ESB NETWORKS

20KV GRID CONNECTION TO CONNECT DERREENACRINNIG WEST WIND FARM, DRIMOLEAGUE, COUNTY CORK TO THE NATIONAL GRID

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

OCTOBER 2021



21737-26/10/2021-EIA-Appendix H CEMP

ESB Networks,
Sarsfield Road,
Wilton,
Co. Cork,
T12 E367.

Jennings O'Donovan & Partners Limited,
Consulting Engineers,
Finisklin Business Park, Sligo.
Tel: 071 – 9161416
Fax: 071 - 9161080
e mail: info@jodireland.com
web: www.jodireland.com

JENNINGS O'DONOVAN & PARTNERS LIMITED
Project, Civil and Structural Consulting Engine
FINISKLIN BUSINESS PARK,
SLIGO,
IRELAND.

Telephone (071) 91 61416
Fax (071) 91 61080

Email info@jodireland.com
Web Site www.jodireland.com

DOCUMENT APPROVAL

PROJECT	20kV Grid Connection to Connect Derreenacrinnig West Wind Farm, Drimoleague, Co. Cork to the National Grid	
CLIENT / JOB NO	ESB Networks	4636
DOCUMENT TITLE	Construction Environmental Management Plan (CEMP)	

	Prepared by	**Reviewed/Approved by**
Document Final	Name Sarah Moore	Name David Kiely
Date 13th October 2021	Signature Sarah Moore	Signature David Kiely

This document, and information or advice which it contains, is provided by JENNINGS O'DONOVAN & PARTNERS LIMITED solely for internal use and reliance by i Client in performance of JENNINGS O'DONOVAN & PARTNERS LIMITED's duties and liabilities under i contract with the Client. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The advice and opinions in this document are based upon the information made available to JENNINGS O'DONOVAN & PARTNERS LIMITED at the date of this document and on current standards, codes, technology and construction practices as at the date of this document. Following final delivery of this document to the Client, JENNINGS O'DONOVAN & PARTNERS LIMITED will have no further obligations or duty to advise the Client on any matters, including development affecting the information or advice provided in this document. This document has been prepared by JENNINGS O'DONOVAN & PARTNERS LIMITED in their professional capacity as Consulting Engineers. The content of the document does not, in any way, purport to include any manner of legal advice or opinion. This document is prepared in accordance with the terms and conditions of JENNINGS O'DONOVAN & PARTNERSLIMITED contract with the Client. Regard should be had to those terms and conditions when considering and/or placing any reliance on this document. Should the Client wish to release this document to a Third Party for that party's reliance, JENNINGS O'DONOVAN & PARTNERS LIMITED may, at i discretion, agree to such release provided that:

(a) JENNINGS O'DONOVAN & PARTNERS LIMITED written agreement is obtained prior to such release, and
(b) By release of the document to the Third Party, that Third Party does not acquire any right, contractual or otherwise, whatsoever against JENNINGS O'DONOVAN & PARTNERS LIMITED and JENNINGS O'DONOVAN & PARTNERSLIMITED, accordingly, assume no duties, liabilities or obligations to that Third Party, and
(c) JENNINGS O'DONOVAN & PARTNERS LIMITED accept no responsibility for any loss or damage incurred by the Client or for any conflict of JENNINGS O'DONOVAN & PARTNERSLIMITED's interest arising out of the Client's release of this document to the Third Party.

20KV GRID CONNECTION TO CONNECT DREENACRINNIG WEST WIND FARM TO THE NATIONAL GRID

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN CONTENTS

1 INTRODUCTION..... 1

1.1 BACKGROUND TO REPORT..... 1

1.2 Construction Environmental Management Plan (CEMP): Aims & Objectives..... 1

1.3 PLANNING HISTORY..... 3

1.3.1 Wind Farm..... 3

1.3.2 Grid Connection..... 3

1.3.3 Planning History Application Reference 19/0010..... 4

1.3.4 Judicial Review..... 4

1.3.5 Status of The Grid Connection..... 5

1.3.6 Implementation Arrangements..... 5

1.3.7 Joint Bays Locations for the Proposed Grid Connection..... 9

1.4 AIMS AND OBJECTIVES OF A CEMP..... 13

1.5 CEMP ROLES & RESPONSIBILITIES..... 14

1.6 ROLES & RESPONSIBILITIES UNDER THE CMP..... 14

1.7 REPORTING PROCEDURES..... 15

1.8 CEMP STRUCTURE..... 15

1.9 CEMP DEVELOPMENT & IMPLEMENTATION..... 17

2 ENVIRONMENTAL CONTROLS..... 19

2.1 POPULATION AND HUMAN HEALTH..... 19

2.2 ECOLOGY..... 21

2.2.1 Proposed Grid Connection Route..... 21

2.2.2 Existing Wind Farm Site..... 22

2.2.3 Ecological Mitigation Measures..... 22

2.3 SOILS AND GEOLOGY..... 24

2.3.1 Subsoil and Bedrock Removal – Mitigation Measures..... 24

2.3.2 Storage and Stockpiles – Mitigation Measures..... 25

2.3.3 Vehicular Movements – Mitigation Measures..... 25

2.3.4 Ground Stability – Mitigation Measures..... 25

2.3.5 Soil Contamination – Mitigation Measures..... 26

2.3.6 Subsurface and Underground Effects – Mitigation Measures..... 27

2.4 HYDROLOGY AND DRAINAGE..... 27

2.4.1 General 27
2.4.2 Constructed Drainage – Mitigation Measures 27
2.4.3 Surface Water Flow – Mitigation Measures 28
2.4.4 Surface Water Quality – Mitigation Measures 28
2.4.5 Groundwater Flow – Mitigation Measures 30
2.4.6 Groundwater Quality– Mitigation Measures 30
2.4.7 Watercourse Crossings 32
2.4.8 Surface Water Quality Monitoring 34
2.4.9 Pollution Contingency Plans 34
2.4.10 Construction Requirements 34
2.5 AIR AND CLIMATE 35
2.5.1 Air and Climate - Mitigation Measures 35
2.6 ARCHAEOLOGY AND CULTURAL HERITAGE 35
2.7 NOISE AND VIBRATION 36
2.7.1 Noise and Vibration - Mitigation Measures 36
2.8 TRAFFIC 36
2.8.1 Traffic Mitigation Measures 36
2.9 WASTE 38
2.9.1 Waste Mitigation Measures 38
2.10 MATERIAL ASSETS 39
2.10.1 Telecommunications-Mitigation Measures 39
2.10.2 Agriculture – Mitigation Measures 39
2.10.3 Road Network– Mitigation Measures 39
2.11 CONSTRUCTION SEQUENCE 40
2.11.1 Phasing of Works 40
2.11.2 Working Hours 40
2.11.3 Site Management Procedures and Methodologies 40
2.11.4 Removal of Overhead Line 41
2.11.5 Overhead line 42
2.11.6 Underground Line 43
2.12 sENSITIVE HABITATS 45
2.13 PLANNING CONDITIONS AND CONSTRUCTION MANAGEMENT PLANS 45
2.14 SCHEME AMENDMENTS 46
2.15 REGISTER OF VARIATIONS 47
3 COMMUNICATION PLAN 48
3.1 INTRODUCTION 48
3.2 COMMUNICATIONS CONSULTANT 48

3.3 CONTACT SHEETS 49
3.4 MEETINGS REPORTS AND CONSULTATIONS 49
3.5 ROLES & RESPONSIBILITIES 49
3.6 TRAINING, AWARENESS AND COMPETENCE 58
3.7 EMERGENCY PREPAREDNESS AND RESPONSE 58
4 CORRESPONDENCE, RECORDS & REPORT 59
4.1 Requirements 59
4.2 ENVIRONMENTAL AUDITS 60
4.3 ENVIRONMENTAL CONSENTS, LICENSES & PERMITS 60
4.4 ENVIRONMENTAL MONITORING AND MEASURING 60
4.5 NON-CONFORMANCE, CORRECTIVE AND PREVENTATIVE ACTION 61
5 MANAGEMENT PLANS & AVAILABLE INFORMATION 62
5.1 MANAGEMENT PLANS 62
5.2 CONTRACTOR REQUIREMENTS 62

FIGURES

Figure 1.1 Proposed development location of 20kV Grid Connection
Figure 1.2 Site Location Map – Grid Connection Route
Figure 1.3 Summary of CEMP development process
Figure 1.4 Structure of the CEMP and Sub Plans
Figure 2.1 Typical Work Zone and Signage for a Single Lane Closure

TABLES

Table 1.1 Status of the Grid Connection
Table 1.2 Outline of Document Structure of the CEMP
Table 2.1 Watercourse Crossings for the Proposed Development
Table 2.2 Relevant Planning Conditions and Related Documentation
Table 2.3 Scheme Amendments
Table 2.4 Register of Variations
Table 3.1 Contact Sheets
Table 3.2 Meetings, Reports and Consultations
Table 3.3 Roles and responsibilities
Table 4.1 Record of Environmental Consents, Licenses and Permits Issued
Table 5.1 List of Management Plans

MANAGEMENT PLANS

Management Plan 1: Emergency Response Plan
Management Plan 2: Water Quality Inspection and Monitoring Plan
Management Plan 3: Ecological Management Plan
Management Plan 4: Waste Management Plan (WMP)

1 INTRODUCTION

1.1 BACKGROUND TO REPORT

ESB is embarking on a development the development will consist of the removal of an existing grid connection work and for the development of the full length of a new grid connection over a distance of approximately 14.05 km, between the existing Ballylicky ESB substation and the permitted Derreenacrinnig West Windfarm.

The proposed development involves the following works:
(a) removal of approximately 9.5 km of 20 kV overhead line (OHL) along the route, the OHL to be removed consists of 138 wood poles (ranging from 9m to 12.5m above ground), supporting electrical conductor lines and ancillary structures and equipment.
(b)following removal of the OHL, it is proposed to construct approximately 10.75 km of 20 kV overhead line (OHL) along the route, the OHL to be constructed consists of c. 157 wood poles (ranging from 9m to 12.5m above ground), supporting electrical conductor lines and ancillary structures and equipment.
(c) installation of approximately 3.3 km of underground cable ducting and associated electrical cabling, and all other ancillary works including joint bays, culverts, marker posts and all associated developments

ESB Networks (part of ESB Group and referred to as ESBN) will be responsible for, the construction, and subsequent operation, of the grid connection. ESBN may use contractor(s) from their approved frameworks to construct all or part(s) of the works.

The term "Contractor" in this document refers to ESB Networks as well as any contractor whom they may engage to carry out the works.

1.2 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP): AIMS & OBJECTIVES

The Construction Environmental Management Plan (CEMP), together with a Construction Method Statement (CMS) are being submitted to Cork County Council as part of an EIAR. This CEMP has been developed in accordance with the Institute of Environmental Management and Assessment (IEMA) Practitioner "*Environmental Management Plans*", Best Practice Series, Volume 12, December 2008.

The principal objective of this CEMP is to avoid, minimise and control adverse environmental impacts associated with the development of the consented grid connection. This document will act as a continuous link and main reference document for environmental issues between the design, construction and the maintenance and operation stages of the project. It will demonstrate how construction activities and supporting design will properly integrate the requirements of environmental legislation, policy, good practice and any conditions that may be attached to the Grant of Planning Permission, if consented.

As such, ESB commits to safeguarding the environment through the identification, avoidance and mitigation of the potential negative environmental impacts associated with the development, construction, operation and decommissioning of the consented grid connection.
This CEMP aims to define good practice as well as specific actions required to implement mitigation requirements as identified in the Environmental Impact Assessment Report (EIAR) dated October 2021.

The CEMP is considered to be a live document which will be developed further and/or amended where necessary subsequent to planning consent to take account of planning condition requirements and any information which may be made available from additional consultations or site surveys.
The CEMP will form part of the main Civil Works Construction Contracts. The Contractors will take account of the structure, content, methods and requirements contained within the various sections of this CEMP when further developing this document (to include environmental plans and other related Construction Method Statements) as required by the Contract.
This version of the CEMP provides a benchmark for good practice, where avoidance or further minimisation of risks to the environment can be demonstrated through use of alternative methods or improvements to current practices; the Contractor will implement these wherever possible.
Three Management Plans have been developed as Annexes to the CEMP:

- Environmental Incident and Emergency Response Plan (Management Plan 1) has been developed for the site. The Contractor is required to develop the ERP and/or include additional information or method statements as appropriate and where required by the Contract. The development of the MP 1 will generate more site-specific details which address particular environmental management procedures applicable for works in specified areas of the site.
- Water Quality Monitoring Plan (Management Plan 2) has been developed and describes potential effects from construction activities, including earthworks on water quality and outlines appropriate mitigation that require implementation. This Plan is considered final. Deviations will be agreed with Cork County Council.
- An Ecological Management Plan (Management Plan 3) has been developed by the project ecologist and outlines ecological monitoring, supervision, method statements for working in

sensitive habitats and method statements for habitat reinstatement. This Plan is considered final. Deviations can only be agreed with Ecological Clerk of Works (ECoW) and Cork County Council.

- A Waste Management Plan (Management Plan 4) has been developed which describes the types of waste generated by the site and the management approach for each waste type.

A CMS has been developed for the grid connection and is a separate document. The CMS provides details of intended construction practice for the development, including hours of working and noise management measures.

1.3 PLANNING HISTORY

1.3.1 Wind Farm

A planning application was submitted by George O'Mahony for a 10 year planning permission for development of a wind farm comprising seven number wind turbines with a hub height of 55 metres and a rotor diameter of 52 metres, an electrical compound, sub-station building, four number car parking spaces, associated site roads and site works.

Planning permission was granted in October 2011 by Cork County Council under Reg. Ref. 10/857 for a wind farm, comprising 7 wind turbines, an electrical compound and sub-station and all related electrical equipment, subject to 29 conditions. The planning permission was appealed by third parties to An Bord Pleanála who subsequently upheld the grant of planning permission on 05th December 2012, subject to 16 conditions under An Bord Pleanála PL88.239767 Decision.

The planning permission for consented Derreenacrinnig West Wind Farm was implemented, and work commenced on site on the 28th of August 2017. Civil works at the wind farm site are well advanced although there is no activity at present.

1.3.2 Grid Connection

Following the grant of planning permission, the wind farm developer received a connection offer from ESB in 2014. This connection was accepted as a non-contestable offer which means that the wind farm developers agree that the works would be carried out by ESB. ESB subsequently commenced works on the Overhead Line [OHL] part of the grid connection in October 2017.

Prior to the construction of the grid connection, ESBI carried out an Exempted Development Screening Study for ESBN of the proposed grid connection, to determine whether or not it would fall within the planning exemptions available for such development.

Of the c.14km length of total grid connection some 9.7km of overhead line has been constructed. This CEMP relates in part, to the removal of this constructed line.

1.3.3 Planning History Application Reference 19/0010

A planning application for the construction of the unbuilt grid connection was submitted to Cork County Council in January 2019 under planning application reference 19/10. That planning application included the "*installation of approximately 3.2km of underground cable ducting and associated electrical cabling, approximately 1.2km* of overhead line *...The works, which will take place at separate locations along the 14km grid connection route, are required to complete the grid connection from Derreenacrinnig West Windfarm to the ESB Ballylickey substation.*"

A decision to grant Planning permission was issued by Cork County Council on 30th September 2019. This decision was appealed by a third party to An Bord Pleanála who subsequently upheld the decision and granted permission on 09th June 2020, subject to 8 conditions under An Bord Pleanála Reference ABP-305790-19.

1.3.4 Judicial Review

The decision to grant substitute consent and the decision to grant planning permission by ABP were challenged by a third party by way of Judicial Review [JR] under Section 50 of the Planning and Development Act, 2000, as amended. That challenge was upheld by the High Court [2020] 548 JR].

Whilst various grounds were cited in the challenge, the core grounds of the JR centred on the fact that the substitute consent procedure was in breach of European Law and that Ireland had failed to correctly transpose the requirements of Directive 2011/92/EU as amended. A core ground of the challenge was that the decision to grant substitute consent was premised on an earlier decision to grant leave to apply for substitute consent which took place without public participation. These grounds had been cited in previous unrelated cases before ABP. This resulted in legislative changes in December 2020 to the Planning and Development Act 2000. The JR was in the Courts system at the time the legislation was amended.

In March 2021, the High Court issued an Order quashing both decisions related to the grid connection issued by ABP in June 2020.

The application now before the local authority seeks to remove the existing grid connection works and for the development of the full length of a new grid connection over a distance of approximately 14km, between the existing Ballylicky ESB substation and the permitted Derreenacrinnig West Windfarm.

1.3.5 Status of The Grid Connection

The original c.13.916 km grid connection is partially complete with 146 poles erected (9.537km) for the overhead lines and wires strung to some poles. No work was carried out on any underground sections.

The work now proposed includes the removal of the existing line in its entirety and the construction of a new grid connection as summarised in Table 1.1 below.

TABLE 1.1 SUMMARY OF THE GRID CONNECTION

Element	Length (km)
OHL To Be Removed	9.5 km
Proposed OHL	10.75
Proposed UGC	3.3
Total Proposed	**14.05**

1.3.6 Implementation Arrangements

Under the Electricity (Supply) Act 1927, ESB were conferred powers as a statutory undertaker to, amongst other things, provide or carry out works for the provision of electricity. Under the Electricity Regulation Act, 1999, which amongst other things established and gave powers to the Commission for Energy Regulation and made amendments to certain provisions of the Electricity (Supply) Act, 1927, "electricity undertaking" is defined as *"any person engaged in generation, transmission, distribution or supply of electricity, including any holder of a licence or authorisation under this Act,....."*

ESBN (on behalf of ESB) will design plan, construct and operate the grid route between the consented Derreenacrinnig West Wind Farm, and the existing ESB Substation at Ballylickey.

The entire grid connection route is shown on Figure 1.1.

Removal of As Constructed 20kV Line

The removal of the as constructed sections of the 20kV overhead line will be carried out in accordance with ESB Networks Overhead Line Poling Standards. This will require the overhead line electrical conductor to be removed in advance of all wood pole structures and associated equipment being removed.

Removal of overhead line electrical conductor

In advance of the removal of the wood poles, the strung sections of electrical condutctor will be removed along the entire as-constructed overhead line route. This work will involve

- Disconnection of conductor from all wood pole structures, This is carried out in sections, typically between angle/strain points of the overhead line.
- The conductor is mechanically coiled/rolled onto drums and removed from site for appropriate reuse or disposal. This equipment will be brought to site on vehicle drawn trailer

Additionally, all cables, earth wires, stay wires shall be completely removed from all poles to be removed. This equipment will be either removed from site by ESBN for appropriate disposal or reused as part of the proposed new grid connection.

Removal of Wooden Poles along entire as constructed line route

The age and condition of the pole will influence the method chosen to retire it. Poles shall never be pulled directly out of the ground – prior excavation of the pole foundation shall always be carried out.

Prior to any works being undertaken, the following will be carried out:

- Arrangements in relation to access, temporary fencing, security of livestock etc. will be discussed with landowners are implemented in advance of works.
- Pollution control measures will be implemented.
- Traffic management measures to be implemented whenever any poling works are likely to interfere with traffic or pedestrians.
- A controlled entry zone will be established.

Approved Methods of Wood Pole retirement are as follows:

1. 360° Tracked Excavator with Approved Split Bucket or 180° Rubber Tyre Excavator with Approved Pole Erector Grab, loosening the soil and lifting the pole. This method is not suitable if the pole to be retired has been assessed as seriously defective by ESBN.

2. 360° or 180° Excavator; Controlled Push Down Method.

Excavator Controlled Push Down Method

- Dig a trench in the direction of the push down 150mm from pole and 1000mm deep, with a taper back towards digger.
- For the push-down: Set up excavator 90°degrees to trench a minimum of 4m back from pole. Under the guidance of the Person in Charge of Poling (PICP) the machine operator positions the back actor between 1m and 1.5m high beside the pole on the opposite side of the trench.
- With the machine in position: Switch off excavator, PICP to choke a 2m (2000kg) sling around pole, and attach to the eye at the end of the excavator arm via a 2000kg shackle
- All personnel to move outside of the extended Controlled Entry Zone (CEZ).
- On the instruction of the PICP when the area is clear: The machine operator will take slack in the sling, and Push against the pole in a slow and smooth action, until the pole is lowered safely to the ground.

When the pole is on the ground, it will be removed from site if required or reused as part of the proposed new grid connection.

ESBN will supervise and photograph/ record the removal of the entire overhead line and poles.

It is ESBN standard policy to make good any ground damaged during poling activities in partnership with the associated landowners.

Construction of New 20kV Grid Connection

The new Grid Connection will be constructed to the requirements and specifications of ESB Networks. The 20kV overhead line conductor construction type is 150mm2 AAAC (All Aluminium Alloy Conductor) designed according to ESB Networks'Functional Design Specification for MV Overhead Lines'. 157 standard 20kV single poles, with an average span distance of 85m is required. The wooden poles are standard ESB Networks 20kV wooden poles which vary in length on this project between 11 and 13 metres. The top of pole diameter varies between 200mm and 220mm. The actual height of pole above ground will vary between 8.8m and 10.7m and between 2.2 to 2.3m of the pole will not be seen as it will be buried in the ground.

Pole and line installation works will be standard for a 20kV ESB overhead line:

- Arrangements in relation to access, temporary fencing, security of livestock etc. will be discussed with landowners are implemented in advance of works.
- Pollution control measures will be implemented.
- Traffic management measures to be implemented whenever any poling works are likely to interfere with traffic or pedestrians.
- A controlled entry zone will be established.
- Where possible, existing poles that have been removed previously will be utilised in the construction and erection of the proposed new grid connection provided their conditions enable their reuse from a technical/structural aspect.
- If required, new Poles will be carried from adjacent roadways to each erection site and placed into an excavated hole using a wheeled or tracked excavator fitted with a pole grab attachmentt
- The pole hole is manually backfilled and tamped down to a minimum depth of 1.0m until the backfill is capable of supporting the pole; the excavator then continues the backfilling and tamping
- Where rock is encountered, the pole hole is formed using a hydraulic rock-breaker attachment mounted on the excavator
- Where the line changes direction and at pole set locations with poor ground conditions, stay wires will be required. These wires are supported by means of stay blocks, which are made of wooden sleepers and are buried underground
- Stringing of the conductor involves pulling out polypropylene rope along the route by hand, attaching the conductors and then pulling into position with stringing machine.

The 20k V underground power cable construction type is 20kV XLPe cable to be ducted according to ESB Networks' 'Specification for the Installation of Ducts & Structures for Underground 10-20kV Power Cables & Communication Cable'. The 20kV power cable will be laid in a single 125mm diameter uPVC duct in a cable trench.

Cable Duct Design

The 20kV power cable will be laid in a cable trench according to:

- ESBN Drawing 1A: '20kV Single Circuit Standard Trench Cross - Section' on page 1 of the ESB Networks specification document. (Note only one 110mm Communications duct at 750mm below the finished surface is required for this installation).
- ESBN Drawing 2A: '20kV Single Circuit Joint Bay - Section' on page 1 of the ESB Networks specification document.

The typical trench cable arrangement will be 1 duct. The typical trench dimensions will be 600mm wide and 1220mm deep following the ESB Networks' Standard Detail for a Single Circuit 20kV Underground Cable

1.3.7 Joint Bays Locations for the Proposed Grid Connection

Joint Bays are the locations where individual lengths of cables will be joined and are typically 500 metres apart. A joint bay is constructed in a pit. The bay typically is approximately 2.5 metres x 1.815m x 1.21m deep. A reinforced concreted slab is constructed in the bay to accommodate the joint enclosure.

The Joint Bay locations have been dictated by suitable terrain and access to facilitate the operation of cable pulling equipment at any phase of the development and future operation of the installation in accordance with the ESBN own specifications.

Trench Layout

The trench layout shall be as per the appropriate ESBN drawings. The specification of the relevant Local Authorities must be followed for the excavation and reinstatement of the ducted cable trenches. When the trench has been excavated to the required depth and all loose material and protruding stones have been removed, a bedding layer of sand shall be laid and compacted to a minimum thickness of 50mm.

Ducts

All joining ducts shall be laid in straight lines to even gradients. Once the ducts have been installed and backfilled with lean-mix concrete and with Clause 804 stone the duct run must be thoroughly cleaned by pulling the appropriate size of ESB Networks approved duct brush through the duct.

All reinstatement works shall be in accordance with the NRA Specification for Road Works and any conditions specified in the Road Opening Licence

Details of the construction methodology are detailed in dedicated CMS but are summarised below:

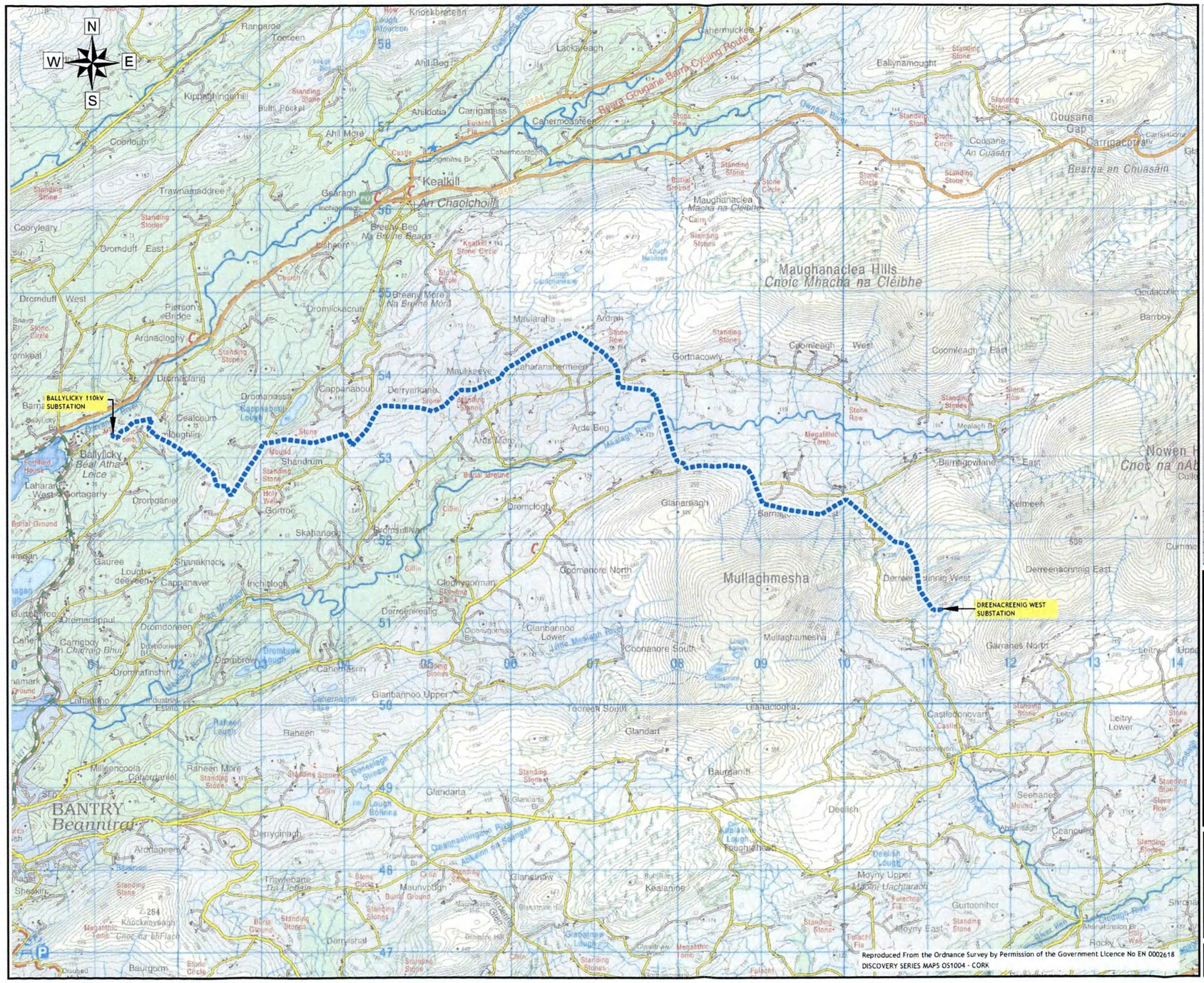
- Preparatory Works
    - Preparatory Trial Pit Survey along the cable route
    - Access to the start point and setting out
    - Access to joint bays
    - Silt Attenuation Features and watercourse set back buffer
    - Joint Bay Excavation
- Trenching Works

- Storage of Materials
- Trench Operations
- Managing excess material from trench

The proposed grid connection route is shown on **Figure 1.2.**

ESB Networks will have overall responsibility for construction of the grid connection. Framework contractors experienced in the geographical area will be used, one for trenching and ducting works for the cable parts and another to complete the overhead line part.

The removal of the line will be carried out in sections e.g. within a landholding or between angle poles. The construction of the new line will immediately follow the removal of the existing line within a section. The project is expected to take c.20 weeks to construct.



rev.	modifications	by	chk'd	date
file	P:\ucc-job\4636 Dreenacrinnig WF\700 Drawings\Grid Connection\Figure\Figure 1.1.DWG			

client
ESB

project
PROPOSED GRID CONNECTION AT DERREENACRINNIG WEST WIND FARM CO CORK.

stage
PLANNING

title
SITE LOCATION SHOWING GRID CONNECTION FROM BALLYLICKY SUBSTATION TO DERREENACRINNIG WEST WIND FARM

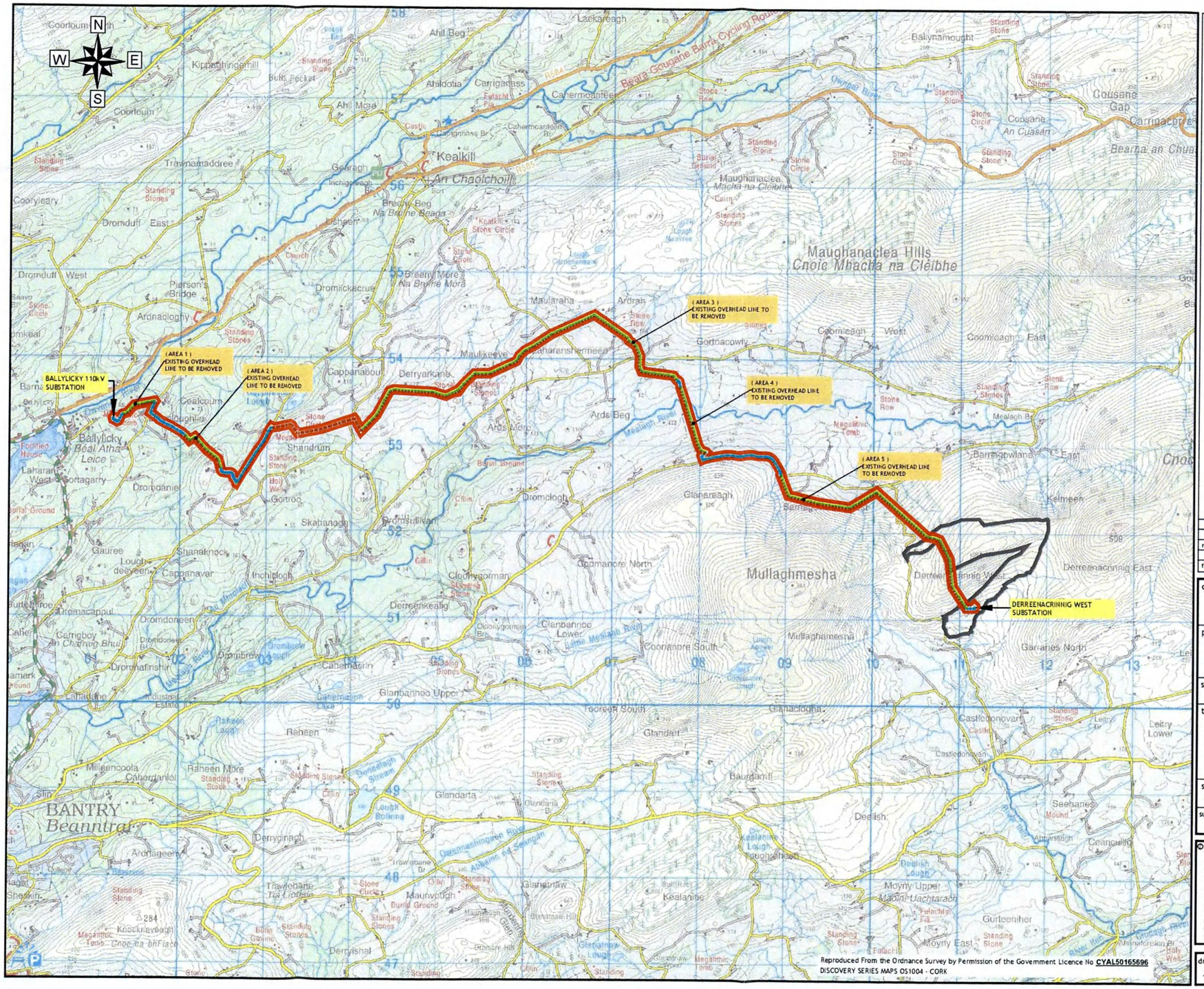
scale
N.T.Scale

surveyed	drawn	checked	date
OSI	J.B.	B.C.	DEC 2018

©COPYRIGHT OF
JENNINGS O'DONOVAN & PARTNERS
CONSULTING ENGINEERS,
FINISKLIN,
SLIGO,
IRELAND.
TEL +353 (0)71 916 1416
FAX. +353 (0)71 916 1080
Email: info@jodireland.com

Job Ref.	Drawing no.	revision
4636	Figure 1.1	

Figure 1.1 Proposed development location of 20kV Grid Connection



LEGEND:

- Proposed Overhead Line to be built
- Proposed Underground cable to be built
- Existing Overhead line To be Removed
- Windfarm Boundary
- Grid connection planning application boundary

rev.	modifications	by	chkd	date
file				

client: ESB

project: PROPOSED GRID CONNECTION AT DERREENACRINNIG WEST WIND FARM CO CORK.

stage: PLANNING

title: OVERVIEW MAP SHOWING PROPOSED GRID CONNECTION (EXTRACT FROM DRAWING NO 4636-P-GCR-00-1)

scale: N.T.Scale

surveyed	drawn	checked	date
OSI	J.B.	B.C.	OCT 2021

© COPYRIGHT OF
JENNINGS O'DONOVAN & PARTNERS LIMITED,
CONSULTING ENGINEERS,
FINISKLIN,
SLIGO,
IRELAND.
TEL. (00353)71 9161416.
FAX. (00353)71 9161080.
Email. info@jodireland.com
Web. www.jodireland.com

drawing no.: 4636-Figure 2.1

revision:

Figure 1.2 Site Location Map – Grid Connection Route

1.4 AIMS AND OBJECTIVES OF A CEMP

This CEMP has been developed in accordance with the Institute of Environmental Management and Assessment (IEMA) Practitioner "Environmental Management Plans", Best Practice Series, Volume 12, December 2008 and has been designed to cover the proposed environmental strategies that are to be carried out, before and during the proposed development works. This procedure ensures that whilst work is being carried out that the contractor is solely responsible for ensuring that all aspects of the environment are managed according to required standards and legislation. It is intended that this outline CEMP will be finalised by the contractor in the form of a detailed CEMP should the works progress to construction stage.

This CEMP aims to define good practice as well as specific actions required to implement mitigation requirements as identified in the Environmental Impact Assessment Report (EIAR), and/or other licensing or consenting processes to include Consultee recommendations. The principal objective is to avoid, minimise and control adverse environmental impacts associated with the removal and construction of the proposed 20kV grid connection to the Derreenacrinnig West Wind Farm which have yet to be built. This document will act as a continuous link and main reference document for environmental issues between the removal, design, construction and the maintenance and operation stages of the project.

The CEMP is considered to be a live document which will be developed further and / or amended where necessary to take account of any information which may be made available from additional site surveys or site monitoring.

The CEMP will form part of the main Construction Works Contracts. The Contractor(s) will take account of the structure, content, methods and requirements contained within the various sections of this CEMP as required by the Contract.

A summary of the CEMP development process and the required input from the main parties involved in the post planning and construction of the wind farm is indicated in Figure 1.3.

As such, ESB commits to safeguarding the environment through the identification, avoidance and mitigation of the potential negative environmental impacts associated with the development, construction, operation of the Derreenacrinnig Wind Farm Grid Connection.

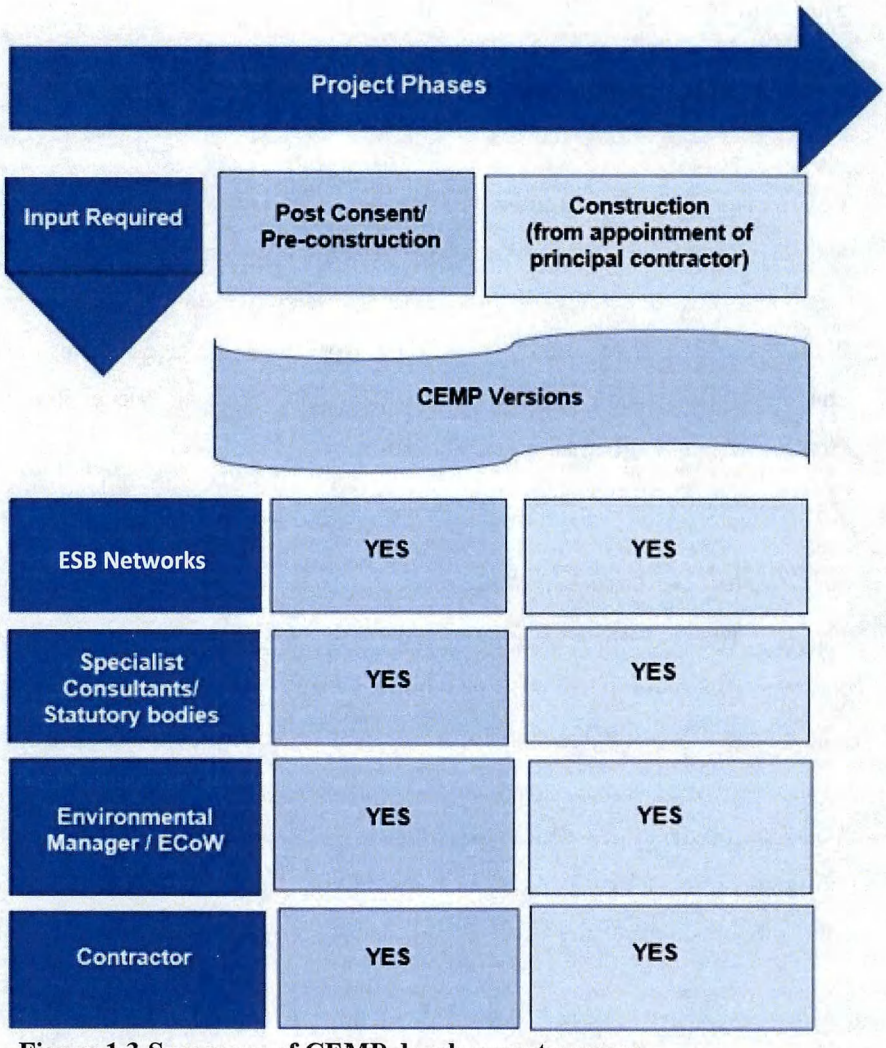


Figure 1.3 Summary of CEMP development process

1.5 CEMP ROLES & RESPONSIBILITIES

1.6 ROLES & RESPONSIBILITIES UNDER THE CMP

Prior to commencement of construction works, the Contractor will identify a core Environmental Management Group, comprising of specific project personnel and including the independent Ecological Clerk of Works (ECoW) who will be appointed by ESB. The Environmental Management Group will meet monthly to discuss the monthly environmental report, to be prepared, and will advise site personnel on areas where improvements may be made on site. The group will draw on technical expertise from relevant specialists where required and will liaise with other relevant external bodies as required.

The main roles and responsibilities of the ECoW relate to ecological compliance monitoring with regard to best practice, planning conditions and commitments; and advice provision in relation to ecological matters.

ESB will appoint an Environmental Manager (EM) who will be responsible for continued coordination and development of the CMP and any other surveys, reports or construction management plans. In conjunction with the ECoW, the EM will also review the Contractor's CMS and any other plans/documents as required by the CMP, carry out compliance auditing during the construction phase and coordinate the Environmental Management Group and necessary liaisons between ESB, the Contractor(s) and other statutory authorities.

1.7 REPORTING PROCEDURES

Figure 1.4 provides a diagrammatic outline of the general tasks and communication lines, based on the roles described in Tables 3.2 and 3.3 in Section 3, and tasks detailed in the Management Plans. The Contractor will update this information as part of the detailed CEMP.

The Environmental Incident and Emergency Response Plan (ERP) includes a figure illustrating the communications plan for reporting procedures for all potential environmental risks, hazards or incidents which may relate to ecology, water quality, dust, noise or archaeology.

1.8 CEMP STRUCTURE

The CEMP is divided into discreet Sections which are designed to be filed as separate documents / folders if required. A copy of the CEMP documents / folder(s) will be kept in the site offices for the duration of the site works and will be made available for review at any time. The Contractor's Environmental Manager will be responsible for the CEMP and will keep all sections updated throughout the construction phase.

Where the Contractor has standard documents within his own company / corporate Environmental Management Plans which cover a particular requirement of this CEMP, these will either be inserted, or cross referenced within the relevant Section of this CEMP.

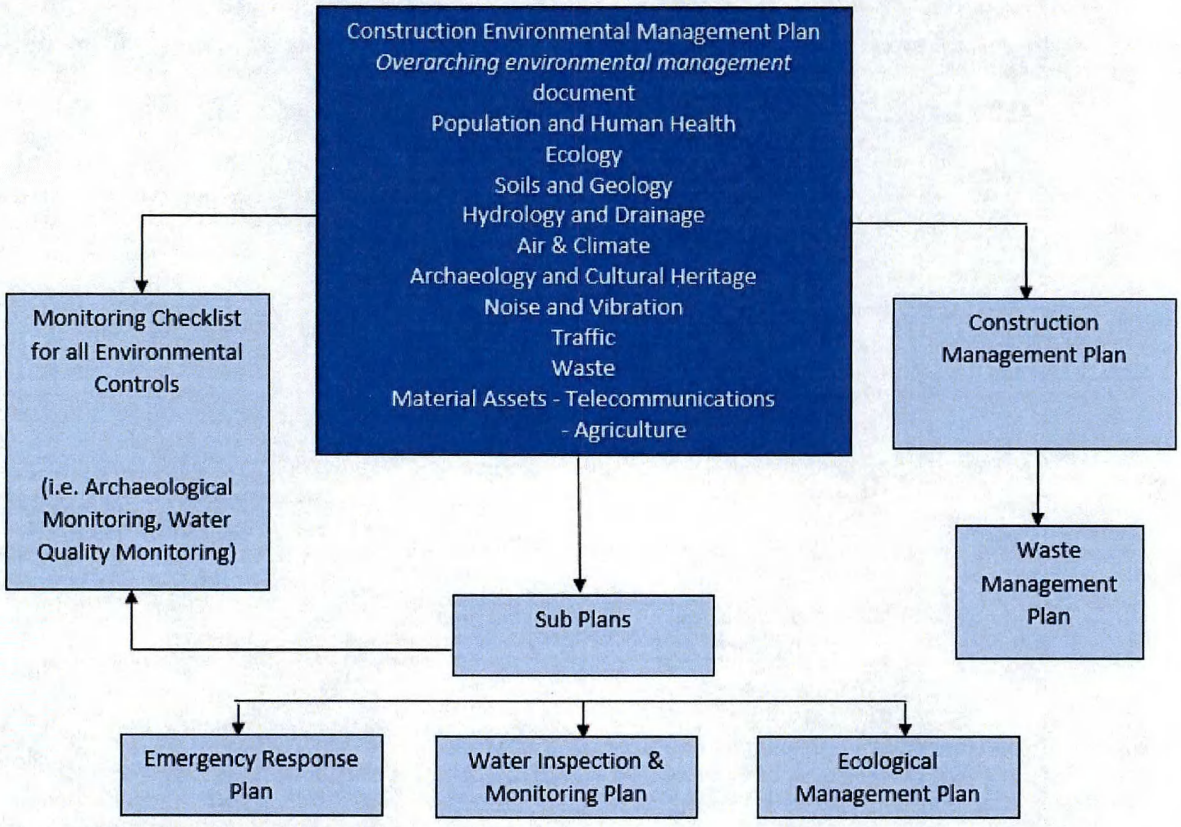


Figure 1.4 Structure of the CEMP and Sub Plans

Sections within the CEMP are listed in Table 1.2 as follows:

TABLE 1.2 OUTLINE OF DOCUMENT STRUCTURE OF THE CEMP		
Section	**Title & Brief Description**	**Contractor Development Required**
1	Introduction	No (Information purposes only)
2	Project Information Provides details on site location, scheme description. Provides details on relevant Planning History. Any documents prepared by ESB in response to Consent will be recorded in Table 2.4. Contains a record of all Scheme Amendments and a Register of Variations.	Yes Any documents prepared by the Contractor in response to Consent Conditions will be recorded by the Contractor in Table 2.4 and inserted in the CEMP where necessary. Any Scheme Amendments and / or Variations to the CEMP required during the works will be recorded by the Contractor in Tables 2.5 and 2.6.
3	Environmental Communications Plan Contains details on specific requirements relating to: • Contact details for ESB personnel, technical specialists, Contractor personnel, regulators, landowners, other stakeholders etc. • Meetings, reports and consultations • Roles and responsibilities, and	Yes The Contractor will: i) Insert contact information for regulatory authorities and other stakeholders (where not already provided) into Table 3.1. ii) Refer to Table 3.2 for details on requirements for meetings, reports and consultations.

TABLE 1.2 OUTLINE OF DOCUMENT STRUCTURE OF THE CEMP		
Section	**Title & Brief Description**	**Contractor Development Required**
	• General reporting procedures and tasks	iii) Insert information on Contractor appointments and responsibilities relating to environmental management and implementation of this CEMP into Table 3.3. iv) Refer to Figure 1.3 for a summary of the main communication lines.
4	Correspondence, Records, Reports This Section relates to document control and retention of records. The information at the start of Section 4 provides: • **A list of all documents to be retained / filed** within the CEMP. Table 4.1 provides a record of all Environmental Consents, Licences and Permits issued for the project.	Yes The Contractor will complete Table 4.1. Throughout the duration of the Contract, the Contractor will insert / file all communication records, data, field records and reports associated with Environmental Management and implementation of this CEMP into this Section 4. This Section may be sub-divided into sub-folders for specific information relating to discrete areas of Environmental Management (such as waste management, pollution prevention, water quality monitoring, ecology etc.). The filing method selected by the Contractor will be made explicit at the start of Section 4.
5	Management Plans & Available Information include the following: Management Plan 1: Environmental Incident and Emergency Response Plan (ERP) Management Plan 2: Water Quality Inspection and Monitoring Plan (WQIMP) Management Plan 3: Ecological Management Plan (EMP) Management Plan 4: Waste Management Plan (WMP) Construction Method Statement (Standalone Supplementary Document)	Yes The Contractor is required to develop the Management Plans and/or include additional information or method statements as appropriate and where required by the Contract. The development of the Management Plans will generate more site-specific documents which address particular environmental management procedures applicable for works in specified areas of the site. These Management Plans form the **Contractor's Environmental Plans (for** example, Waste Management Plan). Note the WQIMP and the EMP are considered final. Any deviation from these documents must be agreed with Cork County Council. Table 5.1 lists all Management Plans and provides information on Contractor responsibilities.

1.9 CEMP DEVELOPMENT & IMPLEMENTATION

The CEMP takes into account requirements of relevant planning conditions for the construction and operational phases of the development. It is a live document and will be developed further by the Contractor with site specific method statemen and plans as required prior to each phase of the works.

It is also effectively a document management system for recording information and data relating to environmental checks, reports, surveys, monitoring data and auditing. Upon completion of the construction works, the Contractor will submit a complete CD/USB pen drive copy of the final CEMP to ESB for their records. This final CEMP will include electronic scans of all hard copy reports, data, field records and correspondence which are gathered over the course of the construction works.

While version numbers will remain fixed depending on the stage of the project, it is acknowledged that the CEMP is a continually evolving document which can be updated in part or whole at any stage of the Project. Hence, revision and document distribution records are included at the front of each CEMP document to enable individual documents to be updated at any time.

A summary of the CEMP development process and the required input from the main parties involved in the post planning and construction of the project is indicated in Figure 1.3.

2 ENVIRONMENTAL CONTROLS

The detailed Construction Management Plan will be informed by the guidance documents and best practice measures listed below. This Construction Management Plan will be adhered to by the contactor and will be overseen by the project representative/foreman.

The Construction Management Plan is subject to review and are to be agreed in advance of any works taking place on site. In some instance, with reference to works which may present a risk of sediment release, it will be requirement that the Inland Fisheries Ireland (IFI) are consulted with respect to the development of the Construction Management Plan.

The following documents should contribute to the Construction Management Plan supplemented by specific additional measures proposed below:

- Forestry and Water Quality Guidelines-Forest Service (DMNR, 2000)
- Forest Operations & Water Quality Guidelines (Coillte, 2009)
- Guidelines on Protection of Fisheries during Construction Work in and Adjacent to Water (IFI, 2016).
- Environmental Guidance: Drainage Maintenance & Construction (OPW, 2019).

2.1 POPULATION AND HUMAN HEALTH

Human Health – Air Quality – Mitigation Measures

- Approach roads and construction areas will be cleaned on a regular basis to prevent mud built-up and from migrating around the site and off-site;
- 'Damping down' will be used if dust becomes an issue on any part of the site;
- Vehicles delivering materials to the site will be covered appropriately when transporting materials that could result in dust, e.g., crushed rock or sand;
- Ready-mix concrete will be delivered to site, and it is envisaged that no batching of concrete will take place on site;
- Public roads along the grid route will be inspected regularly and if dirt/mud is identified that could result in dust generation then the road will be cleaned as necessary;
- Stockpiling of materials will be minimised and ideally will involve deliveries as needed. Where materials need to be stockpiled for part of a day, it will be carried out in such a way as to minimise their exposure to wind and covering or damping down will be carried out where needed; and
- A complaints procedure will be implemented on site where complaints will be reported to the site manager, logged and appropriate action taken.

Human Health – Water Quality – Mitigation Measures

Management of excavation seepages and subsequent treatment prior to discharge into the drainage network will be undertaken as follows:

- Appropriate interceptor drainage, to prevent upslope surface run-off from entering excavations will be put in place;
- Earthworks and trenching will be avoided during periods of prolonged rainfall;
- If required, pumping of excavation inflows will prevent build-up of water in the excavation;
- The interceptor drainage will be discharged onto natural vegetated surfaces and not directly to surface waters;
- In the unlikely event that dewatering is required, the pumped water volumes will be discharged via sediment attenuation ponds adjacent to excavation areas, or via specialist treatment systems such as a Siltbuster unit;
- There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur;
- Daily monitoring of excavations by a suitably qualified person will occur during the construction phase. If high levels of seepage inflow occur, excavation work should immediately be stopped and a geotechnical assessment undertaken; and,
- A mobile 'Siltbuster' or similar equivalent specialist treatment system will be available on-site for emergencies in order to treat sediment polluted waters from settlement ponds or excavations should they occur. Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit. The mobile units are specifically designed for use on construction-sites and for use on ducting/pipeline projects where the site activity changes on a daily basis.

Mitigation for hydrocarbon spillages:

- Seal/line sub-soil and bedrock at the Proposed Development Site by laying a proprietary geosynthetic clay liner where infrastructure is to be provided directly on top of bedrock or where the thickness of sub-formation overburden is less than 0.6m;
- On site re-fuelling of machinery at the Proposed Development Site and at those areas of construction works associated with the grid connection will be carried out using a mobile double skinned fuel bowser. The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site and will be towed along the site by a 4x4 jeep to where machinery is located. The 4x4 jeep will also carry fuel absorbent material and pads in the event of any accidental spillages. There shall not be any refuelling within a 20m buffer of all site drains. The fuel bowser will be parked on a level area in the construction compound when not in use and only designated trained and

competent operatives will be authorised to refuel plant on site. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations;

- No Fuels will be stored on site.
- The construction plant used should be regularly inspected for leaks and fitness for purpose;
- An emergency response plan for the construction phase is included as Management Plan 1 attached to this document.
- Spill kits will be available to deal with accidental spillages at the Proposed Development Site and at the areas of construction works associated with the grid connection.
- Mobile Portaloos will be provided at the construction location.
- Water supply for drinking will be brought to site in bottles;
- No water will be sourced on the site or discharged to the site; and
- No waste water facilities are required at any of the areas where construction work is required associated with the grid connection due to mobile nature of works at these sites.

Mitigation for release of cement-based products are:

- Seal/line sub-soil and bedrock by laying a proprietary geosynthetic clay liner where infrastructure is to be provided directly on top of bedrock or where the thickness of sub-formation overburden is less than 0.6m;
- No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place;
- Where possible, pre-cast elements for joint bays and culverts will be used;
- No washing out of any plant used in concrete transport or concreting operations will be allowed at the Site;
- Where concrete is delivered to the Site, only the chute need be cleaned, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water is to be tanked or discharged to a siltbuster and removed from the site to a suitable, non-polluting, discharge location;
- Use weather forecasting to plan dry days for pouring concrete; and,
- See that pour site is free of standing water and plastic covers will be ready in case of sudden rainfall events.

2.2 ECOLOGY

2.2.1 Proposed Grid Connection Route

Originating at the Derreenacrinnig West Wind Farm, the proposed OHL route travels uphill across an area of wet heath occurring on the south-facing slopes of the ridge at Derreenacrinnig West. Descending from the crest of the ridge, the route cuts through 300m of first and second rotation forestry

before passing through an area dominated by rough unenclosed grazing and wet heath. The route then travels west along the Mealagh River valley, predominantly through areas of improved pasture and wet grassland. The route turns northwest at Glanareagh hill and crosses the Mealagh River 1km southeast of Ardrah Bridge, before rising up the north side of the valley to Ardrah townland. From here, the route turns southwest again and descends steadily towards Shandrum, crossing areas of improved and unimproved grassland with occasional areas of heath and mature coniferous forestry. Between Shandrum and Ballylickey substation, the route environs are dominated by improved grassland and grassy verge along the margins of the public road in which the underground section of the route will be laid.

2.2.2 Existing Wind Farm Site

The partially constructed wind farm site is located in the townland of Derreenacrinnig West and is situated in West Cork, approximately 5km north-west of Drimoleague.

Section 1 of the grid Connection works is within the wind farm site.

The northern part of the site drains via a tributary into the Mealagh River, which flows into the sea at Bantry. The southern part of the site is drained by a tributary of the Ilen River which flows into the sea to the west of Skibbereen. The River Ilen is an important salmonid river and contains stocks of salmon and sea trout.

2.2.3 Ecological Mitigation Measures

All mitigation measures have been developed in the context of national and international legislative guidance for the protection and management of flora, habitats of conservation importance, fauna and aquatic ecological interest. The description of mitigation measures is provided in terms of mitigation by avoidance, reduction and remediation.

Mitigation by avoidance has therefore sought to maximise the distance to any designated nature conservation sites. This will be achieved as a consequence of avoidance; the actual benign nature of the proposed development; through the implementation of best-practice construction methods; and adherence to all relevant environmental standards and guidance.

Guidelines to be adhered to in the delivery of the CEMP and method statements include the following:

- *'Guidelines on protection of fisheries during construction works in and adjacent to waters'* (IFI, 2016)
- *'Guidelines for the treatment of Badgers prior to the construction of National Road Schemes'* (NRA, 2005)
- *'Guidelines for the protection and preservation of trees, hedgerows and scrub prior to, during and post construction of National Road Schemes'* (NRA, 2006a)

- *'Guidelines for the treatment of bats during the construction of national road schemes'* (NRA, 2006b)
- *'Guidelines for the treatment of Otters prior to the Construction of National Road Schemes' (NRA, 2006c)*
- *'Guidelines for the crossing of watercourses during the construction of national road schemes' (NRA, 2008)*
- *'Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads'* (NRA, 2010)

An Ecological Clerk of Works (ECoW) and Environmental Manager will also be employed for the duration of the construction works.

All mitigation measures outlined and incorporated into this CEMP will be adhered to. At a more targeted level, daily method statements will be drawn up by the contractor detailing work practices for precise locations.

2.2.3.1 Proposed Grid Connection Route – Mitigation Measures

- Existing farm tracks will be utilised to facilitate access to the pole locations where possible. Where existing tracks are not in situ, temporary matting will be used to access the pole locations where necessary to avoid ground rutting, damage, and erosion of soil.
    - All construction works should be set back a minimum of 25m from watercourses. No poles or vehicles should be installed or operate within this buffer zone.
    - Construction works will be confined to the minimum area possible. Minimum removal of vegetation will take place at pole locations.
    - The footprints of all temporary access routes will be kept to the minimum compatible with sound engineering practice.
    - Construction traffic and machinery movement will be confined to specific roads and access routes. Construction vehicles to be used on peatland habitats should be of low ground bearing pressure.
    - Trampling and the use of machinery on saturated, quaking surfaces will be avoided. The locations of poles will be configured to minimise the number occurring within wet grassland and wet heath and the use of brash mats will be used if required.

- Any watercourses with connections to the Ilen River, which are to be crossed as a result of the proposed development, will be crossed via a free spanning bridge rather than culverted in order to prevent potential impacts to the freshwater pearl mussel. By bridging the watercourses no part of the stream bed or banks will be disturbed minimising the movement of suspended solids. Works in the vicinity of watercourses will be kept to a minimum and will be closely monitored.

2.3 SOILS AND GEOLOGY

2.3.1 Subsoil and Bedrock Removal – Mitigation Measures

Mitigation by Avoidance

- The soil and subsoil which will be excavated during the construction phase will be mounded local to the trench. Where the trench is in an untrafficed area, selected excavated material will be reinstated into the trench. Within fields, grass/topsoil will be restored;
- No trenches will be constructed in any designated sites such as NHAs or SACs or Features of Geological Significance and such areas have been avoided in the selection of the grid route;

Mitigation by Reduction

- The excavation of materials should be minimised as far as possible on-site during the construction phase;
- Topsoil/grass sods will be stored for the shortest time possible (1-5 days). Where possible, the upper vegetative layer will be stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation.
- Any excess temporary mounded spoil in storage for longer periods (e.g., at joint bays) will be covered by a polyethylene sheet or seeded at the earliest opportunity. This will prevent erosion of soil. Silt fences will be installed around stockpiles to limit movement of entrained sediment in surface water runoff.
- In order to minimise erosion of mineral subsoils and loss of organic matter, stripping of topsoil will not take place during extremely wet periods (to prevent increased silt rich runoff). Temporary drainage systems will be required to limit runoff impacts during the construction phase.
- Bog mats will be used to support vehicles on soft ground, reducing soil erosion and avoiding the formation of rutted areas, in which surface water ponding can occur; and

2.3.2 Storage and Stockpiles – Mitigation Measures

Mitigation by Avoidance

- There will be no permanent stockpiles of excavated materials left on-site following completion of the grid connection. Surplus excavated material will be removed off site to a licenced landfill as the work progresses.

Mitigation by Reduction

- Any excess temporary mounded spoil in storage for long periods will be covered by a polyethylene sheet or seeded at the earliest opportunity. This will prevent erosion of soil. Silt fences will be installed around stockpiles to limit movement of entrained sediment in surface water runoff. The use of bunds around earthworks and mounds will prevent egress of water from the works; and
- In order to minimise erosion of mineral subsoils, stripping of topsoil will not take place during extremely wet periods (to prevent increased silt rich runoff). Temporary drainage systems will be required to limit runoff impacts during the construction phase.

2.3.3 Vehicular Movements – Mitigation Measures

Mitigation by Avoidance

- Plant and machinery should be restricted to movements within the delineated development footprint.
- In order to minimise erosion of mineral subsoils stripping of topsoil will not take place during extremely wet periods (to prevent increased silt rich runoff). Temporary drainage systems will be required to limit runoff impacts during the construction phase.

Mitigation by Reduction

- Only plant and machinery selected specifically for construction of the works will be used. Once tasks are completed, plant will be removed from site.

2.3.4 Ground Stability – Mitigation Measures

Mitigation by Avoidance

- Mitigation measures proposed for the trenching and excavation works will involve an experienced engineer visiting the sites of works to supervise all excavations and who will also review and approve the specific methodologies in use at specific locations.

Mitigation by Reduction

- Any excavations on identified unstable subsoils (very low likelihood) which could weaken the upslope area of the soil should be supported by a structure such as a trench sheeting or trench boxes to prevent lateral slippage;
- In any excavations on unstable soil, the pore water pressure should be low at all times. Excessive ponding of water should not be permitted in newly excavated areas and following rainfall events, sumps should be drained to carry water away, thus preventing a build-up of pore water pressure which could potentially lead to instability of the soils; and
- Heavy rainfall events are a catalyst for landslips/trench collapses. The emergency response system will be developed for the construction phase. This will involve 24-hour meteorological forecasting. Where the likelihood of an extreme rainfall event such as a 1:100-year rainfall event is predicted, responses such as cessation of construction activity on site until such a time as the runoff has flowed away from the excavations will be implemented.

2.3.5 Soil Contamination – Mitigation Measures

Mitigation by Avoidance

- All construction materials imported to site during the construction period, for example, rock, cement, ducting, cables or cable drums etc., will be removed from site following completion.
- As far as possible, a balance should be maintained between materials excavated and those brought to site for construction to reduce the need for storage and disposal of waste, particularly foreign materials which may have a different geochemistry or hydrochemistry. Recycling and reuse of materials on-site will be carried out as much as possible. It is envisaged that rock will be sourced from the adjacent quarries to be compatible with the local geochemistry.

Mitigation by Reduction

- Minimal refuelling or maintenance of construction vehicles or plant will take place on site.
- Where On-site re-fuelling is essential, it will be undertaken using a double skinned bowser with spill kits on the ready for accidental leakages or spillages.
- No fuels will be stored on site.
- The plant used during construction will be regularly inspected for leaks and fitness for purpose; and,
- Spill kits will be available to deal with and accidental spillage in and outside the re-fuelling area.
- Excavated road surfacing material will be removed off site to a Licenced Facility.

2.3.6 Subsurface and Underground Effects – Mitigation Measures

- Subsoil and bedrock will be lined with a geosynthetic clay liner where infrastructure is to be laid directly on top of bedrock and where the thickness of sub-formation overburden is less than 0.6m.

2.4 HYDROLOGY AND DRAINAGE

2.4.1 General

Note constructed drainage will be installed **prior** to the main construction activity of the project.

Interface with road drainage will be minimised and any road drainage temporarily disrupted will be restored at the end of the working day.

2.4.2 Constructed Drainage – Mitigation Measures

Potential impacts on site hydrology, surface water course hydrology and associated ecologies during the construction phase are mitigated by designing a system which causes minimal disturbance to the current hydrological regime, and which minimises suspended sediment loading. Reduction of sediment loading is important since the main watercourses drain into the Mealagh River to the north, and the Ilen River to the south which is an important salmonid river. Mitigation measures are required to protect against suspended solid loading of headwater drainage during the construction stage of the project. This is to be achieved by:

a. - Appropriate interceptor drainage, to prevent upslope surface run-off from entering excavations will be put in place;
- Earthworks and trenching will be avoided during periods of prolonged rainfall;
- If required, pumping of excavation inflows will prevent build-up of water in the excavation;
- The interceptor drainage will be discharged onto natural vegetated surfaces and not directly to surface waters;
- In the unlikely event that dewatering is required, the pumped water volumes will be discharged via volume and sediment attenuation ponds adjacent to excavation areas, or via specialist treatment systems such as a Siltbuster unit;
- There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur;
- Daily monitoring of excavations by a suitably qualified person will occur during the construction phase. If high levels of seepage inflow occur, excavation work should immediately be stopped and a geotechnical assessment undertaken; and,

- A mobile 'Siltbuster' or similar equivalent specialist treatment system will be available on-site for emergencies in order to treat sediment polluted waters from settlement ponds or excavations should they occur. Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit. The mobile units are specifically designed for use on construction-sites and ducting/pipeline projects where the site activity changes on a daily basis.

b. Drainage and associated pollution control measures shall be implemented on site before the main body of construction activity commences. Where possible drainage control should be installed during seasonally dry ground conditions.

c. Silt fencing will be used between the trenches and any watercourses.

2.4.3 Surface Water Flow – Mitigation Measures

Increased Runoff and Hydraulic Overloading

Additional surface water runoff emanating from the construction phase of the development requires hydraulic runoff buffering. The main reason for concern for additional site runoff is that during the construction phase, surface water drainage is at risk to water quality deterioration. It is essential therefore that an environmental management programme that checks, audits and facilitates repair and in places improvement of the constructed drainage scheme is undertaken as part of mitigation measures for surface water runoff during the operation phase.

Surface water flows in all waterways and drainage should not be impeded in any way by the proposed development.

Trenching shall be avoided during periods of prolonged or heavy rainfall.

Dewatering / Diversion of Drainage

There will be no interception, diversion, infilling or dewatering of water drainage channels by the proposed development; therefore, no mitigation is required.

2.4.4 Surface Water Quality – Mitigation Measures

Release of Suspended Solids

In order to mitigate the impact posed by release of suspended solids to the surface water environment, the following mitigation measures are recommended:

a. Protection of riparian zones around drainage by restricting construction disturbance to outside of 50 m buffer zones from streams and drains. This will protect what vegetation that is in place and provides some filtering of runoff erosion from the site.

b. Silt fencing shall be installed between the trenches and any watercourses.

c. Where water is to be pumped from excavations, it will be discharged to a mobile siltbuster. Treated water will be removed from site by tanker and disposed of to a non-polluting discharge location such as a wastewater treatment plant.

d. The drainage and attenuation system should be installed prior to the main construction activities to control increased runoff and associated suspended solids loads in discharging waters from the development areas. This may involve the construction of temporary drainage ditches, the installation of silt traps, stilling ponds and the implementation of prescribed buffer zones. Where possible drainage control should be installed during seasonally dry ground conditions.

e. Monitoring of drainage discharge during the construction stage is recommended. Monitoring should be undertaken during and immediately following high rainfall events. As part of the construction phase environmental management plan regular checking and maintenance of pollution control measures are required, with an immediate plan for repair or backup if any breaches of design occur.

Risk of Pollution from Hydrocarbons Leakage

- To control and contain any potential hydrocarbon and other harmful substances spillage by vehicles during construction, it is recommended where possible to refuel plant equipment off the development site, thus mitigating this potential impact by avoidance.
- There is also the risk of leakage from vehicles and plant equipment during construction activity, as opposed to refuelling. The plant equipment used on site will require regular mechanical checks and audits to prevent spillage of hydrocarbons on the exposed ground (during construction).

Waste Water Sanitation

- During the construction phase, a self-contained port-a-loo with an integrated waste holding tank should be used on site for toilet facilities. This should be maintained by the service contractor on a regular basis and removed from the site on completion of the construction phase. In relation to a water supply for the site office and service area, bottles of fresh water should be brought to the site each day and disposed from the site to a suitable wastewater drainage system. In summary, wastewater of all kinds should be taken off site for disposal / treatment to controlled facilities.

2.4.5 Groundwater Flow – Mitigation Measures

Excavation Seepage / Inflows

- During the construction phase of the project, the development areas (trenches, joint bays) should be monitored daily for evidence of groundwater seepage, water ponding and wetting of previously dry spots. Any water ingress that may be encountered in the upper weathered zone of the bedrock during the construction phase should be intercepted by a drain and diverted after attenuation, to an existing artificial drainage channel or a natural watercourse. The design of the drainage must take into account factors of slope stability and where possible, should be impermeable and closed at the base. Any water ingress that may be encountered in the weathered bedrock / mineral subsoil during the construction phase should be intercepted by an interceptor drain and diverted to the constructed drainage system for pollution control attenuation prior to discharge. This diversion of seepage is likely to be sufficient for most parts of the construction activity. All pumped water must be captured, treated within a siltbuster and directed to constructed drainage for attenuation. No freshly pumped water must enter the existing drainage network directly or be pumped out onto the adjacent blanket bog habitat.

Lowering of Water Table

- No impact is anticipated on the regional water table as a function of the proposed development; therefore, no mitigation is required.

Dewatering of Wells

- There will be no dewatering or hydraulic impact on groundwater supply as a function of the elevated position of the site and absence of wells from within 2 km of the proposed development. No mitigation is required.

2.4.6 Groundwater Quality– Mitigation Measures

Groundwater Contamination

The main threat to groundwater quality is the introduction of hydrocarbons to the site. In order to mitigate groundwater contamination by hydrocarbons in particular, the following are strongly recommended:

a. No fuel storage should occur on site and, ideally, re-fuelling of plant equipment should occur off-site at a controlled fuelling station.
b. On site re-fuelling of machinery at the Proposed Development Site and at those areas of construction works associated with the grid connection will be carried out using a mobile double

skinned fuel bowser. The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site and will be towed along the site by a 4x4 jeep to where machinery is located. The 4x4 jeep will also carry fuel absorbent material and pads in the event of any accidental spillages.

c. If a significant hydrocarbon spillage does occur, the contractor on behalf of the developer must have an approved and certified clean-up consultancy available on 24-hour notice to contain and clean-up the spill. The faster the containment or clean-up starts, the greater the success rate, the lower the damage caused and the lower the cost for the clean-up.

The following mitigation measures are recommended in relation to non-hydrocarbon potential contamination:

a. Wastewater from sanitation facilities will be mitigated by use of temporary and portable sanitary facilities that are self-contained. These facilities will not interact with the existing hydrological environment in any way, and they will be maintained, serviced and removed from site at the end of the construction phase.

b. Inorganic nutrients such as nitrogen and phosphorus compounds (if present in excavated sediment) will be controlled by attenuation of the suspended solids to which they adsorb to and by retention of discharge waters within stilling ponds to allow peak runoff to recede prior to discharge. It is noted that the baseline surface water chemistry (under low flow regime) indicates low total nitrogen and low, albeit trace concentrations of phosphorus. It is expected overall that the site is a low nutrient environment; therefore, nutrient loading should not pose a major threat to the site's hydrology or hydrogeology.

c. Bacteriological contamination arising from availability of nutrients (e.g., sanitation, livestock etc) will be mitigated by appropriate self-contained sanitation facilities (above) and livestock grazing control on the site overall, but particularly on areas zoned for excavation and development.

d. There is low risk of mobilising trace metals that may naturally be present. The potential impact may arise from introduced water percolation with excavated bedrock substrate. Concentrations of trace metals are usually low in the natural environment; however, water quality should be checked for metals concentration before, during and after the construction phase (e.g., S.I. No. 12 of 2001; Ref. 14).

Pollution of Groundwater Supply

Due to the absence of recorded wells proximal to the site, specific measures for resource protection are not required, outside of preventing any deterioration in the existing groundwater body as per requirements of the Water Framework Directive (Ref. 2).

2.4.7 Watercourse Crossings

Watercourses: The entire electricity line crosses 11 no. watercourses of varied length and order along its journey, c. 14.05 km in length. Table 2.1 below details the watercourses crossings by the proposed electricity line, either overhead or underground. Works will accommodate an underground line for the crossing of the Glanareagh stream order 3. No instream works will be carried out. The duct will be laid within the roadway above the culvert/bridge

TABLE 2.1 WATERCOURSES CROSSINGS FOR THE DEVELOPMENT

River Water Body Code	Name of Watercourse	Segment Code	Order	Overhead / Underground
IE_SW_21M010200	-	21_5455	1	OHL
IE_SW_21M010200	-	21_5267	2	OHL
IE_SW_21M010200	Barnagowlane_West	21_5263	2	OHL
IE_SW_21M010200	**Glanareagh**	**21_5925**	**3**	**UGC (To Be Built) within bridge over watercourse**
IE_SW_21M010200	Mealagh	21-4758	4	OHL
IE_SW_21M010200	-	21_5329	3	OHL
IE_SW_21M010400	Maularaha	21_78	1	OHL
IE_SW_21M010400	Ards_More21	21_79	2	OHL
IE_SW_21M010400	Maulikeeve	21_3023	1	OHL
IE_SW_21O070500	Ballylicky	21_1007	1	OHL
IE_SW_21O070500	Ballylicky	21_21836	1	OHL

There are two other watercourses in the vicinity of the grid connection viz. the Derreenacrinnig East Stream which is 80m from the cable location at the wind farm end of the route and the Ballylicky Stream which occurs near the Ballylicky Substation end of the route.

The Contractor must implement the following to ensure the watercourses are projected during crossings:

- Inland Fisheries Ireland (IFI) have published guidelines relating to construction works along water bodies entitled: 'Requirements for the Protection of Fisheries Habitats during Construction and Development Works at River Sites' and these guidelines will be adhered to throughout the construction of the proposed development.
- Works will not be undertaken during or after heavy rainfall.
- Works will only be undertaken during low-flow conditions.
- The works area will be clearly marked out with fencing or flagging tape to avoid unnecessary disturbance to vegetation.
- Where present, a 10m vegetative buffer zone will be maintained between the disturbed area ands and the watercourse bank.
- There will be no storage of materials, equipment, excavated material or overnight parking of machinery within the 10m buffer zone.
- Double silt fencing will be placed upslope of the buffer zone on each side of the watercourse. The silt fencing will have removable 'gates' as required to allow access of the excavator into the site and exit from the site during heavy rainfall or at night.
- The silt fencing will be extended at least 10m upstream and downstream of the crossing location works.
- Bog mats will be used beneath the excavator, inside the 10m vegetative buffer zone, to prevent soil erosion/rutting and potential surface water quality impacts from localised surface water runoff.
- Operation and use of equipment inside the 10m buffer zone will be kept to a minimum to avoid unnecessary disturbance.
- Temporary storage of excavated material will be undertaken outside of the 10m buffer zone on flat ground or within a hollow area. A containment berm will be placed downslope of the excavated material which in turn will be surrounded by secondary silt fence protection to prevent saturated soil from flowing back into the watercourse.

- Disturbance of bankside soils and watercourse sediments will be kept to the minimum required for the cable laying process to avoid any unnecessary impact on the watercourse morphology.

2.4.8 Surface Water Quality Monitoring

- During the construction phase of the project, water quality in the streams and outflow from end points from the drainage and attenuation system should be monitored, field-tested and laboratory tested on a regular basis during different weather conditions. This monitoring along with the visual monitoring outlined below will help to ensure that the mitigation measures that are in place to protect water quality are working.
- During the construction phase of the project, the development areas should be monitored daily for evidence of groundwater seepage, water ponding and wetting of previously dry spots, and visual monitoring of the effectiveness of the constructed drainage and attenuation system to ensure it does not become blocked, eroded or damaged during the construction process

The Water Quality Inspection and Monitoring Plan (Management Plan 2) for the consented grid connection outlines the surface water monitoring requirements the Contractor must undertake.

The locations are shown in Figure 1.2 of tis CEMP and in detail, in the Ecological Management Plan (Management Plan 3). The locations are as follows:

Section 1 – Derreenacrinnig East Stream – See Figure 3 of Management Plan 3.

Section 2 – Glanareagh Stream – See Figure 5 of Management Plan 3.

Section 7 – Ballylickey Stream – See Figure 11 of Management Plan 3.

2.4.9 Pollution Contingency Plans

An Emergency Response Plan is attached as Management Plan 1.

2.4.10 Construction Requirements

The Ecological Clerk of Works (ECoW) will be consulted with regard to the watercourse crossing works. Surveys by the ECoW will be carried out immediately prior to construction so that adequate mitigation is built into the design in respect to aquatic organisms and avoiding impact on downstream ecology.

The Archaeological Clerk of Works (ACoW) will also be consulted with regard to the watercourse crossing works. All known sites of Cultural Heritage will be fenced to avoid accidental damage during the construction phase. All groundworks to be undertaken within identified archaeologically sensitive areas will be monitored by the ACoW. All works associated with cultural heritage will be overseen and coordinated by the ACoW.

Prior to the commencement of the watercourse crossing works an on-site meeting will be held where deemed necessary. This meeting will be between the *Contractor*, ECoW, EM, ACoW, and Consultees, where appropriate. The purpose of this meeting is to agree specific requirements and working practices taking account of any seasonal/weather factors. During the watercourse crossing construction works, both regular and periodic consultation may be made with the Consultees as required / agreed at this commencement meeting.

2.5 AIR AND CLIMATE

The proposed development may result in a temporary negative impact on local air quality during the construction phase, as a result of localised emissions from construction traffic and dust emissions during dry weather periods.

2.5.1 Air and Climate - Mitigation Measures

Good practice site procedures will be followed by the appointed contractor to prevent dirt and dust being transported onto the local road network. Good practice site control measures are likely to include the following:

- Approach roads and construction areas will be cleaned on a regular basis to prevent mud built-up and from migrating around the site and off-site;
- 'Damping down' will be used if dust becomes an issue on any part of the site;
- Vehicles delivering materials to the site will be covered appropriately when transporting materials that could result in dust, e.g., crushed rock or sand;
- Ready-mix concrete will be delivered to site, and it is envisaged that no batching of concrete will take place on site;
- Public roads along the grid route will be inspected regularly and if dirt/mud is identified that could result in dust generation then the road will be cleaned as necessary;
- Weather will be monitored so that during periods of dry weather when dust is likely to become airborne, sporadic damping down of access tracks (and other surfaces as necessary) will be undertaken;
- Stockpiling of materials will be minimised and will be carried out in such a way as to minimise their exposure to wind where possible and damping down will be carried out where needed; and
- A complaints procedure will be implemented on site where complaints will be reported to the site manager, logged and appropriate action taken.

2.6 ARCHAEOLOGY AND CULTURAL HERITAGE

Archaeology and Cultural Heritage Mitigation Measure

- All ground disturbance works required by the scheme in green-field areas will be monitored by a suitably qualified archaeologist during the construction phase. This is a standard archaeological mitigation strategy undertaken as part of infrastructure schemes that, while they have no predicted impacts on the recorded archaeological resource, may have a potential impact on unrecorded, sub-surface archaeological deposits or artefacts.
- Archaeological monitoring of the excavation of the underground cable trench in Shandrum Beg townland will be undertaken while the trench extends through the combined zones of notification of ringfort (C0105-026----) and radial stone cairn (CO105-058----).

Please note that all mitigation measures are subject to prior approval by National Monuments Service-Department of Culture, Heritage and the Gaeltacht.

2.7 NOISE AND VIBRATION

There are no national Guidelines for construction noise. However, limits for construction noise are generally set below 65 dB LAeq lh with no Sunday operations. The noise from the construction site will be kept well below the aforementioned targets.

The construction of the development including removal of the OHL will result in some localised noise emissions from construction plant and machinery. Due to the generally transient nature of the construction works, noise will only be experienced on a temporary basis.

2.7.1 Noise and Vibration - Mitigation Measures

Mitigation by Avoidance

- No blasting will be carried out during construction. Heavy construction works such as excavation, rock breaking (if required), use of heavy machinery etc. will be carried out between 08:00 and 18:00 Monday to Friday and on Saturday between 08:00 and 13:00. Heavy construction will not take place on Sundays or Bank Holidays.

Mitigation by Reduction

- Noise levels will be controlled in accordance with the principles of BS 5228:1984 Noise Control on Construction and Open Sites. Construction equipment will be maintained in accordance with the EC (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1988, SI 320 of 1988. Heavy equipment will be, where possible, enclosed, located away from sensitive sites and shut down when not in use.

2.8 TRAFFIC

2.8.1 Traffic Mitigation Measures

The construction of the UGL within the road network will involve trench excavation, vehicular movements, and traffic diversions. The construction of the UGL is likely to impact traffic flows and

movements but will be constructed in accordance with relevant measures discussed below. The following sections discuss the measures which will be implemented to ensure the safety of both construction workers and all road users.

The installation of underground infrastructure is a routine activity and is now a common occurrence in both urban and rural areas. The contractor employed to install the electricity line will liaise with Cork County Council to ensure that traffic management systems are being implemented to the highest standards. The precise method of traffic management applicable to each location of works will be determined by the contractor prior to the commencement of development, following consultation and in agreement with Cork County Council.

The following is a non-exhaustive list of mitigation measures which may be implemented during the construction and installation phases:

- In the first instance, traffic impact has been minimised by designing the cable for installation in pre-laid ducts, rather than directly installing the cable in the ground. The latter would require the entire trench from joint bay to joint bay to be fully open for cable laying. This significantly reduces the period of time during which the trench is open.
- Road traffic management measures such as single lane closures and full road closures will be implemented, as appropriate, on a rolling basis to provide a safe construction environment. The closure method employed will depend on the road width and condition, and minimum width regulations will be adhered to for single lane closures as outlined in "*Guidance for the Control and Management of Traffic at Road Works*" and *"Chapter 8 - Temporary Traffic Measures and Signs for Roadworks*" and in agreement with Cork County Council.
- All work on public roads will be subject to the prior approval of a road opening license application.
- Where a full road closure is required, the contractor, in consultation with Cork County Council and local residents, will implement a suitable and appropriate diversion. The diversion will be accompanied by information signage to advise road users of the diversion route.
- Construction vehicles will be instructed to use only the approved and agreed means of access, and movement of construction vehicles will be restricted to these designated routes.
- All construction vehicles travelling to and from the construction zone (for 'in road' works) will park within the construction zone (approximately 200m long). All drivers will be briefed on general rules associated with the works e.g., no parking in private entrances etc.
- Speed limit compliance will be emphasised to all staff and contractors prior to the commencement of construction during site induction and will be strictly enforced throughout the construction phase.
- No parking of cars by persons associated with the project will be permitted on any part of the public road that is not closed to traffic.

- Road sweeping will be carried out as appropriate to ensure debris does not adversely affect the road condition.
- Appropriate signage will be erected. This will include temporary signage indicating site access, signage notifying locals of the upcoming works, general information signage to inform road users of the nature and location of works and diversions, and signage in local communities providing relevant contact details. Signage will be checked regularly to ensure that it remains in place and is secure. Figure 2.1 below outlines indicative signage for a single lane closure.
- Roads which will be impacted along the proposed route will be reinstated to the agreed specification of Cork County Council.

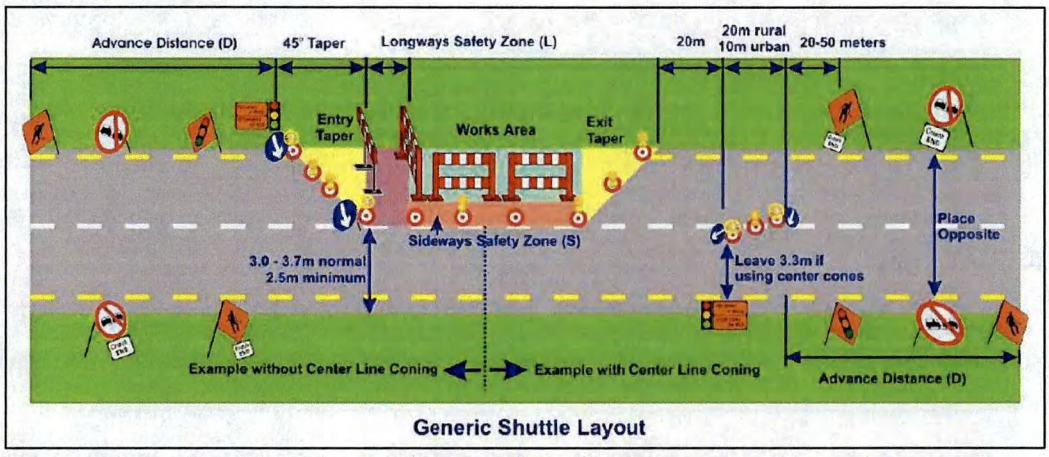


Figure 2.1: Typical Work Zone and Signage for a Single Lane Closure

In summary, there will be intermittent disruption to local traffic during the construction phase of the proposed development. The disruption will be managed to ensure that the level of inconvenience experienced by local receptors is kept to an absolute minimum. Local receptors will be informed of the location and timing of road closures and will be advised of the relevant diversions to be implemented, where required. However, given that direct works within the road network are short, it is unlikely that closures will last in excess of 1 no. day at each crossing location.

2.9 WASTE

There will be some minor instances of waste generation during the removal and construction, predominately resulting from packaging associated with materials and products used in the construction phase. Surplus Soil excavation and reinstatement methodologies are also relevant to the production of waste. A site specific Waste Management Plan (WMP) has been developed and is outlined in Management Plan 4 as an annex to the CMP.

2.9.1 Waste Mitigation Measures

The following measures will be strictly enforced during construction:

- All waste arising during the construction phase will be managed and disposed of in a manner that complies with the Waste Management Act 1996 and associated amendments and regulations.
- Any excess construction material shall be immediately removed from the area and disposed of to a suitable licensed facility.

2.10 MATERIAL ASSETS

2.10.1 Telecommunications-Mitigation Measures

The contractor will have regard to the detailed design to be provided by the electricity line designer. This design will indicate the location of existing telecommunications infrastructure and services. Appropriate construction methodologies will ensure that the proposed development does not impact upon these services. In the event that the proposed development is located within close proximity to existing services, the service provider will be contacted and consulted with regarding construction methods, realignment or relocation if necessary and reinstatement requirements.

2.10.2 Agriculture – Mitigation Measures

The proposed development is located on private lands which are predominately used for agricultural purposes. The construction phase may result in some minor temporary disruption to landowners during construction but following reinstatement, there will be no long-term impact or significant loss of agricultural land. To ensure environmental impacts do not result, the following measures will be implemented:

- Any required restoration to fences, walls or drains will be completed as soon as practicable following the completion of works.
- Should any fences or walls become damaged, they will be made stock-proof immediately and fully restored at the earliest possible date.

2.10.3 Road Network– Mitigation Measures

ESB are likely to be required to lodge a bond with the local authority to offset the full cost of repair to the public roads which may be damaged by the transport of materials. Particular care will be taken that trench restoration will be in accordance with the "Purple Book". Should the local authority deem a repair to be necessary, the developer would be required to repair any damage to the roads that has arisen as part of the development pending more permanent repair after construction is complete.

Other measures that should be undertaken to minimise road impact include:

- Any road works/modifications involving the public roads would be discussed and agreed with the roads section of Cork County Council prior to the commencement of the development.
- A structural assessment of all culverts on the local road should be carried out prior to commencement of construction.

- The condition of all bridges, culverts and road surfaces should be continuously monitored throughout the construction period. In the event that any deterioration is observed, appropriate remedial action should be agreed with the roads department of Cork County Council and completed as soon as practical.
- All excavations for trenching and draw pits will be subject to the Road Opening Licence via the MRL system.

2.11 CONSTRUCTION SEQUENCE

The outline construction period and the Contractor's proposed sequence of works will take due cognisance of the requirements of any Planning Conditions and by the Contractors Contractual obligations.

2.11.1 Phasing of Works

Prior to the commencement of works including removal of the line, the contractor will prepare day to day method statements and work programmes that outline a detailed phasing of works. Due to the nature of the development, it is likely that a number of construction crews will be working along the route at any one time. These crews will be suitably spread across the route to ensure that cumulative traffic related impacts are not experienced by local residents, landowners or businesses. ESB's Project Manager will ensure that the phasing of work is undertaken in accordance with the prepared method statements and in accordance with a detailed works programme.

2.11.2 Working Hours

The working hours for the removal, construction and installation of the transmission will typically be between 08.00 and 20.00 Monday to Friday and 08.00 and 13.00 on Saturdays. No works will be undertaken on Sundays or Bank Holidays, except where emergency environmental or safety remedial works are required. Any works which may be required outside of these hours will require the prior approval of the Local Authority.

2.11.3 Site Management Procedures and Methodologies

The contractor will be required to prepare targeted method statements for proposed activities on site which demonstrate how the management requirements set out in this CEMP are to be achieved on site. The following sections outline the construction activities which are proposed during the construction of the proposed grid connection.

2.11.4 Removal of Overhead Line

The removal of the as constructed sections of the 20kV overhead line will be carried out in accordance with ESB Networks Overhead Line Poling Standards. This will require the overhead line electrical conductor to be removed in advance of all wood pole structures and associated equipment being removed.

Removal of overhead line electrical conductor

In advance of the removal of the wood poles, the strung sections of electrical condutctor will be removed along the entire as-constructed overhead line route. This work will involve

- Disconnection of conductor from all wood pole structures, This is carried out in sections, typically between angle/strain points of the overhead line.
- The conductor is mechanically coiled/rolled onto drums and removed from site for appropriate reuse or disposal. This equipment will be brought to site on vehicle drawn trailer.

Additionally, all cables, earth wires, stay wires shall be completely removed from all poles to be removed. This equipment will be either removed from site by ESBN for appropriate disposal or reused as part of the proposed new grid connection.

Removal of Wooden Poles along entire as constructed line route

The age and condition of the pole will influence the method chosen to retire it. Poles shall never be pulled directly out of the ground – prior excavation of the pole foundation shall always be carried out.

Prior to any works being undertaken, the following will be carried out:

- Arrangements in relation to access, temporary fencing, security of livestock etc. will be discussed with landowners are implemented in advance of works.
- Pollution control measures will be implemented.
- Traffic management measures to be implemented whenever any poling works are likely to interfere with traffic or pedestrians.
- A controlled entry zone will be established.

Approved Methods of Wood Pole retirement are as follows:

1. 360° Tracked Excavator with Approved Split Bucket or 180° Rubber Tyre Excavator with Approved Pole Erector Grab, loosening the soil and lifting the pole. This method is not suitable if the pole to be retired has been assessed as seriously defective by ESBN.

2. 360° or 180° Excavator; Controlled Push Down Method.

Excavator Controlled Push Down Method

- Dig a trench in the direction of the push down 150mm from pole and 1000mm deep, with a taper back towards digger.
- For the push-down: Set up excavator 90°degrees to trench a minimum of 4m back from pole. Under the guidance of the PICP the machine operator positions the back actor between 1m and 1.5m high beside the pole on the opposite side of the trench.
- With the machine in position: Switch off excavator, Person in Charge of Poling (PICP) to choke a 2m (2000kg) sling around pole, and Attach to the eye at the end of the excavator arm via a 2000kg shackle
- All personnel to move outside of the extended Controlled Entry Zone (CEZ).
- On the instruction of the PICP when the area is clear: The machine operator will take slack in the sling, and Push against the pole in a slow and smooth action, until the pole is lowered safely to the ground.

When the pole is on the ground, it will be removed from site if required or reused as part of the proposed new grid connection.

ESBN will supervise and photograph/ record the removal of the entire overhead line and poles.

It is ESBN standard policy to make good any ground damaged during poling activities in partnership with the associated landowners.

2.11.5 Overhead line

The proposed OHL will traverse private lands for c. 10.75km with the OHL crossing over predominantly agricultural lands but with areas of wet heath, humic acid grassland, wet grassland and hedgerows. The OHL will require the erection of 157 no. wooden pole-sets (12-16m) along the proposed route from which the electricity line will be suspended. The proposed OHL will require 3 No. separate cables being suspended from the poles.

Pole and line installation works will be standard for a 20kV ESB overhead line:

- Pollution control measures will be implemented.
- Traffic management measures to be implemented whenever any poling works are likely to interfere with traffic or pedestrians.
- A controlled entry zone will be established.

- Poles are carried from adjacent roadways to each erection site and placed into an excavated hole using a wheeled or tracked excavator fitted with a pole grab attachment
- The pole hole is manually backfilled and tamped down to a minimum depth of 1.0m until the backfill is capable of supporting the pole; the excavator then continues the backfilling and tamping
- Where rock is encountered, the pole hole is formed using a hydraulic rock-breaker attachment mounted on the excavator
- Where the line changes direction and at pole set locations with poor ground conditions, stay wires will be required. These wires are supported by means of stay blocks, which are made of wooden sleepers and are buried underground
- Stringing of the conductor involves pulling out polypropylene rope along the route by hand, attaching the conductors and then pulling into position with stringing machine.

2.11.6 Underground Line

Six discrete sections of underground ducted line occur (total length 3.297km) along the proposed grid connection route including:

- Approximately 116 metres of Grid Connection at Derreenacrinnig West Townland within the wind farm site
- 1,156 metres within the carriageway of the road at Glanareagh and Barnagowlane West Townlands.
- 111 metres in Ards Beg and Gortnacowly Townlands.
- Approximately 1,081 metres of the grid connection route will be ducted along the verge of the existing local road at Shandrum More and Shandrum Beg Townlands.
- Approximately 629 metres of underground cable in Ballylickey and Dromlouglin townlands
- 204 metres of underground cables to Ballylicky Substation

The 20k V underground power cable construction type is 20kV XLPe cable to be ducted according to ESB 'Specification for the Installation of Ducts & Structures for Underground 10-20kV Power Cables & Communication Cable'. The 20kV power cable will be laid in a single 125mm diameter uPVC duct in a cable trench.

Cable ducts will be placed within a trench approximately 0.95m deep and 0.325m wide. All trenching works will be undertaken to ensure that only short sections of trench are open at any one time. Excavated materials (topsoil, subsoil) will be stored separately for use during the reinstatement of the trench or disposal to an appropriate licensed facility as necessary. The trench will then be reinstated with excavated materials. The proposed sequence of works is as follows:

- All trenching works shall be undertaken to ensure that only short sections (approximately 100m) are open at any one time.
- Excavate the trench to the required dimensions, approximately 0.95m deep and 0.325m wide.
- Lay in and compact a 250mm layer of leanmix concrete CBM4 around and above duct; and place red marker strip above.
- Place and compact an additional 375mm of CBM4 lean mix concrete (in roads) or selected excavated material (in fields) and place a yellow marker warning tape above.
- Yellow warning tape to be 300mm below the finished surface. Place Clause 804 material (in roads) or selected excavated material (fields) to within 100mm of surface.
- Final surface reinstatement, dense bitumen macadam (in roads) or topsoil (in fields/verges)

Joint bays and communication bays will be provided approximately every 500 to 700m along the UGC route to facilitate the joining of electrical cables and fibre optic communications cables. These bays/chambers consist of precast concrete structures which will be set into an excavated area and surrounded by appropriate fill. The bays will be finished to below road level and reinstated in accordance with the Local Authority requirements. The communications bay will also include an access cover to facilitate access should it be required.



Plate 1: Typical Trench Construction within roads

2.12 SENSITIVE HABITATS

Please refer to Management Plan 3 – Ecological Management Plan which examines, in detail, each of the seven areas of grid to be constructed, identifies sensitive habitats and the measures required for their protection. These sensitive areas include:

- Derreenacrinnig East Stream and Wet Heath which are relevant to Section 1
- Glanareagh Stream and Wet Heath are relevant to Section 2.
- Wet Heath, Humic Acid Grassland, Wet Grassland and Hedgerows are relevant to Section 4
- Hedgerows in Section 5
- Hedgerow crossings in Section 6
- Ballylickey Stream in Section 7

2.13 PLANNING CONDITIONS AND CONSTRUCTION MANAGEMENT PLANS

This CEMP and any future versions/revisions will form part of the Contract for Derreenacrinnig Wind Farm Grid Connection. It will therefore be updated and revised as construction proceeds.

The Contractor will consider all of the mitigation measures and best practice construction methods detailed within the above consents in his design and in any detailed environmental plans as required by this CEMP or the Contract.

Where any mitigation measures or construction methods described in other documents deviate in any way from those contained within this CEMP, the Contractor will abide by whichever is the most onerous and stringent in terms of environmental protection.

7.	The construction of the development shall be managed in accordance with a Construction Management Plan, which shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. This plan shall provide details of intended construction practice for the development, including hours of working, noise management measures and off-site disposal of construction/demolition waste.
8.	Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the planning authority, to secure the reinstatement of public roads which may be damaged by the transport of materials to the site, coupled with an agreement empowering the planning authority to apply such security or part thereof to the satisfactory reinstatement of the public road. The form and amount of the security shall be as agreed between the planning authority and the developer or, in default of such agreement, shall be referred to An Bord Pleanála for determination.

2.14 SCHEME AMENDMENTS

Scheme Amendments will be recorded in Table 2.2. These amendments do not include changes to the scheme design which are completed in accordance with the existing planning consent; instead, this refers to changes in the design of the grid connection - for example, minor amendments to duct layouts so as to mitigate against possible contamination of uncharted land drains.

The purpose of recording Scheme Amendments here is to provide a record of any changes in the design and siting of the grid connection infrastructure such that any associated environmental impacts and mitigation measures may be appropriately instigated through this CEMP.

TABLE 2.2 SCHEME OF AMENDMENTS

Reference	Date	Scheme Amendment Description	Environmental Sensitivities Potentially Impacted by Scheme Amendment.

TABLE 2.2 SCHEME OF AMENDMENTS			
Reference	**Date**	**Scheme Amendment Description**	**Environmental Sensitivities Potentially Impacted by Scheme Amendment.**

2.15 REGISTER OF VARIATIONS

Where any amendments and variations to the Management Plans and CEMP are required (either as a result of Scheme Amendments or through corrective actions or improvements noted and undertaken on site) these will be recorded in Table 2.3, Register of Variations. Furthermore, all changes to construction methods, design, mitigation and the implications of these changes and authorising personnel will be recorded in Table 2.3.

TABLE 2.3 REGISTER OF VARIATIONS			
No.	**Variation Description**	**Authorising Personnel**	**Completion Date**

3 COMMUNICATION PLAN

3.1 INTRODUCTION

Both the Contractor and the ESB will appoint Project Managers to the Derreenacrinnig Wind Farm grid connection project. These Project Managers will be the main points of contact between the two parties. The Contractor's team will report directly to the Construction Project Manager, with all Derreenacrinning West Wind Farm Ltd.'s staff reporting directly to the Project Manager.

It is envisaged that main project communications will take the form of structured reporting arrangements and meetings.

All issues in relation to environmental management/monitoring will be reported to the Site Environmental Manager/Engineer. The Site Environmental Manager/Engineer shall report to the Contractor and ESB on a regular basis.

3.2 COMMUNICATIONS CONSULTANT

In advance of any works commencing on site, the developer will appoint a dedicated Project Liaison Officer (PLO) for the duration of construction works. The PLO will be responsible for advising local residents of impending works, road closures, traffic diversions, and any other queries which may be forthcoming from local residents, landowners or businesses.

It is proposed that the PLO will conduct house-to-house calls at all dwellings along the proposed route to advise of the upcoming works and to inform residents of traffic diversions, if necessary. Signage will be erected during the works to inform the general public that works are ongoing. These signs/posters will include information about the project and the PLO's contact details to ensure that any queries from the public can be responded to in an appropriate manner.

All staff will be advised to direct any queries from the public to the PLO or developer's Project Manager and to ensure that all interactions are recorded on the site register.

Relevant departments, including the Environment Section, Roads Department and Planning Department, within Cork County Council will be contacted in advance of the commencement of works and will be consulted throughout the duration of construction activities. In addition, where it is deemed necessary to consult with statutory consultees (e.g., Inland Fisheries Ireland), such consultations will take place in advance of and throughout the duration of construction.

3.3 CONTACT SHEETS

Table 3.1 provides a list of all Derreenacrinning West Wind Farm Ltd., Contractor and relevant third-party contact details. This table will be updated prior to construction and kept current by the Contractor for the duration of the Contract.

TABLE 3.1 CONTACT SHEETS

Company	Position	Name	Telephone
ESB	Client Project Manager		
Contractor(s)	Site Manager / Environmental Manager		
Contractor(s)	Contracts Manager		
Contractor(s)	General Manager		
Contractor(s)	Foreman		
Independent	Ecological Clerk of Works		
Contractor	Environmental Clerk of Works		
Independent	Monitoring Archaeologist		

3.4 MEETINGS REPORTS AND CONSULTATIONS

Table 3.2 lists all meetings and consultations as required by the Contract. The table also provides details on the schedule/frequency, scope & objectives and attendees / responsibility for each meeting.

All Contractors and their appointed Environmental Manager (EM) /Resident Engineer (RE) and the ECoW shall coordinate and collaborate fully with all other Contractors and their appointed EM/RE for the duration of the works.

3.5 ROLES & RESPONSIBILITIES

Roles and responsibilities for environmental management, monitoring and reporting are detailed in Table 3.3.

The Contractors Site EM/RE will be responsible for the delivery of all elements of the Environmental Management Plan.

The Site EM/RE will retain all responsibility for issuing, changing and monitoring the Environmental Management Plan.

TABLE 3.2 - MEETINGS, REPORTS AND CONSULTATIONS			
Meeting/Report	**Schedule/Frequency**	**Scope & Objective**	**Attendees/Responsibilities**
A Record of all meetings, checks, permissions and licenses will be retained within Section 4 of this CEMP			
Site Inductions	All new site personnel and visitors	To provide that all entrants to the site are aware of safety, environmental and managerial requirements and procedure.	Contractor to organise and maintain records
Weekly Environmental meetings	Weekly	To provide updates on environmental mitigation measures and performance and identify actions for improvement. The EM is required to maintain a Pollution Prevention Measures Register (PPMR) in which mitigation measures put into place will be listed and checked weekly to assess the requirement for maintenance. The results of these checks will be discussed at the meeting and corrective actions agreed as required.	Attendance required: ECoW, EM, Site Manager, and any other relevant personnel or statutory consultees where necessary.
Monthly Environmental Report & Monthly Environmental Management Group Meeting	Monthly	To provide a compiled record of weekly meeting minutes and environmental performance and monitoring results (e.g., air, noise or water quality monitoring as appropriate). To identify any areas / action for improvement.	To be prepared by EM. Report to be issued to the Contractor and Construction Project Manager before the end of each calendar month. Report to be discussed at the monthly meeting with recommendations for improvement passed to the Contractor in written format.
Final Environmental Report	Upon completion of construction works	The final report will document the environmental and ecological effects of the construction period. The evidence for effects will be based on findings included in the minutes of weekly meetings and monthly meetings, together with other recording information maintained by the EM. The report will relate results to residual effects predicted in the EIAR.	The Final Report will be prepared by the EM. The report will be made available to the Contractor, Construction Project Manager and Planning Authority, if required.
Environmental Checks and Monitoring of Mitigation Works	As required in advance of construction works regular checks should also be made at least every 14 days	Environmental Checks are to be carried out in advance of construction works. This will comprise an on-site meeting / inspection to confirm the appropriate use of identified mitigation measures and highlight any further issues /	Environmental checks will be undertaken by the Contractor, supervised by the ECoW and EM where appropriate. The ECoW/EM may also undertake regular checks, either independently or

TABLE 3.2 - MEETINGS, REPORTS AND CONSULTATIONS			
Meeting/Report	**Schedule/Frequency**	**Scope & Objective**	**Attendees/Responsibilities**
		measures which may be relevant prior to commencement of works in any area. As a minimum, Environmental Checks will be completed at each main piece of site infrastructure (construction compounds, sub-station, control room) prior to works commencing in that area. Advance checks will be undertaken no less than every 100m of constructed or upgraded access track. Environmental Checks will include: • **Checks for visual evidence of contamination / sediment** alongside watercourses, nearby working areas and in areas of surface water discharge. • **Regular checks of all plant and equipment to identify any oil** or fuel leaks to confirm the condition of the plant. • **Inspection of drainage and erosion and sediment control** measures. Additional checks should be made before, during (where safe to do so) and immediately following anticipated storm events or periods of continuous or heavy intermittent rainfall over one or more days. • **Environmental checks will also encompass a review of** – Waste management procedures – General site tidiness –Temporary materials storage (extracted materials stockpiles) and restoration works and – Land stability – Signs of any mammal activity on site	in conjunction with the Contractor's checks as required. The Contractor and ECoW/EM will retain a record of all inspections / findings of Environmental Checks within Section 4 of this CEMP. All records will be made available for audit / review. All records will also be made available for discussion during regular meetings as scheduled herein.

TABLE 3.2 - MEETINGS, REPORTS AND CONSULTATIONS			
Meeting/Report	**Schedule/Frequency**	**Scope & Objective**	**Attendees/Responsibilities**
		–Buffer zones (if any) are being maintained – Monitoring of any new Third Schedule Part 1or 2 species within the entire route of the grid connection and all access to sites, tracks, roads and substations.	
Environmental Audit	At least once every month		Environmental Audits may be carried out by the Contractor, Derreenacrinning West Wind Farm Ltd. at any time during the works. Audit procedures and forms are included within Section 4 and 1. These will be followed / completed by the Employer when undertaking environmental audits and may also be adopted by the Contractor, unless alternative procedures and forms are submitted and approved as part of the Contractor's detailed CEMP.
Liaison with regulator / Statutory Consultees	As Required	Provide regular updates to relevant authority on environmental performance and maintain good working relationships with the regulatory bodies.	Contractor and ECoW/EM where required. Meetings will be initiated as required by Planning Condition, Management Plans or as agreed throughout the duration of the construction phase. The Contractor is responsible for obtaining all relevant permissions, consents, licenses and permits. Some permits may require application and implementation by an appropriately qualified person. In these instances, the Contractor will consult with the ECoW, or other specialist Environmental Consultants where required.

TABLE 3.3 - ROLES AND RESPONSIBILITIES	
Position	**Roles and Responsibilities**
Construction Project Manager	The Construction Project Manager will: See that the Contractor has obtained the relevant approvals and licenses and consents from regulatory bodies and statutory consultees where required. Ensure that the Contractor has submitted all relevant documentation to the ECoW and Project Environmental Manager, liaise with the Site Manager and the ECoW/EM and ensure that corrective actions and variations to the CEMP have been instigated.
Project Site Manager/Engineer	The Site Manager will provide liaison between the ECoW/EM and the Contractor where environmental sensitivities, instruction for environmental performance improvements or corrective actions are requested by the ECoW, EM or other appropriate person(s) as a result of environmental checks or audits conducted by these persons(s). The Site Manager will see that all notifications of environmental sensitivities and incidents as well as other general observations on environmental performance are reported back to the Construction Project Manager. The Project Site Manager is responsible for review and further development of the CEMP.
Environmental Manager	The Environmental Manager will work alongside the ECoW and will be a member of the Environmental Management group and will work with the Contractor to ensure compliance with best practice and with all environmental mitigation and monitoring requirements as detailed within the relevant planning conditions, compliance documents and CEMP during both the pre-construction and construction phases. The main roles of the EM are as follows: • Organise start-up meeting / Toolbox talks with the Contractor to agree working methods, specifically including communications; schedules; monitoring of data storage; and preparation of plans indicating location of key features including mitigation measures, monitoring points and sensitive habitats (where not previously highlighted and approaches agreed). • Give toolbox talks as agreed with the site contractor to address key areas, including water pollution prevention, protected species management, and on-site biodiversity. Highlight to staff the requirement for compliance with planning conditions. • Undertake a pre-construction walkover with the Site Engineer / Site Manager to confirm that access routes remain appropriate to the conditions present at the time of construction • Delineate any sensitive habitats or features with wooden stakes and high visibility tape • Undertake or delegate to an appropriately qualified person, a pre-construction Invasive Alien Species survey along the works route • Monitor the installation of poles and infrastructure • Inspect pollution control measures during the works • Maintain a presence on site during the pre-construction and construction works, including setting out of access routes. • Organise a minimum of weekly meetings with the Site Environmental Supervisor and / or Foreman, to allow briefing on the programme of works on site and to provide on-site guidance during construction. • Identify environmentally sensitive areas and ecological hazards for demarcation by the Contractor. • Develop written reports / audits and submit to the Contractor and present findings at meetings as required. Prepare updated reports and a final report on mitigation measures, procedures and monitoring. • Monitor potential environmental impacts and the successful implementation of all mitigation as detailed in the NIS and this CEMP.

TABLE 3.3 - ROLES AND RESPONSIBILITIES	
Position	**Roles and Responsibilities**
	The Contractor will provide comprehensive information on all proposed works and all scheduling to the EM in advance, in order to anticipate and address any issues, especially access to new areas including areas where Invasive Alien Species (IASs) may occur, vegetation clearance, setting out of buffer zones, excavation and silt mitigation measures, temporary compound works, watercourse crossings and vegetation reinstatement. **Note:** If failures occur and actions are taken which contravene legislation then the Project Ecologist has the power to stop works in the affected area with immediate effect. These actions will only be taken where appropriate. Notification to stop works will be by verbal means, followed up with written confirmation recording the time and date of the instruction, personnel involved and reasons for the instruction. Upon recommencement of works, details of any corrective actions and / or remedial measures implemented will be recorded within Section 4.
ECoW: Ecological Clerk of Works and/ or Water Quality Specialist	The ECoW will work with Derreenacrinning West Wind Farm Ltd., the Contractor and the EM to see that compliance is achieved with best practice and with all environmental mitigation and monitoring requirements as detailed within the NIS and CEMP, relevant planning conditions, FEI and CEMP. The EM will delegate and oversee the work of the ECoW to ensure competency of tasks achieved. Where a particular ecological concern exists at the site, or specific habitat management activities are to be undertaken in conjunction with the main civils construction works, a Specialist Ecologist / Environmental Consultant may also be required unless the ECoW is suitably qualified to undertake the particular ecological responsibilities. The main roles of the ECoW are as follows: • Maintain a weekly presence on site during the main construction works • Prepare a pre-construction Invasive Alien Species survey along the works route • Identify environmentally sensitive areas and ecological hazards for demarcation by the Contractor. • Produce written reports to the Contractor following site visits and meetings. This includes monthly reports and a final report.
Specialist Ecologist/ Environmental Consultant	Where a Specialist Ecologist / Environmental Consultant is employed, this person(s) will: • Provide advice and maintain regular liaison with the Project Site Manager, Project Manager, ECoW, EM, and Contractor and / or other specialist Environmental Consultant as and when required. • Undertake specific monitoring activities and reporting as defined in agreed documentation prepared as part of the planning process. • The ECoW or a Water Quality Specialist will be appointed and report to the EM. They will have responsibility for fulfilling the requirements of the Water Quality monitoring Plan, including: • Daily visual inspection of access tracks for signs of ground damage or solids escape to nearby watercourses in vicinity of construction works

TABLE 3.3 - ROLES AND RESPONSIBILITIES	
Position	**Roles and Responsibilities**
	•The ground between the structure under construction and the nearest downslope watercourse for signs of solids escape or ground damage • Surface water features in vicinity of construction works • Any pollution control measures at structures and along access tracks (e.g. silt fences, drain or stream crossings etc.) for evidence of contaminated run-off or mitigation failure • **Attendance at the critical work phases including**, access track construction, foundation excavation, watercourse crossings, concrete pouring and back-filling. • **Collection and analysis of water samples at a number of monitoring locations** (i.e., upstream & downstream of the 5 no. instream work locations) before, during (if potential pollution visually identified) and after construction works at that location • **EPA Q Value Biological Monitoring at 5 no. monitoring locations** (i.e., upstream & downstream of instream construction work locations) before and after construction works.
ACoW Archaeological Clerk of Works	The main roles of the ACoW (licenced) are as follows: • Maintain regular liaison with the Project Site Manager, Project Manager, Ecologist and Environmental Manager as appropriate. • **Maintain liaison with officers of the Local Planning Authority, specifically the Council Archaeologist and Planning Officers** as appropriate. • Where applicable apply for licence application; the Minister for Dept of Culture Heritage and Gaeltacht can approve and issue a licence under Section 26 of the National Monuments Act 1930. • Facilitate compliance with planning conditions and agreed Archaeological Programme of Works. • Demarcate any archaeologically sensitive areas and set up exclusion zones as required on site. • Immediately notify the relevant authorities in the event of the discovery of archaeological finds or remains and suspend works in the immediate area pending consultation. Allowance should also be made for full archaeological excavation if required. • Complete a full report for submission to the Planning Authority and the Department of Arts, Heritage and the Gaeltacht on completion of the works.
GCoW Geotechnical Clerk of Works or Appointed Geotechnical Consultant	The GCoW will be responsible for preparation and monitoring of a geotechnical risk register as well as specific duties relating to geotechnical issues as they may arise during site construction works. Soil instability and the potential for slide even can have a significant impact on environmental receptors. In completing the geotechnical risk register, the GCoW will work with the Contractor to identify suitable mitigation and monitoring methods. Where possible, construction works will avoid causing change to local hydrological and hydrogeological flow patterns and water levels.

Contractor Appointments	
Construction Manager	[The Contractor is required to specify roles and responsibilities for each individual below]
Site Agent	[To Be Confirmed]
Foreman	[To Be Confirmed]
Environmental Manager	[To Be Confirmed]
Other Nominated Person(s)	[To Be Confirmed]

3.6 TRAINING, AWARENESS AND COMPETENCE

All site personnel will receive environmental awareness information as part of their initial site briefing. The detail of the information should be tailored to the scope of their work on site. This will ensure that personnel are familiar with 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. The CEMP will be posted on the main site notice board during the project. The environmental performance at the site will be on the agenda of the monthly project management meetings for the project. Elements of the CEMP will be discussed at these meetings including objectives and targets, the effectiveness of environmental procedures etc. Two-way communication will be encouraged by inviting all personnel to offer their comments on environmental performance at the site.

3.7 EMERGENCY PREPAREDNESS AND RESPONSE

An emergency preparedness and response procedure is required to prevent environmental pollution incidents. Suitable spill kits and absorbent material for dealing with oil spills will be maintained on site. In the event of pollution or potential risk of pollution, Cork County Council and Inland Fisheries Ireland will be informed immediately. In the case of water pollution, in addition to the above the Environmental Protection Agency will also be informed immediately. In the case of new developments in relation to badgers on site, the Department of Culture, Heritage and the Gaeltacht will be informed by the local NPWS ranger.

4 CORRESPONDENCE, RECORDS & REPORT

4.1 REQUIREMENTS

The Contractor will insert / file all communication records and reports associated with Environmental Management and implementation of this CEMP under this Section 4. As a guide, the following sub-sections of filed information will be required (at a minimum):

4-A) Meeting minutes and attendance record

4-B) Weekly Environmental Reports

4-C) Monthly Environmental Reports

4-D) Environmental Checks

4-E) Audit Reports

4-F) Ecology documentation and monitoring records

4-G) Pollution Prevention, including a Pollution Prevention Measures Register

4-H) Water Quality documentation and monitoring records

4-I) Archaeology documentation and monitoring records

4-J) Ground Risk, including a Geotechnical Risk Register

4-K) Waste Management documentation

4-L) Licensing and Consents: copies of all permissions, consents, licenses and permits and related correspondence. A summary record of all such documents shall also be provided as per Table 4.1 of this CEMP.

4-M) General Correspondence: all other relevant internal and external communication records relating to environmental management issues and implementation of the CEMP.

4-N) Training Records

4-O) Toolbox Talk Records

4-P) Environmental Manager Reports

4-Q) Weekly report for daily haul route inspections

All of these documents and records will be made available for inspection in the site office. The documentation will be maintained and will be reviewed on a regular basis with revisions controlled in accordance with the site quality plan.

TABLE 4.1 RECORD OF ENVIRONMENTAL CONSENTS, LICENSES AND PERMITS ISSUED		
Consents, Licenses & Permits	**Governing Legislation**	**Licensed Activity**
Pollution Control & Hydrology		

Biodiversity		
Waste Management / Contaminated Land		
Noise / Vibration		
Archaeology		
Transport		
Other		

4.2 ENVIRONMENTAL AUDITS

The Contractor's EM will consult and assist with the Client EM in evaluating compliance with applicable legislation by means of a monthly Environmental Audit.

A blank Environmental Audit Report form is included in Management Plan 1 – Emergency Response Plan (ERP).

All completed audit report forms and records of corrective actions (and close outs) must be filed within this Section of the CEMP.

4.3 ENVIRONMENTAL CONSENTS, LICENSES & PERMITS

The Contractor's EM (or otherwise nominated responsible person(s), in conjunction with the ECoW and ACoW, will complete the summary record for all applicable permissions, consents, licenses and permits obtained for the site. This record will follow the format provided in Table 4.1.

4.4 ENVIRONMENTAL MONITORING AND MEASURING

The Contractor will put in place a program of environmental monitoring for dust, noise, vibration and water sampling in accordance with the requirements of the CEMP.

Copies of all records will be maintained in the site office and will be reviewed by the Contractor.

4.5 NON-CONFORMANCE, CORRECTIVE AND PREVENTATIVE ACTION

Non-Conformance Notices will be issued where there is a situation where limits associated with activities on the project are exceeded, or in the case of an internal/external complaint associated with environmental performance.

Non-Conformance is the situation where essential components of the Environmental Impact Assessment report (EIAR) and Construction Environmental management Plan (CEMP) are absent or dysfunctional, or where there is insufficient information on or control of the activities and processes to the extent that the functionality of the EIAR and CEMP, in terms of the policy, objectives and management programmes, is compromised.

Correction will be required in order to improve the identified non-conformance. The EIAR and CEMP and all components must conform to Management Plans, objectives and targets and the requirements of the ISO 14001 management standard. In the event of non-conformance with any of the above, the following must be undertaken:

- Cause of the non-compliance
- Develop a plan for correction of the non-compliance
- Determine preventive measures and ensure they are effective
- Verify the effectiveness of the correction of the non-compliance
- See that any procedures affected by the corrective action taken are revised accordingly.

Responsibility must be designated for the investigation, correction, mitigation and prevention of non-conformance.

5 MANAGEMENT PLANS & AVAILABLE INFORMATION

5.1 MANAGEMENT PLANS

Various Management Plans have been prepared as listed in Table 5.1 and attached at the end of this CEMP. These are intended to provide a benchmark for best practice and to define ESB minimum requirements for environmental management and mitigation.

5.2 CONTRACTOR REQUIREMENTS

The Contractor is required to abide by and further develop (if required) the Management Plans into detailed site and works specific environmental plans, method statements and procedural documents. Table 5.1 provides a summary of the content of the Management Plans and the Contractor's obligations for their further development.

TABLE 5.1 - LIST OF MANAGEMENT PLANS

Management Plan 1 (Annex to this CEMP)	Emergency Response Plan (ERP)	This will include specific procedures for dealing with containment of accidental chemical or fuel spills, potential overload of the drainage system by silt during unforeseen adverse weather conditions. The Contractor will also outline specific procedure for emergency response in the event of a pollution spillage.
Management Plan 2 (Annex to this CEMP)	Water Quality Inspection and Monitoring Plan (WQIMP)	This plan has been prepared and is considered final. Deviations will be agreed with Cork County Council prior to commencement of construction.
Management Plan 3 (annex to this CEMP	Ecological Management Plan (EMP)	This plan has been prepared and is considered final. Deviations will be agreed with Cork County Council prior to commencement of construction.
Management Plan 4 (Annex to this CEMP)	Waste Management Plan (WMP)	A WMP is intended to implement reduction and effective management of resources and waste during the early design stages of the Grid Connection construction, through to completion, such that legal compliance is met; project build costs are minimized; a framework for continuous improvement and best practice is implemented and maintained; and carbon emissions and other negative environmental impacts associated with the production and management of waste materials are minimized. The WMP provides an outline of the minimum requirements to be contained within the Contractor's detailed WMP. It also provides an

TABLE 5.1 - LIST OF MANAGEMENT PLANS		
		outline of the anticipated waste management procedures and routes that may apply during construction. In preparation of the detailed WMP, the Contractor will liaise with Cork County Council to determine requirements for, and to obtain, licenses and consents associated with waste management and foul water discharge from the site where appropriate.
na	Induction Schedule	The Contractor is required to produce detailed Site Induction Procedures.

MANAGEMENT PLAN 1

Emergency Response Plan

ESB NETWORKS

DERREENACRINNIG WEST WIND FARM, DRIMOLEAGUE, COUNTY CORK TO THE NATIONAL GRID

Management Plan 1
Emergency Response Plan (ERP)

October 2021

ESB Networks,
Sarsfield Road,
Wilton,
Cork,
T12 E367.

Jennings O'Donovan & Partners Limited,
Consulting Engineers,
Finisklin Business Park, Sligo.
Tel.: 071 9161416
Fax: 071 9161080
email: info@jodireland.com

JENNINGS O'DONOVAN & PARTNERS LIMITED
Project, Civil and Structural Consulting Engineers,
FINISKLIN BUSINESS PARK,
SLIGO,
IRELAND.

Telephone (071) 91 61416
Fax (071) 91 61080

Email info@jodireland.com
Web Site www.jodireland.com

DOCUMENT APPROVAL

PROJECT	20kV Grid Connection to Connect Derreenacrinnig West Wind Farm, Drimoleague, Co. Cork to the National Grid	
CLIENT / JOB NO	ESB Networks	4636
DOCUMENT TITLE	Management Plan 1: Emergency Response Plan (ERP)	

	Prepared by	**Reviewed/Approved by**
Document DRAFT	Name Sarah Moore	Name David Kiely
Date 13th October 2021	Signature Sarah Moore	Signature David Kiely

This document, and information or advice which it contains, is provided by JENNINGS O'DONOVAN & PARTNERS LIMITED solely for internal use and reliance by i Client in performance of JENNINGS O'DONOVAN & PARTNERS LIMITED's duties and liabilities under i contract with the Client. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The advice and opinions in this document are based upon the information made available to JENNINGS O'DONOVAN & PARTNERS LIMITED at the date of this document and on current standards, codes, technology and construction practices as at the date of this document. Following final delivery of this document to the Client, JENNINGS O'DONOVAN & PARTNERS LIMITED will have no further obligations or duty to advise the Client on any matters, including development affecting the information or advice provided in this document. This document has been prepared by JENNINGS O'DONOVAN & PARTNERS LIMITED in their professional capacity as Consulting Engineers. The content of the document does not, in any way, purport to include any manner of legal advice or opinion. This document is prepared in accordance with the terms and conditions of JENNINGS O'DONOVAN & PARTNERSLIMITED contract with the Client. Regard should be had to those terms and conditions when considering and/or placing any reliance on this document. Should the Client wish to release this document to a Third Party for that party's reliance, JENNINGS O'DONOVAN & PARTNERS LIMITED may, at i discretion, agree to such release provided that:

(a) JENNINGS O'DONOVAN & PARTNERS LIMITED written agreement is obtained prior to such release, and
(b) By release of the document to the Third Party, that Third Party does not acquire any right, contractual or otherwise, whatsoever against JENNINGS O'DONOVAN & PARTNERS LIMITED and JENNINGS O'DONOVAN & PARTNERSLIMITED, accordingly, assume no duties, liabilities or obligations to that Third Party, and
(c) JENNINGS O'DONOVAN & PARTNERS LIMITED accept no responsibility for any loss or damage incurred by the Client or for any conflict of JENNINGS O'DONOVAN & PARTNERSLIMITED's interest arising out of the Client's release of this document to the Third Party.

CONTENTS

1. INTRODUCTION 1
1.1 Why have an Environmental (Incident & Emergency) Response Plan? 1
1.2 Outline of this Environmental (Incident & Emergency) Response Plan 1
1.3 What is an Environmental Incident? 1
1.4 Reference Documents 2
2. GENERAL REQUIREMENTS OF AN ERP 2
3. CONSTRUCTION WORKS AT DERREENACRINNIG WEST WIND FARM GRID CONNECTION 3
4. INCIDENT & HAZARD REPORTING 3
5. WASTE DISPOSAL AFTER ENVIRONMENTAL INCIDENCES 3
6. SITE INDUCTION AND TOOLBOX TALKS 4
7. SUMMARY SHEET FOR MACHINERY & PLANT OPERATORS 4
7.1 Procedures to be followed in the event of an incident: 4
7.2 Communication Plan 6
7.3 Environmental Response Plan for Derreenacrinning West Wind Farm Grid Connection 7
7.4 External Contacts 8
7.5 Internal Contacts 8
7.6 Chemical Product & Waste Inventory 9
7.7 Pollution Prevention Equipment Inventory (On/Off-Site Resources) 10
7.8 Site Environmental Incident Report Form 11
7.9 Site Environmental Audit Form 13

1. INTRODUCTION

1.1 Why have an Environmental (Incident & Emergency) Response Plan?

Many construction and industrial sites intrinsically have the potential to cause significant environmental harm which could threaten water supplies, public health and wildlife in the event of an environmental incident. The aim of this plan is to see that in the event of an emergency, quick and appropriate action will limit any impacts on humans and the local environment.

This response plan forms part of the conditions of work for staff, and for every contractor or sub-contractor at the site.

1.2 Outline of this Environmental (Incident & Emergency) Response Plan

The information contained in this plan forms the Environmental Incident & Emergency Response Plan (ERP), part of the Construction Environment Management Plan (CEMP) for Derreenacrinnig West Wind Farm Grid Connection.

It contains details of:

- Who should be contacted in an emergency?
- Procedures to be followed in an emergency
- Staff responsibilities in an emergency

1.3 What is an Environmental Incident?

This plan should be instigated once there has been an emergency or environmental incident on site or elsewhere linked to the construction of Derreenacrinnig West Wind Farm Grid Connection. Such an incident is a discharge to air, land or water that could cause environmental damage. Causes of environmental incidents on site include:

- Leaking plant or equipment
- Containment Failure
- Fire
- Land Slide
- Vandalism
- Overfilling of containment vessels
- Flooding on site
- Leaking Portaloo
- Wind-blown waste, litter or dust
- Fuel drips or spills during refuelling
- Leak from fuel or chemical containers

- Contaminated water or sediment/silt entering a water course or drain
- Failure of pumps

Any of these incidents could affect drainage systems, surface waters, aquatic ecosystems, groundwater and soil. These incidents could also affect air quality by producing toxic fumes and airborne pollutants which may damage human health, wild and domestic animals and ecosystems.

1.4 Reference Documents

Current legislation has been taken into account into the production of this Plan and will be accounted for in the further development of the Contractor's Construction Management Plan.

This plan has been developed alongside other Management Plans that form part of the Construction Management Plan (CEMP) including a:

- Water Quality Inspection and Monitoring Plan (WQIMP)
- Waste Management Plan (WMP) and a
- Ecological Management Plan (EMP)

2. GENERAL REQUIREMENTS OF AN ERP

As mentioned, environmental incidents may include flooding, spillages (oil and chemicals), contaminated run-off, damage to underground services, damage to habitats, poor waste disposal and storage.

This ERP provides:

- An outline of the construction works and references to relevant existing environmental plans
- Summarises local environmental sensitivities
- Identifies key mapping reference points for the site
- Identifies key staff and 24-hour contact details to be contacted in the event of an emergency
- Identifies key external bodies and emergency response numbers who should be contacted in the event of an emergency
- Details an Inventory of Chemical Products and Waste Inventory on Site
- Details an Inventory of Pollution Prevention Equipment
- Provides details of staff trained in the use of spill kits and booms etc.

- Provides details of reporting requirements
- Provides detailed procedures to be followed in the event of an emergency and details staff responsible for re-positioning and moving of plant
- Provides a summary sheet for operatives outlining key actions in the event of an emergency. This will be available to all operatives on site.

3. CONSTRUCTION WORKS AT DERREENACRINNIG WEST WIND FARM GRID CONNECTION

Derreenacrinning West Wind Farm Limited intend to commence construction works for the grid connection in Q1 of 2022.

The development includes removal of c.9.5km of existing line, the installation of approximately 3.3 kilometres of underground cable ducting and associated electrical cabling, approximately 10.75 kilometres of new overhead line supported on wood pole sets, and all other ancillary works including joint bays, culverts, marker posts and all associated developments.

In addition to the reference documents listed in Section 1.4 of this document, various site assessment reports have been written and included in the Environmental Impact Assessment (EIAR) October 2021.

4. INCIDENT & HAZARD REPORTING

A reporting system has been developed for reporting environmental incidents or hazards for the site. These reports will be logged so that they can be regularly revised and form part of the response plan procedural review.

The final page of this report provides a blank environmental incident report that should be completed in the event of an accident/incident. This includes details of all non-compliance and corrective actions carried out as a result of any incidents.

5. WASTE DISPOSAL AFTER ENVIRONMENTAL INCIDENCES

If spill kits etc. are used in the event of a pollution incident, operatives need to carefully dispose of used equipment by carefully placing them in a sealed bag or container. They should then be removed from site by a licensed waste contractor as per the Waste Management Plan (WMP).

6. SITE INDUCTION AND TOOLBOX TALKS

It is imperative that all contractors, sub-contractors and staff on site are fully familiar with this ERP and it will be detailed regularly in Toolbox Talks. During these talks, they will also receive regular reminders of the importance of the local environment and of the necessary environmental controls that are in place on site.

7. SUMMARY SHEET FOR MACHINERY & PLANT OPERATORS

This summary sheet is for all site personnel. A laminated copy will be kept on all site vehicles/ machinery.

7.1 Procedures to be followed in the event of an incident:

The following procedures are intended as a guide in dealing with incidents. Health & Safety guidance should be followed at all times applying common sense and ensuring the health & safety of yourself and others:

1. Identify the source of the spillage and cut off source if possible, e.g. by closing valve, righting container etc.
2. Work on site will cease and all operatives will assist in placing spill mats on the affected area. Site Manager/ Main Contact should be notified.
3. Identify where spillage may go. If spillage is near a watercourse (drainage/ditch/ river) divert spillage away from the watercourse through the use of absorbent materials from the spill kit.
4. Suspended Solids Contamination of Watercourse. If watercourse is at risk of contamination from suspended solids from a slope failure, do as follows:

   a) Place straw bales wrapped in geotextile or sand/gravel bags with geotextile curtains **immediately** in the watercourse(s) at regular intervals downstream from the incident. These sand/straw bags and bales will be removed and replaced with stone filters once water quality is stabilised.

   b) Stone check dams faced with a layer of geotextile will be constructed at critical points along the watercourse.

   c) Small sumps will be formed intermittently between the check dams to reduce the amount of suspended solids contained in the water.
5. Oil Spill in Watercourse. If spill has reached the watercourse, do as follows:

   a) Place flexible absorbent booms across watercourse, ahead of the contamination within a quiet stretch of water.

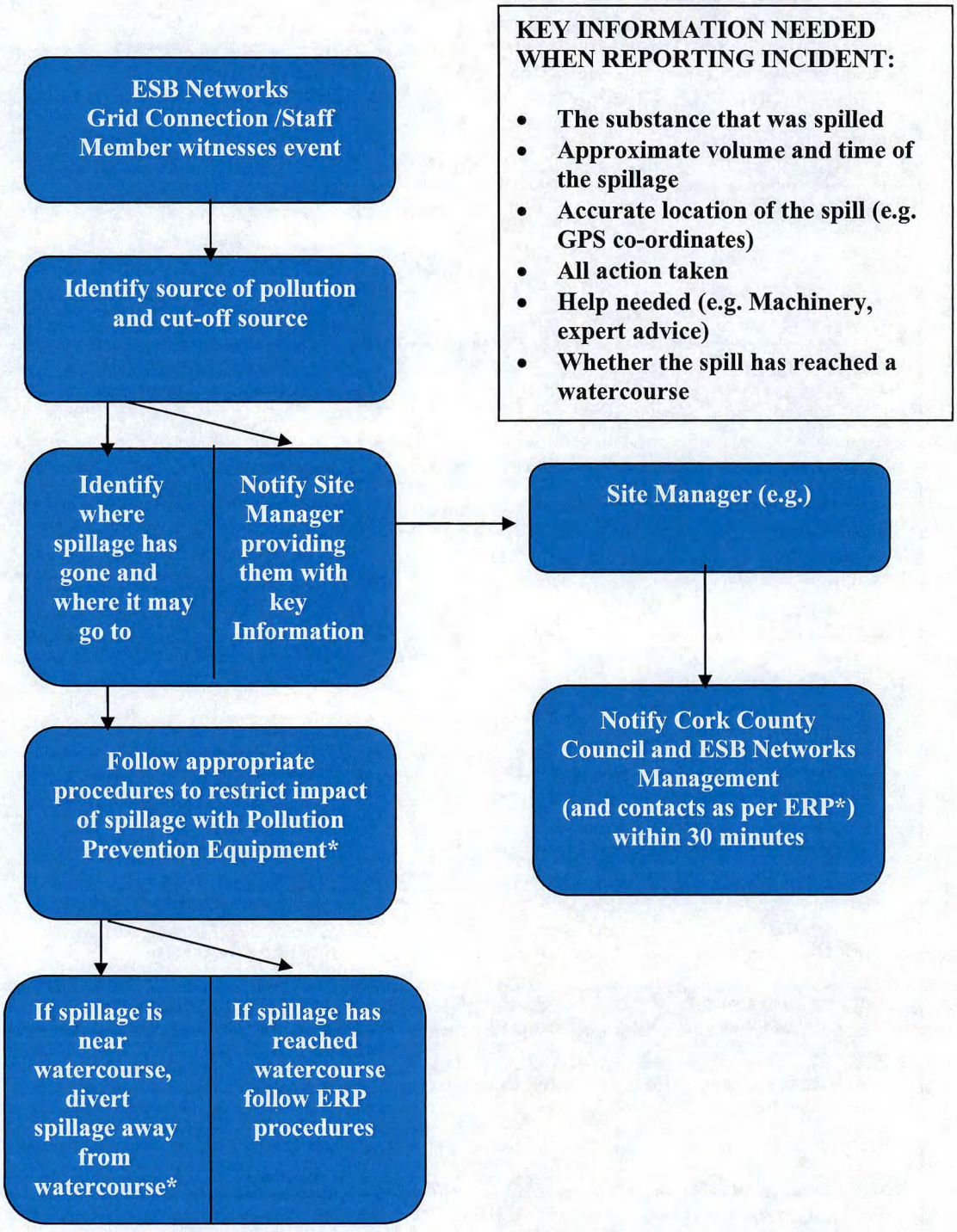
b) Place absorbent cushions in the water immediately upstream of these booms as well as downstream of the booms.

c) Remove and replace saturated absorbent material as required. Please ensure removed cushions are placed in sealed polythene bags/containers and disposed of by the principal waste contractor.

6. Notify all parties in the order listed overleaf. Notification should be made by one member of staff whilst remainder of staff present deal with the spill.
7. Dig up all contaminated ground as soon as possible/immediately. All contaminated materials should be placed in sealed polythene bags/containers and disposed of appropriately by an appropriate licensed waste contractor.
8. Complete required record of incident and response into reporting system

7.2 Communication Plan

A Communication Plan (to be followed in the event of a spillage) will be provided by the Contactor, in liaison with relevant stakeholders and will be included in the updated ERP prior to commencement of site development works. An outline Communication Plan is proposed below:



7.3 Environmental Response Plan for Derreenacrinning West Wind Farm Grid Connection

INCIDENT RESPONSE PLAN FOR DEREENACRINNIG WEST WIND FARM GRID CONNECTION

Based on template provided in GPP 21 – Guidance for Pollution Prevention.

Site Address: Derreenacrinnig West, Barnagowlane West, Glanareagh, Gortnacowly, Ards Beg, Ardrah, Laharanshermeen, Maulraha, Maulikeeve, Derryarkane, Cappanaboul, Skahanagh, Gortroe, Shandrum Beg, Shandrum More, Dromloughlin, Ballylicky, Crossoge, Co. Cork. **Official Company Address:** ESB Networks, Sarsfield Road, Wilton, Cork, T12 E367. **KEY HOLDERS FOR SITE – NAME & CONTACT NUMBERS:** Sean Murphy; Tel 086 813 9757 Kevin Hannafin; Tel 021 2386555 Andrew O'Connell; Tel 087 650 4370	**NGR:** **Map references:** OSNI Discovery Sheet 80 **Link to Map:**
Overview of the activities on site: **Include number of employees at different time of the day:** Daylight Hours: Up to 15 Dusk to Dawn: 0 Weekend Dusk to Dawn: 0 Bank Holidays: 0	
Date & Version of the plan: **13th October 2021 Issue 1**	**Name & position of person responsible for compiling/approving the plan:** David Kiely, Director, Jennings O'Donovan & Partners Limited.
Review Date	**Date of next exercise:**
Objectives of the plan: To limit any potential harmful impact to the local environment through swift and appropriate actions in the event of an emergency.	
List of external organisations consulted in the preparation of this plan with contact details	
Distribution list of who has received this plan and which version. *Please note that it is recommended that you review and revise this plan regularly:*	

7.4 External Contacts

Contact	Office Hours	Out of Office
Emergency Services (Fire/Police/Ambulance)	999 or 112	999 or 112
Local Garda Station	+353 (0) 28 31111 (Drimoleague) +353 (0)27 20867 (Bantry)	
Local Hospital. Cork University Hospital, Wilton, Cork	+353(0) 21 4922000	
The Environmental Section, Cork County Council, Curraleigh, Co. Cork	021 453 2700	
EPA	053-916 0600	1850 365 121
Inland Fisheries Ireland	01 8842600	**1890 347 424 (24 hours a day)**
Roads Service (Blocked/Flooded Roads)	0300 2000 100	0300 2000 100
ESB- Electricity Company	1800 372 999	
Telecommunications – Eircom	1800475475	

7.5 Internal Contacts

Names and position of staff authorised and trainers to activate and co-ordinate the plan. Staff to be contacted if need to move or evacuate the site		
Other Staff:		
Managing Director		
Site Manager		
Environmental Manager		
Health & Safety Manager		

7.6 Chemical Product & Waste Inventory

Trade name/ substance	Solid/liquid/ gas or powder	UN number	Max amount	Location marked on site plan	Type of Containment	Relevant health & Environmental properties

7.7 Pollution Prevention Equipment Inventory (On/Off-Site Resources)			
Type	**Location**	**Amount**	**Staff contact**

For example:

- *Personal protective Equipment (PPE) available that should be worn*
- *absorbents*
- *drain mats/covers*
- *pipe blockers*
- *booms*
- *pumps*
- *sandbags*
- *silt fencing*
- *over drums*

IF ANY OF THIS EQUIPMENT REQUIRES SPECIALIST TRAINING – STATE WHO HAS BEEN TRAINED IN ITS USE AND DATE OF TRAINING (attach evidence where possible).

7.8 Site Environmental Incident Report Form

Site		Date	
Time		Weather:	
Report By:		Position:	
Derreenacrinning Wind Farm West Grid Connection personnel present:		Position:	
Contractor Personnel Present:		Position:	

Description of Incident

Item Spilled	
Estimate of Volume of Spillage	

List of actions followed once incident was noted	Time	Corrective Action By	
		Action	By
Who first observed incident?			
First action			
Next Action			
Time Pollution Hotline was contacted			
Other			

Details of Clean-Up contractor or how contamination was removed from site:

Details of how this could be avoided in future:	
Details of review of internal procedures as result of this incident:	

DATE REPORT COMPLETED_____

7.9 Site Environmental Audit Form

Site:		**Date:**	
Time:		**Weather conditions:**	
Report by:		**Position:**	
Derreenacrinnig Wind Farm Grid Connection personnel present:		**Position:**	
Contractor personnel present:		**Position:**	

Item	Questions	Yes	No	Corrective Action Required	
				Action	By
1. Miscellaneous					
1.01	Does the contractor carry out regular internal environment audits on the site? Are recommendations recorded and is corrective action monitored?				
1.02	Have any environment incidents occurred and have these been reported as per on site procedure?				
1.03	Does the site induction contain a section on environmental requirements, including spill procedures, and is this communicated effectively?				
2. Land					
2.01	Are areas of hard standing (excluding bunded and refuelling areas) appropriately drained?				
2.02	Have local roads been inspected and cleaned where necessary?				
2.03	Has all test pitting and soil stripping been monitored by an archaeologist?				
2.04	Have all site clearance works been checked by an ecologist prior to works?				

Item	Questions	Yes	No	Corrective Action Required	
				Action	By
3. Material and equipment					
3.01	Is there knowledge of the IFI |Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016) and OPW Environmental Guidance: Drainage Maintenance & Construction (2019)				
3.02	Are transformers/ generators located in secondary containment bunds?				
3.03	Are all bunds capable of containing 110% of the volume of the largest container?				
3.04	Is refuelling carried out in a designated refuelling bay?				
3.05	Does all site drainage on hard standing drain to an oil interceptor?				
3.06	Is the designated area for oil, fuel and chemical storage appropriately sited (i.e. on hard standing at least 50m from a watercourse)?				
3.07	Are there procedures in place to monitor bund integrity and mange bund rainwater levels? Are these followed and recorded?				
3.08	Is there awareness that oil or residue from contaminated water removed from bunds should be disposed of as special waste and not discharged to land or the water environment? (oil absorbent materials (pads etc.) should be used first)				
3.09	Are all drums and mobile plant (e.g. generators) placed on drip trays more than 50m from any watercourse?				
3.10	Is all plant maintained in a good state of leaks? Are there records of this?				
3.11	Are there adequate spill kits available and stored in close proximity to potential risks?				
3.12	Are all refuelling browsers double skinned, locked when not in use, and in a good state of repair?				

Item	Questions	Yes	No	Corrective Action Required	
				Action	By
3.13	Is there evidence of unmanaged/ unrecorded fuel / oil spillages on site?				
3.14	Are dry or wet wheel washing facilities fully operational and effective?				
3.15	If wet wheel washing facilities are required, are these closed systems with no discharge to the water environment?				
3.16	Are there laboratory certificates (accredited by the Irish National Accreditation Board) to confirm that imported material stone aggregate brought onto site is free from any contamination?				
4. Noise, Dust and Light					
4.01	Are there facilities to dampen stockpiles and site working areas/roads to suppress dust?				
4.02	Are vehicles carrying loose material sheeted at all times?				
4.03	Are construction works, or deliveries of materials to and from the development, audible at noise sensitive premises?				
4.04	Has all external construction lighting received the approval of the planning authority?				
5. Waste					
5.01	Is the site tidy and free from litter?				
5.02	Is there evidence of waste beyond the site boundary?				
5.03	Is waste segregated and kept securely in containers in clearly designated areas?				
5.04	Does all waste leaving the site have the appropriate duty of care paperwork?				
5.05	Is all waste leaving the site being taken to an appropriately licenced site?				
5.06	Does all special/ hazardous waste (e.g. oil contaminated soils, waste oil) have the appropriate Special Waste Consignment Note?				
5.07	Is material re-used/recycled on site where possible?				
5.08	Are waste management practices in line with the site waste management plan?				
5.09	Are relevant Waste Management Exemptions in place for use of waste on site (e.g. use of waste concrete to create foundation sub-base)?				

Item	Questions	Yes	No	Corrective Action Required	
				Action	By
5.10	Is there any evidence of burning on site?				
5.11	Is there any evidence of unlicensed burial of waste?				
6. Water					
6.01	Do all discharges to land or watercourses have appropriate authorisation from Local Authorities /IFI?				
6.02	Does all watercourse engineering (bank protection, crossing etc.) have the appropriate authorization from Local Authorities / IFI?				
6.03	Do any abstractions from a watercourse or groundwater body have the appropriate authorization from Local Authority / IFI?				
6.04	Has confirmation for the SUDS design for access roads been gained from Local Authority / IFI?				
6.05	Are cut-off ditches installed on the uphill side of the working area to avoid contaminated surface water run-off?				
6.06	Have field drain been diverted where necessary?				
6.07	Is adequate treatment (e.g. settlement tank/lagoons/discharge to land) provided to prevent silt contaminated water entering watercourses and groundwater?				
6.08	Has vegetation removal/ clearance of the site been minimised to avoid unnecessary areas of bare ground?				
6.09	Have buffer-strips been left between working area and watercourses?				
6.10	Is plant operating in the watercourse?				
6.11	Have all culverts been installed at the base of stockpiles situated within close proximity to watercourses?				
6.12	Have silt fences been installed at the base of stockpiles situated within close proximity to watercourses?				
6.13	Are there adequate controls on site construction roads to minimize sediment runoff into watercourses (in particular, are there adequate flow attenuation measures within surface drain)?				
6.14	Are there any sign of decaying straw bales in water courses? (this could lead to organic pollution of the water course)				
6.15	Are silt traps regularly maintained?				

Item	Questions	Yes	No	Corrective Action Required	
				Action	By
6.16	Has ease of maintenance been considered in the design of permanent drainage features?				
6.17	Is there evidence of contamination of any watercourse (e.g. with oil, sediment, concrete, waste) in the vicinity of the works?				
6.18	Is monitoring of potential impacts on watercourses carried out on a regular basis and fully recorded?				
6.19	Are dewatering operations being carried out in such a way to minimise sediment contamination?				
6.20	Is drainage and run off in concrete batching areas adequate?				
6.21	Are adequate pollution prevention measures considered and put in place during concrete pours?				
7. Landscape					
7.01	Have earthworks been designed to promote successful re- instatement of vegetation?				
7.02	Are reinstatement and restoration works being implemented in a timely manner as per the requirements of the Contract?				
8. Ecology					
8.01	Have storage sites (soil, plant etc.) been sited on areas of lower quality habitat where possible?				
8.02	Is the ECoW a member of the institute of Ecology and /or Environmental management as required by planning conditions?				
8.03	Have buffer zones been constructed and maintained around designated protected species exclusion areas (e.g. red squirrel dreys, water vole habitats, otter holts, badger holts etc.)?				
8.04	Have toolbox talks on the subject of ecology and environmental responsibilities on site been delivered? Have attendance record been maintained for these?				

Item	Questions	Yes	No	Corrective Action Required	
				Action	By
9. Documentation Check					
9.01	Start-up meeting record				
9.02	Full contacts list in Section 4, Table 4.1 of CMP				
9.03	Induction records				
9.04	Pollution Prevention Measures Register				
9.05	Geotechnical Risk Register				
9.06	Weekly meeting minutes				
9.07	Records of environmental checks and routine monitoring of mitigation measures				
9.10	Water Quality Monitoring Results				
9.11	Safety and Environmental Awareness Reports (SEARs). Filed and entered on database?				
9.12	Safety and Environmental Audit Reports for the site. (If yes, insert date of last audit_____)				
9.13	Contractor's Environmental Plans (or Construction Method Statements):				

MANAGEMENT PLAN 2

Water Quality Inspection and Monitoring Plan

ESB NETWORKS

20KV GRID CONNECTION TO CONNECT DERREENACRINNIG WEST WIND FARM, DRIMOLEAGUE, COUNTY CORK TO THE NATIONAL GRID

Management Plan 2
Water Quality Inspection
and
Monitoring Plan

OCTOBER 2021

ESB Networks,
Sarsfield,
Wilton,
Co. Cork,
T12 E367.

Jennings O'Donovan & Partners Limited,
Consulting Engineers,
Finisklin Business Park, Sligo.
Tel.: 071 9161416
Fax: 071 9161080
email: info@jodireland.com

ENGINEERS IRELAND
cpd ACCREDITED EMPLOYER
QUALITY ISO 9001:2015 NSAI Certified
ENVIRONMENT ISO 14001:2015 NSAI Certified
HEALTH & SAFETY ISO 45001:2018 NSAI Certified

JENNINGS O'DONOVAN & PARTNERS LIMITED
Project, Civil and Structural Consulting Engineers,
FINISKLIN BUSINESS PARK,
SLIGO,
IRELAND.

Telephone (071) 91 61416
Fax (071) 91 61080

Email info@jodireland.com
Web Site www.jodireland.com

DOCUMENT APPROVAL

PROJECT	20kV Grid Connection to Connect Derreenacrinnig West Wind Farm, Drimoleague, Co. Cork to the National Grid	
CLIENT / JOB NO	ESB Networks	4636
DOCUMENT TITLE	Management Plan 2: Water Quality Inspection and Monitoring Plan	

	Prepared by	**Reviewed/Approved by**
Document DRAFT	Name Sarah Moore	Name David Kiely
Date 13th October 2021	Signature Sarah Moore	Signature David Kiely

This document, and information or advice which it contains, is provided by JENNINGS O'DONOVAN & PARTNERS LIMITED solely for internal use and reliance by its Client in performance of JENNINGS O'DONOVAN & PARTNERS LIMITED's duties and liabilities under its contract with the Client. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The advice and opinions in this document are based upon the information made available to JENNINGS O'DONOVAN & PARTNERS LIMITED at the date of this document and on current standards, codes, technology and construction practices as at the date of this document. Following final delivery of this document to the Client, JENNINGS O'DONOVAN & PARTNERS LIMITED will have no further obligations or duty to advise the Client on any matters, including development affecting the information or advice provided in this document. This document has been prepared by JENNINGS O'DONOVAN & PARTNERS LIMITED in their professional capacity as Consulting Engineers. The contents of the document does not, in any way, purport to include any manner of legal advice or opinion. This document is prepared in accordance with the terms and conditions of JENNINGS O'DONOVAN & PARTNERSLIMITED contract with the Client. Regard should be had to those terms and conditions when considering and/or placing any reliance on this document. Should the Client wish to release this document to a Third Party for that party's reliance, JENNINGS O'DONOVAN & PARTNERS LIMITED may, at its discretion, agree to such release provided that:

(a) JENNINGS O'DONOVAN & PARTNERS LIMITED written agreement is obtained prior to such release, and
(b) By release of the document to the Third Party, that Third Party does not acquire any rights, contractual or otherwise, whatsoever against JENNINGS O'DONOVAN & PARTNERS LIMITED and JENNINGS O'DONOVAN & PARTNERSLIMITED, accordingly, assume no duties, liabilities or obligations to that Third Party, and
(c) JENNINGS O'DONOVAN & PARTNERS LIMITED accepts no responsibility for any loss or damage incurred by the Client or for any conflict of JENNINGS O'DONOVAN & PARTNERSLIMITED's interests arising out of the Client's release of this document to the Third Party.

CONTENTS

1. INTRODUCTION 1
1.1 Scope and Requirements 1
1.2 Reference Documentation 1
2. RESPONSIBILITIES 2
2.1 General 2
2.2 Hydrochemistry Monitoring 3
2.3 Reporting 4
2.4 Contingency Sampling & Emergency Response 4
3. WATER QUALITY MONITORING: OUTLINE SCOPE 5
3.1 General 5
3.2 Hydrochemistry Monitoring 5

Appendix 1 – Maps of Water Quality Monitoring Locations

1. INTRODUCTION

1.1 Scope and Requirements

1.1.1 The Contractor is solely responsible for pollution prevention for the duration of the contract and until such time as permanent measures, such as permanent drainage and silt mitigation controls, are deemed to be adequate and appropriately constructed.

1.1.2 In order to verify the efficacy of pollution prevention and mitigation works during construction, Water Quality Monitoring is required to be undertaken by a suitably qualified Environmental Manager, prior to, during and post completion of construction works. This will include all watercourses within the catchment of the construction area. The monitoring will comprise visual, hydrochemistry and grab sample monitoring.

1.1.3 The details of the monitoring contained within this Water Quality Inspection and Monitoring Plan (WQIMP) will be approved by the Local Authority prior to commencement of construction. The approved plan will be coordinated and implemented on site by the Environmental Manager (EM).

1.2 Reference Documentation

1.2.1 Construction works have the potential to cause pollution of the water environment. All construction works on site, and specifically construction works to be undertaken within and in the vicinity of any watercourses, will be completed in compliance with current legislation and best practice as detailed within the Construction Environment Management Plan (CEMP) and the Construction Management Plan (CMS).

1.2.2 The following reports (along with any further surveys conducted) will be used to inform the scope of the construction phase WQIMP.

- Environmental Impact Assessment Report (EIAR)
- CEMP including Management Plans
- CMS

2. RESPONSIBILITIES

2.1 General

2.1.1 Responsibility for the water quality monitoring programme, and coordination thereof, will lie with the independent EM appointed at the start of the programme.

2.1.2 Prior to works commencing, an EM will be retained by Derreenacrinnig West Wind Farm Grid Connection Limited with a responsibility to implement this WQIMP. Among other requirements, the WQIMP requires a full baseline survey to be undertaken prior to the commencement of construction and requires the contractor to provide a 'schedule of work' to the water quality specialist at the beginning of each week.

2.1.3 The Water Quality Specialist will prepare and deliver site induction and training to all construction personnel, in liaison with the Site Engineer and EM/Ecological Clerk of Works (ECoW).

2.1.4 As outlined in the Section 3.5, Table 3.3 of the CEMP, the Water Quality Specialist will:

- Undertake specific monitoring activities and reporting as defined in agreed documentation prepared as part of the planning process.
- The Water Quality Specialist will be appointed and report to the EM. They will have responsibility for fulfilling the requirements of the WQIMP, including:
- Daily visual inspection of: access tracks for signs of ground damage or solids escape to nearby watercourses in vicinity of construction works
- The ground between the structure under construction and the nearest downslope watercourse for signs of solids escape or ground damage
- Surface water features in vicinity of construction works
- Any pollution control measures at structures and along access tracks (e.g. silt fences, drain or stream crossings etc.) for evidence of contaminated run-off or mitigation failure
- Attendance at the critical work phases including: access track construction, foundation excavation, watercourse crossings, concrete pouring and back-filling.
- Collection and analysis of water samples at three (3) number of monitoring locations (i.e. upstream & downstream of the instream work at Grid Connection Section 1, Section 2 and Section 7) before, during (if potential pollution visually identified) and after construction works at that location. The water monitoring locations are outlined in Figure 1.2 of the CEMP (enclosed within Appendix 1 of this Report) and in Figures 3, 5 and 11 of Management Plan 3 (Figures enclosed within Appendix 1 of this Report).

- EPA Q Value Biological Monitoring at 4 no. monitoring locations (i.e. upstream & downstream of instream construction work locations) before and after construction works.

2.1.5 Collection and analysis of water samples at three of monitoring locations (i.e. upstream & downstream of construction work locations) before, during and after construction works. It is proposed that 1 round of sampling will be undertaken prior to the commencement of development and will be used as a baseline by which all subsequent samples will be compared. Monthly sampling will then be completed for the duration of the construction phase while 1 no. round of sampling will be completed following the completion of a construction and reinstatement activities.

Water sampling locations for Derreenacrinnig West Wind Farm Grid Connection are shown in **Appendix 1**.

2.2 Hydrochemistry Monitoring

2.2.1 Field Monitoring

Field monitoring of water quality parameters and collection of samples will be undertaken by the EM who will be appropriately qualified on the required monitoring methods and the use, calibration and maintenance of all monitoring equipment used.

2.2.2 Laboratory Analysis

Laboratory analysis of water samples will also be undertaken as part of the monitoring programme by an independent and appropriately certified laboratory to be appointed by the EM.

2.2.3 Coordination of the laboratory sampling and analytical programme will be undertaken by the EM. Samples will be dispatched for analysis under chain of custody procedures. Laboratory analytical results will be sent directly to the EM.

2.2.4 Interpretation and reporting of both the field and laboratory data will be the responsibility of the EM.

2.3 Reporting

2.3.1 Monthly Water Quality Reporting

Results of water quality monitoring shall assist in determining requirements for improvements in drainage and pollution prevention measures implemented on site. A monthly report on water quality will be prepared by the EM.

2.3.2 It will be the responsibility of the EM to present the ongoing results of water quality and weather monitoring at site meetings and with outside bodies. This shall be done at weekly meetings and reported within the overall Monthly Environmental Report to be prepared by the EM.

2.3.3 The monthly reports on water quality will consider all visual, field monitoring and results of laboratory analysis received that month. Reports will describe how the results compare with baseline data as well as previous monthly reports on water quality. The reports will also describe whether any deterioration or improvement in water quality has been observed and whether any effects are attributable to construction activities and what remedial measures or corrective actions have been implemented.

2.3.4 Monthly reports on water quality will be provided to the Client Project Manager and will be made available to the Planning Authority, as may be necessary.

2.3.6 Final Report on Water Quality

Upon completion of all post-construction monitoring, the EM will prepare a final report on water quality. This final report will cover the overall performance against baseline data, details on any impacts attributed to construction works and recommendations for remedial works if required.

2.3.7 The final report will be provided to the Local Authority and Inland Fisheries Ireland.

2.4 Contingency Sampling & Emergency Response

2.4.1 In the event that a pollution incident arises from the construction works, such as that resulting from a spill or accidental release of chemicals, oils and fuels or concrete effluent, threatens to enter, or has entered a watercourse, additional sampling and analysis of surface water samples will be undertaken to determine the level of impact to the surface water receptor and remedial requirements, where necessary.

2.4.2 Where a pollution incident has occurred as a result of construction works, the EM will consult with Cork County Council to determine sampling requirements and any additional survey

requirements where potentially significant impacts are identified. Where it is demonstrated that the pollution occurred as a result of non-compliance with this CMP, the costs of any additional sampling or survey requirements shall be borne by the Contractor.

3. WATER QUALITY MONITORING: OUTLINE SCOPE

3.1 General

3.1.1 The full scope of monitoring and precise monitoring locations have been agreed with the Local Authority prior to commencement of construction works.

3.1.2 Water Quality Monitoring locations will be identified through grid reference, photographic record and indicated on a plan. For repeat sampling locations, each location will also be marked on the ground (stake/post) to ensure that the correct location is sampled each time.

3.1.3 Sample locations shall be labelled consistently for the duration of the monitoring period. Where any additional locations are sampled during the works, the location (grid reference) of the sampling point will be recorded and a photograph will be taken at time of sampling.

3.1.4 'Control' sample locations may also be included in the scope of any monitoring.

3.2 Hydrochemistry Monitoring

3.2.2 The monitoring programme will include:

- At least one baseline monitoring visit.
- Daily visual observation in areas of high construction activity or during high rainfall periods to identify any evidence of siltation, oil or silt. Visual inspections will include details of the color of the water at the time of inspection.
- Weekly visual inspections and monthly field hydrochemistry monitoring.
- One round of post construction monitoring.

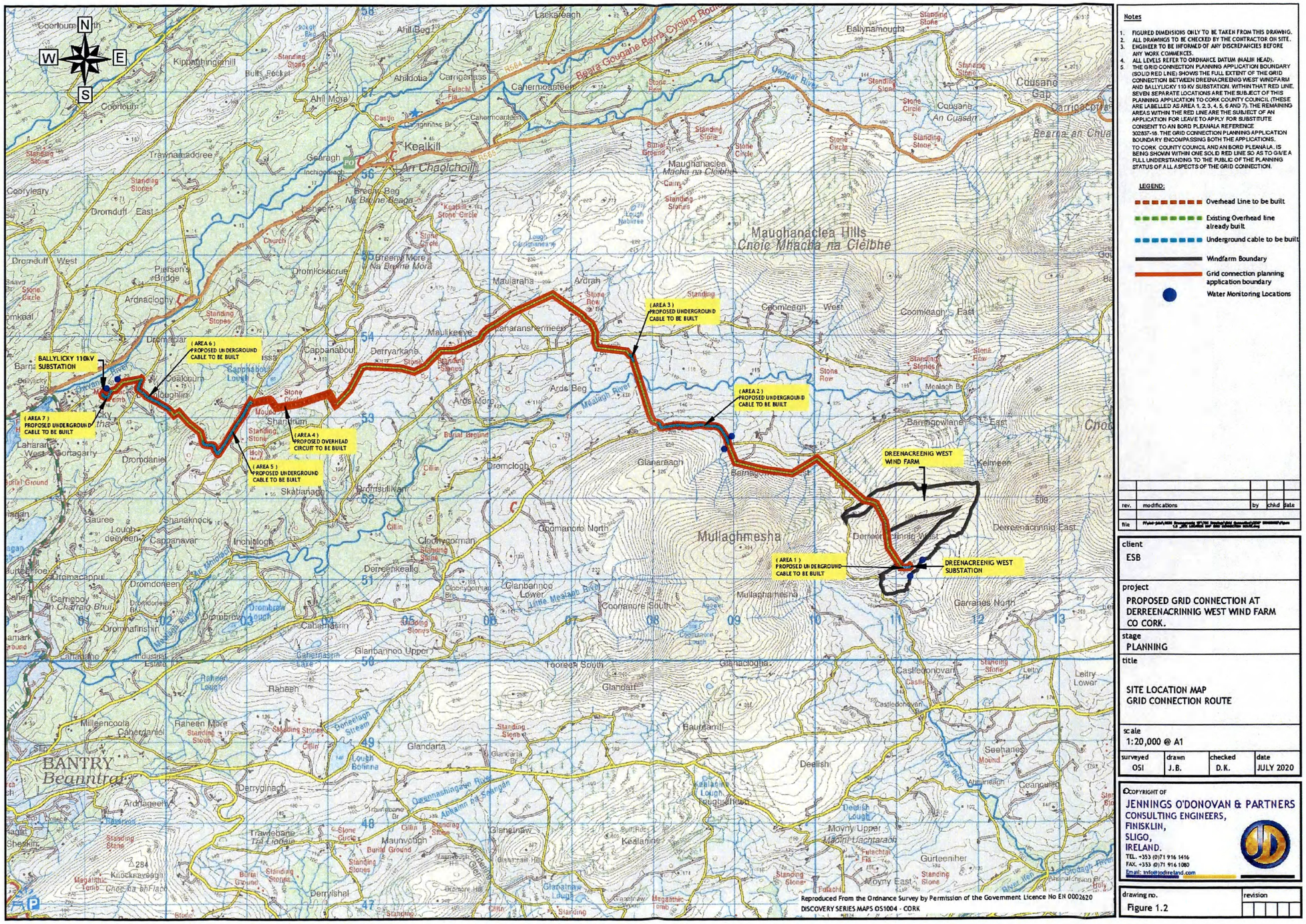
3.2.3 The agreed suite of grab sample determinants may include the following:

Parameters for hydrochemistry analysis

- pH
- Temperature

- Total Suspended Solids (TSS)
- Dissolved Organic Carbon (DOC)
- Conductivity
- Dissolved Oxygen (DO)
- Total Oxidized Nitrogen (TON)
- Ammoniacal Nitrogen
- Ammonia
- Potassium
- Phosphate
- Biological Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Total Petroleum Hydrocarbons (TPH) (*Only during construction phase)

Appendix 1: Maps of Water Quality Monitoring Locations



Notes

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
3. ENGINEER TO BE INFORMED OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES.
4. ALL LEVELS REFER TO ORDNANCE DATUM (MALIN HEAD).
5. THE GRID CONNECTION PLANNING APPLICATION BOUNDARY (SOLID RED LINE) SHOWS THE FULL EXTENT OF THE GRID CONNECTION BETWEEN DREENACREENIG WEST WINDFARM AND BALLYLICKY 110 kV SUBSTATION. WITHIN THAT RED LINE, SEVEN SEPARATE LOCATIONS ARE THE SUBJECT OF THIS PLANNING APPLICATION TO CORK COUNTY COUNCIL (THESE ARE LABELLED AS AREA 1, 2, 3, 4, 5, 6 AND 7). THE REMAINING AREAS WITHIN THE RED LINE ARE THE SUBJECT OF AN APPLICATION FOR LEAVE TO APPLY FOR SUBSTITUTE CONSENT TO AN BORD PLEANÁLA REFERENCE 302857-18. THE GRID CONNECTION PLANNING APPLICATION BOUNDARY ENCOMPASSING BOTH THE APPLICATIONS, TO CORK COUNTY COUNCIL AND AN BORD PLEANÁLA, IS BEING SHOWN WITHIN ONE SOLID RED LINE SO AS TO GIVE A FULL UNDERSTANDING TO THE PUBLIC OF THE PLANNING STATUS OF ALL ASPECTS OF THE GRID CONNECTION.

LEGEND:

- Overhead Line to be built
- Existing Overhead line already built
- Underground cable to be built
- Windfarm Boundary
- Grid connection planning application boundary
- Water Monitoring Locations

rev.	modifications	by	chkd	date
file				

client: ESB

project: PROPOSED GRID CONNECTION AT DERREENACRINNIG WEST WIND FARM CO CORK.

stage: PLANNING

title: SITE LOCATION MAP GRID CONNECTION ROUTE

scale: 1:20,000 @ A1

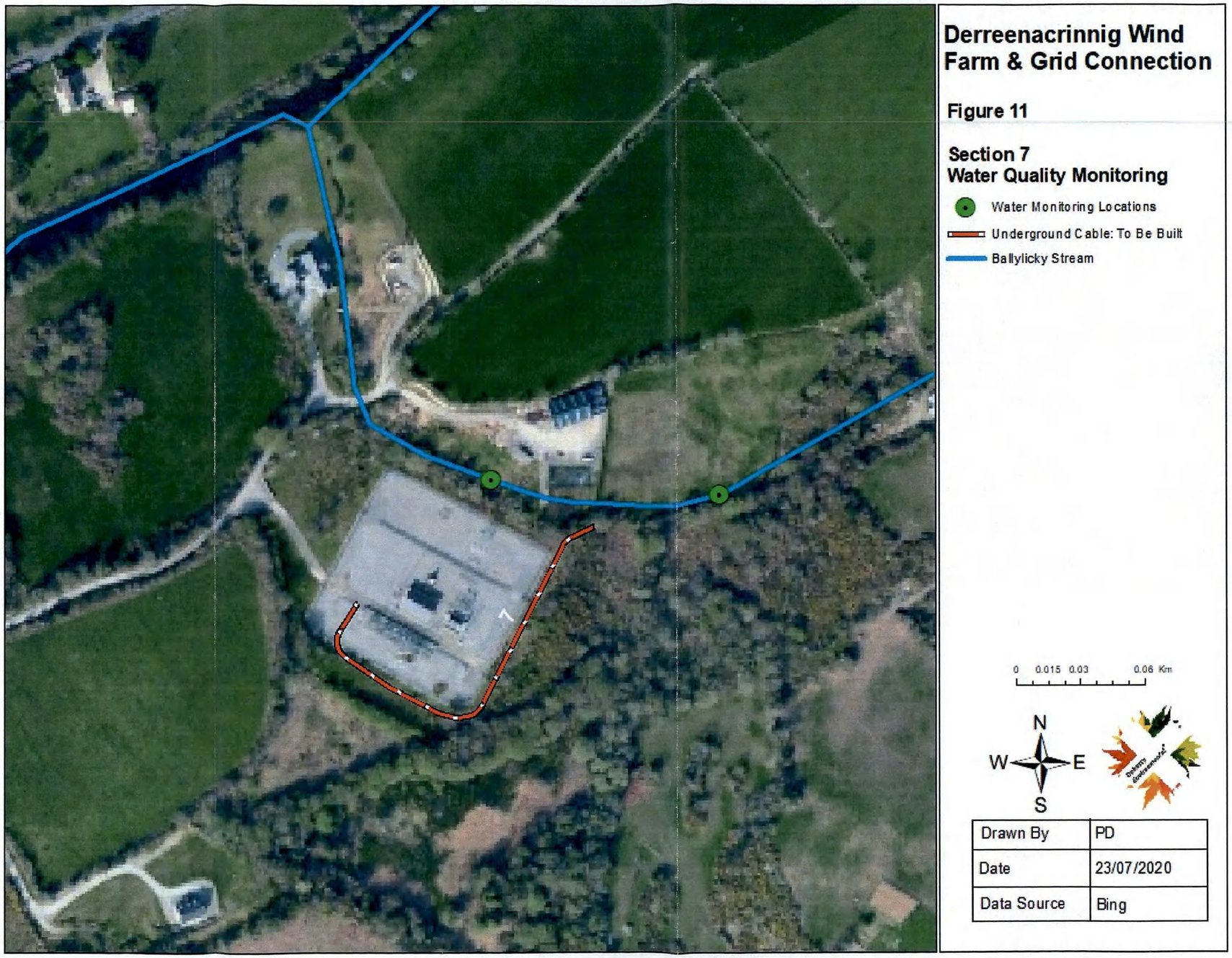
surveyed	drawn	checked	date
OSI	J.B.	D.K.	JULY 2020

©COPYRIGHT OF
JENNINGS O'DONOVAN & PARTNERS
CONSULTING ENGINEERS,
FINISKLIN,
SLIGO,
IRELAND.
TEL. +353 (0)71 916 1416
FAX. +353 (0)71 916 1080
Email: info@jodireland.com

drawing no.: Figure 1.2

revision:

Figure 1.2 Site Location Map Grid Connection Route



Derreenacrinnig Wind Farm & Grid Connection

Figure 11

Section 7
Water Quality Monitoring

Water Monitoring Locations
Underground Cable: To Be Built
Ballylicky Stream

0 0.015 0.03 0.06 Km

N
W E
S

Drawn By	PD
Date	23/07/2020
Data Source	Bing

Figure 11: Section 7 Water Quality Monitoring

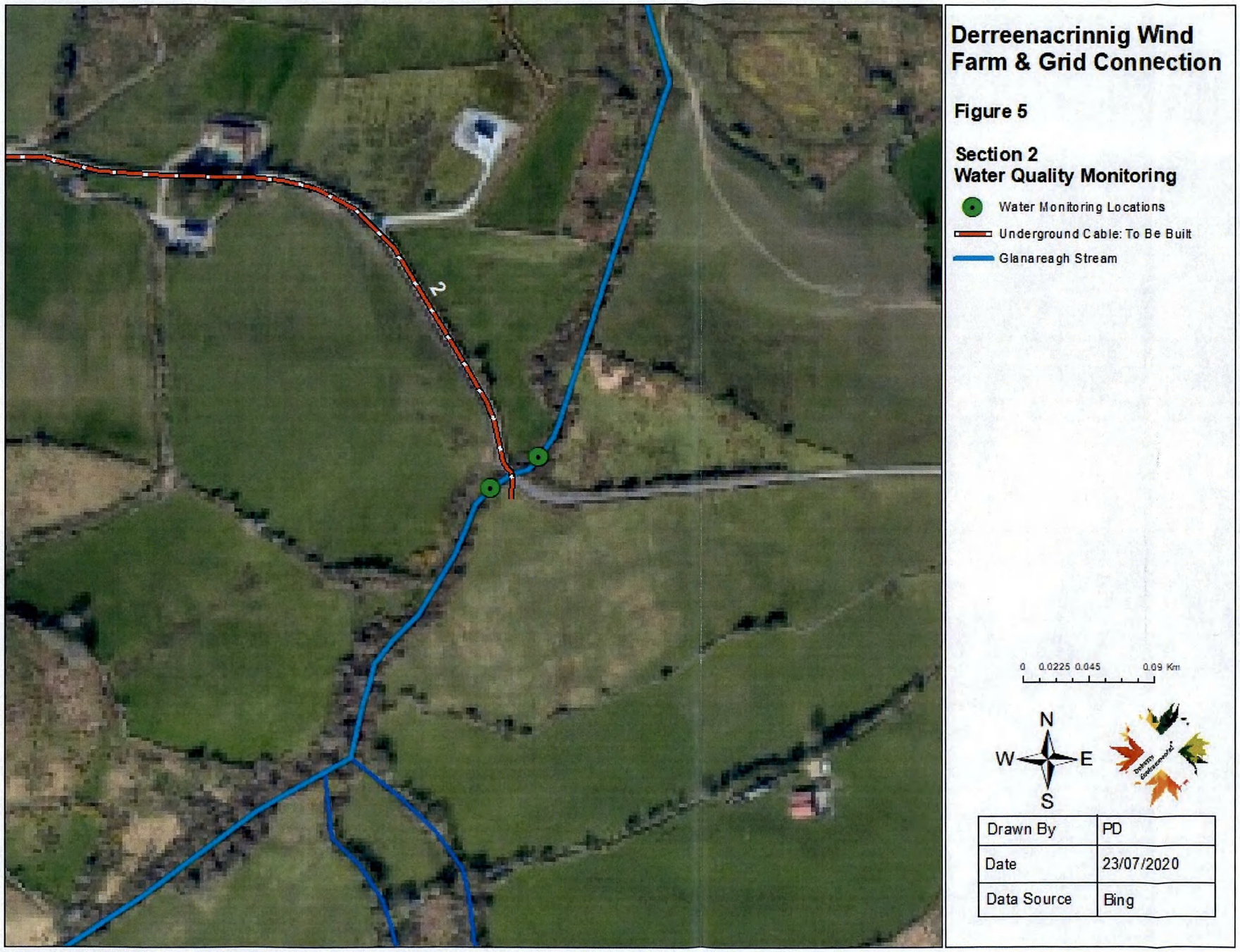


Figure 5: Section 2 Water Quality Monitoring

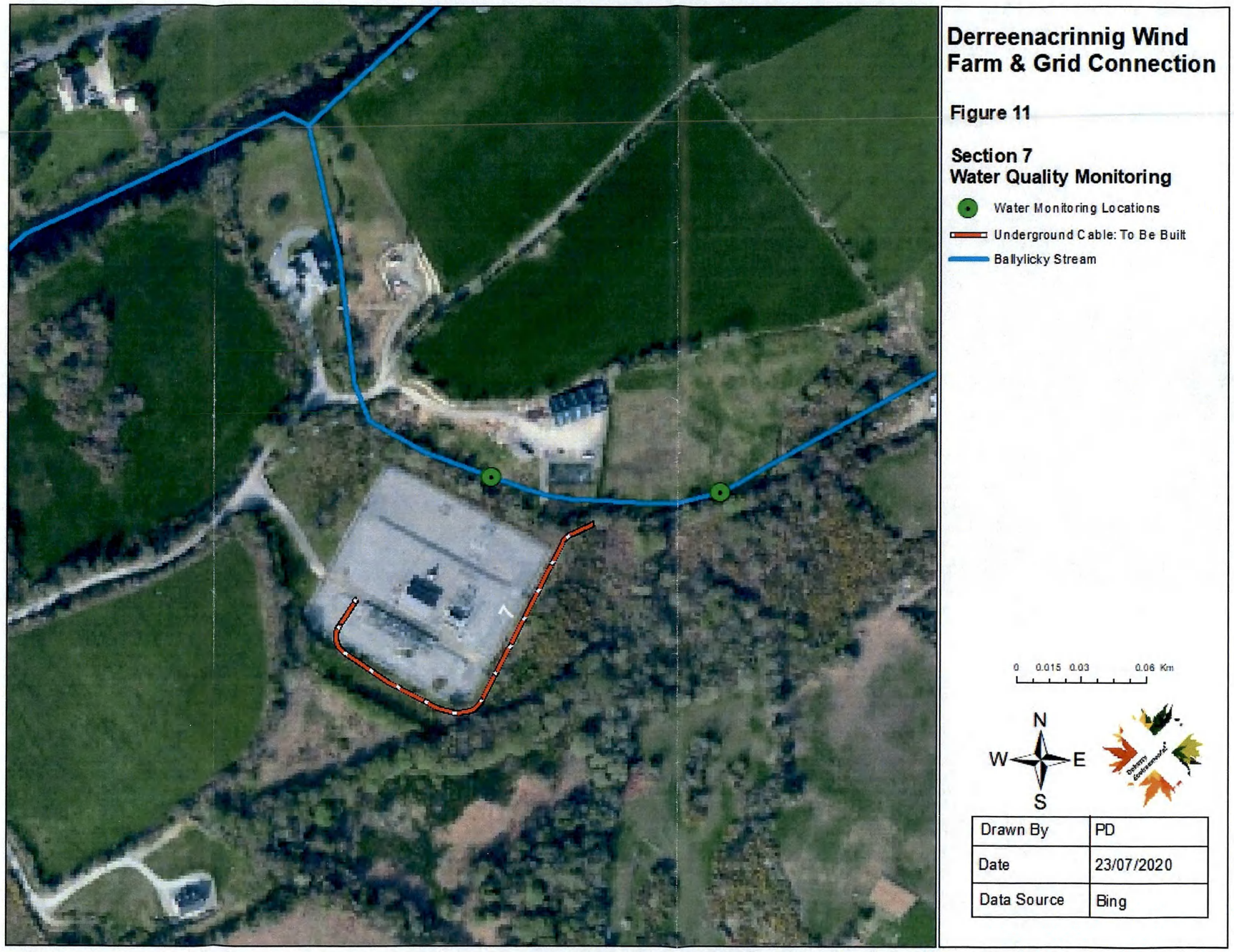


Figure 11: Section 7 Water Quality Monitoring

MANAGEMENT PLAN 3

Ecological Management Plan

Derreenacrinnig Wind Farm

Construction Phase

Management Plan 3

Ecological Management Plan

Doherty Environmental Consultants

October 2021

Table of Contents

1.0 ECOLOGICAL METHOD STATEMENT & MONITORING 1

1.1 INTRODUCTION 1

2.0 SECTION 1 – UNDERGROUND CABLE 1

2.1 SENSITIVE HABITATS 1

2.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY 1

2.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 3

2.4 ECOLOGICAL MONITORING 3

2.5 HABITAT REINSTATEMENT 4

2.6 REPORTING 4

3.0 SECTION 2 – EXISTING POLES TO BE REMOVED & OVERHEAD CABLE TO BE BUILT 4

3.1 SENSITIVE HABITAT 4

3.2 POLE REMOVAL METHODS 4

3.3 OVERHEAD CABLE TO BE BUILT - PRE-CONSTRUCTION ECOLOGICAL SURVEY 5

3.4 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 5

3.5 ECOLOGICAL MONITORING 6

3.6 HABITAT REINSTATEMENT 6

4.0 SECTION 3 – UUNDERGROUND GRID CABLE TO BE BUILT 6

4.1 SENSITIVE HABITATS 6

4.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY 7

4.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 7

4.4 ECOLOGICAL MONITORING 7

4.5 HABITAT REINSTATEMENT 8

4.6 REPORTING 8

5.0 SECTION 4 – EXISTING POLES TO BE REMOVED & OVERHEAD CABLE TO BE BUILT 8

5.1 SENSITIVE HABITAT 8

5.2 POLE REMOVAL METHODS 8

5.3 OVERHEAD CABLE TO BE BUILT - PRE-CONSTRUCTION ECOLOGICAL SURVEY 9

5.4 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 9

5.5 ECOLOGICAL MONITORING 10

5.6 HABITAT REINSTATEMENT 10

5.7 REPORTING 10

6.0 SECTION 5 – UNDERGROUND CABLE TO BE BUILT 11

6.1 SENSITIVE HABITATS 11

6.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY 11

6.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 11

6.4 ECOLOGICAL MONITORING 11

6.5 HABITAT REINSTATEMENT 12

6.6 REPORTING 12

7.0 SECTION 6 –OVERHEAD CABLE TO BE BUILT 12

7.1 SENSITIVE HABITATS 12

7.2 OVERHEAD CABLE TO BE BUILT - PRE-CONSTRUCTION ECOLOGICAL SURVEY 12

7.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 12

7.4 ECOLOGICAL MONITORING 14

7.5 HABITAT REINSTATEMENT 14

7.6 REPORTING 15

8.0 SECTION 7 - POLES TO BE REMOVED & OVERHEAD CABLE TO BE BUILT 15

8.1 SENSITIVE HABITATS 15

8.2 POLE REMOVAL METHODS 15

8.3 PRE-CONSTRUCTION ECOLOGICAL SURVEY 16

8.4 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 16

8.5 ECOLOGICAL MONITORING 17

8.6 HABITAT REINSTATEMENT 18

8.7 REPORTING 18

9.0 SECTION 8 – UNDERGROUND CABLE TO BE BUILT 18

9.1 SENSITIVE HABITATS 18

9.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY 19

9.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 19

9.4 ECOLOGICAL MONITORING 20

9.5 HABITAT REINSTATEMENT 21

9.6 REPORTING 21

10.0 SECTION 9 – POLES TO BE REMOVED & OVERHEAD CABLE TO BE BUILT 22

10.1 SENSITIVE HABITATS 22

10.2 POLE REMOVAL METHODS 22

10.3 OVERHEAD CABLE TO BE BUILT - PRE-CONSTRUCTION ECOLOGICAL SURVEY 22

10.4 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 23

10.5 ECOLOGICAL MONITORING 24

10.6 HABITAT REINSTATEMENT 24

10.7 REPORTING 25

11.0 SECTION 10 – UNDERGROUND CABLE TO BE BUILT 25

11.1 SENSITIVE HABITATS 25

11.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY 26

11.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS 26

11.4 ECOLOGICAL MONITORING 27

11.5 HABITAT REINSTATEMENT 28

11.6 REPORTING 28

1.0 ECOLOGICAL METHOD STATEMENT & MONITORING

1.1 INTRODUCTION

This method and monitoring statement outlines construction phase requirements for works within sensitive habitats, if any, occurring along the existing polesets to be removed and along the proposed electrical cable to be built. The requirements are described according to sections of the cable route. The sections are split into those sections where poles are to be removed and a new overhead cable to be built; where a new overhead cable is to be built; and where a new underground cable is to be built.

A total of 10 sections occur along the entire cable route. The location of these sections are shown on Figure 1 below.

2.0 SECTION 1 – UNDERGROUND CABLE

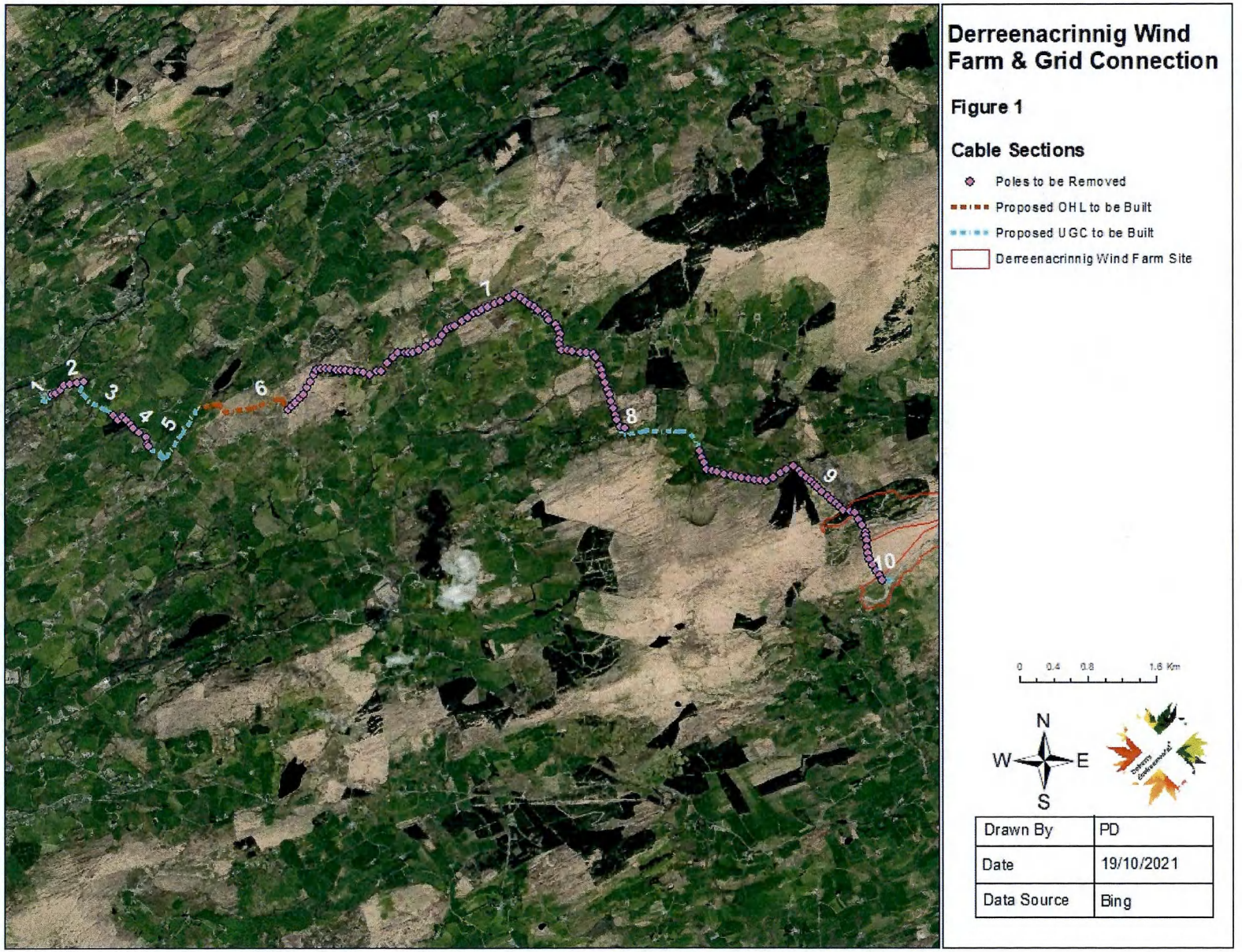
2.1 SENSITIVE HABITATS

Section 7 of the underground electrical cable will be laid in a trench on the verge of existing built land immediately adjacent to the substation. Scrub habitat occurs to the east and south of the route section. The Ballylicky Stream occurs a short distance, 10m, to the north of the route section.

2.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the scrub habitat occurring at and in the vicinity of this section of the underground electrical cable will be completed. The survey will be completed to confirm the absence of sensitive species such as badgers vicinity of the works area. The survey will also identify the presence or otherwise of non-native invasive species that may have recently become established at or in the vicinity of the works area.

Baseline water quality monitoring will be completed along the Ballylicky Stream.



Derreenacrinnig Wind Farm & Grid Connection

Figure 1

Cable Sections

- Poles to be Removed
- Proposed OHL to be Built
- Proposed UGC to be Built
- Derreenacrinnig Wind Farm Site

0 0.4 0.8 1.6 Km

N
W E
S

Drawn By	PD
Date	19/10/2021
Data Source	Bing

Water quality monitoring will involve completing a biological kick sample at both upstream and downstream monitoring points as well as complete hydro-chemistry field measurements of the stream which will include pH, electrical conductivity, solids, dissolved oxygen.

2.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works will be confined to the minimum area possible.

Construction machinery required for the installation of the electrical cable will be kept to a minimum. The works area will be access from the substation or the substation perimeter.

Machinery and site operative will restrict movements to the works area and will aim to avoid disturbance to surrounding scrub habitat.

Only minor vegetation clearance will be required for this section of the electrical cable. Where feasible any clearance of vegetation will be avoided during the breeding bird season between March and August inclusive. Where vegetation clearance is required during these times the pre-construction survey will be required to survey the surrounding scrub area for the presence of nesting birds. In the event that bird nests are identified and the potential for disturbance to these nests exists, where possible works will be postponed in the vicinity of the nest until the nests are no longer active. In the event that works cannot be postponed then works with the potential to disturb live nests will only proceed under licence from the Department/NPWS.

Spoil excavated from the trench will be stored in a bunded area within the substation, a minimum distance of 25m from the Ballylicky Stream.

This material will be used for backfilling of the trench. Where surplus material is left over it will be disposed of offsite at a licenced facility.

2.4 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works,

The ECOW will ensure that the works area is clearly marked out prior to the commencement of works. The ECOW will monitor the storage of surface turves to ensure that they are stored separately.

Upon completion of ducting and form works the ECOW will monitor the reinstatement of the trench

Post-works water quality of the Ballylicky Stream will be completed.

2.5 HABITAT REINSTATEMENT

Works along this section of the electrical cable route should not result in the loss of or disturbance to sensitive habitats. In the event that minor areas of scrub vegetation is lost during works then replacement planting with species typical of the scrub occurring in this section will be planted.

Post works monitoring of the Ballylicky Stream will be completed.

2.6 REPORTING

A reporting detailing the results of the baseline pre-works surveys and water quality monitoring, the monitoring of works and the post-works water quality monitoring will be completed and made available to the planning authority.

3.0 SECTION 2 – EXISTING POLES TO BE REMOVED & OVERHEAD CABLE TO BE BUILT

3.1 SENSITIVE HABITAT

Sensitive habitats occurring along this section include scrub, hedgerow and humid acid grassland.

3.2 POLE REMOVAL METHODS

The removal of polesets shall be completed using one low ground bearing pressure tracked vehicle. The vehicle shall be restricted to making a maximum of one return pass through habitats during the removal of polesets. Where a return journey to polesets is required the tracked vehicle shall restrict its movements to the same line on the inward and outward journey.

Where possible polesets shall be removed outside the breeding bird season. In the event that poleset removal is required during the breeding bird season within these habitats then the access route to polesets and the lands surrounding the poleset will be subject to a breeding bird survey. The breeding bird survey will be completed to identify the presence or otherwise of breeding ground nesting birds in these habitats along and in the immediate vicinity (i.e. within a 25m buffer) of the proposed access route and poleset. In the event that breeding birds are identified as present, the removal operations will be postponed until it is confirmed that breeding has terminated and no active nests are present along or in the immediate vicinity the access route and polesets.

3.3 OVERHEAD CABLE TO BE BUILT - PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the semi-natural habitats occurring at and in the vicinity of this section of the overground electrical cable will be completed. The surveys will concentrate on the poleset locations within these habitats. In the event that works are required to be completed during the bird breeding season, nesting ground dwelling birds in the vicinity of the works area.

The scrub and humid acid grassland along this section of the route will be searched for the presence of ground dwelling protected mammals such as badgers.

3.4 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works required for the installation of polesets will be confined to the minimum area possible.

Construction machinery required for the installation of the polesets will be kept to a minimum.

Machinery and site operative will restrict movements to one dedicated access route along this section of the overground electrical cable route. The access route for machinery and staff will be clearly marked and delimited on the ground prior to the commencement of works.

Where hedgerows are required to be severed to provide access to poleset locations this will be completed at only one location along the access route. Wherever possible alternative routes to poleset locations that avoid hedgerow severance will be chosen as the preferred access route.

Only minor vegetation clearance will be required for polesets along this section of the electrical cable. Where feasible any clearance of vegetation will be avoided during the breeding bird season between March and August inclusive. Where vegetation clearance is required during these times the pre-construction survey will be required to survey the works area and the area of scrub and humid acid grassland surrounding the works area that is deemed suitable habitat for nesting birds. The survey will be required to be completed prior to the commencement of any vegetation clearance during the breeding bird season. In the event that bird nests are identified and the potential for disturbance to these nests exists, where possible works will be postponed in the vicinity of the nest until the nests are no longer active. In the event that works cannot be postponed then works with the potential to disturb live nests will only proceed under licence from the Department/NPWS.

3.5 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works,

The ECOW will ensure that the works area is clearly marked out prior to the commencement of works. The ECOW will monitor the storage of surface turves to ensure that they are stored appropriately.

Upon completion of the poleset installation the ECOW will monitor the reinstatement of surface turves to ensure that they are knitted back together.

The ECOW will ensure that hedgerow replanting is completed following the installation of the duct.

3.6 HABITAT REINSTATEMENT

Low ground cover will be permitted to re-establish in areas of existing scrub habitat. Humid acid grassland will recolonise areas surrounding polesets.

4.0 SECTION 3 – UUNDERGROUND GRID CABLE TO BE BUILT

4.1 SENSITIVE HABITATS

Section 6 of the electrical cable will involve an underground electrical cable that will be laid in a trench in improved agricultural grassland fields. It will be laid adjacent to a hedgerow and will

required the crossing of 5 hedgerows that will be temporarily severed to facilitate the installation of the electrical cable. No watercourse occur in the vicinity of this area of works.

The following sub-section outline the ecological requirements for works at this location.

4.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the hedgerow crossed by and adjacent to the works area will be completed. The survey will aim to identify the presence or otherwise of protected ground-dwelling mammals such as badgers.

4.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works will be confined to the minimum area possible.

Access to the works area will be from the public road at the western end of the works area. Machinery will be restricted to tracking through this field.

Material excavated for the trench will be stored on adjacent improved agricultural grassland and will be used to backfill the trench. Any surplus material will be disposed of offsite.

The clearance of hedgerow vegetation will be restricted to those hedgerows that are to be crossed by the electrical cable route.

Upon completion of the works and the backfilling of the trench the hedgerows crossed by the electrical cable will be knitted back together by replanting native hedgerow shrub species that are typical of the existing hedgerows.

4.4 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works,

The ECOW will ensure that the works area is clearly marked out prior to the commencement of works.

The ECOW will ensure that hedgerow replanting is completed following the installation of the duct.

4.5 HABITAT REINSTATEMENT

Hedgerows severed during the installation of underground electrical cable route will be reinstated. Whip seedlings of trees typical of the existing hedgerows will be planted to knit the hedgerow together. Grazing of the whips will be prevented by providing bark protection, fencing or else the destocking of the field until hedgerows have become established.

4.6 REPORTING

A reporting detailing the results of the baseline pre-works surveys and the monitoring of works will be completed and made available to the planning authority.

5.0 SECTION 4 – EXISTING POLES TO BE REMOVED & OVERHEAD CABLE TO BE BUILT

5.1 SENSITIVE HABITAT

Sensitive habitats occurring along this section include establishing scrub habitat.

5.2 POLE REMOVAL METHODS

The removal of polesets shall be completed using one low ground bearing pressure tracked vehicle. The vehicle shall be restricted to making a maximum of one return pass through habitats during the removal of polesets. Where a return journey to polesets is required the tracked vehicle shall restrict its movements to the same line on the inward and outward journey.

Where possible polesets occurring in scrub, tall sward humid acid grassland, wet heath and dry heath habitats shall be removed outside the breeding bird season. In the event that poleset removal is required during the breeding bird season within these habitats then the access route to polesets and the lands surrounding the poleset will be subject to a breeding bird survey. The breeding bird survey will be completed to identify the presence or otherwise of breeding ground nesting birds in

these habitats along and in the immediate vicinity (i.e. within a 25m buffer) of the proposed access route and poleset. In the event that breeding birds are identified as present, the removal operations will be postponed until it is confirmed that breeding has terminated and no active nests are present along or in the immediate vicinity the access route and polesets.

5.3 OVERHEAD CABLE TO BE BUILT - PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the semi-natural habitats occurring at and in the vicinity of this section of the overground electrical cable will be completed. The surveys will concentrate on the poleset locations within these habitats. In the event that works are required to be completed during the bird breeding season, nesting ground dwelling birds in the vicinity of the works area.

The scrub along this section of the route will be searched for the presence of ground dwelling protected mammals such as badgers.

5.4 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works required for the installation of polesets will be confined to the minimum area possible.

Construction machinery required for the installation of the polesets will be kept to a minimum.

Machinery and site operative will restrict movements to one dedicated access route along this section of the overground electrical cable route. The access route for machinery and staff will be clearly marked and delimited on the ground prior to the commencement of works.

Where hedgerows are required to be severed to provide access to poleset locations this will be completed at only one location along the access route. Wherever possible alternative routes to poleset locations that avoid hedgerow severance will be chosen as the preferred access route.

Only minor vegetation clearance will be required for polesets along this section of the electrical cable. Where feasible any clearance of vegetation will be avoided during the breeding bird season between March and August inclusive. Where vegetation clearance is required during these times

the pre-construction survey will be required to survey the works area and the area of scrub surrounding the works area that is deemed suitable habitat for nesting birds. The survey will be required to be completed prior to the commencement of any vegetation clearance during the breeding bird season. In the event that bird nests are identified and the potential for disturbance to these nests exists, where possible works will be postponed in the vicinity of the nest until the nests are no longer active. In the event that works cannot be postponed then works with the potential to disturb live nests will only proceed under licence from the Department/NPWS.

5.5 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works,

The ECOW will ensure that the works area is clearly marked out prior to the commencement of works. The ECOW will monitor the storage of surface turves to ensure that they are stored appropriately.

Upon completion of the poleset installation the ECOW will monitor the reinstatement of surface turves to ensure that they are knitted back together.

The ECOW will ensure that hedgerow replanting is completed following the installation of the duct.

5.6 HABITAT REINSTATEMENT

Low ground cover will be permitted to re-establish in areas of existing scrub habitat..

5.7 REPORTING

A reporting detailing the results of the baseline pre-works surveys and the monitoring of works will be completed and made available to the planning authority.

6.0 SECTION 5 – UNDERGROUND CABLE TO BE BUILT

6.1 SENSITIVE HABITATS

Section 5 of the electrical cable will involve an underground electrical cable that will be laid in a trench along the existing public road. There will be no loss of sensitive habitats along this section of the underground electrical cable route. Hedgerows occur along the verge of the public road. This is the only sensitive habitat occurring in the vicinity of the works area.

6.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the hedgerows along either side of the public road adjacent to the works area will be completed. The survey will aim to identify the presence or otherwise of protected ground-dwelling mammals such as badgers. The ECOW will also aim to identify the presence of any newly established non-native invasive species along the road verge.

6.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works will be confined to the minimum area possible.

Works will be restricted to the public road.

No hedgerow will be cleared as part of this section of the underground electrical cable.

6.4 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works to ensure all hedgerows are retained along this section of the route,

6.5 HABITAT REINSTATEMENT

As there will be no loss of or disturbance to sensitive habitats in this section there will be no requirement for habitat reinstatement.

6.6 REPORTING

A reporting detailing the results of the baseline pre-works surveys and the monitoring of works will be completed and made available to the planning authority.

7.0 SECTION 6 –OVERHEAD CABLE TO BE BUILT

7.1 SENSITIVE HABITATS

Section 6 represents a section where an overground electrical cable is to be built. The sensitive habitats occurring along this section include wet heath, humid acid grassland, wet grassland and hedgerows. An area of improved agricultural grassland, which is not a sensitive habitat is also crossed by this section of the overground electrical cable. Figure 7 shows the habitats occurring along this section. No watercourses occur at this location.

7.2 OVERHEAD CABLE TO BE BUILT - PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the semi-natural habitats occurring at and in the vicinity of this section of the overground electrical cable will be completed. The surveys will concentrate on the poleset locations within these habitats. The survey will be completed to confirm the absence of sensitive species such as Kerry Slug or, in the event that works are required to be completed during the bird breeding season, nesting ground dwelling birds in the vicinity of the works area.

The hedgerows along this section of the route will be searched for the presence of ground dwelling protected mammals such as badgers.

7.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works required for the installation of polesets will be confined to the minimum area possible.

Construction machinery required for the installation of the polesets will be kept to a minimum.

Machinery and site operative will restrict movements to one dedicated access route along this section of the overground electrical cable route. The access route for machinery and staff will be clearly marked and delimited on the ground prior to the commencement of works.

Where hedgerows are required to be severed to provide access to poleset locations this will be completed at only one location along the access route. Wherever possible alternative routes to poleset locations that avoid hedgerow severance will be chosen as the preferred access route.

Only minor vegetation clearance will be required for polesets along this section of the electrical cable. Where feasible any clearance of vegetation will be avoided during the breeding bird season between March and August inclusive. Where vegetation clearance is required during these times the pre-construction survey will be required to survey the works area and an area of wet heath, wet grassland and humid grassland surrounding the works area that is deemed suitable habitat for ground nesting birds. This will require transects within areas of suitable ground nesting habitat. Transects will be required to be completed prior to the commencement of any vegetation clearance during the breeding bird season. In the event that bird nests are identified and the potential for disturbance to these nests exists, where possible works will be postponed in the vicinity of the nest until the nests are no longer active. In the event that works cannot be postponed then works with the potential to disturb live nests will only proceed under licence from the Department/NPWS.

Surface peat, where it occurs at poleset locations, will be excavated as turves. The turves will be excavated to a maximum depth of 0.5m. Given that the works associated with the electrical cable at this section will be completed within a short time frame (i.e. estimated less than 5-day period) the surface turves will be stored on the adjacent ground. This will minimise handling of surface turves, thereby preventing their degradation through overhandling. Surface turves will be stored separately and will not be stacked on top of one another. Upon completion of the poleset installation, the turves will be replaced at the surface surrounding the poleset and knitted back together.

Where surplus material is left over it will be disposed of offsite at a licenced facility.

Hedgerows severed to provide access to the installation of the polesets will be knitted back together through the replanting of native shrub species typical of the existing hedgerows.

7.4 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works,

Surveys of the wet heath, wet grassland, humid acid grassland and the hedgerows along this section of the overground electrical cable and immediate vicinity surrounding poleset locations for protected species such as Kerry Slug and ground dwelling birds will be completed.

The ECOW will ensure that the works area is clearly marked out prior to the commencement of works. The ECOW will monitor the storage of surface turves to ensure that they are stored appropriately.

Upon completion of the poleset installation the ECOW will monitor the reinstatement of surface turves to ensure that they are knitted back together.

The ECOW will ensure that hedgerow replanting is completed following the installation of the duct.

7.5 HABITAT REINSTATEMENT

Upon completion of the poleset installation the ECOW will monitor the reinstatement of surface peat turves at relevant poleset locations to ensure that they are knitted back together along the surface of the electrical cable trench.

Attention will be given to ensuring the surface is stabilised, particularly where replacement is being undertaken on slopes.

Reinstatement work will be completed only by experienced drivers under guidance from the appointed ECoW, and he/she will monitor the reinstatement work to ensure it is completed in an appropriate manner.

Following replacement of peat turves, a stock-proof fence will be installed and maintained to protect these reinstated areas until there is strong vegetation growth and the turves have "knitted" together properly.

Hedgerows severed to provide access during the installation of polesets will be reinstated. Whip seedlings of trees typical of the existing hedgerows will be planted to knit the hedgerow together. Grazing of the whips will be prevented by providing bark protection, fencing or else the destocking of the field until hedgerows have become established.

7.6 REPORTING

A reporting detailing the results of the baseline pre-works surveys and the monitoring of works will be completed and made available to the planning authority.

8.0 SECTION 7 - POLES TO BE REMOVED & OVERHEAD CABLE TO BE BUILT

8.1 SENSITIVE HABITATS

The sensitive habitats occurring along this section include wet heath, dry heath, humid acid grassland, wet grassland, scrub and hedgerows. Watercourses occur along this section. The Meelagh River is crossed by this section.

8.2 POLE REMOVAL METHODS

The removal of polesets shall be completed using one low ground bearing pressure tracked vehicle. The vehicle shall be restricted to making a maximum of one return pass through habitats during the removal of polesets. Where a return journey to polesets is required the tracked vehicle shall restrict its movements to the same line on the inward and outward journey.

Where possible polesets occurring in scrub, tall sward humid acid grassland, wet heath and dry heath habitats shall be removed outside the breeding bird season. In the event that poleset removal is required during the breeding bird season within these habitats then the access route to polesets and the lands surrounding the poleset will be subject to a breeding bird survey. The breeding bird survey will be completed to identify the presence or otherwise of breeding ground nesting birds in these habitats along and in the immediate vicinity (i.e. within a 25m buffer) of the proposed access route and poleset. In the event that breeding birds are identified as present, the removal operations

will be postponed until it is confirmed that breeding has terminated and no active nests are present along or in the immediate vicinity the access route and polesets.

8.3 PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the semi-natural habitats occurring at and in the vicinity of this section of the overground electrical cable will be completed. The surveys will concentrate on the poleset locations within these habitats. The survey will be completed to confirm the absence of sensitive species such as Kerry Slug or, in the event that works are required to be completed during the bird breeding season, nesting ground dwelling birds in the vicinity of the works area.

The hedgerows along this section of the route will be searched for the presence of ground dwelling protected mammals such as badgers.

8.4 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works required for the installation of polesets will be confined to the minimum area possible.

Construction machinery required for the installation of the polesets will be kept to a minimum.

Machinery and site operative will restrict movements to one dedicated access route along this section of the overground electrical cable route. The access route for machinery and staff will be clearly marked and delimited on the ground prior to the commencement of works.

Where hedgerows are required to be severed to provide access to poleset locations this will be completed at only one location along the access route. Wherever possible alternative routes to poleset locations that avoid hedgerow severance will be chosen as the preferred access route.

Only minor vegetation clearance will be required for polesets along this section of the electrical cable. Where feasible any clearance of vegetation will be avoided during the breeding bird season between March and August inclusive. Where vegetation clearance is required during these times the pre-construction survey will be required to survey the works area and an area of wet heath, wet

grassland and humid grassland surrounding the works area that is deemed suitable habitat for ground nesting birds. This will require transects within areas of suitable ground nesting habitat. Transects will be required to be completed prior to the commencement of any vegetation clearance during the breeding bird season. In the event that bird nests are identified and the potential for disturbance to these nests exists, where possible works will be postponed in the vicinity of the nest until the nests are no longer active. In the event that works cannot be postponed then works with the potential to disturb live nests will only proceed under licence from the Department/NPWS.

Surface peat, where it occurs at poleset locations, will be excavated as turves. The turves will be excavated to a maximum depth of 0.5m. Given that the works associated with the electrical cable at this section will be completed within a short time frame (i.e. estimated less than 5-day period) the surface turves will be stored on the adjacent ground. This will minimise handling of surface turves, thereby preventing their degradation through overhandling. Surface turves will be stored separately and will not be stacked on top of one another. Upon completion of the poleset installation, the turves will be replaced at the surface surrounding the poleset and knitted back together.

Where surplus material is left over it will be disposed of offsite at a licenced facility.

Hedgerows severed to provide access to the installation of the polesets will be knitted back together through the replanting of native shrub species typical of the existing hedgerows.

8.5 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works,

Surveys of the wet heath, wet grassland, humid acid grassland and the hedgerows along this section of the overground electrical cable and immediate vicinity surrounding poleset locations for protected species such as Kerry Slug and ground dwelling birds will be completed.

The ECOW will ensure that the works area is clearly marked out prior to the commencement of works. The ECOW will monitor the storage of surface turves to ensure that they are stored appropriately.

Upon completion of the poleset installation the ECOW will monitor the reinstatement of surface turves to ensure that they are knitted back together.

The ECOW will ensure that hedgerow replanting is completed following the installation of the duct.

8.6 HABITAT REINSTATEMENT

Upon completion of the poleset installation the ECOW will monitor the reinstatement of surface peat turves at relevant poleset locations to ensure that they are knitted back together along the surface of the electrical cable trench.

Attention will be given to ensuring the surface is stabilised, particularly where replacement is being undertaken on slopes.

Reinstatement work will be completed only by experienced drivers under guidance from the appointed ECoW, and he/she will monitor the reinstatement work to ensure it is completed in an appropriate manner.

Following replacement of peat turves, a stock-proof fence will be installed and maintained to protect these reinstated areas until there is strong vegetation growth and the turves have "knitted" together properly.

Hedgerows severed to provide access during the installation of polesets will be reinstated. Whip seedlings of trees typical of the existing hedgerows will be planted to knit the hedgerow together. Grazing of the whips will be prevented by providing bark protection, fencing or else the destocking of the field until hedgerows have become established.

8.7 REPORTING

A reporting detailing the results of the baseline pre-works surveys and the monitoring of works will be completed and made available to the planning authority.

9.0 SECTION 8 – UNDERGROUND CABLE TO BE BUILT

9.1 SENSITIVE HABITATS

Section 2 of the underground electrical cable will be laid in a trench on the verge of the existing public road. Sensitive habitats along this section are restricted to the Glanareagh Stream which will

be crossed and a minor area of wet heath at the western end of this section. Figure 4 shows the habitats occurring along this section.

The following sub-section outline the ecological requirements for works at this location.

9.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the wet heath occurring at and in the vicinity of this section of the underground electrical cable will be completed. The survey will be completed to confirm the absence of sensitive species such as Kerry Slug or ground dwelling birds in the vicinity of the works area.

The hedgerow along the south of the public road that bounds the underground electrical cable trench will be searched for the presence of protected ground dwelling mammals such as badgers. The ECOW will also survey the hedgerows along the public for the presence of any newly established non-native invasive species.

Baseline water quality monitoring will be completed along the Glanareagh Stream. The water quality monitoring points at this stream are shown on Figure 5.

Water quality monitoring will involve completing a biological kick sample at both upstream and downstream monitoring points as well as complete hydro-chemistry field measurements of the stream which will include pH, electrical conductivity, solids, dissolved oxygen.

9.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works will be confined to the minimum area possible.

Construction machinery required for the installation of the electrical cable will be kept to a minimum. The existing public road (as shown on Figure 4) will be used to access the works area and the works area at the western end, off the public road will be cleared marked out and delimited prior to the commencement of works.

Machinery and site operative will restrict movements to the works area.

Only minor vegetation clearance will be required for this section of the electrical cable. Where feasible any clearance of vegetation will be avoided during the breeding bird season between March and August inclusive. Where vegetation clearance is required during these times the pre-construction survey will be required to survey the works area and an area within 500m radius of the works area for the presence of ground nesting birds. This will require transects within this area. Transects will be required to be completed prior to the commencement of any vegetation clearance during the breeding bird season. In the event that bird nests are identified and the potential for disturbance to these nests exists, where possible works will be postponed in the vicinity of the nest until the nests are no longer active. In the event that works cannot be postponed then works with the potential to disturb live nests will only proceed under licence from the Department/NPWS.

Surface peat, where it occurs at the western end of this section, will be excavated as turves. The turves will be excavated to a maximum depth of 0.5m. Given that the works associated with the electrical cable at this section will be completed within a short time frame (i.e. estimated less than 5-day period) the surface turves will be stored on the adjacent ground. This will minimise handling of surface turves, thereby preventing their degradation through overhandling. Surface turves will be stored separately and will not be stacked on top of one another. Upon completion of the duct installation and form works, the turves will be replaced at the surface of the trench and knitted back together.

Materials excavated from a depth greater than 0.5m will be stored separately in a bunded area in the area of made ground to the south of the electrical cable. This material will be stored in a bunded area, a minimum distance of 25m from the Glanareagh Stream to prevent runoff of material to this watercourse. This material will be used for backfilling of the trench. Where surplus material is left over it will be disposed of offsite at a licenced facility.

9.4 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works,

Surveys of the wet heath, the hedgerow along the south of the public road and the works area and immediate vicinity for protected species such as Kerry Slug and ground dwelling birds will be

completed. The baseline water quality monitoring of the Glanareagh Stream will be completed prior to the commencement of works,

The ECOW will ensure that the works area is clearly marked out prior to the commencement of works. The ECOW will monitor the storage of surface turves to ensure that they are stored separately.

Upon completion of ducting and form works the ECOW will monitor the reinstatement of surface turves to ensure that they are knitted back together along the surface of the electrical cable trench.

9.5 HABITAT REINSTATEMENT

Upon completion of ducting and form works the ECOW will monitor the reinstatement of surface turves in the wet heath area to ensure that they are knitted back together along the surface of the electrical cable trench.

Attention will be given to ensuring the surface is stabilised, particularly where replacement is being undertaken on slopes.

Reinstatement work will be completed only by experienced drivers under guidance from the appointed ECoW and he/she will monitor the reinstatement work to ensure it is completed in an appropriate manner.

Following replacement of peat turves, a stock-proof fence will be installed and maintained to protect these reinstated areas until there is strong vegetation growth and the turves have "knitted" together properly.

Post-works water quality of the Glanareagh Steam will be completed.

9.6 REPORTING

A reporting detailing the results of the baseline pre-works surveys and water quality monitoring, the monitoring of works and the post-works water quality monitoring will be completed and made available to the planning authority.

10.0 SECTION 9 – POLES TO BE REMOVED & OVERHEAD CABLE TO BE BUILT

10.1 SENSITIVE HABITATS

Section 9 represents a section where poles are to be removed and an overground electrical cable to be built. The sensitive habitats occurring along this section include wet heath, dry heath, humid acid grassland, wet grassland and hedgerows. An area of improved agricultural grassland, which is not a sensitive habitat is also crossed by this section of the overground electrical cable. Watercourses occur at this location.

10.2 POLE REMOVAL METHODS

The removal of polesets shall be completed using one low ground bearing pressure tracked vehicle. The vehicle shall be restricted to making a maximum of one return pass through habitats during the removal of polesets. Where a return journey to polesets is required the tracked vehicle shall restrict its movements to the same line on the inward and outward journey.

Where possible polesets occurring in scrub, tall sward humid acid grassland, wet heath and dry heath habitats shall be removed outside the breeding bird season. In the event that poleset removal is required during the breeding bird season within these habitats then the access route to polesets and the lands surrounding the poleset will be subject to a breeding bird survey. The breeding bird survey will be completed to identify the presence or otherwise of breeding ground nesting birds in these habitats along and in the immediate vicinity (i.e. within a 25m buffer) of the proposed access route and poleset. In the event that breeding birds are identified as present, the removal operations will be postponed until it is confirmed that breeding has terminated and no active nests are present along or in the immediate vicinity the access route and polesets.

10.3 OVERHEAD CABLE TO BE BUILT - PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the semi-natural habitats occurring at and in the vicinity of this section of the overground electrical cable will be completed. The surveys will concentrate on the poleset locations within these habitats. The survey will be completed to confirm the absence of sensitive species such as Kerry Slug or, in the event that works are required to be completed during the bird breeding season, nesting ground dwelling birds in the vicinity of the works area.

The hedgerows along this section of the route will be searched for the presence of ground dwelling protected mammals such as badgers.

10.4 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works required for the installation of polesets will be confined to the minimum area possible.

Construction machinery required for the installation of the polesets will be kept to a minimum.

Machinery and site operative will restrict movements to one dedicated access route along this section of the overground electrical cable route. The access route for machinery and staff will be clearly marked and delimited on the ground prior to the commencement of works.

Where hedgerows are required to be severed to provide access to poleset locations this will be completed at only one location along the access route. Wherever possible alternative routes to poleset locations that avoid hedgerow severance will be chosen as the preferred access route.

Only minor vegetation clearance will be required for polesets along this section of the electrical cable. Where feasible any clearance of vegetation will be avoided during the breeding bird season between March and August inclusive. Where vegetation clearance is required during these times the pre-construction survey will be required to survey the works area and an area of wet heath, wet grassland and humid grassland surrounding the works area that is deemed suitable habitat for ground nesting birds. This will require transects within areas of suitable ground nesting habitat. Transects will be required to be completed prior to the commencement of any vegetation clearance during the breeding bird season. In the event that bird nests are identified and the potential for disturbance to these nests exists, where possible works will be postponed in the vicinity of the nest until the nests are no longer active. In the event that works cannot be postponed then works with the potential to disturb live nests will only proceed under licence from the Department/NPWS.

Surface peat, where it occurs at poleset locations, will be excavated as turves. The turves will be excavated to a maximum depth of 0.5m. Given that the works associated with the electrical cable at this section will be completed within a short time frame (i.e. estimated less than 5-day period)

the surface turves will be stored on the adjacent ground. This will minimise handling of surface turves, thereby preventing their degradation through overhandling. Surface turves will be stored separately and will not be stacked on top of one another. Upon completion of the poleset installation, the turves will be replaced at the surface surrounding the poleset and knitted back together.

Where surplus material is left over it will be disposed of offsite at a licenced facility.

Hedgerows severed to provide access to the installation of the polesets will be knitted back together through the replanting of native shrub species typical of the existing hedgerows.

10.5 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works,

Surveys of the wet heath, wet grassland, humid acid grassland and the hedgerows along this section of the overground electrical cable and immediate vicinity surrounding poleset locations for protected species such as Kerry Slug and ground dwelling birds will be completed.

The ECOW will ensure that the works area is clearly marked out prior to the commencement of works. The ECOW will monitor the storage of surface turves to ensure that they are stored appropriately.

Upon completion of the poleset installation the ECOW will monitor the reinstatement of surface turves to ensure that they are knitted back together.

The ECOW will ensure that hedgerow replanting is completed following the installation of the duct.

10.6 HABITAT REINSTATEMENT

Upon completion of the poleset installation the ECOW will monitor the reinstatement of surface peat turves at relevant poleset locations to ensure that they are knitted back together along the surface of the electrical cable trench.

Attention will be given to ensuring the surface is stabilised, particularly where replacement is being undertaken on slopes.

Reinstatement work will be completed only by experienced drivers under guidance from the appointed ECoW, and he/she will monitor the reinstatement work to ensure it is completed in an appropriate manner.

Following replacement of peat turves, a stock-proof fence will be installed and maintained to protect these reinstated areas until there is strong vegetation growth and the turves have "knitted" together properly.

Hedgerows severed to provide access during the installation of polesets will be reinstated. Whip seedlings of trees typical of the existing hedgerows will be planted to knit the hedgerow together. Grazing of the whips will be prevented by providing bark protection, fencing or else the destocking of the field until hedgerows have become established.

10.7 REPORTING

A reporting detailing the results of the baseline pre-works surveys and the monitoring of works will be completed and made available to the planning authority.

11.0 SECTION 10 – UNDERGROUND CABLE TO BE BUILT

11.1 SENSITIVE HABITATS

Sensitive habitat is present at Section 1 of the electrical cable, which is an underground electrical cable section. The sensitive habitat present at this location is wet heath.

The wet heath habitat is dominated by stands of species-poor *Molinia caerulea*. Other species occurring in association with these species poor examples of wet heath include *Schoenus nigrans, Erica tetralix, Erica cinerea, Potentilla erecta and Calluna vulgaris*. The sward height consists of tall and tussocky *Molinia caerulea* to a height of greater than 25cm.

Previous surveys at this location for the presence of rare and protected species such as Kerry slug have been completed and none were found.

The Derreenacrinnig East Stream is located approximately 80m to the southeast and downslope of the underground electrical cable.

The following sub-section outline the ecological requirements for works at this location.

11.2 PRE-CONSTRUCTION ECOLOGICAL SURVEY

A pre-construction ecological survey of the wet heath occurring at and in the vicinity of this section of the underground electrical cable will be completed. The survey will be completed to confirm the absence of sensitive species such as Kerry Slug or ground dwelling birds in the vicinity of the works area.

Baseline water quality monitoring will be completed along the Derreenacrinnig East Stream. The water quality monitoring points at this stream are shown on Figure 3.

Water quality monitoring will involve completing a biological kick sample at both upstream and downstream monitoring points as well as complete hydro-chemistry field measurements of the stream which will include pH, electrical conductivity, solids, dissolved oxygen.

11.3 CONSTRUCTION METHODS – ECOLOGICAL REQUIREMENTS

As part of the construction of this section of the electrical cable the following measures will form part of the construction methods:

Construction works will be confined to the minimum area possible.

Construction machinery required for the installation of the electrical cable will be kept to a minimum. The existing wind farm access road (as shown on Figure 2) will be used to access the works area. The area to the north and west of the cable section, which still supports wet heath will be marked out to delimit the boundary of the works area.

Machinery and site operative will restrict movements to the works area and the existing access road and hardstand.

Trampling and the use of machinery on saturated, quaking surfaces will be avoided.

Only minor Vegetation clearance will be required for this section of the electrical cable. Where feasible any clearance of vegetation will be avoided during the breeding bird season between March and August inclusive. Where vegetation clearance is required during these times the pre-

construction survey will be required to survey the works area and an area within 500m radius of the works area for the presence of ground nesting birds. This will require transects within this area. Transects will be required to be completed prior to the commencement of any vegetation clearance during the breeding bird season. In the event that bird nests are identified and the potential for disturbance to these nests exists, where possible works will be postponed in the vicinity of the nest until the nests are no longer active. In the event that works cannot be postponed then works with the potential to disturb live nests will only proceed under licence from the Department/NPWS.

Surface peat along the electrical cable section will be excavated as turves. The turves will be excavated to a maximum depth of 0.5m. Given that the works associated with the electrical cable at this section will be completed within a short time frame (i.e. estimated less than 5-day period) the surface turves will be stored on the adjacent made ground to the south of the electrical cable trench. This will minimise handling of surface turves, thereby preventing their degradation through overhandling. Surface turves will be stored separately and will not be stacked on top of one another. Upon completion of the duct installation and form works, the turves will be replaced at the surface of the trench and knitted back together.

Materials excavated from a depth greater than 0.5m will be stored separately in a bunded area in the area of made ground to the south of the electrical cable. This material will be stored in a bunded area to prevent runoff of material to the Derreenacrinnig East stream. This material will be used for backfilling of the trench. Where surplus material is left over it will be disposed of offsite at a licenced facility.

11.4 ECOLOGICAL MONITORING

The construction phase Ecological Clerk of Works (ECOW) will be responsible for completing pre-construction works surveys and will also be responsible for monitoring construction works,

Surveys of the wet heath and the works area and immediate vicinity for protected species such as Kerry Slug and ground dwelling birds will be completed. The baseline water quality monitoring of the Derreenacrinnig East stream will be completed prior to the commencement of works,

The ECOW will ensure that the works are is clearly marked out prior to the commencement of works. The ECOW will monitor the storage of surface turves to ensure that they are stored separately.

11.5 HABITAT REINSTATEMENT

Upon completion of ducting and form works the ECOW will monitor the reinstatement of surface turves to ensure that they are knitted back together along the surface of the electrical cable trench.

Attention will be given to ensuring the surface is stabilised, particularly where replacement is being undertaken on slopes.

Reinstatement work will be completed only by experienced drivers under guidance from the appointed ECoW, and he/she will monitor the reinstatement work to ensure it is completed in an appropriate manner.

Following replacement of peat turves, a stock-proof fence will be installed and maintained to protect these reinstated areas until there is strong vegetation growth and the turves have "knitted" together properly.

Post-works water quality of the Derreenacrinnig East stream will be completed.

11.6 REPORTING

A reporting detailing the results of the baseline pre-works surveys and water quality monitoring, the monitoring of works and the post-works water quality monitoring will be completed and made available to the planning authority.

MANAGEMENT PLAN 4

Waste Management Plan (WMP)

ESB NETWORKS

20KV GRID CONNECTION TO CONNECT DERREENACRINNIG WEST WIND FARM, DRIMOLEAGUE, COUNTY CORK TO THE NATIONAL GRID

Management Plan 4

Waste Management Plan (WMP)

OCTOBER 2021

ESB Networks,
Sarsfield Road,
Wilton,
Co. Cork,
T12 E367.

Jennings O'Donovan & Partners Limited,
Consulting Engineers,
Finisklin Business Park,
Sligo.
Tel.: 071 9161416
Fax: 071 9161080
email: info@jodireland.com

ENGINEERS IRELAND
cpd ACCREDITED EMPLOYER
QUALITY ISO 9001:2015 NSAI Certified
ENVIRONMENT ISO 14001:2015 NSAI Certified
HEALTH & SAFETY ISO 45001:2018 NSAI Certified

JENNINGS O'DONOVAN & PARTNERS LIMITED
Project, Civil and Structural Consulting Engineers,
FINISKLIN BUSINESS PARK,
SLIGO,
IRELAND.

Telephone (071) 91 61416
Fax (071) 91 61080

Email info@jodireland.com
Web Site www.jodireland.com

DOCUMENT APPROVAL

PROJECT	20kV Grid Connection to Connect Derreenacrinnig West Wind Farm, Drimoleague, Co. Cork to the National Grid	
CLIENT / JOB NO	ESB Networks	4636
DOCUMENT TITLE	Management Plan 3: Waste Management Plan (WMP)	

	Prepared by	**Reviewed/Approved by**
Document DRAFT	Name Sarah Moore	Name David Kiely
Date 13th October 2021	Signature Sarah Moore	Signature David Kiely

This document, and information or advice which it contains, is provided by JENNINGS O'DONOVAN & PARTNERS LIMITED solely for internal use and reliance by its Client in performance of JENNINGS O'DONOVAN & PARTNERS LIMITED's duties and liabilities under its contract with the Client. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The advice and opinions in this document are based upon the information made available to JENNINGS O'DONOVAN & PARTNERS LIMITED at the date of this document and on current standards, codes, technology and construction practices as at the date of this document. Following final delivery of this document to the Client, JENNINGS O'DONOVAN & PARTNERS LIMITED will have no further obligations or duty to advise the Client on any matters, including development affecting the information or advice provided in this document. This document has been prepared by JENNINGS O'DONOVAN & PARTNERS LIMITED in their professional capacity as Consulting Engineers. The contents of the document does not, in any way, purport to include any manner of legal advice or opinion. This document is prepared in accordance with the terms and conditions of JENNINGS O'DONOVAN & PARTNERSLIMITED contract with the Client. Regard should be had to those terms and conditions when considering and/or placing any reliance on this document. Should the Client wish to release this document to a Third Party for that party's reliance, JENNINGS O'DONOVAN & PARTNERS LIMITED may, at its discretion, agree to such release provided that:

(a) JENNINGS O'DONOVAN & PARTNERS LIMITED written agreement is obtained prior to such release, and
(b) By release of the document to the Third Party, that Third Party does not acquire any rights, contractual or otherwise, whatsoever against JENNINGS O'DONOVAN & PARTNERS LIMITED and JENNINGS O'DONOVAN & PARTNERSLIMITED, accordingly, assume no duties, liabilities or obligations to that Third Party, and
(c) JENNINGS O'DONOVAN & PARTNERS LIMITED accepts no responsibility for any loss or damage incurred by the Client or for any conflict of JENNINGS O'DONOVAN & PARTNERSLIMITED's interests arising out of the Client's release of this document to the Third Party.

CONTENTS

1. INTRODUCTION 1
1.1 Scope and Requirements 1
1.2 Waste Prevention & Waste Regulations: 1
1.3 Benefits of Waste Prevention 3
1.4 Reference Documentation 4
2. WMP MINIMUM REQUIREMENTS 4
2.1 Planning 4
2.2 Implementation 4
2.3 Monitoring 5
2.3.1 Checks and Records 5
2.3.2 Waste Inventory 5
2.3.3 Monitoring of Site Waste Management Plan 5
2.4 Completion, Audit and Review 5
2.5 Site Waste Management as Part of Site Induction process 6
3. GENERAL WASTE MANAGEMENT PRINCIPLES 7
4. TYPICAL CONSTRUCTION WASTE AND MATERIAL ARISING 10
4.1 Waste Inventory 10
4.2 Management of Construction Waste including Excavated Material 10

1. INTRODUCTION

1.1 Scope and Requirements

This Management Plan is a 'live' document that can be reviewed and updated at regular intervals throughout the project life cycle. The Contractor is required to develop and adapt this document in line with the activities of the project being undertaken at the Derreenacrinnig West Wind Farm Gird Connection. The contractor will approve this Plan (and any future amendments of the document) with the Environmental Manager (EM) prior to any work commencing.

The information in this document forms part of the Construction Management Plan (CMP) and is the Site Waste Management Plan (WMP) for Derreenacrinnig West Wind Farm Grid Connection.

The CEMP, CMS and the measures detailed in this WMP are part of the main requirements for consents for planning permissions. As such, the contractor (and all sub-contractors) on site are obligated to incorporate these waste requirements (contained herein) in all operations.

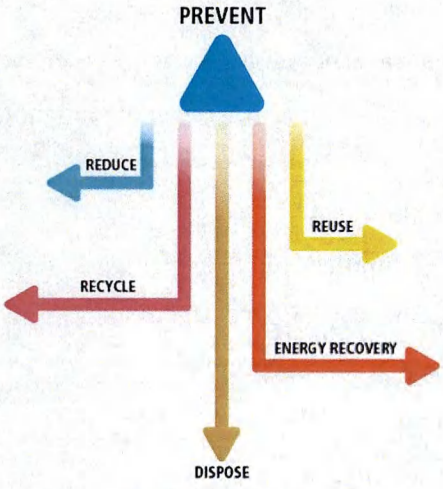
The general methods and principles detailed within this document will be adhered to by the contractor as they are committed to reduce the resources it uses in the construction work of Derreenacrinnig West Wind Farm Grid Connection.

1.2 Waste Prevention & Waste Regulations:

In 2012, the Department of the Environment, Community and Local Government published the Waste Management Policy in Ireland (DoECLG, 2012). One of its guiding principles is to minimise waste. It is therefore important that the Contractor has an efficient time management plan in place, so that where possible, excavated materials can be reused immediately elsewhere on site.

S.I. No. 315/2016 - European Union (Waste Directive) (Amendment) Regulations 2016 infers a duty on all waste producers to take measures to apply the waste hierarchy priority order. In these Regulations, the "Act of 1996" means the Waste Management Act 1996 (No. 10 of 1996) and "Principal Regulations" means the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011). The "Waste Directive" means Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste.

The Waste Management Priority Hierarchy which contractors are obligated to apply: (Source: EPA):



The Waste Hierarchy

The waste management hierarchy applies to all waste, including hazardous waste. The top of the hierarchy indicates that the priority should be in preventing waste being produced in the first place.

The PCB/PCT Directive (Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls) deals with the disposal of certain hazardous chemicals that represent a particular threat to the environment and to human health.

The European Communities (Carriage of Dangerous Goods By Road and Use of Transportable Pressure Equipment) (Amendment) (No. 2) Regulations 2017 (S.I. No. 282 of 2017) shall be adhered to in the case of transportation to and from the site of any dangerous goods.

The Contractor under the above mentioned Directives is legally required to:

- Ensure that the disposal and recovery of waste does not present a risk to water, air, soil, plants and animals
- Not allow waste disposal to constitute a public nuisance through excessive noise levels or unpleasant odours, or to degrade places of special natural interest
- Prohibit the dumping or uncontrolled disposal of waste
- Prepare WMPs
- Ensure that waste treatment operations are licensed
- Require waste collectors to have special authorization and to keep records
- Ensure that the waste which cannot be prevented or recovered is disposed of without causing environmental pollution.

The EU Integrated Pollution Prevention and Control (IPPC) Directive (Directive 96/61/EC) provides for a permit system for activities including waste management. In adherence with this Directive the Contractor must:

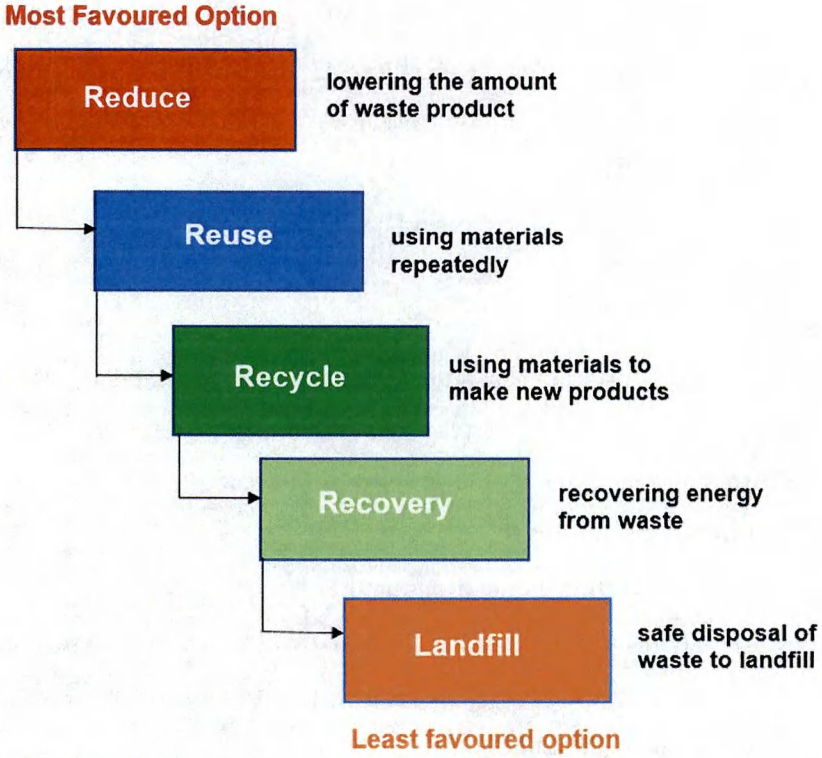
- Be in possession of a waste permit for waste disposal and
- Be prepared at all times for inspection regarding monitoring of waste activities.

1.3 Benefits of Waste Prevention

The contractor must be committed to preventing waste through implementing reduction and effectively managing resources from the design stage of construction to the completion of the construction of the project. This will ensure that:

- Legal obligations are met
- Waste production is minimised
- Build costs are minimised
- A framework for continuous assessment and best practice is implemented
- Carbon emissions and negative environmental impacts of and from waste materials are reduced

The following image explains this in more detail. The least favoured option is to dispose of waste to landfill where embodied energy is not recovered. The Waste Hierarchy (EU Waste Framework Directive, 2008) is outlined below:



1.4 Reference Documentation

As well as the Waste Management Act 1996-2008 other guidance documents have been used to develop this plan. These include:

Pollution Prevention Guidelines:

Best Practice Guidelines on the Preparation of WMPs for Construction and Demolition Projects, Dept. of Environment, Heritage & Local Government, July 2006.

EU Directive:

Article 4 of Waste Framework Directive (Directive 2008/98/EC)

2. WMP MINIMUM REQUIREMENTS

A Site WMP involves the following stages:

- Planning
- Implementation
- Monitor
- Review

2.1 Planning

The planning stage of the development of Grid Connection for the Derreenacrinnig West Wind Farm has taken into account the nature of the site, design of the wind farm, environmental considerations and construction methods to minimise the quantity of waste produced on site during its construction.

2.2 Implementation

This WMP will include:

1. An inventory of waste type expected to be produced in the course of the project.
2. Estimates of each type of waste that will be produced in the construction of this wind farm.
3. A statement showing how the contractor will minimise each type of waste to be produced prior to any activity generating this waste.
4. Procedures for identification of the waste management actions proposed for each different waste type, including re-using, recycling, recovery and disposal (as per the waste hierarchy priorities).

2.3 Monitoring

2.3.1 Checks and Records

All stores on site of oil, fuel, chemicals etc should be regularly checked (in particular in extreme weather conditions) for evidence of leaks or spills. These checks will be visual inspections to look for evidence of contamination.

Records of all visual checks must be maintained and be available for inspection on request. Waste Management will be a regular item on team meetings as required by the CMP. Waste Management Practices should be revised at these meetings. There should be a site waste audit carried out every six months (Section 2.3.3).

2.3.2 Waste Inventory

A waste inventory should be maintained and kept up to date. It will include an inventory of all waste materials leaving the site for disposal and the name of the licensed operator and intended disposal facility. A Waste Inventory Spreadsheet should be added to this plan by the Contractor.

2.3.3 Monitoring of Site Waste Management Plan

The contractor will appoint a person to implement and monitor the WMP. This will be the Environmental Manager (EM).

As stated, the WMP includes an inventory of the types and estimates of the waste to be produced on site. The aim will be to keep volumes of waste produced below the estimates of waste to be produced. The appointed person should ensure that a Site Waste Audit is carried out every month.

2.4 Completion, Audit and Review

Upon completion of construction works but before the end of the defects correction period, a Waste Management Review should be undertaken. The aim of this is to identify project progress, measure compliance with licenses and to consider lessons learnt.

A Waste Management Review will be carried out at the end of construction.

2.5 Site Waste Management as Part of Site Induction process

All workers should be fully briefed with the WMP. All site visitors will be briefed on appropriate waste storage and disposal units. Littering on site will not be tolerated. All personnel have a Duty of Care to challenge others noted littering on site.

3. GENERAL WASTE MANAGEMENT PRINCIPLES

3.1 The contractor will avoid or minimise the volume of waste generated.

3.2 Waste including spoil, will be stored a minimum of 10m from nearby watercourses or drains at Derreenacrinnig.

3.3 Excavated bituminous road surfacing materials shall be kept separate from other excavated materials and will be disposed of separately to a licenced facility.

3.4 Waste storage and disposal will be carried out in a way which prevents pollution in compliance with legislation.

3.5 All waste to be transported off-site to a licensed disposal site. Duty of Care Waste Control dockets must be produced and filed on site with each load. These **MUST** detail:

- An adequate description of the waste
- Where the waste came from
- The appropriate code from the List of Wastes Regulations for the waste (commonly referred to as the EWC code)
- Information on the quantity and nature of the waste and how it is contained
- Names and addresses of the transferor at Derreenacrinnig Wind Farm (the person currently in control of the waste) and the transferee (usually either a registered waste carrier or a waste management licence holder (waste manager)
- The Standard Industry Classification (SIC) code (2007 or 2003 for hazardous waste only) of the business from where the waste was received
- Where applicable, indicate that the Waste Hierarchy has been complied with
- The place, date and time of transfer of the waste. If using a season ticket, the period for which it is valid (i.e. valid from dd/mm/yyyy to dd/mm/yyyy)
- If the waste is being taken to landfill the transfer note **must** also contain details of any treatments or processes that have already been applied

3.6 Only trained operatives should handle hazardous substances. All stored hazardous waste will be clearly labelled.

3.7 No storage of hydrocarbons or any toxic chemicals should occur within 50m of a watercourse/drainage ditch.

3.8 Refuelling of plant will not occur within 50m of any watercourse/drainage ditch.

3.9 Oil and fuel storage tanks, if present onsite, shall be located in designated bunded areas. These areas shall be bunded to a volume of 110% of the capacity of the largest tank/container present or 25% of the total tank capacity within the bund (plus an allowance of 30 mm for rainwater ingress). Filling and draw-off points will be located entirely within the bunded area(s).

3.10 All associated hazardous waste residuals (including used oil spill kits), such as oil, solvents, used absorbent materials on minor oil spills, glue and solvent based paint containers will be stored within appropriately covered skips prior to removal by a suitable Local Authority or EPA approved waste management contractor for offsite treatment/recycling/disposal.

3.11 Rainwater, which has collected within bunded areas used for the storage of oils, chemicals and waste, will be collected and disposed offsite by suitably qualified waste contractors.

3.12 Waste derived from the port-a-cabins (office and canteen facility) onsite will be placed in an appropriately designed waste storage area prior to collection a licensed contractor under the Waste Management Act, 1996.

3.13 Port-a-loos will be regularly maintained by a suitably qualified waste contractor engaged by the supplier.

3.14 Waste storage areas will be clearly located and signed. If space allows, key waste streams will be separated.

3.15 All waste should be transported from site at appropriate frequency by a registered waste contractor to prevent over-filling of waste containers.

3.16 Frequency of Checks. The contractor will ensure that all storage facilities are checked on a weekly basis. The checklist for completion is attached below.

VISUAL WASTE STORAGE CHECKLIST		
Waste Area Checked	**Date Checked**	**Initials of Checker**
GENERAL OFFICE WASTE		
BOWSER		
PORTALOO		
EXCAVATED SOIL		
WASHINGS		
CONCRETE		
OIL		
HAZARDOUS WASTE		

4. TYPICAL CONSTRUCTION WASTE AND MATERIAL ARISING

4.1 Waste Inventory

The typical waste arising during the construction of the consented development and the corresponding EWC Codes and the predicted quantities are outlined in Table 4.1.

Table 4.1 Expected waste types arising during the Construction Phase

Material Type	EWC	Predicted Quantity
Waste from portaloos	20 03 04	120l/week ($2m^3$ total)
Concrete	17 01 01	$0.2m^3$ (cleaning)
Hazardous Materials – oil contaminated material, oily rags	16 07 08	30l
Wood pallets, timber shuttering, timber profiles, cable drums (cables trench)	17 02 01	7 No. Cable drums
Packaging – paper/plastic/timber	17 02 01 / 17 02 03/ 200101	$1m^3$
Excavated Materials arising – Soil, Subsoil and rock	17 05 04	$100m^3$
Public Road Excavated Materials – Soil and Subsoil and rock Public Road Excavated Materials – Bitumen Bound Mixtures	17 05 04 17 03 02	820m3 (1,722t) $160m^3$ (320t)
Cable – Electrical wiring – Offcuts – Electrical wiring – Removed Wires	17 04 11 17 04 11	0.5t (offcuts) 11.6t
Cardboard	15 01 01	100l
Metals – copper, aluminium, lead, iron, steel etc	17 04 07	0.1t

The waste inventory will be updated by the Contractor (s) as the project progresses.

4.2 Management of Construction Waste including Excavated Material

Public Road excavated materials will be removed from site as they arise i.e. they will be excavated and deposited directly into a truck for disposal at a licenced landfill.

Excavated bituminous road surfacing materials shall be kept separate from other excavated materials and will be disposed of separately to a licenced facility.

Existing conductors, will on removal from poles, be coiled onto drums and removed from site for appropriate reuse or disposal.

The waste materials will be moved off site by a specialist waste service contractor, who will licensed for the collection and movement of waste, and who will bring the material to a facility which holds the requisite license for the specific waste.

All waste will be segregated and securely stored at the temporary compound, in skips and receptacles, which will be covered to protect the contents from the weather. A licensed operator, will collect and transfer the skips/receptacles of both recyclable and non-recyclable wastes as they are filled. Where this is not practicable or where the quantity of waste is small, the Contractor will remove the waste to his yard on a daily basis for onward disposal.

A list of Licensed operators have been identified and are outlined in Table 4.2. However, it must be noted the selected waste facilities be not be decided until the particular Contractor is appointed. This WMP is alive document and will be updated by the Contractor(s) when selected waste facilities have been identified.

Table 4.2 Licenced Waste Collection Contractors and Licensed Waste Facilities

Permit Number	Name of Permit Holder	Address of Waste Facility	Type of Waster Permitted
WFP-CK-10-0068-02	Roadstone Limited	Ballygarvan Sandstone Quarry Killanully Ballygarvan, Co Cork T12 AX80	17 01 01 Concrete 17 01 02 Bricks 17 01 03 Tiles and Ceramics 17 01 07 Mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06 17 03 02 bituminous mixtures containing other than those mentioned in 17 03 01
WFP-CK-10-0078-02	Greenzone Ltd	Ahalisky Ballinascarthy Clonakilty, Co. Cork	17 05 04 soil and stones other than those mentioned in 17 05 03
WFP-CK-12-0120-02	Bantry Skip Hire Ltd	Dunbittern East Bantry Co. Cork, P75 A899	15 01 01 paper and cardboard packaging 17 02 01 Wood 17 02 03 Plastic 17 03 02 bituminous mixtures containing other than those mentioned in 17 03 01 17 04 07 mixed metals 17 04 11 cables other than those mentioned in 17 04 10 20 03 01 mixed municipal waste 20 03 04 septic tank sludge
W0041-01	Enva	Shannon, Co. Clare	16 07 08
W0184-02	Enva Ireland Ltd	Clonminam Industrial Estate, Portlaoise, Co. Laois	16 07 08 Waste Containing Oil 15 01 01 paper and cardboard packaging 17 02 01 Wood 17 02 03 Plastic

			17 03 02 bituminous mixtures containing other than those mentioned in 17 03 01 20 03 04 septic tank sludge 20 03 06 waste from sewage cleaning