaged first year of operation of the proposed development is 2023.

Table 2.1 Envisaged construction programme for the proposed development

Element of works:	Duration (months)	Expected Completion Date
Approach Road Improvement Works	3	Jan 2022
Earthworks and Retaining Walls	4	April 2022
Cableway Works (mainland & Island)	2	June 2022
Buildings (mainland & Island)	12	April 2023
Car park and Landscaping	2	April 2023
Decommissioning of existing Cableway & Final Landscaping	1	April 2023

2.4 Construction Procurement

The estimated cost of the Dursey Island Cable Car and Visitor Centre Development is in the region of €9 – 10 million, exceeding the current €5,225,000 threshold for public works contracts. Therefore, it is proposed that this works contract will be advertised on eTenders and in the OJEU.

The procurement approach to be used will be decided by CCC. The pre-selection criteria will be related and proportionate to the subject matter of the contract. The criteria will be geared towards selecting competent Contractor(s) with experience and appropriate technical and professional ability in building construction and fit-out of

specialist equipment. The criteria will also be targeted towards selecting Contractor(s) with experience of working in environmentally sensitive locations.

It is proposed that the form of contract for the main building and civil works will be Employer-designed with the possibility of identifying the cableway supplier as a novated specialist, requiring further consideration.

Working Close to European Designated Sites
Consultation has taken place with the National Parks and Wildlife Services (NPWS) and their comments/observations with regard to preventing impacts on protected bird species and measures and controls for water quality protection have been adopted within this plan.

3. OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

The CEMP will be developed by the contractor to meet the requirements of ISO 14001 and all site works will be undertaken in compliance with the CEMP. The CEMP shall include details of the topics listed below, further information on which is given in the following section.

- Environmental Policy;
- Environmental Aspects Register;
- Project Organisation and Responsibilities;
- Project Communication and Co-ordination;
- Training;
- Operational Control;
- Checking and Corrective Action;
- Environmental Control Measures; and
- Complaints Procedure.

The Construction Environmental Management Plan (CEMP) details all the environmental aspects and impacts associated with this contract such as waste management, pollution prevention and protection of flora and fauna with particular emphasis on the Special Area of Conservation (SAC), Special Protection Area (SPA), proposed Natural Heritage Area (pNHA) and Water Quality in the watercourses. The Register of Impacts provides the framework for identifying the potential environmental impacts generated by construction and the associated works. The Environmental Operational Control Procedures and activity specific method statements will detail the working methods necessary for managing and mitigating these impacts, whether it is by prevention or mitigation. Prior to the commencement of construction activities, the Environmental Operational Control Procedures and activity specific method statements will be completed so as to conform to precise site-specific requirements at the location of the proposed development.

3.1 Environmental Policy

The contractor will complete an Environmental Policy with consideration for impacts on the natural and built environment. All project personnel will be accountable for the environmental performance of the project and will be made aware of the Environmental Policy at induction. The environmental policy will consider and make

commitments with regard to the protection of Natura 2000, pNHA and NHA sites, emissions to the atmosphere, maintenance of water quality, resource usage energy consumption and waste management.

3.2 Environmental Aspect Register

Once appointed, the Contractor will prepare a register of all sensitive environmental features which have the potential to be affected by the construction works, together with details of commitments and agreements made within the Environmental Impact Statement, the Contract Documentation, Planning conditions imposed by the local authority, and conditions identified by Statutory Authorities with regards mitigation of potential impacts.

The Environmental Aspects Register provides the relevant information for the preparation of construction method statements and will be regularly updated during the works.

The Environmental Aspects Register will consider sensitive environmental features as listed below (please note this list is not exhaustive and will be amended and expanded upon as required by the contractor).

The Environmental Aspects Register will consider sensitive environmental features as listed below (please note this list is not exhaustive and will be amended and expanded upon as required by the contractor).

- Identification off all waterways for the protection against ingress of suspended solids or any pollutant;
- Air emissions;
- Noise and Vibration emissions;
- Light emissions;
- Waste generation;
- Use hazardous materials;
- Energy usage;
- Water usage;
- Discharge of wastewater;
- Traffic generation;
- Biodiversity;
- Landscape and Visual impacts;
- Hydrogeology; and
- Archaeology and Cultural Heritage.

3.3 Project Organisation and Responsibilities

The CEMP will define the roles and responsibilities of the project team. The overall responsibility lies with the Project Manager whose responsibility it will be to approve key personnel required for employment on the project. He/She will liaise with the SEM.

The Project Manager will lead the works on site. He/She will be responsible for the management and control of the activities and will have overall responsibility for the

implementation of the CEMP. He/She will be assisted by the Site Environmental Manager who will act as his/her deputy.

The Site Environmental Manager will prepare and implement all aspects of the CEMP.

Project Manager

The Project Managers main duties and responsibilities in relation to the CEMP include liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the main contractor's project staff.

Site Environmental Manager (SEM)

The main duties and responsibilities of the SEM include and are not limited to the following:

- Have regard to all legislation and guidance in relation to protection of the environment with particular focus on the habitats and species of the European protected sites;
- Liaise with the Construction Manager during the finalisation of the CEMP to assign individual duties and responsibilities bearing in mind the overall organisational structure, the nature of the Environmental Commitments and Requirements and the proposed development specific characteristics;
- Ensuring that the CEMP is finalised, implemented and maintained;
- Liaising with Cork County Council's (CCC's) Environmental Manager on all Method Statements, any alternations to live documents and any other works to ensure protection of water quality
- Being familiar with the information in the pre-construction surveys, construction Requirements, An Bord Pleanála and Planning Service decision and all relevant Method Statements;
- Being familiar with the contents, environmental commitments and requirements continued within the reference documentation listed in this CEMP;
- Being familiar with the baseline data collated during the compilation of the EIAR;
- Assisting Management in liaising with the Engineers and WCCC and the provision of information on environmental management during the construction of the Project;
- Liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP, to individual members of the main contractor's project staff;
- Overseeing, ensuring coordination and playing a lead role in third party consultations required statutorily, contractually and in order to fulfil best practice requirements;
- Liaising with Management in agreeing site specific Method Statements with Third Parties;
- Ensuring that all relevant woks are undertaken in accordance with the relevant legislation in the Republic of Ireland;
- Bring any legal constraints that may occur during certain tasks to the attention of management;
- Hold copies of all permits and licenses provided by waste contractors;

- Ensuring that any operations or activities that require certificates of registration, waste collection permits, waste permits, waste licences, etc have appropriate authorization;
- Gathering and holding documentation with respect to waste disposal;
- Keeping up to date with changes in environmental practices and legislation and advising staff of such changes and incorporating them into the CEMP;
- Liaising with contactors and consultants prior to works;
- Procuring the services of specialist environmental contactors when required;
- Ensuring that all specialist environmental contactors are legally accredited and proven to be competent;
- Coordinating all the activities of the specialist environmental contractors;
- Ensuring that Environmental Induction Training is carried out on all personnel on site and ensuring that tool box talks include aspects of Environmental Awareness and Training;
- Respond to all environmental incidents in accordance with legislation, the CEMP and company policy/procedures;
- The SEM is responsible for notifying the relevant statutory authority when environmental incidents occur and producing the relevant reports as required;
- Ensuring that all relevant works have (and are being carried out in accordance with) the required permits, licenses, certificates and planning permissions;
- Liaising with the designated licence holders and specific agent defined in the licence with respect to licences granted pursuant to the European Commission (EC) (Natural Habitats) Regulations 1997;
- Carrying out regular documented inspections of the site to ensure that work is being carried out in accordance with the Environmental Control Measures and relevant site-specific Method Statements;
- The SEM should prepare and be in readiness to implement at all times the Emergency Incident Response Plan;
- Responsible for reviewing all environmental monitoring data and ensuring that they all comply with stated guidelines and requirements; and
- Liaising with management in preparing and inspection of site-specific method statements for activities where there is a risk of pollution or adverse effects on the environment.

Design Manager

The main duties and responsibilities of the Design Manger having regard to the implementation of the Construction Environmental Management Plan (CEMP):

- Be familiar with the CEMP and relevant documentation referred to within;
- Participate in Third Party Consultations and liaising with third Parties through the SEM;

Section Managers and Agents

The Section Managers and Agents are responsible for the following:

- Ensuring Forepersons under his/her control adhere to the relevant Environmental Control measures and relevant site-specific Method Statements, etc.

- Ensuring that the procedures agreed during third party consultations are followed;
- Reporting immediately to the Site Environmental Manager any incidents where there has been a breach of agreed environmental management procedures, where there has been a spillage of a potentially environmentally harmful substance, where there has been an unauthorised discharge to ground, water or air, damage to habitat, etc.
- Attending Environmental review Meeting and preparing any relevant documentation as required by Management.

Forepersons

The forepersons on site are responsible for the following:

- Ensuring personnel under his/her control adhere to the relevant environmental control measures and relevant site-specific Method Statements;
- Reporting immediately to the site agents and SEM any incidents where there has been a breach of agreed procedures e.g. spillages and discharges.

All Project Personnel

All project personnel have the following responsibilities:

- Attend environmental training as required;
- Reporting immediately to the Forepersons/Agents or Site Environmental Manager any spillage incidents or observations regarding adverse effects to the Environment.

3.4 Project Communication and Co-ordination

Environmental issues and performance aspects will be communicated to the workforce on a regular basis. Weekly project meetings, which follow a set agenda incorporating Environment, will be held alongside overall management meetings.

All staff and sub-contractors involved in all phases of the project will be encouraged to report environmental issues.

3.5 Training

All employees and subcontractors involved on site will be given a comprehensive induction prior to commencement of the works. This environmental training can be run concurrently with safety awareness training.

Training will include:

- Overview of the Environmental Policy and Environmental Management Plan, goals and objectives;
- Awareness in relation to risk, consequence and methods of avoiding environmental risks as identified within the Register of Aspects and with the planning conditions;
- Awareness of roles and individual environmental responsibilities and environmental constrains to specific jobs;
- Location of and sensitivity of Special Area of Conservations, Special Protection Areas, protected monuments, structures etc.
- Location of habitats and species to be protected during construction, how activities may affect them and methods necessary to avoid impacts.

A record will be kept of a signed register on the project files of all attendee of the environmental induction.

Toolbox talks based on specific activities being carried out will be given to personnel by the nominated project representative. These will be based on specific activities being carried out and will include environmental issues particular to the Project, including the impact on bird populations and water quality namely:

- Oil/Diesel spill prevention and safe refuelling practice;
- Storage of materials including oil/diesels and cement;
- Emergency response processes used to deal with spills;
- Minimising disturbance to wildlife;
- Emergency response to include water pollution hotline to the EPA/CCC for regulator response. Identification of registered / accredited spill cleanup company for oil etc.; and
- Consideration of importance of containment of vehicle washing, containments of concrete /cement / grout washout etc, bank protection using hessian to prevent excessive scour and mobilisation of suspended solids, maintenance of vegetation corridors etc.

3.6 Operational Control

Site works will be checked against the CEMP requirements. Any mitigation measures that have been agreed with the Statutory Authorities, or are part of planning conditions, will be put into place prior to the undertaking of the works for which they are required and all relevant staff will be briefed accordingly.

Method statements that are prepared for the works will be reviewed / approved by the Client Project Manager and were necessary the relevant Environmental Specialist. All method statements for works in, near or liable to impact on a waterway must have prior agreement with IFI and NPWS.

A Quality Management System (QMS) will also be put into operation for the project. Document control will be in accordance with this QMS and copies of all audits, consents, licences, etc will be marinated by the Site Environmental Manager and his team and kept on site for review at any time.

3.7 Checking and Corrective Action

Daily inspections of the site and the works will be undertaken to minimise the risk of environmental damage and to ensure compliance with the CEMP. Any environmental incidents are to be reported immediately to the Site Foreman. The Site Environmental Manager will undertake periodic inspections and complete an assessment of the project's environmental performance with regard to the relevant standards/legislation and the contents of the CEMP. Following these inspections, the Site Environmental Manager will produce a report detailing the findings which will be provided to the Client Project Manager and reviewed at the monthly project meeting.

3.8 Environmental Control Measures

Licensing requirements will be in place and Specific procedures to manage the key environmental aspects of the project will be developed by the contractor prior to work commencing.

3.9 Complaints Procedure

A liaison officer will be available to allow for member of the pubic or interested parties to make complaints about the construction works. The CEMP will contain details of the complaints procedures and a monitoring system will be implemented to ensure that any complaints are addressed, and satisfactory outcome is achieved for all parties

3.10 Compliance with Project Consents

If planning permission is granted for the proposed development, the entire contents of the planning consent as well as the foreshore licence/lease, and other consents and conditions, shall be appended as received.

4. Environmental Commitments

Project environmental mitigation has been set out in the application documentation, in the EIAR and NIS in particular and will be detailed in the final CEMP in accordance with this outline CEMP. The final CEMP will provide a framework for compliance auditing and inspection to ensure that these construction practices and mitigation measures as set out in the EIAR and NIS and the conditions in the planning approval are adhered to. It should be noted that Section 4.1 details the key mitigation measures which are outlined in the NIS, while Appendix A details the mitigation measures which are outlined in the EIAR.

4.1 Mitigation Measures – Natura Impact Statement

4.1.1 Visitor Management

Red – billed Chough

Current visitor numbers (2017/18) to Dursey Island are approximately 20 424 per year (Table 4.3). Visitor numbers are highly seasonal, with between 140 and 313 visitors per month during the winter months (November to February, inclusive; 2017/18) and 4954 and 4943 per month during the peak months of July and August, respectively, when the cable car operates continuously and at capacity from 9:30 a.m. to 7:30 p.m. seven days a week[2] (Table 4.3). Thus, over the two peak months of the year, Dursey receives approximately 50% of its annual visitor numbers. If it were not for the limited capacity and turnover of the cable car, it is highly likely that more people would travel to the island during these peak months.

The proposed development will increase the capacity and turnover of the Dursey Island cable car substantially, allowing a greater number of visitors to the island. At the commencement of the Design Stage, Cork County Council decided that the proposed development should be designed to accommodate no more than 100 000 visitors annually, with no more than 80 000 of these being permitted to make the cable car journey to Dursey Island, in spite of the fact that the cableway infrastructure could potentially accommodate many more[3]. Assuming the monthly profile of visitor numbers (Plate 4.1) were to remain the same, there would be a fourfold increase in visitor numbers during each month of the year (including during the chough breeding and fledging season). However, it is unlikely that this increase in visitor numbers would be distributed proportionately across the year. Rather, it is most likely that

[2] From 9:30 a.m. to 9:30 p.m. on 5th-7th July and 2nd-5th August.

[3] Each carrier cabin in the proposed cableway will accommodate c. 15 persons. Depending on the velocity of the cabins and the cabin layout, the cableway will be able to convey between 170 and 330 persons per hour in each direction, and there are two carrier cabins in the proposed design. Given typical operating hours (10 hours per day), the cableway could transport between 3,400 and 6,600 persons to the island each day.

demand would continue to be concentrated during the summer months of July and August. Thus, without control measures in place, the number of visitors on the island during July and August (when choughs are breeding, nesting and fledging) could be over four times greater than it is at present.

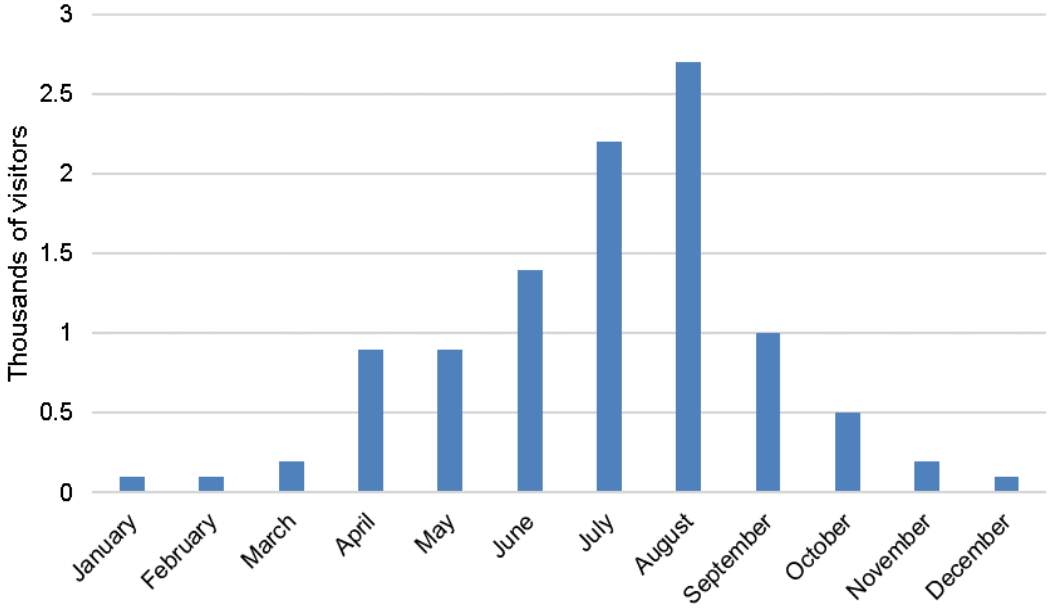


Plate 4.1 **Monthly visitor numbers to Dursey Island. Source: Numbers of cable car tickets sold in 2017.**

In their longitudinal study of the chough population of Ouessant Island, France, Keribiou et al. (2009) estimated a numerical carrying capacity for the island in terms of human disturbance of choughs. They did so by developing a numerical model based on data for chough breeding success and visitor numbers over a number of years. The study concluded that in order to sustain a viable chough population on Ouessant, the number of visitors to the island should not exceed 16 500 persons in August, the most sensitive period for the population in question.

The type and volume of data employed by Keribiou et al. (2009) to calculate a carrying capacity for Ouessant is not available for Dursey. Thus, the same methodology cannot be applied to calculate a carrying capacity for Dursey Island. It is possible, however, to extrapolate a carrying capacity based on one key variable, i.e. the area of chough foraging habitat (km^2). Dursey Island has an area of 5.98 km^2. The habitats on the island have been mapped and it is considered that, with the exception of roads, paths and artificial structures (which have a negligible area), the vast majority of land on the island constitutes suitable foraging habitat (although certain areas are somewhat less suitable than others). Ouessant Island is approximately 2.6 times the size of Dursey, with an area of 15.4 km^2. However, on Ouessant, suitable chough foraging habitat is restricted to 7.7 km^2 of coastal habitat (Keribiou et al., 2009, S1; Keribiou, pers. comm., 2019). Thus, Ouessant Island has about 1.3 times the area of chough foraging habitat as Dursey. Extrapolating accordingly, it is concluded that Dursey should accommodate no more than 12 835 visitors per month. A breakdown of the calculations are presented in Tables 4.1 and 4.2 below.

Table 4.1 Information used to calculate the numerical carrying capacity of Dursey in terms of human disturbance to Red-billed Chough.

Information available	Quantum	Source
Carrying capacity of Ouessant for the month of August	16 500 persons	Keribiou et al. (2009)
Area of Ouessant	1541 ha = 15.41 km^2	Keribiou et al. (2009)
Area of chough foraging habitat on Ouessant	7.6875 km^2	Keribiou et al. (2009)
Area of Dursey	5.98 km^2	Google Maps (2019)
Area of chough foraging habitat on Dursey	~ 5.98 km^2	Habitat mapping of Dursey (2019)

Table 4.2 Extrapolation of the numerical carrying capacity of Dursey in terms of human disturbance to Red-billed Chough, following Keribiou et al. (2009).

Calculations
$\frac{\text{Area of chough forage on Ouessant}}{\text{Area of chough forage on Dursey}} = \frac{7.6875}{5.98} = 1.2855351171$
→ Ouessant has 1.2855351171 times the area of chough foraging habitat of Dursey.
$\frac{\text{Carrying capacity of Ouessant}}{\text{Ouessant:Dursey chough forage}} = \frac{16\,500}{1.2855351171} = 12\,835.121950788$
→ The carrying capacity of Dursey for August = 12 835 persons.

It is considered that this carrying capacity is a very conservative (precautionary) figure, owing to the fact that Ouessant differs substantially from Dursey in a number of respects which have adverse implications in terms of human disturbance of chough, including the following:

- Unlike on Dursey, the chough population on Ouessant is effectively restricted to the island and this isolation means that the birds are reliant on habitats on the island for their entire life cycle. Dursey lies c. 200 m from the mainland and baseline studies (2003/04) conducted on the Beara Peninsula indicated that there is movement between Dursey and the mainland, especially during the post-fledging period in July and August, when large post-fledgling flocks were recorded foraging on Western Gorse (*Ulex gallii*)-dominated dry heaths of the interior spine of the peninsula. During the 2019 breeding season survey, choughs were observed to fly back-and-forth between island and mainland. Ouessant, in contrast, is located 20 km from the French coastline and this distance combined with the absence of a chough population on the adjacent mainland means the Ouessant choughs are effectively isolated to the island.
- The existing network of paths/roads on Ouessant (Plate 4.2) is much more extensive than that on Dursey. On Dursey, walking routes used by visitors are largely situated inland, along the high elevation spine of the island, while on Ouessant, there are cliff-side walking trails along the entire coastline. As such, a much greater proportion of chough foraging habitat is affected by human disturbance on Ouessant (up to 97% (Keribiou et al., 2009) than on Dursey

(22%). However, it should be noted that, while the current walking routes on the island are geographically fairly restricted, it cannot be guaranteed that visitors to Dursey Island will not forge new paths on the island in future.

- Ouessant has much more developed transport infrastructure than Dursey. The island has an airport and an extensive network of roads. Noise generated by cars and airplanes may cause some degree of disturbance of the Ouessant choughs. On Dursey, there is only one public road, which is restricted to the inland high elevation spine of the island and used only by residents and one private bus which operates seasonally.
- Results from breeding bird surveys indicate that the average flush distance of choughs on Dursey Island during the breeding season is less than that of choughs on Ouessant (147 m ± 23 m for flocks with juveniles and 75 m ± 9 m for flocks without juveniles), suggesting that the Dursey choughs may be more tolerant of or habituated to the presence of humans.

Plate 4.2 **Satellite image of Ouessant, showing the extent of roads and paths on the island. Source: Google Maps (2019).**

Thus, it is considered that, if visitors numbers to Dursey Island are capped at 12 835 per month, the viability of the resident chough population will not be threatened by human disturbance. This is assuming that (i) mitigation measures are implemented to minimise human disturbance (particularly to keep visitors on waymarked walking routes), and (ii) the existing grazing regime is maintained. It should be noted that, as previously discussed, there has been a decline in the number of breeding pairs recorded on Dursey Island between the previous surveys in 1992 and 2002/03. The cause of this decline is ultimately unknown. However, the potential impact of human disturbance as a result of increased visitor numbers cannot be ruled out as a contributing factor. For this reason, the importance of implementing a dedicated chough monitoring scheme should be emphasised.

Assuming the current annual visitor number growth rate (24.67%; Plate 4.3) is maintained and that this growth rate is distributed evenly throughout the year, with the exception of months when the capacity is limited by (a) the capacity of the existing cable car or (b) the proposed monthly carrying capacity, visitor numbers in the first and second year of operation would be c. 51 825 and 58 803, respectively (Table 4.3). Since it is anticipated that the proposed development will generate fresh interest in the site, and because enhanced facilities at the proposed development (e.g. toilets, shelter, café) are expected to broaden the peak of the current visitor profile (i.e. there will likely be more visitors outside of the traditional peak months of July and August), it is possible that annual growth will exceed 25% in the first few years of the operation of the proposed development. Resultant growth, however, is inestimable. Either way, visitor numbers can be restricted to 12 835 per month in each month of the year and (on Dursey Island) will not be allowed to exceed 80,000 in any one year, a level at which, as explained above, human disturbance will not jeopardise the viability of the chough population.

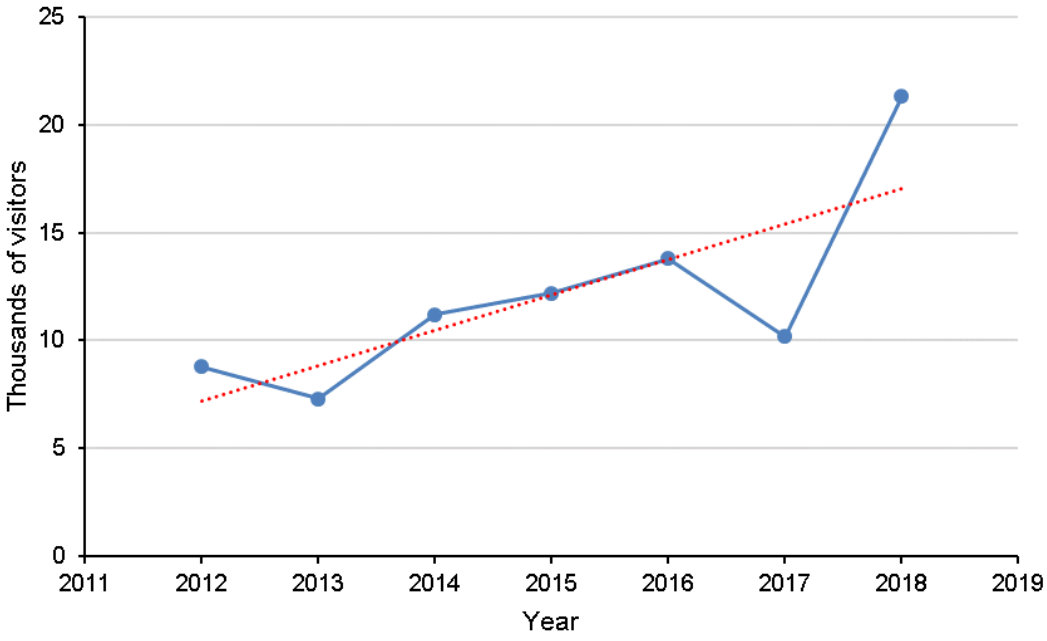


Plate 4.3 **Annual number of trips made on the Dursey cable car from 2012 to 2018.**

Since the cable car constitutes the only feasible means for visitors to access Dursey and a web-based ticketing system will be employed, constraining visitor numbers will be straightforward.

Table 4.3 Current and projected visitor numbers to Dursey Island, with the proposed monthly carrying capacity imposed during the operation of the proposed development, assuming annual growth of 24.67% distributed evenly across months. * = numbers constrained by existing cable car capacity and would otherwise be higher; ** = numbers constrained by imposed carrying capacity and would otherwise be higher.

Month	Year of operation (existing cable car)					Year of operation (proposed cable car)	
	2017/18	2019 projection	2020 projection	2021 projection	2022 projection	2023 projection [first year of operation]	2024 projection [second year of operation]
January	172	214	267	333	416	518	646
February	313	390	486	606	756	943	1175
March	613	764	953	1188	1481	1846	2302
April	1366	1703	2123	2647	3300	4114	5129
May	2844	3546	4420	4954*	4954*	6176	7700
June	2960	3690	4601	4954*	4954*	6176	7700
July	4954*	4954*	4954*	4954*	4954*	12 835**	12 835**
August	4943	4954*	4954*	4954*	4954*	12 835**	12 835**
September	1271	1585	1975	2463	3070	3828	4772
October	589	734	915	1141	1423	1774	2212
November	259	323	403	502	626	780	972
December	140	175	218	271	338	422	526
Total	**20 424**	**23 032**	**26 270**	**28 968**	**31 225**	**51 825**	**58 803**

Full suite of mitigation measures

In order to minimise (i) the degradation terrestrial foraging habitat and (ii) disturbance of Red-billed Chough as a result of visitors walking on open grassland habitat, the following mitigation measures shall be implemented:

- Three looped, waymarked walking routes shall be established on Dursey Island (illustrated in Plate 4.4 below). The establishment of these walks shall involve:
    - The placement of suitably spaced colour-coded way marker posts at appropriate locations along the trails (to be carried out in agreement with all affected landowners); and,
    - The erection of a sign at the outset of the routes (i.e. on Cork County Council lands near the island-side cable car station) displaying a map of the routes with approximate length (km), duration (hours/minutes) and a conservative estimate of difficulty level (i.e. easy/moderate/challenging).
- A fourth way-marked walking route shall be established on Crow Head, using appropriately placed way marker posts. However, no sign (or other indicator which might draw attention to the walk) should be erected. Responses to the visitor survey indicate that this is not a very popular walk and no undue attention should be drawn to it. Instead, efforts should be made to control the movements of those few walkers who do venture onto the headland.
- An education campaign shall be launched to inform visitors of the sensitivity of (a) choughs and ground-nesting birds to human disturbance and (b) habitats to degradation as a result of visitor footfall. The objective of the campaign is to discourage visitors from wandering off the established walking routes on the island, particularly at sensitive locations for chough (i.e. at the western end of the island and at Foilnamuck). The campaign shall have the following characteristics:
    - It shall be three-tiered in that it will be featured in (1) exhibition materials in the Visitor Centre, (2) an audio-visual presentation in the out-bound journey on the cable car and (3) signage on Dursey Island.
    - The educational materials used shall be aesthetically pleasing and emotionally engaging to encourage buy-in from visitors.
    - All outdoor signage should be designed for the exposed and corrosive nature of the site.
- Not including island residents/farmers, no more than 12 835 persons shall be permitted to travel to Dursey Island in any month of the year during the operation of the proposed development. This numerical carrying capacity shall be implemented using an appropriately designed ticketing system.
- Not including pets/sheepdogs of island residents/farmers, dogs shall be prohibited from travelling to Dursey Island.
- In order to ensure the continued efficacy of these mitigation measures and facilitate adaptive management with respect to habitat destruction and/or disturbance of wildlife as a result of visitors walking in areas of open habitat:
    - Trail counters shall be installed at suitable locations on walking trails on Dursey Island, on the Garinish Loop walk and on the walk at Crow Head. On Dursey Island, a trail counter should be placed at an appropriate location on the western end of the island, so as to record approximately how many visitors leave the established trail and wander onto this key area for Red-billed Chough.

- A visitor survey shall be carried out on an annual basis to establish approximately what proportion of visitors remain on established trails and vice versa.

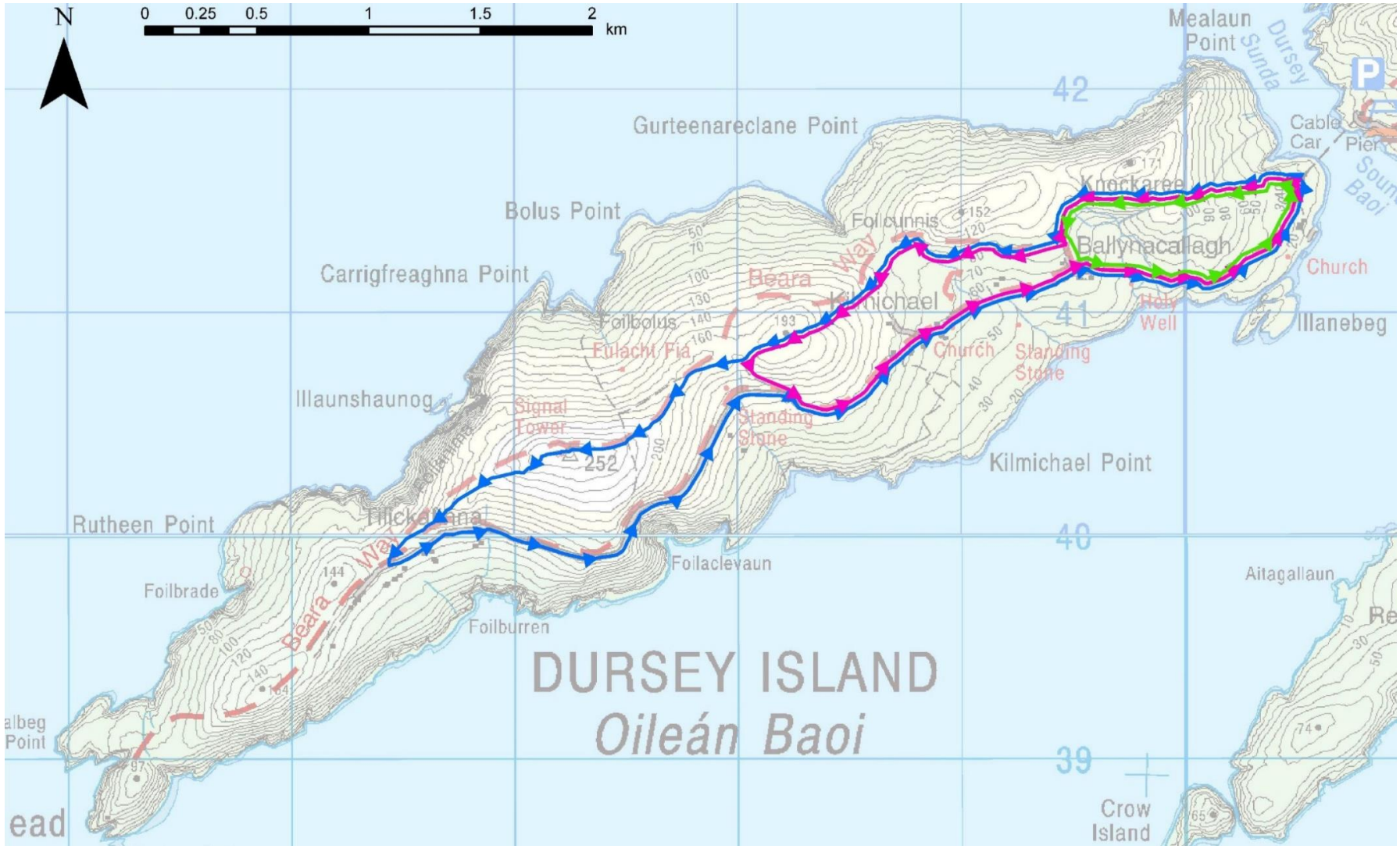


Plate 4.4 **Three proposed way-marked loop walks on Dursey Island. Ballynacallagh Loop (green) = 2.7 km; Kilmichael Loop (pink) = 6 km; Tillickafinna/Signal Tower Loop (blue) = 10 km.**

Terrestrial Habitats

The mitigation measures prescribed above in relation to Red-billed Chough, i.e. those measures aimed at managing visitor numbers and behaviour during the operation of the proposed development, will provide more than adequate mitigation for the effects of increased visitor numbers on the Annex I habitats "Vegetated sea cliffs of the Atlantic and Baltic coasts" and "European dry heaths" set out in Sections 4.2.5 and 4.2.6 of the NIS.

4.1.2 Water Quality

Construction

The following measures shall apply to all site works carried out in connection with the construction of the proposed development.

General Measures

- All site works shall be limited to the minimum extent necessary to construct the proposed development.
- As far as practicable, works shall take place within predetermined construction areas (to be determined by the Contractor) on a phased basis.
- Surface water flowing onto the construction area shall be minimised through the provision of berms, diversion channels or cut-off ditches.
- All discharge from the works site shall be treated such that it will not significantly alter water quality in the receiving environment.
- Foul drainage from all site offices and construction facilities will be contained and disposed of in an appropriate manner to prevent pollution.

Sedimentation and Surface Water Run-off

The measures prescribed above will minimise the risk of input of sediment-laden run-off into the marine environment during construction. However, the following measures shall also apply:

- Excess material stockpiles shall be managed so as to minimise the release of sediment to surface waters, e.g. by allowing the establishment of vegetation on exposed soil or by diverting run-off from stockpiles to settlement ponds.
- Any works within 10 m of the cliff top or rocky shore shall require measures to ensure that silt-laden or contaminated run-off from the compound does not discharge directly to surface waters.
- Riparian vegetation (if present) along the minor watercourse will be fenced off at a distance of 3 m either side of the proposed crossing point to provide a buffer zone for its protection.
- Protection of surface waters (both the sea and the minor watercourse along the development site boundary) from sedimentation shall be achieved by the use of timber fencing with silt fences or earthen berms to provide adequate treatment of surface water run-off.
- Settlement ponds, silt traps and bunds shall be used to contain surface water run-off. Where pumping of water is to be carried out, filters shall be used at intake points and discharge shall be through a sediment trap.
- The site compound and on-site storage facilities shall be fenced off not less than 10m from the cliff top or rocky shore.

Cementitious Materials

The measures prescribed above will minimise the risk of input of cementitious material into the marine environment during construction. However, the following measures shall also apply:

- Hydrophilic grout and quick-setting mixes or rapid hardener additives shall be used to promote the early set of concrete surfaces exposed to water.
- When working in or near surface waters and the application of in-situ materials cannot be avoided, the use of alternative materials such as biodegradable shutter oils shall be used.
- Any plant operating close to the water shall require special consideration on the transport of concrete from the point of discharge from the mixer to final discharge into the delivery pipe (tremie). Care shall be exercised when slewing concrete skips or mobile concrete pumps over or near surface waters.
- Any and all placing of concrete near watercourses shall be supervised by the Ecological Clerk of Works.
- There shall be no hosing into surface water drains of spills of concrete, cement, grout or similar materials. Such spills shall be contained immediately and run-off prevented from entering the watercourse.
- Concrete waste and wash-down water shall be contained and managed on site to prevent pollution of all surface waters.
- On-site concrete batching and mixing activities shall only be permitted within the identified construction compound areas.
- Wash-out from concrete lorries, with the exception of the chute, shall not be permitted on site and shall only take place at the construction compound (or other appropriate facility designated by the manufacturer).
- Chute wash-out shall be carried out at designated locations only. These locations shall be signposted. The concrete plant and all delivery drivers shall be informed of their location with the order information and on arrival to site.
- Chute wash-out locations shall be provided with an appropriately designated, contained, impermeable area and treatment facilities including adequately sized settlement tanks. The clear water from the settlement tanks shall be pH corrected prior to discharge (which shall be by means of one of the construction stage settlement facilities) or alternatively disposed of as waste in accordance with the Contractor's Construction & Demolition Waste Management Plan.

Hydrocarbons and Other Chemicals

The measures prescribed above will minimise the risk of input of hydrocarbons or other chemicals into the marine environment during the construction. However, the following measures shall also apply:

- Protection measures shall be put in place to ensure that all hydrocarbons used during the construction phase are appropriately handled, stored and disposed of in accordance with the NRA/TII's *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes*.
- All chemical and refuelling locations shall be contained within bunded areas and set back a minimum of 20 m from surface waters.

Operation

The following measures shall apply to the design of the proposed development and the management of the development during the operational phase.

Run-off from Hardstanding Areas

The proposed surface water drainage system will comprise predominantly sustainable drainage systems (SuDS) features which will attenuate and treat surface water run-off from the site prior to discharge to sea. Permeable paving will allow infiltration to the underlying subsoils. Treatment of run-off will be provided within the pavement layers through the processes of filtration, biodegradation, adsorption of pollutants and the settlement and retention of solids within the pavement layers.

Failure of Foul Water Pumping Station

As stated in Section 4.3.1 in the NIS, any discharge of untreated foul water into Dursey Sound due to a pump failure in the WWTS would likely lead to significant water quality impacts. In order to minimise this risk and thereby prevent adverse effects on the marine environment, the pumping station shall provide 24-hour effluent storage in case of failure. Standby pumps shall also be provided.

Discharge of Pollutants in Storm Drainage

The SuDS features will attenuate and treat surface water run-off from the site prior to discharge to sea by percolation into the subsoil. The incorporation of a SuDS-based approach will ensure that discharge will be controlled, and treatment of run-off will take place within the SuDS components.

The proposed retaining wall drainage will incorporate a hydrocarbon separator prior to discharging to the minor watercourse. Physio-chemical water quality monitoring will be undertaken at the outfall location prior to and post-construction, as detailed in Section 4.2.4 below.

4.1.3 Biosecurity

Construction

In order to minimise the potential for adverse effects as a result of the introduction or spread of terrestrial invasive alien species during construction, all land-based construction works shall be executed in accordance with the National Roads Authority's *Guidelines on the Management of Noxious Weeds and Non-native* Invasive *Plant Species on National Roads* (TII, 2010). In particular, a strict biosecurity protocol shall be observed to ensure that all plant/equipment (including PPE) is free of invasive alien species or propagules of such.

As per Sections 4.3.1 and 4.3.2 in the NIS, the use of a barge during the construction of the proposed development poses the risk of the introduction of invasive alien species to the marine environment in the vicinity of the construction works. This has the potential to adversely affect the integrity of the Kenmare River SAC, in view of its Conservation Objectives for the Annex I habitats "Large shallow inlets and bays" and "Reefs".

In order to minimise the risk of either the introduction or spread of marine invasive alien species and thereby prevent, beyond reasonable scientific doubt, any adverse effects on the marine habitats in the vicinity of the proposed development, the owner/operator of the barge shall:

- Provide documentary evidence (in the form of a completed and signed Marine Institute "*Cleaning and Disinfection Declaration Form*") that the vessel was fully

defouled within the six months immediately preceding its proposed engagement in the construction of the proposed development;

- Submit travel records relating to the vessel's movements during at least the six months immediately preceding its proposed engagement in the construction of the proposed development; and,
- Ensure that no bilge water or ballast water is discharged from the vessel within 5 km of the Kenmare River SAC.

In order to ensure full compliance with the above, authorisation to move the vessel to the construction area shall only be granted once the Ecological Clerk of Works has satisfied him/herself that the vessel does not pose a significant risk of importing marine invasive alien species to the Kenmare River SAC. He/she shall do so by:

- Boarding the vessel;
- Speaking with the skipper;
- Inspecting the relevant documents; and,
- Carrying out a final inspection of the vessel.

In addition, prior to commencement of any works on site, the Contractor shall prepare a detailed Biosecurity Statement describing his/her proposed approach to ensuring that invasive alien species are not imported or spread during the construction of the proposed development. The Contractor's Biosecurity Statement shall be in accordance with NRA/TII's *Guidelines on the Management of Noxious Weeds on National Roads* and subject to approval by the Ecological Clerk of Works prior to its acceptance and implementation.

Operation

The only biosecurity risk during the operation of the proposed development arises from the increased visitor numbers to the walking trails within the likely zone of impact. The measures prescribed in relation to visitor management in Section 4.2.1 above will mitigate for the risk to biosecurity during the operation of the proposed development.

Furthermore, an Invasive Alien Species Management Plan has been developed for the operation of the proposed development (see Appendix D of the NIS). This plan has the objectives of, (i) where possible, eradicating invasive alien species (especially on Dursey Island), (ii) preventing the introduction of new invasive alien species to the area (especially Dursey Island), and (iii) in all other instances, managing existing occurrences of invasive alien species with a view to preventing their spread.

Landscaping of the proposed development shall use native species of plants only and, insofar as possible, soil reused from on-site excavations.

4.1.4 Monitoring

Red-billed Chough

While the mitigation measures proposed in relation to Red-billed Chough (see Section 4.2.1 above) are sufficient to conclude beyond reasonable scientific doubt that the proposed development will not adversely affect this species, in view of its Conservation Objective in the Beara Peninsula SPA, it is proposed to monitor the conservation status of the chough population on Dursey Island on an annual basis (during the breeding season) during the operation of the proposed development.

This monitoring is proposed not with a view to mitigating any adverse effects, but rather to inform future management of visitors and educational materials for the NPWS and Fáilte Ireland, and to provide further scientific evidence for related or similar projects in the future.

The monitoring programme shall be developed in agreement with the NPWS and shall involve, at a minimum, the determination (by a suitably qualified ecologist) of the following parameters:

- Number of breeding pairs (confirmed, probable and possible);
- Locations of nest sites; and,
- Productivity of the population.

Water Quality

Surface Water

It is envisaged that surface water sampling and chemical testing will be undertaken immediately downstream of the proposed outfall location in the minor watercourse. Surface water samples will be tested for physical and chemical parameters to assess water quality and indicate possible contamination at the site. The water samples will be tested for the following parameters:

- Biological oxygen demand (BOD);
- Chemical oxygen demand (COD);
- pH value;
- Suspended solids;
- Total coliforms;
- Ammonia (NH_3);
- Nitrates (NO_3^-);
- Nitrites (NO_2^-);
- Orthophosphates (PO_4^{3-}); and,
- Hydrocarbons.

The surface water monitoring regime will be undertaken prior to, during and after completion of the proposed works. Samples will be taken at fortnightly intervals from the minor watercourse, with a minimum of four samples taken prior to the works and six samples taken after completion of the works.

Groundwater

Groundwater sampling will also be undertaken prior to, during and after completion of the proposed works from the existing and proposed groundwater wells. Samples will be taken at fortnightly intervals from each well with a minimum of four samples taken prior to the works and six samples taken after completion. The groundwater samples will be tested for a range of physical and chemical parameters listed above in order to assess water quality and indicate any possible contamination at the site.

Terrestrial Habitats

The conservation status of the habitats on Dursey Island and Crow Head shall be monitored on an annual basis during the operation of the proposed development. The monitoring programme shall be developed in agreement with the NPWS and shall involve, at a minimum, the determination (by a suitably qualified ecologist) of the following parameters:

- Visitor numbers and movements on Dursey Island and Crow Head;
- Identification of areas where soil erosion/de-vegetation is occurring as a result of visitor movement activities;
- Identification of areas where new paths are being forged by visitors;
- Identification of areas where the integrity of habitats is adversely affected by land use (especially grazing regime), visitor activities, invasive alien species or other pressures/threats.

4.2 References

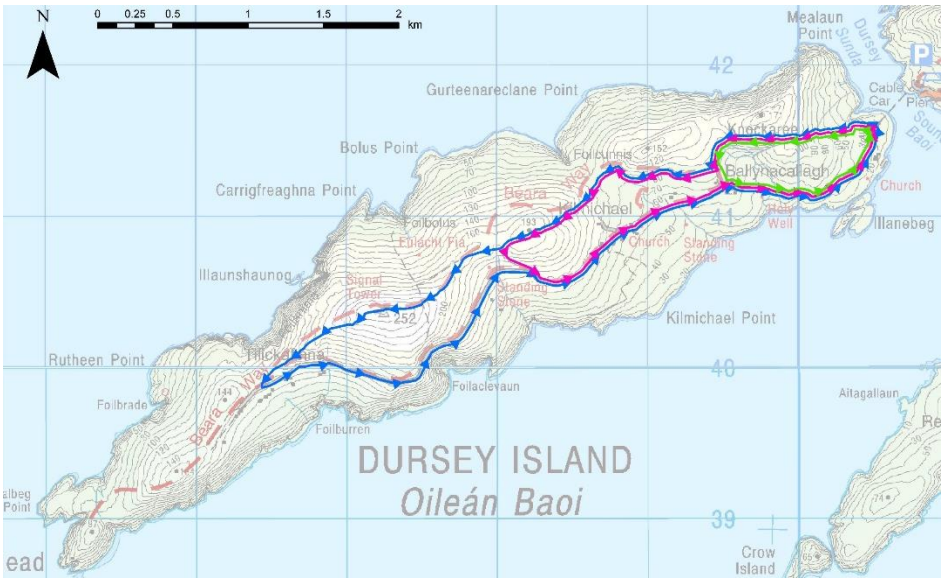
Keribiou, C., Le Viol, I., Robert, A., Porcher, E., Gourmelon, F. and Julliard, R. (2009) Tourism in protected areas can threaten wild populations: from individual response to population viability of the chough *Pyrrhocorax pyrrhocorax*. *Journal of Applied Ecology* 46:657-665.

TII (2010) *Guidelines on Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*. Transport Infrastructure Ireland, Dublin.

APPENDIX 4.1B – A
EIAR Chapter 18 Mitigation Measures

No.	Description
1	It is proposed to carry out the most disruptive (i.e. noisy) elements of the construction works during the winter months. This will minimise associated disturbance on resident or regularly occurring breeding populations of wildlife.
2	The lighting plan has been designed to minimise impacts on biodiversity and nature-related recreation. Low level bollard lighting has been selected for outdoor areas. No roadside lighting has been included in the design. Lighting design of the proposed development has been executed in accordance with *'Guidance Notes For The Reduction Of Obtrusive Light'* (Institution of Lighting Engineers, 2011) and '*Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations'* (Pollard *et al*., 2017). Use of low level lighting will minimise potential adverse effects on bats and prevent any potential light pollution or visual intrusion at the nearby Kerry Dark Sky Reserve, an important site for star-gazing.
3	The drainage and wastewater treatment system has been designed to provide a high level of attenuation and water quality controls. The surface water drainage system is comprised predominantly of Sustainable Drainage Systems (SuDS) technology. The proposed drainage system of the retaining wall includes a hydrocarbon interceptor. After passing through these elements, run-off will percolate through soil before being discharged to sea or to the mouth of a minor watercourse (and thereafter to sea) at the eastern boundary of the Cork County Council lands on the mainland.
4	Of the design options considered for the proposed development at Options Stage, the smallest scale design has been chosen so as to minimise the area of natural habitat destroyed. Any areas of natural habitat degraded or destroyed as a result of the construction phase, that are not within the immediate curtilage of the proposed buildings/structural elements, will be restored to grassland/heathland.
5	A Construction Environmental Management Plan (CEMP) shall be developed by the Contractor prior to the commencement of works. This document serves to ensure that the construction of the proposed development does not lead to any unanticipated negative impacts on the environment. It shall be developed in accordance with the description of the CEMP set out in Chapter 4 of this EIAR – Description of the Proposed Development – and based on the Outline CEMP which has been included in Appendix 4.1 of this EIAR.
6	An Environmental Operating Plan (EOP) shall be developed by the Contractor prior to the commencement of works. This document sets out the protocol for addressing environmental issues which may arise during the construction phase. This document shall be developed in accordance with the TII (n.d.; formerly NRA) guidelines, '*Guidelines for the Creation and Maintenance of an Environmental Operating Plan*' and based on the Outline EOP which has been included in Appendix 4.2 of this EIAR.
7	The Contractor will appoint a Site Environmental Manager prior to the commencement of works. This person shall be responsible for carrying out environmental monitoring and ensuring that the mitigation measures proposed in this EIAR (as well as the CEMP and EOP) are adhered to.
8	An Ecological Clerk of Works (ECoW) shall be appointed by CCC prior to the commencement of works. It shall be their responsibility to supervise and provide recommendations on the execution of any and all works which have the potential to give rise to negative effects on biodiversity/ecological integrity.
9	An IAS Management Plan [Appendix 7.1] has been developed and shall be implemented, as required, during the construction of the proposed development.
10	Landscaping of the proposed development shall use native species of plants of national provenance only and, insofar as possible, soil reused from on-site excavations. If soil/substrate needs to be imported to the site for the purposes of the proposed development, the Contractor shall ensure that the imported soil/substrate is free from IAS.
11	All land-based construction works shall be executed in accordance with the TII guidelines, '*Guidelines on the Management of Noxious Weeds and Non-native Invasive Plant Species*

No.	Description
	on National Roads' (2010). The Contractor shall ensure that the hull of the vessel(s) used during proposed works is not fouled with any IAS prior to its arrival at the site. Efforts shall also be made to ensure that any plant/equipment (including PPE equipment) is not carrying seeds or plant materials from IAS. The Contractor shall refer to the Invasive Species Ireland '*Marina Operators Code of Conduct*' (Kelly & Maguire, 2009).
12	CCC shall commit to undertaking treatment by a competent professional, in accordance with the recommended physical treatment set out in Appendix 7.1, with a view to eradicating the occurrence of hottentot-fig on Dursey Island prior to the commencement of operation of the proposed development (subject to agreement with the landowner). Monitoring shall be carried out by a competent professional for five years to ensure no re-growth occurs.
13	An IAS Management Plan [Appendix 7.1] has been developed and shall be implemented during the operation of the proposed development, with the objectives of, (i) where possible, eradicating IAS (especially on Dursey Island), (ii) preventing the introduction of new IAS to the area (especially Dursey Island), and (iii) in all other instances, managing existing occurrences of IAS with a view to preventing their spread.
14	Three looped, waymarked walking trails (as set out in Plate 7.17) shall be established on Dursey Island prior to the commencement of the operation of the proposed development. According to the National Trails Office (NTO) '*Guide to Planning and Developing Recreational Trails in Ireland*', (2012, p.4), "*Developing recreational trails is a very effective way of managing recreational activity in the outdoors and protecting the natural environment*". Indeed, research indicates that walkers tend to stick to established paths, even when they have the 'right to roam' (Keirle & Stephens, 2004). Establishment of these trails shall involve: 1. Placement of suitably spaced colour-coded waymarker posts of recycled plastic, featuring directional arrows, at appropriate locations along the trails set out in Plate 7.17; 2. Erection of a mapboard at a clearly visible location at the trailhead (i.e. on Cork County Council lands near the island-side cable car station) displaying a map of the routes with: i. approximate length (km), ii. duration (hours/minutes), iii. a conservative estimate of difficulty level from 'Easy' to 'Moderate' to 'Strenuous' to 'Very Difficult' (according to the NTO guidelines, '*Classification and Grading for Recreational Trails*' (2008)), and iv. a message instructing walkers to stay on the established paths (according to the recommendations set out in Appendix 7.2, '*Design of Outdoor Signage*').; 3. Erection of 'minimum impact behaviour' (MIB) signage at key sensitive locations for chough and/or habitat conservation along trails. At a minimum, this MIB signage shall include: i. a note on the trailhead mapboard instructing visitors to stay on the trails; and ii. a sign at the western end of the Tillickafinna/Signal Tower Loop instructing walkers not to venture any further westward onto the chough 'hotspot'. The design of this signage shall be in accordance with the recommendations set out in Appendix 7.2, '*Design of Outdoor Signage*'. Research conducted on Bear Island, Maryland, U.S.A. (Hockett *et al*., 2010), found that principle reasons for visitors to leave the established trail were: i. to view and/or photograph a scenic vista; ii. to pass other walkers on the trail; iii. to avoid challenging trail conditions; and also iv. because of poor waymarking. Accordingly, trails should offer opportunities for scenic vistas/photos, should be well marked and should not be too challenging. The direction of all three looped trails shall be anticlockwise, with walkers travelling along the established off-road trails on the outbound

No.	Description
	journey, and returning to the trailhead via the public road. Travelling in this direction, walkers undertaking the Tillickafinna/Signal Tower Loop will have had plenty of 'photo opportunities', and will have completed the most strenuous portion of the trail (the 'high route') by the time they reach Tillickafinna and, for these reasons, may feel less inclined to venture further westward. Establishment of these trails shall not involve the creation of any new paths but rather, will serve to encourage walkers to stay on existing, established paths, and provide options for walkers of varying abilities. Provision of complete (and conservative) information on the nature and duration of routes, coupled with the provision of two shorter options, may discourage certain walkers from attempting the full loop and travelling to the western end of the island. Any existing signage which contradicts these trails shall be removed, as required. Cork County Council shall be responsible for the maintenance of these trails and any associated structures for the duration of the operation of the proposed development. An existing informal walking trail on Crow Head shall be more clearly marked using recycled plastic waymarkers. However, no sign (or other indicator which might draw attention to the walk) should be erected. Responses to the visitor survey indicate that this is not a very popular walk and no undue attention should be drawn to it. Instead, efforts should be made to control the movements of those few walkers who do venture onto the headland. Cork County Council shall be responsible for the maintenance of this trail.  **Plate 18.1 Three looped walks for Dursey Island**
15	An education campaign shall be launched to inform visitors of the sensitivity of (i) species (i.e. choughs and ground-nesting bird species) to human disturbance and (ii) habitats to degradation as a result of visitor footfall. The objective of the campaign is to discourage visitors from wandering off the established walking routes on the island, particularly at sensitive locations for chough (i.e. at the western end of the island and potential roost sites). The campaign shall have the following characteristics: 1. It shall be three-tiered in that it will be featured in: i. Exhibition materials in the Visitor Centre; ii. An audiovisual presentation in the outbound journey of the Cable Car; and iii. Outdoor signage on Dursey Island. 2. The educational materials used shall be aesthetically pleasing and emotionally engaging to encourage buy-in from visitors. The design of outdoor signage shall be in accordance with the recommendations set out in Appendix 7.2 All outdoor signage shall be designed for the exposed and corrosive nature of the site.
16	Not including island residents/farmers, no more than 12,835 persons shall be permitted to travel to Dursey Island in any month of the year during the operation of the proposed

No.	Description
	development (see Appendix 7.2). This numerical carrying capacity shall be implemented using a strictly enforced ticketing system.
17	Not including pets and/or working dogs of island residents and farmers, dogs shall be prohibited from travelling to Dursey Island. This restriction will be clearly displayed on the Cable Car website and promotional materials.
18	Not including bicycles for the personal use of island residents/farmers, visitors shall be prohibited from bringing bicycles to the island in the Cable Car. This restriction will be clearly displayed on the Cable Car website and promotional materials.
19	In order to ensure the continued efficacy of these mitigation measures and facilitate adaptive management with respect to habitat degradation and/or disturbance of wildlife as a result of visitors walking in areas of open habitat: • Trail counters shall be installed at suitable locations on walking trails on Dursey Island, on the Garinish Loop walk and on the walk at Crow Head. On Dursey Island, a trail counter shall be placed at an appropriate location on the western end of the island, so as to record approximately how many visitors leave the established trail (disregarding the MIB sign) to wander onto this key area for chough. CCC shall be responsible for the maintenance of these counters. • A visitor survey shall be carried out on an annual basis to establish approximately how visitors respond to MIB signage, what proportion of visitors follow each of the three looped trails, and what proportion of visitors remain on established trails and vice versa.
20	The conservation status of the Dursey Island chough population shall be monitored on an annual basis (during the breeding season) for the duration of the operation of the proposed development. The monitoring programme in question shall be developed in agreement with NPWS but shall, at a minimum, involve the measurement (by a suitably qualified ecologist) of the following parameters: • Number of breeding pairs (confirmed, probable and possible); • Locations of nest sites; and • Productivity of population.
21	Once 5 years of data have been collected from the aforementioned chough monitoring scheme, a specific, original, monthly carrying capacity for Dursey Island shall be calculated according to the methodology in Keribiou *et al*. (2009). This carrying capacity shall be implemented using a strictly enforced ticketing system.
22	The conservation status of the habitats on Dursey Island shall be monitored on an annual basis for the duration of the operation of the proposed development. The monitoring programme in question shall be developed in agreement with NPWS but shall, at a minimum, involve the measurement (by a suitably qualified ecologist) of the following parameters: • Visitor numbers and movements on Dursey Island; • Identification of areas where soil erosion/de-vegetation occurring as a result of visitor movement activities; • Identification of areas where new paths are being forged by visitors; • Identification of areas where ecological integrity of habitats is being negatively affected by land use (especially grazing regime), visitor activities, IAS or other potential pressures/threats.
23	The data gathered as a result of all monitoring undertaken (i.e. related to visitors and the conservation status of choughs and habitats) shall be shared with Fáilte Ireland so that it can feed into their WAW Environmental Surveying and Monitoring Programme, and can inform the development and management of similar/related developments, plans and projects.
24	Insofar as is possible in view of safety requirements, lighting shall be turned off at the closure of the proposed development each night (i.e. once all visitors have left).

No.	Description
25	Demolition of existing buildings at the site of the proposed development shall be completed either during the autumn or spring months in order to minimise the risk of disturbance of roosting bats. Care shall be taken during the removal of rooves. If bats are identified in structures during demolition works, the local NPWS Conservation Ranger shall be contacted to facilitate safe translocation.
26	Bulbs used in outdoor lighting shall be of a type which does not emit ultraviolet (UV) light. No spotlights shall be used.
27	Bat boxes shall be erected in association with buildings/structures on the mainland side of the site of the proposed development. These shall be of a design and placement that is in accordance with the Bat Conservation Ireland guidelines, '*Bat Boxes: Guidance Notes for: Agri-environmental Schemes*' (Bat Conservation Ireland, 2015) and the NRA guidelines, '*Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes*' (TII, n.d.). Bat boxes shall be inspected, maintained and relocated (if required) in accordance with the TII guidelines. Boxes shall be incorporated into or onto external walls away from artificial lighting. Recommended units (all available at nhbs.com) are as follows: • 8 no. 2FE Schwegler Wall-mounted Bat Shelter (to be hung on external walls), or • 6 no. 1FE Schwegler Bat Access Panel (with back plate) (to be hung on external walls), or • 4 no. 2FR Schwegler Bat Tube (to be built into external walls), or • 4 no. 1FQ Schwegler Bat Roost (to be hung on external walls).
28	In order to prevent any potential destruction of betony (*Betonica officinalis*) as a result of the construction of the proposed development, if individual plants or clusters of plants of betony (*Betonica officinalis*) (in addition to those already identified and translocated) are identified at vulnerable location(s) (i.e. where plants are at risk of destruction) in the footprint of the proposed development during the construction phase, they shall be translocated to suitable sites by an appropriately qualified and licenced professional. If necessary, works at the location(s) in question shall be suspended until such time that it is considered ecologically appropriate (by the ECoW) to carry out translocations.
29	In order to prevent pollution of the marine environment and surface-groundwater during the construction and operation of the proposed development, which could potentially give rise to adverse effects on biodiversity in marine and freshwater aquatic habitats, all of the mitigation measures outlined in Chapters 8, 9 and10 of this EIAR – Soils & Geology, Hydrogeology and Hydrology, respectively – shall be implemented.
30	In order to minimise the volume of litter being discarded on Dursey Island and in the vicinity of the proposed development on the mainland, segregated waste bins (at a minimum, separate recycling and residual waste bins but preferably also a separate organic waste bin) shall be provided in the mainland-side Visitor Centre and at the island cable car station. To prevent overflow, these bins shall be emptied regularly. An appropriate waste collection service shall be arranged.

APPENDIX 4.1B – B
Planning Approval

To be added by Contractor subject to planning approval

APPENDIX 4.1B – C
Schedule of Commitments

To be added by Contractor subject to planning approval

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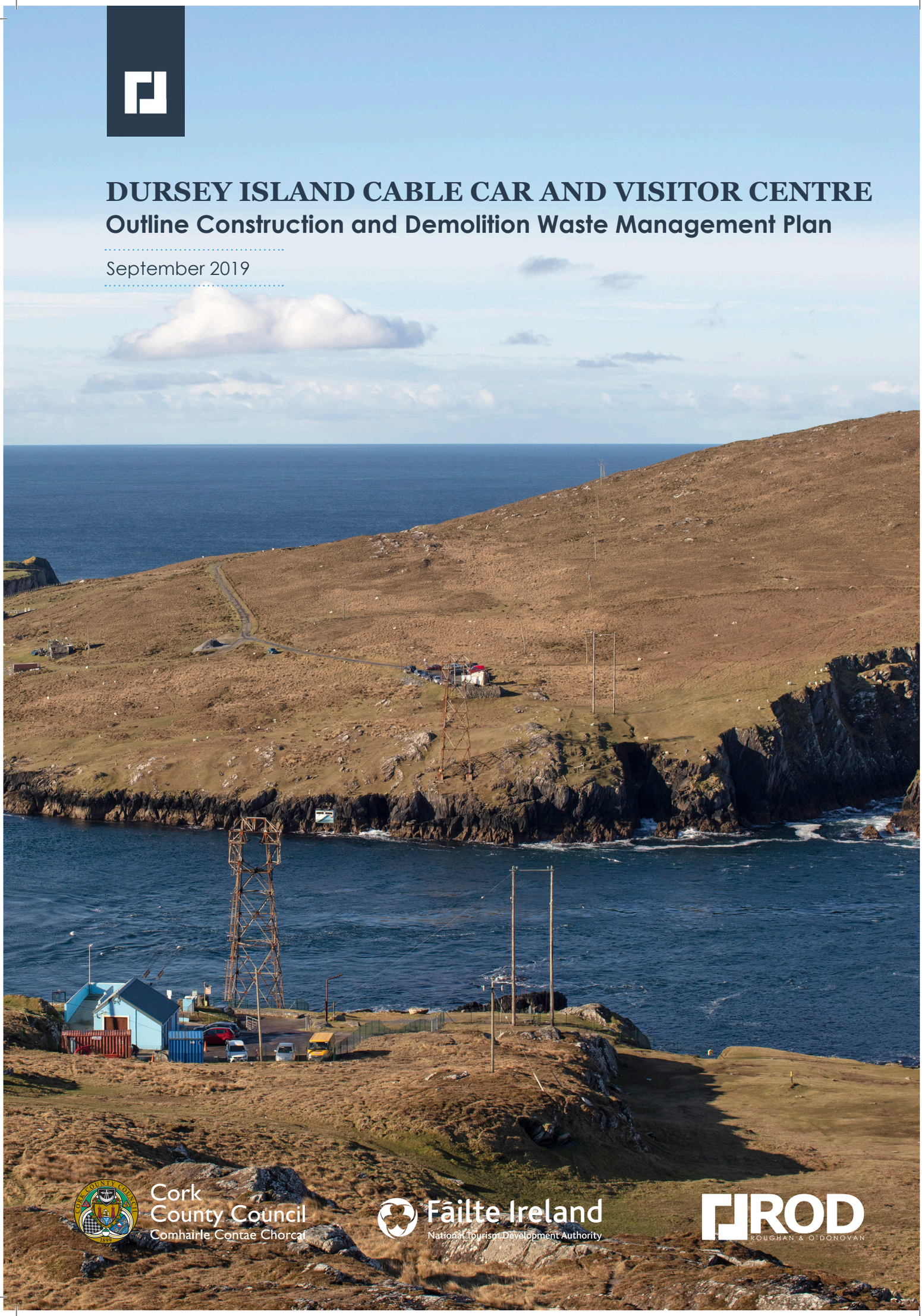
APPENDIX C
Outline Construction and Demolition Waste Management Plan

DURSEY ISLAND CABLE CAR AND VISITOR CENTRE

Outline Construction and Demolition Waste Management Plan

September 2019



Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

ROD
ROUGHAN & O'DONOVAN

Dursey Island Cable Car and Visitor Centre

Outline Construction and Demolition Waste Management Plan

TABLE OF CONTENTS

1.0 INTRODUCTION

This outline Construction and Demolition Waste Management Plan (CDWMP) has been developed to ensure that waste arising on-site during the construction and demolition phase of the Dursey Island Cable Car and Visitor Centre will be managed and disposed of in a way that ensures the provisions of the Waste Management Acts, 1996-2011 and associated Regulations (1996-2011) are complied with and to ensure that optimum levels of reduction, re-use and recycling are achieved.

This outline CDWMP has been prepared for the provision of waste management for the construction phase of the Dursey Island Cable Car and Visitor Centre, taking into account the many guidance documents on the management and minimisation of construction and demolition waste, including:

- DEHLG (2006) *Best Practice Guidelines on the Preparation of Waste Management Plans for construction and Demolition Projects*. Department of Environment, Heritage and Local Government, Dublin;
- Provisions of the Waste Management Acts, 1996-2011 and associated Regulations;
- Construction Industry Research and Information Association (CIRIA) document 133 Waste Minimisation in Construction;
- TII (2014) *Guidelines for the Management of Waste from National Road Construction Projects*. Transport Infrastructure Ireland, Dublin; and,
- National Construction & Demolition Waste Council (NCDWC) 2006 *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects.*

This plan is intended to be a working document and has been prepared to inform the Construction and Demolition Waste Management Plan which, in turn, will form an integral part of the Environmental Operating Plan (EOP) for the proposed development.

This document is preliminary in nature as it has been prepared at a stage when quantities are based on the design developed to a sufficient level of detail to inform the environmental impacts to be assessed in the Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS). However, changes may occur during detailed design stages which may alter the volumes of waste.

All materials used during construction will be imported. Moderate quantities of soils will be excavated during construction.

Prior to the commencement of construction works, a Waste Management Co-ordinator (WMC) (who may also be the Site Environmental Manager (SEM)) will be appointed by the Contractor to assume responsibility for the further development of the CDWMP and the management and treatment of all waste materials created during the construction of the Dursey Island Cable Car and Visitor Centre.

The Contractor's CDWMP must contain (but not be limited to) the following measures:

- Details of waste storage (e.g. skips, bins, containers) to be provided for different waste and collection times;
- Details of where and how materials are to be disposed of, i.e. landfill or other appropriately licensed waste management facility;

- Details of storage areas for waste materials and containers;
- Details of how unsuitable excess materials will be disposed of, where necessary;
- Details of how and where hazardous wastes such as oils, diesel and other hydrocarbon or other chemical waste are to be stored and disposed of in a suitable manner; and
- Details of locations.

Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects were published in 2006 by the National Construction & Demolition Waste Council (NCDWC). These Guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion. These Guidelines have been followed in the preparation of this report.

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Project Description

The proposed development comprises the construction of a new cableway and associated structures, including a visitor interpretive centre and café on the mainland. The construction works will involve decommissioning of the existing Dursey island cableway which connects the easternmost tip of Dursey Island with the townland of Ballaghboy, on the western end of the Beara Peninsula in west County Cork. The proposed cableway will run parallel to the existing alignment, offset by approximately 14m to the north, with the end-to-end length of 375m. The majority of the proposed works will be carried out on lands currently owned by Cork County Council, with the exception of the island station, island pylon and improvement works to the R572 approach road which will necessitate the compulsory purchase order (CPO) of private land in these areas.

2.2 Construction Stage

It is expected that the construction work will commence in October 2021 and that the duration of the construction period will be approximately 18 months. Since visitor numbers to the site are especially high during the summer months, and since it will be necessary to maintain the operation of the existing cableway throughout the construction phase (insofar as possible), earthworks will be carried out during the off-season (October – April), where possible.

2.3 Construction Procurement

The estimated cost of the Dursey Island Cable Car and Visitor Centre Development is in the region of €9 – 10 million, exceeding the current €5,225,000 threshold for public works contracts. Therefore, it is proposed that this works contract will be advertised on eTenders and in the OJEU.

The procurement approach to be used will be decided by CCC. The pre-selection criteria will be related and proportionate to the subject matter of the contract. The criteria will be geared towards selecting competent Contractor(s) with experience and appropriate technical and professional ability in building construction and fit-out of specialist equipment. The criteria will also be targeted towards selecting Contractor(s) with experience of working in environmentally sensitive locations.

It is proposed that the form of contract for the main building and civil works will be Employer-designed with the possibility of identifying the cableway supplier as a novated specialist, requiring further consideration.

3.0 WASTE MANAGEMENT STRAGETY

3.1 Scope

The Contractor will develop a CDWMP that will detail:

- Licensing of Waste Disposal;
- Site clearance;
- Excavations and disposal of materials;
- Measures to protect water quality;
- Importation, stockpiling and placing of fill;
- Management of drainage works to ensure no pollution of Dursey Sound or any nearby watercourse;
- Construction vehicle management; and,
- Dust and noise abatement measures.

3.2 Waste and Recycling Management

The management of construction and demolition waste will reflect the waste management hierarchy, with waste prevention and minimisation being the first priority, followed by reuse and recycling. During site clearance and construction works, there are numerous opportunities for the beneficial reuse and recycling of materials. The subsequent use of recycled materials in reconstruction works also reduces the quantities of waste which ultimately needs to be consigned to landfill sites.

The Contractor will develop and implement a plan and manage all waste with a goal of achieving the waste hierarchy in accordance with the relevant statutory provisions as shown in Figure 3.1.

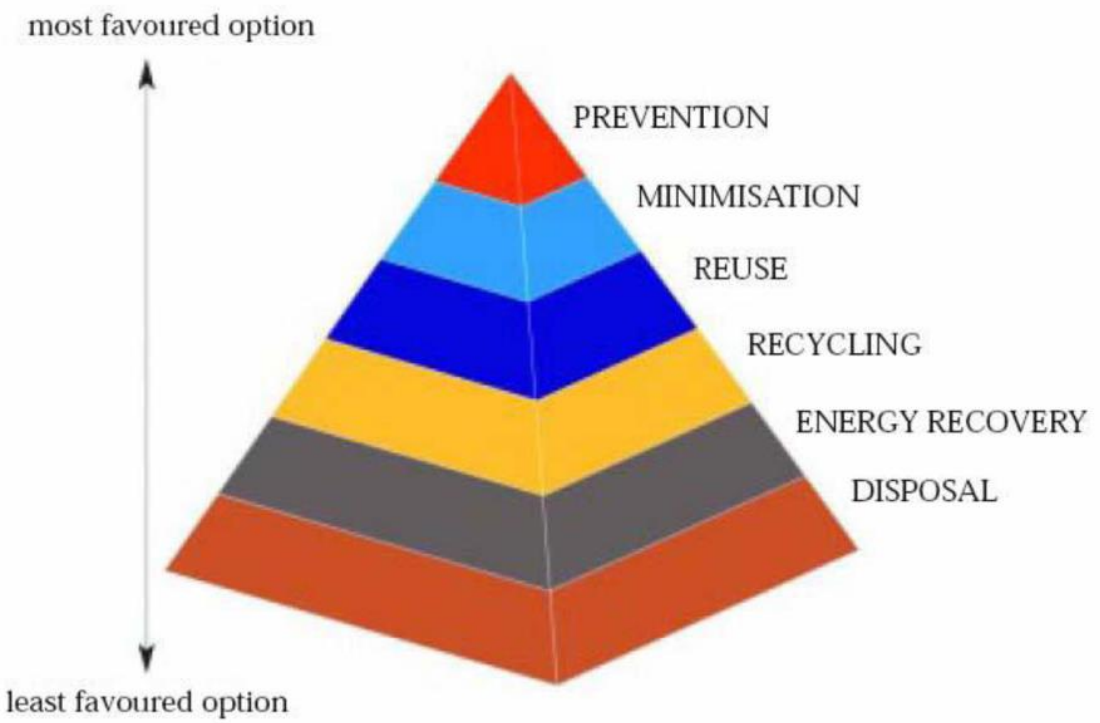


Figure 3.1 The Waste Management Hierarchy [DEHLG (1998) *Changing Our Ways*. Department of the Environment, Heritage and Local Government, Dublin]

Source Segregation

Wastes generated on the construction site will be identified and segregated according to their respective categories, as described by the European Waste Catalogue (EWC). Where possible, metal, timber, glass and other recyclable material will be segregated and removed off-site to a permitted/licensed facility for recycling.

In order to achieve this, designated waste storage areas will be created at the construction compound or other suitable locations for the storage of segregated wastes prior to transport for recovery/disposal at suitably licensed/permitted facilities. Suitably sized containers for each waste stream will be provided within the waste storage area and will be supervised by the WMC, who will be appointed by the Contractor. This will be the person responsible for the management of waste during the construction of the Dursey Island Cable Car and Visitor Centre. The number and sizing of containers will be agreed with Waste Contractors in advance of construction works commencing. Source segregation of waste will result in cost savings to the project as well as providing an environmentally sound route for the management of all construction and demolition wastes.

Re-use

Possibilities for re-use of clean, non-hazardous excavation material as fill on the site or in landscaping works will be considered following appropriate testing to ensure material is suitable for its proposed end use. During Ground Investigations (GI), samples were taken from exploratory holes and were tested by Priority Geotechnical Limited between the 4th and 18th of April 2019. All samples have been classified as falling within either the non-hazardous or inert limits. The results of ground investigation revealed no areas of contaminated land. Where excavated material is not to be reused within the works, the Contractor will endeavour to send material for

recovery or recycling so far as is reasonably practicable. The Contractor will ensure that, if required, any off-site interim storage facilities for excavated material have the appropriate waste licences or waste facility permits in place.

Material Management

In order to prevent and minimise the generation of waste, the Contractor will be required to ensure that raw materials are ordered so that the timing of delivery, the quantity delivered, and the storage is not conducive to the creation of unnecessary waste. The Contractor, in conjunction with the material suppliers, will be required to develop a programme showing the estimated delivery dates and quantities for each specific material associated with each element of construction and demolition works. Following a "just-in-time" approach improves cash flow, better utilises storage space, reduces risk of environmental pollution events and reduces potential loss to theft and accidental damage as well as making the site safer.

It is essential that the planning, construction and demolition works are undertaken in close collaboration with waste management contractors, in order to determine the best techniques for managing waste and to ensure a high level of recovery of materials for recycling. The Contractor will be required to continuously seek to improve the waste management process on-site during all stages of construction and maximise opportunities for re-use and recycling where they exist. For example, in relation to waste packaging, the Contractor will seek to negotiate take-back of as much packaging waste as possible at source to ensure maximum recycling. The CDWMP will be included as an agenda item at the weekly construction meetings. In addition, the plan will be communicated to the whole team (including the Client) at the monthly meetings. This will include any updates to earlier versions of the document.

Waste Auditing

The Contractor will record the quantity (in tonnes) and types of waste and materials leaving the site during the construction phase. The name, address and authorisation details of all facilities and locations to which waste and materials from the construction phase are delivered will be recorded along with the quantity of waste (in tonnes) delivered to each facility. Records will show all material recovered and disposed of.

The waste management strategy for the project will follow the accepted waste hierarchy and the Contract will implement the following types of measures to reduce waste and maximize opportunities for recycling:

- Wherever possible, materials for construction activities will be ordered as to require the minimum possible storage time;
- Materials will be ordered, where possible, in sizes to prevent wastage;
- Appointment of a WMC, who will be responsible for handling, storage and delivery of materials to the proposed development;
- Ensure that stored material is protected from damage from plant and environmental factors such as rain and wind;
- Secure storage areas to prevent unauthorised access;
- Establish a waste management compound to handle incoming waste from construction activities – this should facilitate the segregation of key waste streams to maximise the opportunity to re-use, recycle and return wastes generated on-site;

- Provide a separate secured area for dealing with hazardous waste; and,
- Provide separate facilities for the storage of fuels and chemicals.

3.3 Waste and Recycling Targets

The Contractor's CDWMP, waste handling and proposed construction methods should endeavour to achieve the following targets

- The re-use of all earthworks materials on site where possible;
- 100% recycling of surplus reinforcement and other metals, where possible; and
- No contamination of skips.

3.4 Waste and Recycling Opportunities

The Contractor will seek opportunities, wherever possible, to reduce the amount of waste generated on site and maximize the potential for recycling materials in accordance with the waste hierarchy through the following:

- Storing materials in designated areas and separate from wastes to minimise damage;
- Returning packaging to the producer where possible;
- Segregating construction and demolition wastes into reusable, recyclable and non-recyclable materials;
- Reusing and recycling materials on site during construction where practicable;
- Recycling other recyclable materials through appropriately permitted/licensed contractors and facilities; and
- Disposing of non-recyclable wastes to licensed landfills.

4.0 WASTE DISPOSAL LICENSING

4.1 Licensing Requirements

Under the Waste Management (Collection Permit) (amended) Regulations, 2016, a waste collection permit for appropriate EWC Code(s) and designations is required by a waste haulier to transport waste from one site to another. Compliance with the Waste Management (Shipments of Hazardous Waste in Ireland exclusively) Regulation, 2011 is also required for the transportation of hazardous waste by road. The export of waste from Ireland is subject to the requirements of the Waste Management (Shipment of Waste) Regulations, 2007. The Contractor will ensure that the transport and movement of all waste is carried out in compliance with these requirements.

Waste may only be treated or disposed of at facilities that are licensed to carry out that specific activity, *e.g.* chemical treatment, landfill or incineration, for a specific waste type. Records of all waste movements and associated documentation will also be held on-site. Generally, operators of waste management sites will facilitate a site visit and inspection of documentation if deemed necessary. Prior to any on-site recovery process, including the operation of mobile plant, an operator must apply to the governing local authority for a waste facility permit under the Waste Management (Facility Permit and Registration) Regulations, 2007. It is planned that waste activities at the site will comprise of source segregation, storage and collection and, therefore, it is highly unlikely that any waste licensable or waste permissible activity will be undertaken.

4.2 Exclusion from Legislation

The Directive on Waste contains a number of exclusions which make clear that certain materials are not subject to its requirements. A key exclusion affecting construction projects such as this development is set down in Article 2(1)(c). This states that the requirements of the EU legislation do not apply to:

"uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated"

This provision is repeated in the Waste Management Acts, as amended by the European Communities (Waste Directive) Regulations, 2011 (SI No. 126/2011). Should materials generated by construction activities fall within this provision, they are not then subject to the other requirements of the EU or national waste legislation. This means that, for example, such materials are not defined as "waste", do not need to be handled by duly authorised waste collectors and do not need to pass to disposal or recovery facilities that are subject to waste licences or other equivalent form of statutory authorisation. In addition, the requirements of the Waste Hierarchy do not apply.

5.0 PROPOSED CONSTRUCTION METHODOLOGY AND MATERIAL USAGE

5.1 Site Preparation

Elements of the site preparation works may be conducted through an advance works contract to be completed before construction commences on site. Prior to any work commencing on the mainland or island sites, boundary security will be required to be established around the site to prevent unauthorised access.

The boundary will be laid out so as to maintain safe access to the existing cableway, to maintain the aforementioned public right of way, and to maintain a portion of the existing parking facilities, where possible.

Appropriate environmental protection measures will be put in place on both sites. These are expected to include measures to prevent run-off from the site entering the sound.

Site clearance works will be carried out on the mainland site, island site and at the location of all proposed passing bays along the R572 approach road, over the extents indicated on the drawings.

Existing overhead lines will be diverted or maintained and protected throughout the works as required by the contract. It is not expected that there will be any interruptions to local utility services as a result of any diversions carried out.

5.2 Site Offices, Construction Compounds and Security

A site construction compound will be required during the construction phase and will be situated completely within the mainland site. Initially it will be located adjacent to the existing cableway in the widest section of the existing carpark. The compound will be established at the commencement of the contract and remain in place throughout the construction period. However, as earthworks progress it will be required to be moved within this confined site, at all times staying within the red line

boundary of the site. The Contractor will also require a smaller set down area/storage compound on the island which will be located within the red line boundary. Suitable site security measures will be implemented on both the mainland and island sites for the duration of the construction phase.

Potential impacts that need to be guarded against include:

- Accidental spillage of pollutants into surrounding water bodies; and,
- Dirt, mud and other materials being dropped from lorries and plant or spread onto approaching roads and carparking areas by traffic travelling to and from the site.

The exact location and mode of operation of the site compound will ultimately be chosen by the Contractor in agreement with CCC. The location will have to comply with all of the requirements/underlying measures contained in this EIAR and the NIS, as well as any An Bord Pleanála conditions. There will be early consideration given to locations for material stockpiles, which will be covered with geo-textile (or similar) to prevent mobilisation of suspended solids.

The compound will include stores, offices, material storage areas, plant storage and parking for site and staff vehicles. This site is proposed to remain in place for the duration of the contract but may be scaled up or down during particular activities on site.

The anticipated site compound/storage facilities will be fenced off at a minimum distance of 10m from the top of the edge of the sea/cliff edge. Any works within the 10m buffer zone will require measures to be implemented to ensure that silt laden or contaminated surface water runoff from the compound does not discharge directly to the sea/watercourse. All fuel storage areas will be bunded to 110% of storage capacity to prevent spills and provide sufficient additional capacity in the event of rainfall occurring simultaneously. The compounds will also have appropriate levels of security to limit potential vandalism, theft and unauthorised access within the compounds.

Following completion of construction, the compound will be cleared, landscaped and paved. Temporary buildings and containers, parking areas and waste material such as rubble, aggregates and unused construction materials will not be permitted to remain exposed on these sites and will need to be removed and disposed of appropriately.

5.3 Material Quantities

Cutting will be required to the rear (north-east) of the existing mainland car park in order to provide space for the proposed upper tier of parking. Backfilling will also be required to level the site along the seaward edge of the existing car park to accommodate the proposed buildings. The cutting will predominantly consist of rock-breaking. With careful planning it will be possible to balance the cut and fill volumes to some extent. It is highly likely that the excavated rock will form an acceptable fill material for levelling the site and for capping/pavement purposes. Topsoil will be stripped and reused, where possible. Relatively minor earthworks will be required on the island and at some of the proposed passing bay locations along the R572. On the mainland, an approximation of the proposed volume of cut material is 6,500m^3, while the requirement for fill to the required formation levels is 8,600m^3. However, when the volume of the retaining walls is taken into account, and bulking of the

excavated material is allowed for (crushed rock has a greater volume than solid rock), the cut and fill volumes will approximately balance

5.4 General Construction and Demolition Works

Quantities of general construction and demolition wastes are made up of waste such as wood, packaging, metals, plastics, bricks, blocks, canteen waste, some hazardous waste, *e.g*. oils, paints and adhesives. Site clearance and residual waste will be generated during the construction phase, primarily from the construction of the proposed development. The estimated of waste types likely to be generated for the Dursey Island Cable Car and Visitor Centre and are displayed in Table 5.2 below.

Table 5.2: Waste Materials Generated on the Construction Site of Dursey Island Cable Car and Visitor Centre

Nature of material	Volume (m^3)
Concrete	25
Stone and rubble	20
Excavated material (including surfacing)	10

An overview of the methods to manage the primary waste streams expected is presented below. The main types of construction waste produced will be:

Excavated material

Where short-term temporary storage is unavoidable, the method of storage of material will be key to its potential use as certain types of materials such as mud are likely to degrade if left uncovered in wet weather due to its low plasticity and silty nature.

Concrete

Waste concrete is likely to arise during the construction phase of the Dursey Cable Car and Visitor Centre. It is proposed that waste concrete generated will be returned to the supplier for re-use. For every tonne of concrete waste that is recycled for aggregate in new concrete, significant savings are made in energy and carbon dioxide emissions. It also saves money by avoiding disposal costs, which continue to increase. Residual concrete waste will be source segregated and stored in designated containers at the waste storage area for subsequent separation and recovery at a remote facility.

Stone and rubble

Excavated rock will be loaded directly to vehicles for use within the site of the proposed Dursey Cable Car and Visitor Centre development as appropriate, *e.g*. as fill material.

Metals

Metal waste has a significant scrap value. Although it is now common practice for sites to segregate metals for reuse and recycling, there are still sites where metal is thrown away with general rubbish. One of the primary sources of metal waste is steel reinforcement. Wastage of steel reinforcement will be reduced by ordering made to measure steel from the manufacturer and detailed scheduling of all reinforced concrete structural elements.

Skip hire companies may provide free skips for the storage of scrap metal on sites and this will be investigated prior to construction commencing. When metal storage containers are full they will be removed by the waste storage contractor and sent to a metals recycling facility.

Timber

Timber waste will be stored separately as it is readily contaminated by other wastes and if it is allowed to rot will reduce the recyclability of other stored wastes. Any pallets will be returned to the supplier for re-use. Off-cuts and trimmings will be used in formwork where possible. A container for waste wood will be covered where possible and will be placed in the waste storage area. The waste wood will be collected by a waste contractor who will forward it to a wood recycling facility for chipping.

Treatment of timber with chemicals and the overuse of nails will be minimised and avoided as this will make it difficult to reuse/recycle the timber afterwards. The utilisation of reclaimed timber products will also be investigated.

Packaging and Plastic

Packaging waste can become a major problem on construction sites. Double handling will be avoided by segregating packaging wastes immediately after unwrapping. Many suppliers are now prepared to collect their own packaging for recycling, and this will also be investigated prior to works commencing. It is intended that, where possible, materials with recycled packaging will be purchased. Waste packaging will be segregated and stored in separate containers, preferably covered, in the waste storage area for collection by the waste management contractor and distribution to packaging recycling facilities.

Blocks, Bricks and Tiles

The careful storage of these raw materials will significantly reduce the volume of these wastes arising on site. The most likely wastes produced will be off-cuts, trimmings and waste arising from breakages. Every effort will be made to use broken bricks and off-cuts

Hazardous Wastes

Prior to removal from the site, any hazardous waste identified will undergo a comprehensive waste assessment and classification by a suitably qualified person in accordance with the European Waste Catalogue and Hazardous Waste List. It should be noted that if non-hazardous waste becomes contaminated with hazardous waste the entire load will be considered hazardous. It is, therefore, critical to ensure that waste segregation areas are provided and are used properly to separate out hazardous, non-hazardous and inert waste arising. Hazardous wastes will be identified, removed and kept separate from other construction and demolition waste materials in order to avoid cross-contamination. Specific method statements detailing the necessary mitigation measures required during excavation, handling transportation and disposal of hazardous wastes encountered on the site will be prepared as required.

The likely disposal/treatment options for any hazardous wastes available to the Contractor will depend on the nature of the hazardous material and the concentration of parameters of concern. The costs associated with treatment and disposal will similarly vary depending on the concentration of parameters of concern and on the tonnage involved. There are several operators/facilities in operation within Ireland

that could potentially accept the contaminated material depending upon the results of the Waste Acceptance Criteria testing or assist in the export of the material abroad for special treatment where required. Full details of the disposal route for hazardous wastes will be provided in the detailed CDWMP following the appointment of the contract and completion of the further investigations required.

Hazardous Liquids (Oils, Paints, Chemicals)

Hazardous liquid waste arising from the construction process will require careful handling. Oils, paints, bitumen, adhesives and chemicals will be kept in a separate contained storage area which will be locked when not in use. Hazardous liquids will be stored at least 10m from the Dursey Sound. Lids will be kept on containers in order to avoid spillage or waste by evaporation. Waste oils, paints and chemicals, including the containers, will require careful handling and disposal. aThese will be stored in a containment tray with a capacity to contain 110% of the volume of the largest container.

Fuels and chemical will be stored in double-skinned containers or within a bund, i.e. an impervious structure with the capacity to contain 110% of the volume of the largest tank stored within it. All containers will be carefully labelled.

Food Wastes

Site staff generate food waste and packaging waste. Designated receptacles will be provided to allow for the segregation and storage of individual waste streams. These will include receptacles for food waste, *e.g*. brown bin for waste foods and peelings, dry recyclables, *e.g*. green bin for packaging, plastics, metals, wood, paper, cardboard and tetrapack, and residual bin, *e.g*. black bin for mixed food and packaging waste. Separate receptacles for the recyclable fractions may be provided such as plastics, metals, glass and this will be designed and detailed by the WMC in consultation with the selected waste management contractor.

Other Wastes (Residual)

Waste material other than those outlined above can constitute a significant proportion of the total waste generated by a construction site. This waste is normally made up of residual, non-recyclable waste such as soiled paper, cloth, cardboard or plastics, as well as food waste and general waste found on the site, including plastic bottles, bags, cans *etc*. Given the heterogeneous nature of this material, it is most important that residual waste is kept separate from the other waste streams to avoid contamination. This material will be stored in a dedicated container in the waste storage area. Container size and collection frequency will be assessed with waste management contractors as works proceed. All residual wastes will be dispatched to a suitably licensed facility for disposal. Other construction and demolition waste material will be collected in receptacles with mixed construction and demolition waste materials for subsequent separation and disposal at a segregation facility.

6.0 ASSIGNMENT OF RESPONSIBILITIES

A WMC will be appointed who will have overall responsibility for waste management on the site. The Employer (Cork County Council) will receive summaries of any audit reports, which will be completed within three months of the end of each calendar year. The effectiveness and accuracy of the documentation may also be monitored on a regular basis via routine site visits. Following appointment of the preferred Contractor, the CDWMP will be updated in accordance with the final design and

copies of the plan will be distributed to the Employer, the Site Manager and the site sub-contractors. The WMC appointed by the Contractor will be appropriately trained and experienced in all aspects of waste management. In addition, he/she and the site crew must be in a position to:

- Distinguish reusable materials from material suitable for recycling;
- Ensure maximum segregation at source;
- Co-operate with site manager on best locations for stockpiling reusable material;
- Separate material or recovery; and,
- Identify and liaise with operators of recovery outlets.

The WMC will be responsible for educating all site staff, sub-contractors and suppliers about the available alternative to conventional waste disposal. Training will also be given to all site staff in materials management on sites. The WMC will continually identify waste minimisation actions on sites and this will be updated in the plan.

7.0 TRAINING

Copies of the CDWMP will be made available to all personnel on-site. All site personnel and sub-contractors will be instructed about the objectives of the plan and informed of the responsibilities that fall upon them as a consequence of its provisions. This is traditionally carried out during the induction process for new staff members. Where source segregation and material re-use techniques apply, each member of staff will be given instructions on how to comply with the CDWMP. Site notices will be designed to reinforce the key messages within the plan and will be displayed prominently for the benefit of staff.

8.0 WASTE RECORDS

When establishing the system for managing the details of all arisings, movement and treatment of construction and demolition waste in the CDWMP, the use of electronic tools should be considered to provide for convenient recording of information in a useful format such as "Smart – waste".

The Contractor will be required to arrange for full details of all arisings, movements and construction and demolition waste to be recorded during all stages of the proposed development. Each consignment of construction and demolition waste removed from the site will be documented in the form of a Waste Movement Record form, which will ensure full traceability of the material to its final destination. Separate record forms will be completed in respect to each waste transfer that takes place. The Contractor will also receive printed documents/records from waste disposal companies employed, quantifying the exact amount of waste material removed from site. The sheet from the disposal company also identifies how much material went to landfill and how much went for recycling. All such records will be retained in a designated location and made available for auditing of the CDWMP.

9.0 SUMMARY OF THE CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

Waste will inevitably be generated during the construction and demolition phase of the Dursey Island Cable Car and Visitor Centre. It is intended that all steel and concrete will be imported for use within the project area. At this stage it is anticipated that excavated material will be re-used on-site.

Other than spoil material from excavations, waste arisings during the construction phase will be minimised by the purchasing manager, who will time the ordering of materials so as to reduce the likelihood of over-purchase or damage during storage. Construction and demolition waste fractions will be segregated and stored on-site in designated areas or containers in the waste storage area prior to transport by licensed hauliers to facilities for segregation recycling and disposal.

A WMC will be appointed to ensure that the CDWMP is followed. Training will be given to all staff so that they are aware of the CDWMP and know their responsibilities.

Records will be kept to trace the inputs and outputs of the construction works at the site and this should allow the Employer to make informed decisions regarding waste management in the future. These records will be made available to the relevant local authorities and the EPA should it be required.

The design and implementation of the detailed CDWMP, in conjunction with the EOP for the Dursey Island Cable Car and Visitor Centre, will provide for the optimum planning/management and handling of waste generated by the project and will ensure that there will be no worse than a neutral or imperceptible impact from waste management practices during construction.

The contractor appointed to undertake the construction of the Dursey Island Cable Car and Visitor Centre will develop their own CDWMP based on their detailed plans, the requirements of this outline plan, the requirements of the EIAR, the requirements of the NIS and any commitments given as part of the project approval process and the Employer's requirements and specifications for executing the Dursey Island Cable Car and Visitor Centre project.

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APPENDIX D
Invasive Alien Species Management Plan

Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

ROD
ROUGHAN & O'DONOVAN

APPENDIX 7.1
IAS Management Plan

Statement of Purpose

The Invasive Alien Species (IAS) Management Plan outlines the management measures to be followed to manage and control the spread of identified IAS during construction and operation phase of the proposed development. The primary objectives of this Plan are to facilitate the (i) prevention of the spread of the IAS as a result of the construction and operation of the proposed development, and (ii) eradication of High Risk IAPS, where possible. Cork County Council (CCC) is the authority responsible for the implementation of this Plan.

Legislative Context

In the course of devising and implementing the most effective eradication methods, the Invasive Alien Species (IAS) Management Plan must comply with all legislation regulating the treatment and management of IAS. The relevant standards and legislation that will dictate how eradication is undertaken include:

- *European Communities (Plant Protection Products) Regulations, 2012 (SI No. 159/2012);*
- *European Communities (Sustainable Use of Pesticides) Regulations, 2012 (SI No. 155/2012);*
- *Waste Management Acts, 1996 to 2013, and related legislation;*
- *Safety, Health and Welfare at Work Act, 2005;*
- *Safety, Health and Welfare at Work (Construction) Regulations, 2013;*
- *Safety, Health and Welfare at Work (General Application) Regulations, 2007;*
- *Safety, Health and Welfare at Work (Chemical Agents) Regulations, 2001;*
- *European Communities (Birds and Natural Habitats) Regulations, 2011 to 2015; and,*
- *Wildlife Acts 1976-2012.*

To comply with Sustainable Use of Pesticides Legislation, the application of herbicide should only be undertaken by registered professional users. Only a Registered Pesticide Advisor (RPA) should approve procedures prior to Works commencing. All professional users should demonstrate proper use, ensuring only authorised products are used and all treatments are catalogued and documented pursuant to the requirement of Plant Protection Products Regulations.

In scenarios where disturbance, movement and disposal of IAS material is required, the RPA will review applications submitted to the relevant licensing authorities prior to the commencement of such disturbance, movement and disposal.

Introduction

In October 2018, Invasive Plant Solutions were appointed by Cork County Council, through Roughan & O'Donovan Consulting Engineers (ROD), to carry out an Invasive Alien Plant Species (IAPS) survey for the purposes of the Environmental Impact Assessment for the proposed Dursey Island Cable Car and Visitor Centre development. A survey was undertaken on the R572 approach road between the junction with the R572 (Bealbarnish Gap) and the site, and on the CCC lands in the vicinity of the mainland side of the site, in October 2018. EirEco Environmental Consultants were also appointed through ROD and carried out further IAPS surveys on Dursey Island in May 2019.

Site Description

The study area comprises the R572 between Castletownbere and the mainland side of the existing Dursey Island Cable Car Station on the mainland at Ballaghboy and the landing station at Ballylean East, on Dursey Island. The topography of the lands surveyed mainly comprised public lands and paths. All lands associated with the survey were sufficiently accessible to enable the undertaking of the survey.

Survey Results

A walkover survey was conducted within the study area, including a drive through inspection of the R572 approach road, as well as areas immediately beyond the defined boundaries, where these could be identified and where the areas were either easily or safely accessible from the study area. This survey confirmed the presence of five Third Schedule S.I. 477/2011 invasive alien species; Japanese knotweed (*Fallopia japonica*), Rhododendron (*Rhododendron ponticum*), Three-cornered leek (*Allium triquetrum*), Giant-rhubarb (*Gunnera tinctoria*), and Hottentot-fig (*Carpobrotus edulis*).

Japanese Knotweed

Japanese knotweed (*Fallopia japonica*) is a fast growing, perennial, herbaceous plant, with a vast underground rhizome system, originating from East Asia. It was introduced to Ireland as an ornamental plant in mid to late 1800s and is now well established in the natural/semi-natural environment. Although there are only female plants in Ireland, the species is able to successfully reproduce at a rapid rate by rhizome extension and vegetative propagation (new plants can grow from small fragments of rhizomes and stems). The species is known to colonise a wide range of habitats in Ireland, including riparian habitats, low-lying and disturbed areas, roadsides, and coastal shores and islands. The species is particularly harmful in riparian habitats, where it outcompetes native species by forming dense stands, creating shade and reducing species diversity.

In total, thirteen sites within the study area were found to contain stands of Japanese knotweed (Table 7.30).

Table 7.30 Details of identified sites with Japanese Knotweed in the Study Area

Japanese Knotweed	X Co - ordinates	Y Co-ordinates	Description
JK1	463057	543661	Mature stand (10 x 5m) growing within roadside hedgerow on eastern side of R572, extending eastwards down steep sloping ground.
JK2	463044	543566	Several related stands (15 x 3m) growing on both sides of stone walls forming northern and eastern sides of viewing point, on east side of R572. Growing from field into lay-by area, through stone walls.
JK3	461345 / 461269	541912 / 541856	Series of stands (1km in length) on north side of R572. Main easterly stand set back form roadside on fringe of woodland and extending northwards along stream. Central stand being cut as part of management of residential boundary. Westerly stand interspersed amongst native vegetation of hedgerow.
JK4	461221	541790	Single stand (8 x 2.5m) on north side of R572, at stream crossing. Growing on eastern side of stream, directly behind bridge wall. Likely to be spreading downstream and potentially present upstream.

Japanese Knotweed	X Co - ordinates	Y Co-ordinates	Description
JK5	460075 / 460011	541314 / 541269	Series of stands (stretching for 75m) on both sides of R572. Main stand on north side of road on rough ground adjacent to house entrance. Southerly stand very extensive, encroaching onto roadway and spreading south towards stream. Secondary growth within and above stone boundary wall of house. Also likely to be present in stream.
JK6	459586 / 459551	441266 / 541267	Stands (30m in length) on both sides of R572. Stand on north side of road at stream crossing and extending almost continuously northwards along stream. Southerly stand very extensive and spreading south towards related stream. Both stands encroaching onto roadway, with evidence of cutting and re-growth, particularly on south side. Full extent likely to be much greater, with further presence downstream. Significant spread risk from cutting.
JK7	452796	541814	Single strand (8 x 7m), growing within native scrub on elevated ground along southern side of R572. Northern limit of stand currently set back approx. 2m from roadside. Evidence of spread northwards towards roadway, with potential for encroachment in future growing seasons.
JK8	454471	541018	Large stands around cottage to south of road. Outside of parking bay location. Subject to treatment but still extant.
JK9	451700	541861	Extensive stand in vicinity of derelict cottage immediately west of junction.
JK10	452120	542644	Small stand alongside drain downstream of road culvert at White Strand.
JK11	452077	542054	Moderate stand around farm buildings at top of laneway (Garinish Loop Walk) leading from Garinish to R572. Subject to treatment but still extant.
JK12	451924	541841	Small amount of stems in edge of garden on north side of road.
JK13	449459	541927	Stands in garden on Dursey Island, just outside Ballynacallagh. Present both at front and rear of house. Not very well established and may be of recent origin.

Rhododendron

Rhododendron (*Rhododendron ponticum*) is a large perennial evergreen shrub, which originates from the Iberian Peninsula and Asia. It was introduced to Ireland as an ornamental plant during the 1700s due to its brightly coloured flowers. The species has become established in the natural/semi-natural environment and is invasive in the west, north-west and south-west of the country. The species is typically found in areas with acidic soil conditions; mild, moist climatic conditions; and may be present in a variety of habitats, including urban areas, agricultural land, grasslands, wastelands and roadsides. Plants outcompete native flora by forming large, dense thickets which shade a wide area underneath, preventing growth. *Rhododendron* is capable of reproducing by seeds and by vegetative means via suckering of roots and layering where its branches touch the ground.

In total, nine sites within the study area were found to contain stands of Rhododendron (Table 7.31).

Table 7.31 Details of identified sites with Japanese Knotweed

Rhododendron	X Co - ordinates	Y Co- ordinates	Description
RHO 1	466915	545345	Mature stand (5 x 8m) on northern side of R572, immediately west of Castletownbere, growing within native hedgerow by town identification sign. Some spread westwards along and behind roadside margin.
RHO 2	4669 / 465995	545345 / 544699	Series of small stands and individual plants interspersed amongst 1km of native hedgerows and grass margins, scattered mainly along northern roadside on R752, between larger, established stands of RHO 1 and RHO 3.
RHO 3	465995 / 465959	544699 / 544645	Large, linear, mature stand (70 x 2m) on northern side of R572, west of Castletownbere. Interspersed with and growing within native hedgerow and roadside margin.
RHO 4	465750 / 465704	544498 / 544492	Large, linear, mature stand (75 x 2m) on northern side of R572, interspersed with and growing within native hedgerow and roadside margin. On roadside, rock outcrops, and in woodland on southern side of roadway.
RHO 5	465504 / 465456	544489 / 544456	Long, linear, mature stand (50 x 2m) on northern side of R572, interspersed with and growing within native hedgerow and roadside margin.
RHO 6	465206 / 464694	544374 / 544480	Series of stands and individual plants interspersed amongst 1km of native hedgerows and grass margin, scattered along northern side of R572. Also a significant presence to south of road, spreading across open ground.
RHO 7	464109	544294	Single mature stand (3m in diameter) on northern side of R572, immediately east of driveway entrance to cottage.
RHO 8	453442	544048	Single mature stand (8 x 6m) on north-eastern side of R572, growing amongst native upland scrub on fringe of nearby woodland. Located approx. 4m in from roadside. Evidence of new plants spreading southwards.
RHO 9	461261	541846	Single mature stand (9 x 2m) on northern side of R572, immediately west of driveway entrance to a bungalow.

Three-cornered Leek

Three-cornered leek (*Allium triquetrum*) is a spring-flowering, bulbous, perennial herb originating from the west and central Mediterranean. It is a garden plant and often found in long grasses, and in the natural environment can be found along roadsides, hedgerows and disturbed ground. The species is capable of reproducing by both seed, and via its long-lived bulbs.

In total, two sites within the study area have been found to contain Three-cornered leek (Table 7.32).

Table 7.32 Details of identified sites with Three-cornered leek

Three-cornered leek	X Co - ordinates	Y Co-ordinates	Description
TCL 1	451924	541841	Reasonably abundant within garden.
TCL 2	448999	541065	Stems recently dumped on grass verge on opposite side of road

Giant-rhubarb

Giant-rhubarb (*Gunnera tinctoria*) is a large, perennial plant originating from Argentina and Chile. It was introduced to Ireland in the 1800s as an ornamental plant due to its exotic features. However, this species is now very prominent along the west coast of Ireland. It proliferates in constantly moist environments, often occupying grassland areas, waterways, coastal cliffs, heaths and bogs. It outcompetes native flora by forming large, dense stands which shade a wide area underneath, preventing growth Giant-rhubarb can spread by both sexual and asexual reproductive methods, and can also regenerate from root fragments, leaf cuttings and rhizomes.

In total, two sites within the study area have been found to contain Giant-rhubarb (Table 7.33).

Table 7.33 Details of identified sites with Giant-rhubarb

Giant - rhubarb	X Co - ordinates	Y Co-ordinates	Description
GR 1	453141	541445	Single young plant on southern roadside within passing bay site.
GR 2	451300	541798	Small number of young plants along northern side of road in footprint of passing bay. Larger stand to south of road adjacent to boundary wall of Coast Guard houses.

Hottentot-fig

Hottentot-fig (*Carpobrotus edulis*) is a ground-creeping plant originating from South Africa. It was introduced to Ireland as an ornamental plant and as a dune stabiliser and is often found in coastal habitats. It outcompetes native species due to its aggressive growth and ability to propagate both vegetatively from fragments and via seed production. One site within the study area was found to contain Hottentot-fig. The occurrence is in a private garden on Dursey Island (coordinates: 448999; 541065), where the plant may be seen growing on a roadside stone wall and spilling out onto the road.

Distribution of the species in Ireland is quite limited and it was believed that the species had been eradicated in Ireland following a concerted eradication effort (W. Earle, pers. comm., 2019); however, this record on Dursey Island reveals that, regrettably, this is not the case. It is not known whether the IAPS occurs elsewhere in Ireland at present, but every effort should be made by CCC and the landowner in question to eradicate this occurrence. The localised occurrence of the species on Dursey Island should facilitate complete and successful eradication.

Brief Description of Invasive Alien Species (IAS) Management Plan

The measures to be implemented in the management plan are based on '*The Knotweed Code of Practice: Managing Japanese knotweed on development sites'* (EA, 2013), '*Best Practice Management Guidelines for Japanese Knotweed'* (Kelly *et al*., 2008) and '*Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads'*

(TII, 2010b). These documents provide very detailed information on the control of Japanese knotweed and Rhododendron, and Giant–rhubarb, including instructions for chemical treatment and non-chemical control. They have been developed by experts in the control of IAPS and informed by the successes and failures of hundreds of IAS management plans, and are widely accepted to represent the current best practice in the management of such species.

The Knotweed Code of Practice provides some general guidance on the preferred treatment options that should be used:

> "*Unless an area of Japanese Knotweed is likely to have a direct impact on the development, you should control it in its original location with herbicide over a suitable period of time, usually two - five years.*
>
> *You should only consider excavating Japanese Knotweed as a last resort, and if so you should keep the amount of knotweed excavated to a minimum.*
>
> *Soil containing Japanese Knotweed material may be buried on the site where it is produced to ensure that you completely kill it. In this case, you must bury material at least 5m deep, or at 2m if enclosed in a root barrier membrane*
>
> *Where local conditions mean you cannot use burial as an option, it may be possible to create a Japanese Knotweed bund. The purpose of the bund is to move the Japanese Knotweed to an area of the site that is not used. This 'buys time' for treatment that would not be possible where the Japanese Knotweed was originally located.*
>
> *Sometimes, due to shortage of time and location, landfill is the only reliable option, but it should be treated as a last resort. Landfill is very expensive for the development industry, and needs haulage, which increases the risk of Japanese Knotweed spreading.*
>
> *When you transport soil infested with Japanese Knotweed to landfill, it is essential to carry out strict hygiene measures. If you do not follow these standards, this may lead to Japanese Knotweed spreading. Japanese Knotweed is a particular problem along transport corridors, where it interferes with the line of vision and can cause accidents*."

The following sections contain descriptions of the most suitable control measures for the IAPS identified in the Study Area.

Japanese Knotweed

Construction Phase Management Measures

Management measures that should be implemented for Japanese Knotweed for the construction phase of the proposed development are as follows:

- The location of the stands should be circulated to all construction workers and involved parties, with their positions incorporated into relevant drawings and specifications, to ensure that the risk of disturbance as a result of project enabling works and design development is mitigated.
- With the nature of the locations, the absence of existing mitigation measures, and current encroachment onto the public road, the stands should be fenced off, incorporating recommended safe buffer zones, and with advisory / warning signage put in position.
- Discussions should be held with affected land and property owners, to ensure that any future actions on their part do not contribute to the further spread of viable plant material along the route.
- Where the Japanese Knotweed sites extend into the broader environment, further survey work should be carried out to establish the full extent of the Japanese Knotweed infestations.

- At these sites, ecological assessment and screening of the wider environment should be carried out, to identify the ecological sensitivities present, and to assess them in the context of any proposed Japanese Knotweed management programme.
- All land-based construction works shall be executed in accordance with the TII guidelines, '*Guidelines on the Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads*' (2010). The Contractor shall ensure that the construction machinery during proposed works is not fouled with any IAS prior to its arrival at the site. Efforts shall also be made to ensure that any plant/equipment (including PPE equipment) is not carrying seeds or plant materials from IAS. The Contractor shall refer to the Invasive Species Ireland '*Marina Operators Code of Conduct*'
- the Contractor shall prepare a Biosecurity Method Statement and Invasive Species Management Plan detailing his/her proposed approach to ensuring that invasive species are not imported or spread during construction. These documents will be approved by the Project Ecologist prior to their acceptance and implementation.
- A construction stage inspection / monitoring programme should be put in place, to assess the identified locations for potential disturbance, and to inspect the works route for new infestations

Operational Phase Management Measures

Management measures that should be implemented for Japanese Knotweed for the operation of the proposed development are as follows:

- The relevant authorities and their contractors should be formally notified, to ensure that routine operations and maintenance at the locations do not contribute to the further spread of Japanese Knotweed.
- A multi-phase Japanese knotweed Management Plan should be developed and implemented by CCC prior to the operation of the proposed development. This Plan should consider:
    - The immediate management measures required to mitigate particular risks associated with the proposed development works at the site; and
    - Longer term management proposals, which would include broader habitat and catchment management measures, to ensure the effective control of the full extent of Japanese Knotweed present in the environment

Long-term Management Programme Options

Options for long-term management of Japanese knotweed are as follows:

- Chemical Control
- Excavation and burying;
- Excavation and disposal to licensed landfill/incinerator; and,
- Bunding and treatment.

The appropriate management strategy will be determined by site conditions and in consultation with NPWS in terms of the most suitable management strategy from a programme and cost perspective. There are a number of issues that will affect the management strategy on the site, including the following:

- Accessibility and space available;
- Proximity to open water;
- Land ownership and cooperation of private landowners;

- Proximity to designated sites and environmentally sensitive areas; and,
- Proximity to areas used by the general public and/or defined vulnerable groups.

Chemical Control Option

This option involves application of herbicides *in situ* until there is no re-growth of plant material. This may take c. 3-5 years and would require repeated survey and re-treatment each year until the occurrence has been eradicated from the location. If highly persistent herbicides are used, it may be possible to eradicate the plant within one or two years. However, since this will not be appropriate given the ecological significance of the wider area, the use of less-persistent herbicides, e.g. glyphosate, will be necessary to re-treat regularly in years two and three, and then to conduct annual spot-checks in May/June of subsequent years to identify and retreat any re-growth.

The current most widely recommended chemical for Japanese Knotweed control is glyphosate, which breaks down in the soil relatively quickly. Glyphosate is potentially damaging to non-target plants. Great care is therefore necessary during application of this herbicide and should be used in compliance with the product label in accordance with *Good Plant Protection Practice* as prescribed in the *European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (SI No. 83/2003).*

As the majority of herbicides rely on the presence of living foliage for them to be effective, it is important to consider whether the Japanese Knotweed is in leaf or is dormant when choosing a suitable herbicide. As the majority of herbicides are not effective during the winter dormant stage, the most effective time to apply a non-persistent herbicide is between May and September, when the plant is in leaf. This will stunt the growth of the plant, consequently reducing the amount of viable above ground material and the height of the stand.

For infestations, products containing 2,4-D amine can be used. 2,4-D amine has the advantage of being selective and specific to broad-leaved plants. However, in general, it has a greater persistency when compared to glyphosate. Products containing 2,4-D amine should be applied in May, with a follow up treatment in late September or early October. Care is required in the selection of the appropriate product and method of application.

In making the selection of which herbicide to use, regard should be given to, *inter alia*, the abundance of the plants, the location of the stand, the proximity and nature of sensitive receptors, and the season. When using herbicide treatment, plant and protection products and sustainable use of pesticides regulations as well as health and safety measures outlined in this Plan (below) must be followed at all times.

Non-Chemical Control

These options are applied in situations where eradication is required within a short space of time. Non-chemical methods typically involve excavation and disposal of infested topsoils and/or plant material.

Excavation & Burying at Depth

The Japanese Knotweed rhizome rarely penetrates deeper than 3m and in certain cases excavation is the best method for isolation and removal of the infestation. During this method it is advisable to apply a non-persistent herbicide at least once to reduce the growth of infestation. Avoiding excess spoil, and ensuring excavated material does not contaminate surplus soil that is free from infestation, is critical.

Disposal and treatment on site can be done through burying material at least 5m deep and covering it with a root barrier membrane layer to prevent any regeneration. This can involve large scale engineering operations and large holes within the site. Various root barrier membranes are available which can prevent plants penetrating. These membranes need to be specially laid under expert supervision in order to be effective, protecting the surrounding soil. Any burial must be accurately mapped and recorded to prevent potential disturbance through any future development. To be effective, the root barriers used need to be: undamaged; of a large size to minimise the need for seals; where necessary sealed securely; of material that remains fit for purpose (intact) for at least 50 years; and resistant to damage on exposure to ultra violet/sunlight. A vertical root barrier membrane can be been used to prevent the horizontal growth of Japanese knotweed.

Excavation and Burying at Shallow Depth

Where it is not possible to bury 5m deep, it may be possible to bury 2m deep if the contaminated soil is completely sealed in a proprietary root barrier membrane in an area that can be guaranteed will not be disturbed by building work or excavation for services, etc. The excavation and shallow burial option involves a series of 8 stages:

Stage 1: Calculate volume required and excavate site, allowing for 2m depth of burial.

Stage 2: Protect the integrity of the root barrier membrane with a layer of sand and provide shutter ply supports for the edge of the cell.

Stage 3: Put root barrier membrane in place, allowing enough material along the edges to eventually provide a seal.

Stage 4: Protect the root barrier membrane from tyre damage with a layer of sand.

Stage 5: Fill the cell with the knotweed infested soil. No other material, contaminants, or wastes should be included.

Stage 6: Make sure that dedicated vehicles are used and cleaned properly after they have been used. Haulage routes must be protected.

Stage 7: Put the surface of the root barrier membrane in place and make sure the cell is adequately sealed.

Stage 8: Protect the surface of the cell with sand and bury deep enough to prevent disruption in the future.

Excavation and Disposal Off-Site

In scenarios where there are constraints on available space and/or the programme of site works and no other alternatives exist, then excavation and disposal of contaminated soil at a licensed landfill facility is an effective but expensive option.

Bunding

Bunding is a method designed to concentrate the rhizome into the upper surface of a raised or excavated shallow area of contaminated soil typically 0.5m deep where Japanese Knotweed will grow and be controlled by herbicide. This method is used where conditions do not allow for burial and is usually only suitable for large sites as even small infestations, with limited above ground growth, can be very large. The bund method is used when it is not possible to treat Japanese knotweed in the area where it was originally located by moving it to an area that is not used. Bunds should be located at least 10m away from site boundaries to prevent spread. The bund can be raised, on top of the ground or placed within an excavation. The material within the bund is treated as often as is necessary to prevent growth and spread. Bunds should use a root barrier membrane if being constructed in an area free of Japanese Knotweed.

Rhododendron

Construction Phase Management Measures

Management measures that should be implemented for Rhododendron for the construction phase of the proposed development are as follows:

- The location of the stands should be circulated to all construction workers and involved parties, with their positions incorporated into relevant drawings and specifications, to ensure that the risk of disturbance as a result of project enabling works and design development is mitigated
- The stands should be fenced off, with advisory/ warning signage put in position, to protect the stands from the risk of third party disturbance
- All land-based construction works shall be executed in accordance with the TII guidelines, '*Guidelines on the Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads*' (2010). The Contractor shall ensure that the construction machinery used during proposed works is not fouled with any IAS prior to its arrival at the site. Efforts shall also be made to ensure that any plant/equipment (including PPE equipment) is not carrying seeds or plant materials from IAS. The Contractor shall refer to the Invasive Species Ireland '*Marina Operators Code of Conduct*'
- the Contractor shall prepare a Biosecurity Method Statement and an Invasive Species Management Plan detailing his/her proposed approach to ensuring that invasive species are not imported or spread during construction. These documents will be approved by the Project Ecologist prior to their acceptance and implementation.
- A construction stage inspection / monitoring programme should be put in place, to assess the identified locations for potential re-growth, and to inspect the works route for new infestations

Operational Phase Management Measures

Management measures that should be implemented for Rhododendron for the operation of the proposed development are as follows:

- The relevant authorities and their contractors should be formally notified, to ensure that routine operations and maintenance at the locations do not contribute to the further spread of the plants
- A management plan should be developed and implemented, to seek to have the sites physically remediated by the controlled removal of plants, in conjunction with stump treatment and multi-annual follow up inspections

Long-term Management Programme Options

The physical removal of above-ground Rhododendron can be achieved by cutting and removing the stems by hand or chainsaw as close to the ground as possible. The cut material will need to be removed from the site for effective follow-up work. Flailing is another successful method of clearing Rhododendron and involves flailing the thickets down to ground level, using mechanical flail head mounted on a tracked machine. However, this method is not suitable for use in sloping or wet areas.

The removal of above-ground biomass of Rhododendron will not prevent re-growth as the species is able to proliferate from cut stems and stumps. There are four management options that can be applied to prevent re-growth:

1. Digging the stumps out;
2. Direct stump treatment;
3. Spraying of re-growth and large seedlings; and,

4. Stem injection.

Each of these options is discussed in turn below[4].

Digging the stumps out

The digging out of stumps is an effective method of eradicating Rhododendron from the area as it maximises the removal of all viable roots. The digging out can be carried out manually or assisted by machinery if the terrain allows it. To prevent re-growth, as much soil as possible must be removed from the dug-out root system, while the stumps should be turned upside down to expose roots to the air, as well as removing as much soil as possible. The removed roots and stumps should be burned at a licensed facility to prevent re-growth. Although effective, this method results in high degree of soil disturbance, and may not be suitable in sensitive areas.

Direct stump treatment

Direct stump treatment involves the application of herbicide solution or spot spraying of freshly cut stumps (i.e. within minutes of it being cut). When using herbicide treatment, health and safety measures outlined in this Plan (below) must be followed at all times. This method should be implemented in dry conditions so as to prevent wash-off of applied solution. The direct stump treatment has been observed to be most effective outside the spring sap flow timeframe. It is recommended to use vegetable dye to mark treated stumps, as all stumps should be targeted to maximise eradication of Rhododendron. The following herbicides can be applied to treat the stump:

- Glyphosate (20% solution): can be applied to all freshly cut stump surfaces using a knapsack sprayer at low pressure, a forestry spot gun fitted with a solid stream nozzle, a cleaning saw fitted with a suitable spray attachment, or a paint brush. For best results, the application should occur between October and February.
- Triclopyr 'Garlon 4' (8% solution): can be applied to all freshly cut stump surfaces using a knapsack sprayer at low pressure, a forestry spot gun fitted with a solid stream nozzle, a cleaning saw fitted with a suitable spray attachment, or a paint brush. The herbicide can be applied any time between cutting and appearance of new growth.
- Ammonium sulphamate (40% solution): when applied, this herbicide has the best results between June and September.

Although this method often results in complete lysis of the stumps, re-growth has been observed at times, which is usually slow and stunted. To achieve complete kill, carefully timed foliar application of herbicides to the re-growth must occur. When using herbicide treatment, plant and protection products and sustainable use of pesticides regulations as well as health and safety measures outlined in Plan (below) must be followed.

Spraying of re-growth and large seedlings

Spraying of herbicide, typically glyphosate on re-growth (stumps and seedlings of less than 1.5m in height) can be achieved once the re-growth is allowed to proliferate for 1-3 seasons before spraying. Spraying should not be delayed for more than three years after initial cutting, as this can often result in a more severe infestation.

To efficiently spray the re-growth to achieve complete kill, several factors need to be taken into consideration:

[4] Maguire, C.M., Kelly, J. and Cosgrove, P.J. (2008). Best Practice Management Guidelines Rhododendron *Rhododendron ponticum* and Cherry Laurel *Prunus laurocerasus*. Prepared for NIEA and NPWS as part of Invasive Species Ireland.

- Glyphosate must be sprayed in dry weather. Additionally, the plant must be dry at the time of herbicide application and remain dry for at least 6 hours to allow for complete absorption of solution by the plant.
- The addition of a surfactant can reduce the amount of dry time required by increasing the absorption of solution into the plant. However, surfactants are often more environmentally damaging than herbicides, and must be handled with care, especially in proximity to aquatic habitats.
- Spraying of herbicide must occur in near windless conditions to maximise contact with the plant, and its absorption. Spraying in windy conditions should not be practiced as this is likely to result in damage to nearby native flora.
- At all times, measures should be in place to prevent the chemical solutions from entering aquatic habitats.

Spraying is often not fully effective, and will require two or more applications, before the plant is killed completely. Other common herbicides used for spraying are ammonium sulphamate, Imazapyr and Triclopyr. When using herbicide treatment, plant and protection products and sustainable use of pesticides regulations as well as health and safety measures outlined in Plan (below) must be followed.

Stem injection

Stem injection is a method often used to manage Rhododendron where terrain is sloping, and where other methods are impractical. This method uses the 'drill and drop' methodology[5] to control the growth of established Rhododendron bushes with access to the main stem which is large enough for drilling a hole. The equipment to be used comprises a handheld cordless drill and a spot gun. It is recommended that a glyphosate (25% solution) is to be applied. The methodology used for stem injection treatment is as follows:

- Inspect the size of the Rhododendron stems, to ensure that they are more than 3cm in diameter.
- Position the drill as close to the main root system as possible.
- To effectively hold and insert the herbicide solution, drill as vertically as possible with a drill bit of 11 -16mm in diameter.
- The herbicide solution must be inserted into the hole immediately after drilling. The recommended amount of herbicide to be inserted into each stem is 2ml
- To prevent the overflow of herbicide, a spot gun with a calibrated 10ml chamber should be used as it permits accurate application of herbicide solution.
- Each treated plant should be marked immediately with either coloured paint or by attaching a biodegradable tape.
- Stem injection can be carried out in dry weather or light rain conditions.

This method has been observed to be the most effective during the months of March, April and May. Although the treated Rhododendron bushes can be left on site to decay, they may persist for approximately 10 – 15 years. Alternatively, the recommended option is to cut and remove the treated Rhododendron off site and assess the effectiveness of the treatment every 12 months. When using herbicide treatment, plant and protection products and sustainable use of pesticides regulations as well as health and safety measures outlined in Plan (below) must be followed.

[5] Edwards, C. (2006). Managing and Controlling Invasive Rhododendron. Forestry Commission Practice Guide, Forestry Commission, Edinburgh.

Three-cornered Leek

Three-cornered leak can be managed via an herbicide treatment or mechanical control.

Mechanical control

The species can be removed from site mechanically by digging, which is recommended to be carried out in spring when surface vegetation is present. Removal by excavation should ensure that all plant material and bulbs are to be removed from site. It is likely that follow up mechanical cutting will be required to ensure reduction of the seed bank.

Herbicide Treatment

A solution of Glyphosate should be sprayed in April before flowering. To maximise absorption of the herbicide by the plant, the leaves should be slightly bruised before treatment. The application of herbicide treatment should be repeated every 2-3 months to prevent re-growth and bulb bank left by this species. When using herbicide treatment, plant and protection products and sustainable use of pesticides regulations as well as health and safety measures outlined in Plan (below) must be followed.

Giant- rhubarb

Giant-rhubarb can be permanently removed from the Study Area through application of several commonly used methods: mechanical control, chemical or biological control, or a combination of these[6].

Mechanical Control

Physical removal of smaller plants can be achieved using spades by cutting the above-ground biomass at an angle as close to the root as possible. The area must be monitored as plant material can be missed during the first removal, which will subsequently need to be removed. If a large area of land is to be cleared from Giant-rhubarb, it is recommended that a restoration protocols to be implemented to prevent reinvasion of Giant-rhubarb or of any other unwanted flora on the bare area.

Chemical Control

Chemical control experiments have been carried out on Achill Island[7], to identify the effectiveness of herbicide treatments on controlling Giant-rhubarb infestation. Glyphosate-based herbicides have been shown to be effective in treating this species. The end of growing period between August to September has been shown to be an optimum timeframe to apply the treatments, with re-growth observed after two years. The re-growth is attributed to the presence of viable rhizomes in the ground, as well as subsequent seedling germination, prompting further application of herbicide to stunt the growth. There are three methods that can be used to apply chemical control for Giant-rhubarb:

1. Spraying;
2. Cut-and-paint method; and,
3. Rhizome injection.

Each of these options of discussed in turn below:

[6], Armstrong, C., Osborne, B., Kelly, J. and Maguire, C.M. (2009). Giant Ruhbarb (*Gunnera tinctoria*) Invasive Species Action Plan. Prepared for NIEA and NPWS as part of Invasive Species Ireland.

[7] Armstrong, C., Osborne, B., Kelly, J. and Maguire, C.M. (2009). Giant Ruhbarb (*Gunnera tinctoria*) Invasive Species Action Plan. Prepared for NIEA and NPWS as part of Invasive Species Ireland.

Spraying

Spraying of herbicide-based solution (see manufacturers recommended dosage) is often carried out using a backpack sprayer, which is applied on all leaves. Spraying of this species must occur in dry, and windless weather conditions to prevent run-off of herbicide solution and to avoid damage to nearby native flora.

Cut-and-paint method

This method involves the cutting of the leaf stalk at the base and immediately applying the herbicide on the remaining surface using either a brush or a sponge. This method can be useful when the large size of the plant makes it too difficult and/or too dangerous for spraying. Additionally, this method proves to be cost-effective due to the small quantities of herbicide used.

Rhizome injection

Using a hand-held drill, small holes are drilled into the rhizome of the Giant-rhubarb plant. The herbicide is immediately injected into the wells. Refer to the section on Rhododendron control, where a similar method is applied for the treatment of rhizomes.

When using herbicide treatment, plant and protection products and sustainable use of pesticides regulations as well as health and safety measures outlined in Plan (below) must be followed.

Hottentot-fig

Hottentot-fig has a very limited distribution in Ireland and it was thought the IAPS had been eradicated from the country (W. Earle, pers. comm., 2019). This confirmed record on Dursey Island reveals that, unfortunately, this is not the case. However, it is possible that this occurrence is the only occurrence or one of a few occurrences in Ireland. Additionally, it is the first record of the species on the west coast of Ireland. As such, it is imperative that every effort is made to eradicate this localised occurrence, in agreement with the private landowner in question. Hottentot-fig can be effectively removed off site via physical removal, and chemical means can be employed for control in cases in which physical removal is not practical (e.g. on inaccessible sea cliffs)[8]. In this case, since the occurrence in question is quite localised and is situated in a fully accessible location, it is considered that physical removal would be practical and effective and should be undertaken in agreement with the landowner in question. The situation of the occurrence on a public roadside creates the risk of dispersal by tourists who may pick the attractive flowers or foliage or inadvertently transport plant fragments or seeds on boots/clothing. Therefore, every effort should be made to treat the occurrence at the earliest possible convenience. Early, appropriate treatment of this species will avoid medium to long-term ecological impacts and financial costs.

Physical Removal

The most effective and typical means of eradication of Hottentot-fig from an area is through removal by hand. It is important to ensure that no fragments of this species are left behind during removal, and no plant fragments are transported to a different site. Matting can be placed to ensure no plant fragments remain at the site. Absolutely all plant material should be removed in sealed bags and disposed of appropriately. It is vital that the biosecurity measures outlined in this Plan (see '*Biosecurity Protocols for Invasive Alien Species'* below) are followed.

[8] Kelly, J. and Maguire, C.M. (2009). Hottentot Fig (Carpobrotus edulis) Invasive Species Action Plan. Prepared for NIEA and NPWS as part of Invasive Species Ireland.

Limitations and Threats to Control Measures

The primary risk is during the site preparation and construction phases when the excavation of materials and movement of vehicles potentially transporting contaminated material can facilitate the spread of IAS. The presence of Japanese Knotweed and Rhododendron, in particular, may result in limitations to overall site management objectives during the construction process, in particular, through the following:

- Delays in scheduling of works, due to treatment of identified locations;
- Structural damage or future potential damage caused by IAPS (particularly Japanese Knotweed); and,
- Potential for spread of IAPS from within and outside the site boundary, e.g. within the site or from adjacent land.

The type of herbicide applied, and the timing of treatment should be cognisant of the receiving environment. The Japanese Knotweed and Rhododendron should be treated with a non-persistent herbicide (certain plant protection products containing glyphosate are non-persistent). It is important to note that certain plant protection products have a specified period of activity, which will be described on the product label and which will dictate when the product can be applied.

Biosecurity Protocols for Invasive Alien Species

Personnel entering an area infested within IAS must take precautionary measures to avoid their spread to wider areas. An exclusion zone or a buffer zone must be set up around the IAS. For instance, in the case of Japanese Knotweed, a 7m buffer zone must be in place. Exclusion zones should be clearly marked and fenced off in order to prevent accidental incursion. Routes within the exclusion zone should be overlaid with a geotextile that has a layer of sand on-top to protect it from being damaged by heavy machinery. The geotextile will prevent potentially contaminated soil/spoil from being transferred onto tracks, tyres or boots.

The following measures are to be followed by all persons entering any infested zones:

- The traffic volume in and out of the zones should be kept to a minimum all times and should remain outside the zone where possible.
- All PPE, other equipment and machinery that enter an infested zone must be cleaned before entering;
- *Inspect, Remove Dispose, Report*: Before leaving an infested area, individuals must thoroughly inspect their clothing, PPE, any equipment and their footwear for rhizomes, or other plant fragments that may be stuck on;
- All personnel should carry a hoofpick or similar implement to thoroughly clean the treads of their footwear with. All footwear must be thoroughly cleaned before leaving an infested zone.
- All PPE, other equipment and machinery, clothing and footwear must be thoroughly cleaned with soapy water and a stiff bristled brush at designated wash-down area(s) before leaving an infested zone.
- As good practice, all staff should follow Inland Fisheries Ireland Biosecurity Protocols when they have entered water or a riparian zone;
- If machinery/plant has entered or worked in an infested zone, it must be thoroughly washed down before leaving the area or working in an infested location; and
- A power washer must be provided for effective cleaning of machinery, along with stiff bristled brushes.

Key Legislation Related to the Use of Pesticides and Plant Protection Products:

Legislation regulating the use of herbicides (or 'plant protection products') have implications for the management of IAPS. As stated in the Preamble to the *Plant Protection Products Regulations*, the use of plant protection products (such as herbicides) *"may involve risks and hazards for humans, animals and the environment, especially if used incorrectly"*. As such, it is important that proper protocols and procedures are adhered to when undertaking chemical treatment of IAPS. Those involved in the management of IAPS will need to be aware of, and comply with (at a minimum), the following laws and policies:

- *Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC (hereinafter referred to as the 'Plant Protection Products Regulation')*; and,
- *European Communities (Plant Protection Products) Regulations, 2012 (S.I. No. 159 of 2012)*.
- *Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides ('Sustainable Use of Pesticides Directive')*; and,
- *European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012)*.

This section outlines key stipulations of these regulations/policies related to the use of chemical control measures for the management of IAPS. However, it should be noted that this text serves as an overview only, and the respective policies should be consulted in their entirety prior to the planning or commencement of any chemical IAPS treatment measures.

According to the *Plant Protection Products Regulations*, plant protection products should be used:

1. In accordance with their authorisation;
2. Having regard to the principles of integrated pest management (IPM); and
3. Giving priority to non-chemical and natural alternatives wherever possible.

The Preamble to the Regulations also states that the user should follow instructions provided on the product label of plant protection products.

Those proposing to use plant protection products to manage IAPS should be well informed of the stipulations of the authorisation in question, should identify what plants and plant products are proposed to be used, and the land use type(s) in the area where the treatment is proposed to be applied.

When choosing the plant protection products, only those entered on a register of authorised and permitted plant protection products can be used, or those which have been granted a trial permit. Consequently, it is important to check that the proposed product is entered on the register[9], or has been granted a trial permit before application.

Article 31 (2) of *Plant Protection Product Regulations* states that the authorisation shall set out the requirements relating to the use of the plant protection product.[10] Furthermore, Article 31 (3) provides that the authorisation must also include, where applicable:

[9] Register of plant protection products: http://www.pcs.agriculture.gov.ie/products/

[10] Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC Article 31(2).

- The maximum dose per hectare in each application;
- The period between the last application and harvest; and,
- The maximum number of applications per year.[11]

Article 31 (4) provides further that the requirements relating to the use of the plant protection products may include, *inter alia*:

- a restriction with respect to the use of the plant protection products in order to protect the health of the users, bystanders, residents or the environment (such restrictions shall be included on the label);
- the obligation to provide prior notice to any neighbours who could be exposed to the spray drift and those who have requested to be informed;
- indications for proper use according to the principles of IPM;
- designation of categories of users, such as professional and non-professional; and,
- the approved label.[12]

According to Article 67 (1) of the *Plant Protection Product Regulations*, professional users need to practice record keeping of the plant protection products used for at least 3 years. Records should contain "*the name of the plant protection product, the time and the dose of application [and] the area and the crop where the plant protection product was used*".[13]

The *Sustainable Use of Pesticides Regulations* state that those persons seeking to manage IAPS using pesticides must ensure that they procure the services of registered and appropriately trained advisors and professional users. The professional user must be aware of the contents of any relevant Invasive Species Action Plan prior to commencing work. Additionally, the professional user must have pesticide application equipment[14] inspected and certified for compliance with the relevant standard by a registered inspector at least every five years up to the 1st of January 2020, and at least once in every three years following that date.[15]

Regulation 9 (2) provides further that "[a] *professional user shall only apply pesticides with equipment that is correctly calibrated and is appropriate for the use intended*."[16] Regulation 9 (3) provides that "[a] *professional user shall only apply pesticides with* [the equipment specified], *if it has been inspected and certified as satisfying the appropriate standard* [...]."[17]

[11] Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC Article 31(3).

[12] Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC Article 31(4).

[13] Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC Article 67(1).

[14] Schedule 1 to the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012).

[15] European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012) Regulation 9(1).

[16] European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012) Regulation 9(2).

[17] European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012) Regulation 9(3).

Furthermore, it is very important to note that the *Sustainable Use of Pesticides Directive*[18] and related Irish transposing Regulations[19] place additional restrictions and, in some cases, prohibitions, on the use of pesticides in certain specified areas. Such areas include:

- Areas in or near the aquatic environment
- Areas for the abstraction of drinking water;
- Transport routes (such as railway lines);
- Areas with sealed or very permeable surfaces;
- Groundwater vulnerable areas;
- Areas used by the general public or defined vulnerable groups; and,
- European (i.e. Natura 2000) sites.

In this case, restrictions related to European sites (i.e. Natura 2000 sites) are especially relevant, due to the presence of a number of such sites within and immediately adjacent to the site of the proposed development. The following sections outline restrictions related to certain specified areas:

In or Near Aquatic Environment

The *Sustainable Use of Pesticides Directive* highlights that the aquatic environment is especially sensitive to pesticides, which means that particular attention is required to avoid polluting surface water and groundwater when using pesticides.[20] Measures to avoid such pollution may include, for example, the establishment of buffer zones and, the planting of hedges to reduce exposure of water bodies to spray drift, drain flow and run-off.[21] The Directive indicates that the dimensions of buffer zones will depend on the circumstances of each case.[22] It also indicates that the use of pesticides in areas for the abstraction of drinking water, on or along transport routes (such as railway lines); and on sealed or very permeable surface can lead to higher risks of pollution of the aquatic environment.[23] The Directive also states that, in such areas, pesticide use should be minimised, or eliminated, if appropriate.[24]

Near Wells, Boreholes, Abstraction Points, and Groundwater Vulnerable Areas

The *Sustainable Use of Pesticides Regulations* details "*Prohibitions on pesticides near aquatic environment and drinking water*".[25] The Regulations provide that a person shall not use a pesticide within specified distances of certain water sources.[26] The specified water sources and distances are listed in Schedule 2 to the Regulations:

[18] Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides.

[19] European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012).

[20] Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides Recital 15 of the Preamble.

[21] Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides Recital 15 of the Preamble.

[22] Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides Recital 15 of the Preamble.

[23] Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides Recital 15 of the Preamble.

[24] Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides Recital 15 of the Preamble.

[25] European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012) Regulation 11.

[26] European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012) Regulation 11(1).

Water Source	Distance
Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 100m^3 or more of water per day or serving 500 or more persons,	200m
Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 10m^3 or more of water per day or serving 50 —500 persons,	100m
Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 1-10m^3 of water per day or serving 10-50 persons,	25m
Abstraction point of any surface waters, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying 1m^3 or less of water per day or serving 10 or less persons,	5m[27]

Regulation 11 (2) states further that "*A person shall not use a pesticide within 15 metres of a landscape feature that is known to be a ground water vulnerable area including karst areas, sinkholes and collapse features*"[28] Regulation 11 (3) provides that "*Subject to paragraphs (1) and (2), a person shall not use a pesticide close to water other than in accordance with the conditions set out in the approved label for that pesticide*."[29]

'Specific Areas'

In relation to '*Specific Areas*', Regulation 12 (1) of the *Sustainable Use of Pesticides Regulations* provides that, subject to paragraph (2), a person shall not apply a pesticide in:

a) areas used by the general public or by defined vulnerable groups;[30] and,

b) a European (i.e. Natura 2000) site.[31]

Health and Safety

An appropriate risk assessment, which includes Health & Safety considerations, should be carried out before any control or survey work is undertaken. Protective clothing must be worn when attempting control. All works to be compliant with the *Safety, Health and Welfare at Work Act, 2005* as well as the *Safety, Health and Welfare at Work (General Application) Regulations, 2007.*

Chainsaws should only be used by competent persons. The use of chainsaws should adhere to the *Guide to Safe Working with Timber and Chainsaws* (HSA, 2010). Chainsaws and equipment should be maintained and correct protective equipment should be used at all times.

Health and Safety during Chemical Control

While using herbicide, it is paramount that clearly visible signs stating the use of herbicide and its risk to children and animals are in place until treated plants are dry. Symptoms of ingestion by human and animals consist of burns to the mouth and throat, salivating, nausea, vomiting

[27] Schedule 2 to the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012).

[28] Regulation 11(2) of the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012).

[29] Regulation 11(3) of the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012).

[30] Regulation 12(1)(a) of the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012).

[31] Regulation 12(1)(b) of the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. No. 155 of 2012).

and diarrhoea. If herbicide ingestion is suspected, medical treatment should be sought immediately.

Glyphosate has a low known toxic effect on aquatic life. However, water for mixing of a 10% solution should be sourced from a private source (pre-collected and stored).

It is very important that the *Safety, Health and Welfare at Work (Chemical Agents) Regulations, 2001* as well as the *European Communities (Authorisation, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003* are consulted.

The success of the management plan for chemically treated stands will be based on the initial reduction in area IAS ascertained from annual pre-treatment monitoring followed by the complete eradication from the site within 5 years.

To comply with the Quality Control procedures for *Sustainable Use of Pesticides Legislation*, the application of herbicide can only ever be undertaken by registered professional users. Registered Pesticide Advisors (RPA) can provide Quality Control by approving procedures prior to works. Professional users will also demonstrate proper use, ensuring only authorised products are used and all Works are catalogued and documented pursuant to the requirement of *Plant Protection Products Regulations*.

These documents include measures to aid the identification of relevant species, with details for the timing, chemicals and methodology for chemical control and for measures to avoid environmental damage during the use of herbicides. It is recommended that the Contractor should prepare a specific plan in accordance with the relevant guidelines.

APPENDIX E
Bird Survey Methodology

Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

ROD
ROUGHAN & O'DONOVAN

APPENDIX E
Bird Survey Methodology

1.1 Overview

Bird surveys were undertaken on behalf of CCC for the purposes of this EIAR and for the Appropriate Assessment for the proposed development by the Project Ecologist, Paul Murphy (EirEco Environmental Consultants) with assistance by three ROD employees, Christina McKiernan, Tadhg Twomey and Jason Cahill, and a sub-consultant of ROD, John Deasy. Surveys commenced in March 2019 and will continue until November 2019. Table 1, below presents an overview of the surveys undertaken. While Red-billed Chough (*Pyrrhocorax pyrrhocorax*) was the focal species of these surveys, the occurrence and activity of other species of rare and protected birds was also observed and recorded during these surveys. Evidence of breeding was recorded for all species of bird. General data recorded during the surveys included:

- Number of birds observed;
- How birds first detected (seen or heard; flying or on the ground; distance from the observer);
- Location (grid reference and description/place name);
- Behaviour (foraging, flying, preening, vigilant, loafing, breeding or heard only);
- Habitat;
- Micro-habitat patch use;
- Land use;
- Grazing regime on land in question (including type of livestock, sward height, presence/absence of dung)
- Cultivation (if any) on land in question (cut silage, amenity grassland, etc.);
- Weather conditions (wind force, wind direction, visibility and occurrence of precipitation);
- General notes on other interesting aspects, including:
    - Specific features of land use and habitat e.g. poaching, strip grazing, out-wintering of livestock;
    - Timing of agricultural activities e.g. spring grazing, cutting of silage; and,
    - Behavioural aspects of the birds e.g. did the bird(s) move to different habitats or direction of flights.

The principal objective of the bird surveys was to obtain data with respect to the following in the study area:

- The abundance of chough;
- The number of breeding pairs of chough;
- The abundance and location of nests of breeding chough;
- The breeding success (productivity) of chough;
- The distribution of chough foraging habitat;
- The average flush distance of chough; and,
- The location(s) of communal chough roosting site(s).

The suite of surveys undertaken aimed to cover the entire breeding season of the species, from nest selection through to fledging of young, foraging habitat utilisation during breeding and subsequently by post-breeding communal flocks, and location of communal roost sites on

Dursey Island. Sections 1.5 – 1.7 refer to surveys undertaken with respect to chough. During these surveys, the activity of other species of birds was recorded on an *ad hoc* basis, as described previously.

Table 1 Overview of breeding bird surveys undertaken

Stage	Period	Chough Activity Phase	Surveys Objectives	Surveyors
Breeding	March – June 2019	Breeding commences early to mid-April, when eggs are laid in the wool-lined nest cup. The female is solely responsible for incubating the eggs and during this time the male forages alone, returning to the nest periodically to feed the female and allowing her time to feed close to the nest.	• Abundance of chough • Breeding distribution and abundance • Foraging habitat utilisation by adult birds • Breeding & occurrence of other bird species	Paul Murphy
Fledging	June – August 2019	Nestlings start to fledge and form family groups which remains within their breeding season home range. Nursery flocks (comprising several family groups) beginning to form.	• Chough breeding success (productivity) • Flush distance by human disturbance • Foraging habitat utilisation by family groups • Total abundance of chough • Distribution and occurrence of other species	Paul Murphy Christina McKiernan Tadhg Twomey Jason Cahill John Deasy
Post-breeding/ Dispersal	August – November 2019	Flock utilisation of communal roosts. Potential dispersal to wintering areas such as sand dunes and machair.	• Location of communal roost sites on Dursey Island • Distribution and occurrence of other species	Paul Murphy

1.2 Study Area

The study area for the surveys took in the following areas:

- The entirety of Dursey Island;
- The immediate vicinity of the site of the proposed development (mainland and island);
- Crow Head; and,
- Garinish Head.

The primary focus of efforts was in the immediate vicinity of the existing cable car site. However, since there is evidence to suggest that chough may be sensitive to human disturbance (Keribiou *et al*., 2009), and since the proposed development will substantially increase the number of walkers on Dursey Island, and potentially on Garinish Head and Crow Head, it was considered necessary to include these areas in the study area also.

1.3 Transects

Existing walking trails on Dursey Island, and on Garinish Head and Crow Head, were used as transects for surveys, while off-transect observation were also made, as per Trewby *et al*. (2004) (Plate 1).

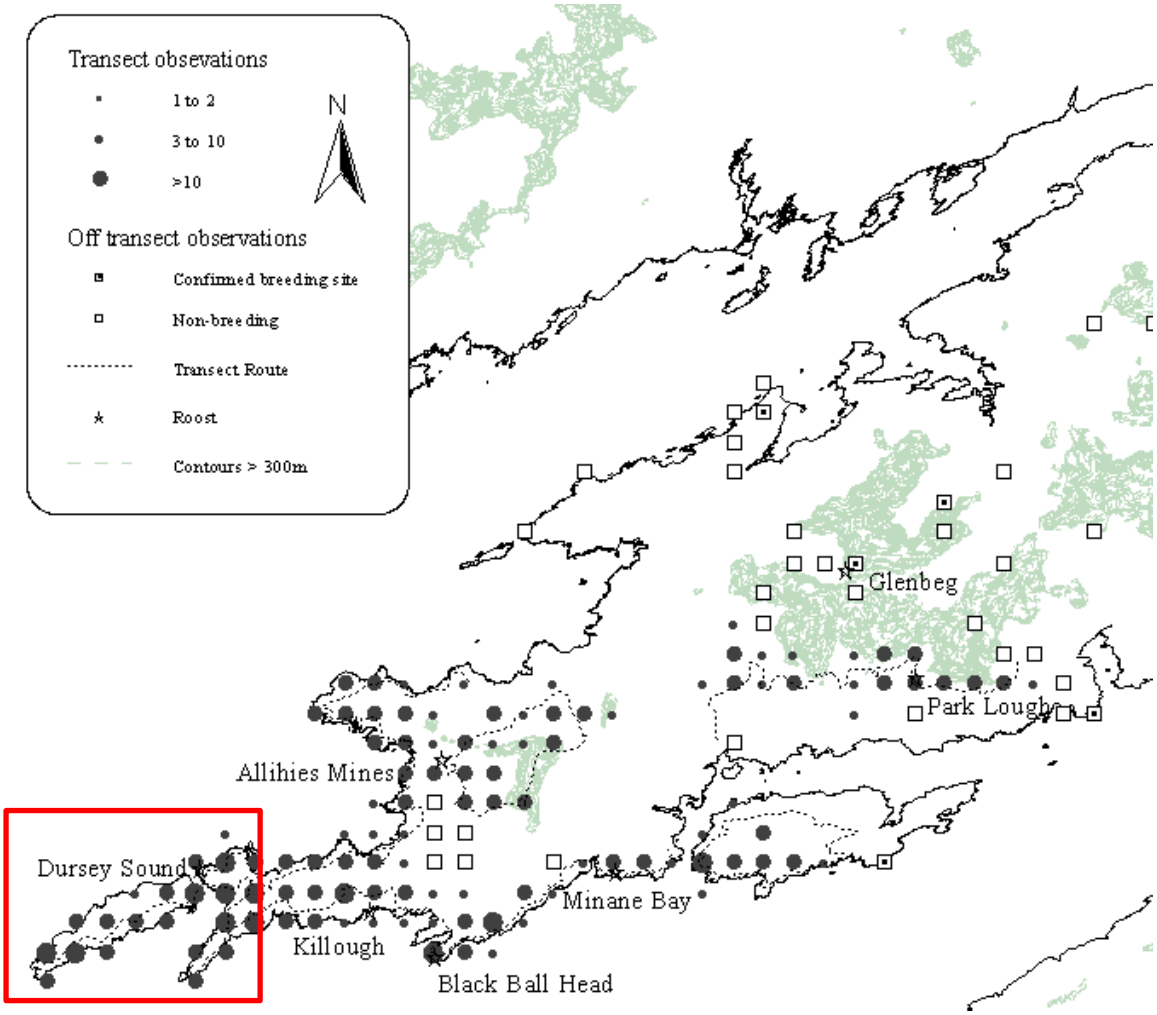

Plate 1 **Transects used in study area (study area in red; transects as per legend). Source: Trewby *et al*., 2004**

Surveys were not undertaken during periods of prolonged heavy rain or when wind speeds were at or in excess of Beaufort scale 6.

1.4 Abundance of Chough

Throughout the duration of the breeding and fledging periods, the maximum number of chough per flock was recorded on an ongoing basis. Towards the end of the fledging season, when non-breeding birds and family groups begin to gather in large communal flocks, this number serves as a proxy for the abundance of chough inhabiting a particular area.

1.5 Breeding Distribution & Abundance

In order to identify breeding pairs and locate nest sites, nest sites identified in previous studies (e.g. Trewby *et al*., 2004; Scott, 2017) were investigated and monitored to confirm/discount the presence of birds. In addition to the transects described in Section 1.3, the entire coastline was walked twice before the fledging period to ensure that all potential nest sites were identified. The location of confirmed and potential nest sites was recorded along with all observations of potential and confirmed breeding pairs. Criteria used to determine whether nests were breeding or non-breeding were based on Gray *et al.* (2003). Dedicated focal nest watches of 3 – 5 hours were undertaken once the locations of nests were identified to confirm whether breeding occurred. Behaviour of birds at nest sites including frequency of feeding visits, duration of visits, foraging in the vicinity of the nest, etc. was noted.

1.6 Breeding Success (Productivity)

Breeding success of confirmed breeding pairs was determined during the fledging period, by observing family groups consisting of adults and juveniles foraging in in the vicinity of nests. The number of juveniles successfully fledged by each pair was noted.

1.7 Distribution of Foraging Habitat

Detailed mapping of habitats was undertaken in the study area (see Section 7.4.1 of Chapter 7 of this EIAR) and habitats were classified according to potential suitability as chough foraging habitat, on the basis of a literature review undertaken on the ecology of the species (see Section 7.3.2.1, subheading 'Chough', of Chapter 7 of this EIAR). Additionally, throughout the breeding and post-fledging periods, birds were observed while foraging and the location, habitat use, land management and other relevant details were noted. The distribution of key areas of foraging habitat (particularly for family groups) was thus determined.

1.8 Flush Distance

Flush distance is defined as "*the distance at which a foraging bird or flock will fly off when approached [i.e. disturbed] by a person or group of persons*" (Keribiou *et al*., 2019; p. 658). During all surveys, flush distances (to the nearest 5 or 10m) were recorded whenever flushing was observed and these details could be judged accurately. Data recorded included the source of disturbance (individual or group of people), the number of birds flushed and the subsequent behaviour of the birds (re-settled or flew from the area).

1.9 Location of Roosts

During the post-breeding surveys, surveys were undertaken on Dursey Island with a view to identifying the location(s) of communal chough roosts.

APPENDIX F
Chough Survey Data

Cork County Council
Comhairle Contae Chorcaí

Fáilte Ireland
National Tourism Development Authority

ROD
ROUGHAN & O'DONOVAN

APPENDIX F
Chough Survey Data

1.1 Introduction

This Appendix presents the numerical data obtained with respect to (i) flock size; (ii) nest locations/breeding success; and (iii) flush distances, during the 2019 survey of breeding chough undertaken in the Study Area for the purposes of this EIA. For a description of the survey methodology and study area, please refer to Section 7.2.8 of this Chapter. Section 7.4.2.2 presents an overview of the findings of the surveys and their implications in terms of the proposed development. The data presented in this Appendix are derived from raw field survey notes, which can be made available upon request.

1.2 Flock Size

Maximum flock size recorded	Date
4	03/02/2019
13	17/05/2019
6	24/05/2019
6	27/05/2019
4	28/05/2019
2	29/05/2019
2	30/05/2019
14	31/05/2019
6	03/06/2019
2	04/06/2019
8	05/06/2019
6	06/06/2019
3	07/06/2019
2	10/06/2019
11	11/06/2019
4	12/06/2019
6	13/06/2019
2	14/06/2019
2	17/06/2019
19	18/06/2019
6	19/06/2019
2	20/06/2019
6	21/06/2019
6	24/06/2019
28	25/06/2019
12	26/06/2019

Maximum flock size recorded	Date
2	27/06/2019
6	28/06/2019
25	01/07/2019
28	02/07/2019
32	04/07/2019
7	05/07/2019
22	08/07/2019
6	09/07/2019
20	10/07/2019
6	11/07/2019
12	12/07/2019
32	15/07/2019
3	16/07/2019
6	17/07/2019
14	18/07/2019

→ Maximum flock size between 03/02/2019 and 18/07/2019 = 32

1.3 Breeding/Nests

Count	Status	Location	Date first recorded	No. juveniles fledged	Notes
1	Breeding	Dursey Island [redacted]	17/05/2019	2	Faecal sac seen 17/05; Pair seen entering cliffs on eastern side of inlet on 27/05 and both seen entering/exiting separately on 30/05; pair seen entering/leaving nest on 12/06; juveniles heard and fecal sac sighted on 20/06; 2 juveniles sighted out of nest and being fed by parents on 24/06
2	Breeding	Dursey Island [redacted]	03/06/2019	2	Chicks/feeding heard on 03/06; pair observed entering and leaving nest again on 11/06; Fledging later confirmed during nest watches.
3	Breeding	Dursey Island [redacted]	05/06/2019	4	One bird seen entering crack in cliff on 05/06; Breeding and fledging later confirmed during nest watches.
4	Breeding	Dursey Island [redacted]	03/06/2019	3	In most westerly derelict house; pair seen flying in and out and foraging in vicinity on 05/06, 10/06 and 13/06; 3 juveniles observed on 18/06 and again on 24/06; Fledging later confirmed during nest watches.
5	Breeding	Dursey Island [redacted]	13/06/2019	4	Pair seen entering and exiting on 13/06. Pair seen to use rock immediately above nest site as landing and preening area. Breeding and fledging later confirmed during nest watches.
6	Breeding	Crow Head [redacted]	24/05/2019	2	Two birds seen enter crack in cliff on eastern side of island on 24/05 and again on 29/05; 2 juveniles observed on 19/06; Fledging later confirmed during nest watches.
-	Discounted	Dursey Island [redacted]	03/06/2019	-	Pair seen entering cliff. Chicks heard.
-	Discounted	Garinish Head [redacted]	04/06/2019	-	Pair seen active in vicinity and one seen entering cliff (04/06).
-	Discounted	Crow Head [redacted]	29/05/2019	-	1 bird seen entering and leaving cliff on SE side of headland.
-	Discounted	Dursey Island [redacted]	30/05/2019	-	Pair seen going out of view at cliffs and emerging shortly after on 30/05.
-	Discounted	Dursey Island [redacted]	10/06/2019	-	Pair seen entering inlet and not re-emerging on 10/06.
-	Discounted	Garinish Head [redacted]	14/06/2019	-	Nest watch conducted on 14/06 but no evidence of nesting noted. Presume pair must have been seen entering cliffs in area.
-	Discounted	Dursey Island [redacted]	18/06/2019	-	One bird seen entering crack in south-facing cliff on 18/06

Count	Status	Location	Date first recorded	No. juveniles fledged	Notes
-	Prospected; no breeding	Dursey Island [redacted]	17/05/2019	-	Two birds seen enter cave on 17/05 and again on 29/05. According to first report, no breeding occurred here. May have been non-breeding pair simulating nesting.

→ Total number of breeding pairs/nests = 6
→ Mean no. juveniles fledged per nest = 3
→ Total no. fledglings = 17
→ 100% of confirmed breeding pairs successfully fledged offspring

Please note: precise locations of nest sites have been omitted from this Appendix in order to protect the nest sites in question, but have been made available to the Competent Authority.

1.4 Flush Distance

Date	Flush distance (m)	No. birds	Disturber	Notes
03/06/2019	40	4	Surveyors	
03/06/2019	40	1	Surveyors	
18/06/2019	5	12	Surveyors	Surveyor obscured from view of birds until that distance so exclude
18/06/2019	2	2	Surveyors	Disturbed birds were juveniles (one froze) so exclude
30/05/2019	150	2	Surveyors	
31/05/2019	40	1	Surveyors	
31/05/2019	25	9	Surveyors	
31/05/2019	45	10	Surveyors	
31/05/2019	25	2	Surveyors	
11/06/2019	10	2	Surveyors	
11/06/2019	20	2	Surveyors	
19/06/2019	80	2	Surveyors	
21/06/2019	30	2	Surveyors	
24/06/2019	25	1	Surveyors	
24/06/2019	35	3	Surveyors	
24/06/2019	30	6	Surveyors	
25/05/2019	40	5	Surveyors	
25/06/2019	25	7	Surveyors	
25/06/2019	25	5	Surveyors	
26/06/2019	25	3	Surveyors	
28/06/2019	50	4	Surveyors	
01/07/2019	40	5	Surveyors	
04/07/2019	25	2	Surveyors	
05/07/2019	12	6	Surveyors	
11/07/2019	10	3	Surveyors	One chough foraging 10m for observers simply alarm called, did not take flight as surveyors passed on the path

Date	Flush distance (m)	No. birds	Disturber	Notes
11/07/2019	10	5	Surveyors	
11/07/2019	20	2	Surveyors	
12/07/2019	20	4	Surveyors	
15/07/2019	15	12	Surveyors	
18/07/2019	20	1	Surveyors	
18/07/2019	25	5	Surveyors	
03/06/2019	30	2	Tourists	
03/06/2019	50	5	Tourists	
01/07/2019	30	6	Tourists	
01/07/2019	30	6	Tourists	
01/07/2019	30	6	Tourists	
01/07/2019	30	8	Tourists	
01/07/2019	35	8	Tourists	
02/07/2019	35	2	Tourists	
02/07/2019	45	16	Tourists	
02/07/2019	25	3	Tourists	
02/07/2019	30	5	Tourists	
02/07/2019	10	2	Tourists	
08/07/2019	30	9	Tourists	
08/07/2019	15	7	Tourists	
08/07/2019	15	7	Tourists	
10/07/2019	25	6	Tourists	
10/07/2019	30	20	Tourists	
11/07/2019	35	4	Tourists	

1.5 Key Notes

Key notes from field notes are as follows:

- Evidence was observed of illegal dumping on southern face of Crow Head (24/05/2019).
- Birds were observed flying between the island and mainland on a number of occasions, including 24/05, 09/07 and 18/07/2019.
- Interactions between ravens and choughs were observed regularly, e.g.:
  - 27/05/2019 chough mobbing raven
  - 31/05/2019 chough alarm calling while pursued by 2 ravens
- Some antagonistic interactions were also observed between choughs and hooded crows and magpies.

- Choughs were observed mobbing a peregrine falcon near *Drom Gabhair* nest site on 13/06/2019 and a peregrine was observed flushing choughs a number of times thereafter.
- In late June/early July, family groups were observed to start flocking on the western end of the island, and birds largely stayed around this area from this point onwards. One surveyor reported walking from the eastern to the western end of the island on 02/07/2019, observing no choughs until reaching the western end of the island.
- Birds were observed to display vigilance behaviour – calling more frequently than normal – when walkers were within 50m.
- Choughs were observed to become familiar with the surveyors over time, allowing surveyors to forage quite close by on a few occasions towards the end of the season.
- *Cuas na gColúr* and *Brann Righe* were identified as potential roosting sites, but no evidence was found of Foilnamuck being used as such.
- The exteme western end of the island (*Maoil, Maoil Mhór* and *Maoil Bheag*) is a key foraging and flock-forming area for choughs and the largest flocks were consistently seen here.
- From late June/early July, choughs appeared to be roosting in family groups, near their respective nests, from around sunset.