Kildare Meath Grid Upgrade

Natura Impact Statement

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EirGrid

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Contents

Executive Summary

An Appropriate Assessment Screening Report was produced for the Kildare to Meath Grid Upgrade project 'the Proposed Development' (Jacobs 2022a). It concluded that due to the hydrological linkage between the Proposed Development and the River Water Valley/Carton SAC it was not possible to exclude that the Proposed Development either alone or in combination with any other plan or project would have a likely significant effect on this European site and a Natura Impact Statement (NIS) has been prepared to inform an Appropriate Assessment by the competent authority.

The screening report found that for the European sites listed below (which were in the vicinity of the Proposed Development), it can be concluded ,on the basis of best scientific knowledge and objective evidence, that there was no potential for the Proposed Development, alone or in-combination with any other plan or project, to have likely significant effects on the conservation objectives of these sites and that Appropriate Assessment was not required:

- River Boyne and River Blackwater SAC;
- River Boyne and River Blackwater SPA;
- Ballynafagh Bog SAC;
- Ballynafagh Lake SAC;
- Mouds Bog SAC;
- Poulaphouca Reservoir SPA; and
- Pollardstown Fen SAC.

In this NIS, it was established that due to hydrological connections there was potential for impacts to the River Water Valley/Carton SAC in the absence of mitigation. The qualifying interest features of this SAC are petrifying springs with tufa formation and the species narrow mouthed whorl snail (*Vertigo angustior*) and Desmoulin's whorl snail (*Vertigo moulinsiana).* Consideration was given to the potential for a pollution event to undermine the conservation object of the qualifying interest features. In the absence of appropriate mitigation, three out of nine attributes of the conservation objectives of the petrifying springs, three out of four attributes of narrow mouthed whorl snail and four out of six attributes of Desmoulin's whorl snail were considered to have the potential to be undermined by a hydrologically linked pollution event. Mitigation measures are provided so that in the event of a water pollution incident at any of the watercourses crossed by or in proximity to the Proposed Development, the conservation objective qualifying interest of the SAC are not compromised.

The result of the in-combination assessment was that the planning application boundary of the four planning applications that constitute significant works described in Section 7 do not cross any watercourses that have connectivity with European sites. The three EirGrid projects subjected to Appropriate Assessment screening have concluded no potential for LSEs in-combination with those Proposed Developments. Likewise, no significant in-combination effects are predicted from the Meath County Development Plan 2021-2027 and the Kildare County Development Plan 2023-2029. Therefore, there is no potential for a significant in-combination pollution event(s) with these projects to undermine the integrity of any European site. The mitigation measures for the Proposed Development alone will mitigate all potential significant in-combination effects.

1. Introduction

1.1 Background

This Natura Impact Statement (NIS) is for the Kildare Meath Grid Upgrade Project (Capital Project 0966 (0966) (the "Proposed Development"). This project involves improvements to the transfer of electricity to the east of Ireland and its distribution within the network in Meath, Kildare, and Dublin. The project will help meet the growing demand for electricity in the east which is due to an increase in economic activity and the planned construction of a number of data centres in the country. CP 966 aims to strengthen the transmission network between Dunstown substation in Kildare and Woodland substation in Meath.

Jacobs was engaged by EirGrid to prepare this NIS for the cable route referred to in this report as the 'Proposed Development' (See Section 4 of this report for further details) which will see the installation of a 400 kV underground cable (UGC) between Dunstown substation in the south and Woodland substation in the north, whose approximate route alignment is shown in Image 1.

The cable route (the 'Proposed Development'), the watercourses and the European sites closest to it are shown in Figure 1 (321084AH-JAC-ZZ-XX-DR-K-3036), Appendix A.

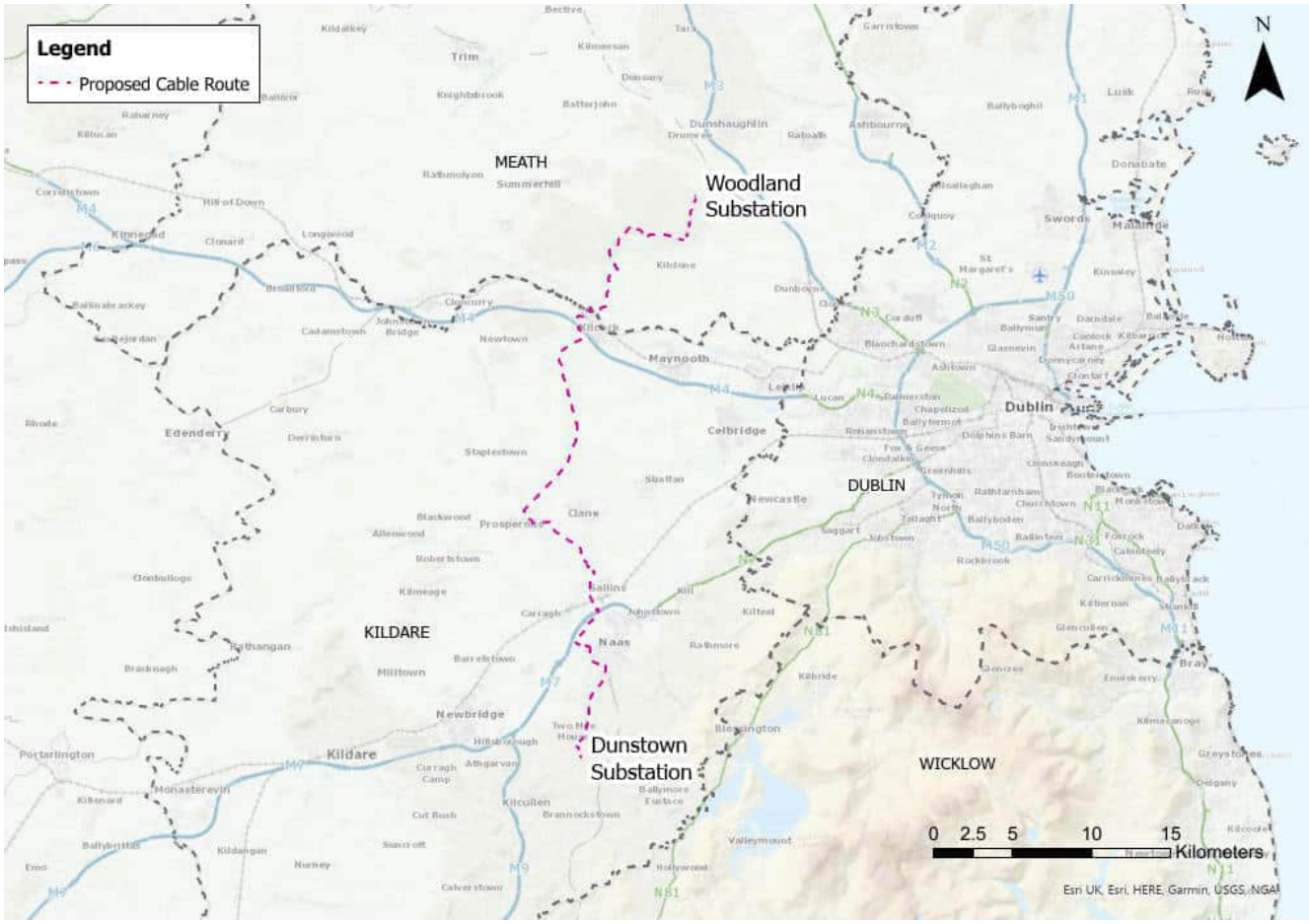

Image 1. Proposed cable route

1.2 Legislative context

Habitats and species of European importance are given legal protection under the EU Habitats Directive 92/43/EEC (the Habitats Directive). The Directive protects habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as the Natura 2000 network (hereafter referred to as European sites[1]). European sites comprise Special Areas of Conservation (SACs[2]) and Special Protection Areas (SPAs).

The EU Habitats Directive (92/43/EEC) has been transposed into Irish law by the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites.

Article 6(3) establishes the requirement for AA:

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

Article 6(4) states:

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

As defined in Section 177T of the Planning and Development Act, 2000 as amended, an NIS means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own and in combination with other plans and projects, for a European site in view of its conservation objectives. It is required to include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for the European site in view of its conservation objectives.

s177T(1)(b) and (2): 177T.— (1) In this Part—.

"(b) A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one F924[European site], in view of the conservation objectives of the site or sites.

(2) Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one F924[European site] in view of the conservation objectives of the site or sites."

1 The term Natura 2000 network was replaced by 'European site' under the EU (Environmental Impact Assessment and Habitats) Regulations 2011 S.I. No. 473 of 2011.

2 Candidate SACs (cSACs) are afforded the same protection as SACs. The process of designating cSACs as SACs by means of Statutory instrument is ongoing and hereafter both cSACs and SACs are collectively referred to as SACs.

1.3 Stages in Appropriate Assessment

The purpose of Screening is to identify whether, activities associated with plans or projects[3], either acting individually or in-combination with other plans or projects result in likely significant effects (LSEs) on any European sites. All potential effects between activities associated with the plans or projects and the Conservation Objectives of European sites must be considered. This includes potential effects on mobile species, notably birds, mammals, invertebrates and migratory fish.

If the potential of LSEs occurring cannot be excluded based on objective information, the plan or project is taken forward to the next stage of the process, Appropriate Assessment (AA). At Screening, the burden of evidence is to show, based on objective information, and beyond reasonable scientific doubt, that the proposed plan or project will have no LSEs on a European site(s). If the effect is significant, or its significance is not known, it would trigger the need for AA of its implications for the site in view of the site's conservation objectives. An overview of the two steps in the Appropriate Assessment process is outlined below:

- **Screening:** Screening determines whether an AA is required by determining if the project or plan is likely to have a significant effect on any European site(s) either individually or in-combination with other plans or projects, in light of the site's conservation objectives; and
- **Appropriate Assessment**: If the screening has determined that AA is required, the competent authority then considers whether the plan or project will adversely affect the integrity of a European site(s) either individually or in-combination with other plans and projects in view of the site's conservation objectives. Where potential adverse effects on site integrity (AESI) are identified, mitigation measures are proposed to avoid adverse effects, as appropriate. For projects, the AA process is documented within an NIS. Aa Natura Impact Statement may be prepared by the developer to inform the competent authority's AA process.

Following AA, including mitigation proposals, if AESI remain, or uncertainty remains and the project/plan is to be progressed, an Assessment of Alternative Solutions is required under the provisions of Article 6(4) of the Habitats Directive. This process examines the alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. If no alternatives exist, or all alternatives would result in adverse effects on the integrity of a European site, then either the process moves to the next stage, or the project is abandoned.

In the unlikely event where an Assessment of Alternative Solutions fails to identify any suitable alternatives, then for a project or plan to be progressed it must meet the requirements of IROPI. In this case the provisions of Article 6(3) cannot be met (i.e., a significant effect is likely) and therefore, the provisions of Article 6(4) are used. If in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed, thus compensatory measures are implemented to maintain the coherence of the European site network despite adverse effects to the integrity of the site(s).

3 For the purposes of this assessment the proposed works are considered a type of project.

1.4 Authors' and surveyors' qualifications and expertise

This report has been prepared primarily by Duncan Smith and checked/reviewed by Dr Susie Coyle.

Duncan Smith is a Principal Ecologist and Chartered Environmentalist. He has a BSc (Hons) in Zoology from the University of Leeds, an MSc in Environmental Technology with Ecological Management from Imperial College, and as MSc in Marine Environmental Protection from Bangor University. He has 24 years professional ecological experience specialising in botanical surveying, habitat management and evaluation for Ecological Impact Assessment and has written multiple reports informing AA. During his career he has worked in the private, public, and voluntary sectors, including fifteen years in the private sector, seven years for UK Statutory Nature Conservation Bodies in England and Wales and two years in the voluntary sector.

The report was checked and reviewed by an Associate Director of Ecology. Dr Susie Coyle holds a BSc (Hons) in Aquatic Bioscience and a PhD in fish biodiversity from the University of Glasgow. She is a Chartered full Member of the Royal Society of Biology (MRSB), a full Member of CIEEM and a Member of the Institute of Fisheries Management (MIFI). Susie has coordinated Jacobs' ecologists both in Ireland and in the UK and has experience of multiple ecological survey techniques and associate reporting. She has 15 years of consultancy experience in aquatic and terrestrial ecology with over 20 years' experience of field surveys and environmental sampling techniques. One of Susie's main roles is the check and review of reports including AA Screening reports and Natura Impact Statements.

Susie has over 20 years' experience of field surveys and environmental sampling techniques, including electric fishing and gill/seine/drag/hand netting, kick sampling and water chemistry analysis. She is a certified team lead for electric fishing through the Scottish Fisheries Co-Ordination Centre and has worked for the Lomond Fisheries Trust undertaking targeted electric fishing surveys for salmonids. She has held several pan-Scotland and England freshwater pearl mussel licences.

1.5 Purpose and structure of this report

This report provides information to support the relevant competent authority in undertaking Appropriate Assessment of the Proposed Development.

The structure of the report is as follows:

- **Section 1:** Introduction including legislative context and the authors experience;
- **Section 2:** Overview of the AA methodology including the guidance used in compiling this report;
- **Section 3:** Description of the baseline environment;
- **Section 4:** Description of the Proposed Development;
- **Section 5**: Summary and conclusion of Screening for Appropriate Assessment;
- **Section 6**: Information for Appropriate Assessment including information on European sites, potential impacts, and mitigation measures where required;
- **Section 7**: Assessment of in-combination effects with other plans and projects;
- **Section 8:** Conclusion in relation to adverse effects on site integrity; and
- **Section 9:** References.

This NIS should be read in full, with no excerpts to be representative of the findings. This NIS has been prepared exclusively for EirGrid and no liability is accepted for any use or reliance on the NIS by third parties (with exclusion of the competent authority). This report has been prepared from data available at the time means the report is for of writing. Where assumptions have been necessary, these are clearly described.

2. Methodology

2.1 Desk review

The following key resources were analysed to inform the baseline description of the site and surrounding environment:

- Aerial imagery (Bing, Google Earth, ESRI).
- Environmental Protection Agency (EPA) rivers and water quality data Water Framework Directive (WFD) status online at https://gis.epa.ie/EPAMaps/ (accessed November 2022).
- Mapping of European site boundaries available online at www.npws.ie (accessed November 2022).
- Protected species data from the National Biodiversity Data Centre online at http://www.biodiversityireland.ie/ (accessed November 2022).
- National Parks and Wildlife Service (2019a). The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.
- National Parks and Wildlife Service (2019b). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.
- National Parks and Wildlife Service (2019c). The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill.
- National Parks and Wildlife Service (2021). Rye Water Valley/Carton SAC 001398. Conservation Objective Series, version 1.
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including: the Natura 2000 network Data Form; Site Synopsis; Generic Conservation Objective data.
- Other open-source information available online regarding fisheries (e.g., www.salmonireland.com and www.fishingireland.info).
- Protected and invasive species data from the National Biodiversity Data Centre (NBDC) online at http://www.biodiversityireland.ie/ (accessed December 2022).

2.2 Site visits

Site visits along the route of the proposed cable were undertaken by experienced Jacobs ecologists multiple times in 2021 and 2022 beginning on 11/10/2021. The study area extent varied across the Proposed Development according to the infrastructure associated with the scheme and its likely ecological impacts. Surveys included wintering and breeding birds, mammals, fish invertebrate and habitats.

During the visits, habitats within the sites were assessed for their potential to support rare or protected species and/or qualifying interests (Annex I habitats or Annex II species) associated with European sites. The distance of the habitat assessed from the Proposed Development ranged from immediately adjacent up to 150m from it. Visual watercourse assessments were up to 150m from cable crossing points and a minimum of 100 m to either side where possible. The assessment of protected species and habitats and/or invasive species was undertaken in line with the following guidelines and informed this AA NIS:

- A Guide to Habitats in Ireland. The Heritage Council (Fossitt, 2000).
- Article 17 reports (NPWS, 2019a, 2019b, and 2019c).
- CIEEM Good Practice Guidance for Habitats and Species (CIEEM, 2021).
- CIEEM Guidelines for Preliminary Ecological Appraisal. Second Edition (CIEEM, 2017).

- CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018).
- Ecological Surveying Techniques for Protected Flora and Fauna (Nationals Road Authority, 2009)
- Interpretation Manual of European Habitats (European Commission DG Environment, 2013)
- National Roads Authority (NRA) Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (NRA, 2010).
- The Irish Vegetation Classification (Perrin *et al.*, 2018)
- Transport Infrastructure Ireland (TII) The Management of Invasive Alien Plant Species on National Roads, Standard (TII, 2020a).
- Transport Infrastructure Ireland (TII) The Management of Invasive Alien Plant Species on National Roads, Technical Guidance (TII, 2020b).

Ecology Surveys and their dates are shown in Table 2.1

Table 2.1, showing all ecological surveys carried out for the Kildare to Meath proposed development.

Species/Habitat	Survey methodology/target species	Survey date(s)
Habitat Survey	Habitat classification (Fossitt, IVC etc.)	June 2022 – October 2022 (Week commencing: 06.06.2022, 27.06.2022, 11.07.2022, 18.07.2022, 22.08.2022, 05.09.2022, 26.09.2022, 12.10.2022)
Habitat Suitability Assessment	Reptile and amphibian	December 2021 – June 2022 (weeks commencing 13.12.21; 27.6.22)
	Terrestrial invertebrate (Marsh fritillary)	December 2021 – April 2022 weeks commencing 13.12.21; 27.6.22
	Fish white-clawed crayfish	June 2022 – October 2022 (Week commencing: 06.06.2022, 27.06.2022, 11.07.2022, 18.07.2022, 22.08.2022, 05.09.2022, 26.09.2022, 12.10.2022)
Mammal Survey	Mammal species other than bats i.e., otter, badger, red squirrel etc.	October 2021 – April 2022
Birds	Winter Bird Surveys	October 2021 – April 2022 (Week commencing: 11.10.2021, 01.11.2021, 06.12.2021, 10.01.2022, 07.02.2022, 07.03.2022, 11.04.2022)
	Hen harrier winter roost surveys	October 2021 – March 2022 (Week commencing 11.10.2022, 18.10.2022, 01.11.2021, 06.12.2021, 10.01.2022, 07.02.2022, 07.03.2022)
	Breeding bird surveys	March – May 2022 (Week commencing: 28.03.2022, 25.04.2022, 23.05.2022, 30.05.2022)
Bats	Identification of potential roost features (PRFs) in trees/buildings	February 2022 – September 2022 (week commencing 21.2.22; 21.3.22; 6.6.22; 15 .7.22; 22.8.22; 5.9.22;
	Static detector surveys	May 2022 – August 2022 (Week commencing 16.05.2022, 23.05.2022, 30.05.202, 06.06.2022, 27.06.2022,

Species/Habitat	Survey methodology/target species	Survey date(s)
		04.07.2022, 18.07.2022, 25.07.2022, 01.08.2022, 08.08.2022)
	Emergence/re-entry surveys (structures and trees)	May 2022 – July 2022 (Week commencing 16.05.2022, 23.05.2022, 30.05.2022, 06.06.2022, 17.06.2022, 18.07.2022, 25.07.2022)
Fish	eDNA Sampling for Atlantic salmon and European eel	August 2022 – September 2022 (Week commencing: 08.08.2022, 19.09.2022)
Invertebrates	eDNA Sampling for white-clawed crayfish	August 2022 – September 2022 (Week commencing: 08.08.2022, 19.09.2022)
Smooth newt	eDNA Sampling for smooth newt at WB19 and WB05.	August 2022 – October 2022 (Week commencing: 08.08.2022, 19.09.2022, 10.10.2022)

2.3 Consultation

In February 2023, the project team met with National Parks and Wildlife Service (NPWS) with respect to the Proposed Development. In January 2023, the project team has also met with Inland Fisheries Ireland to discuss the approach to watercourse crossings.

2.4 Guidance documents

This NIS was undertaken in-line with the following guidance:

- Appropriate Assessment of Plans and Proposed Schemes in Ireland. Guidance for Planning Authorities (Department of Environment, Heritage and Local Government (DoEHLG), 2010).
- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC, 2021a).
- Communication from the Commission on the Precautionary Principle (EC, 2000).
- Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission (EC, 2007).
- Guidance Document on Assessment of Plans and Projects in relation to Natura 2000 sites - A Summary (EC, 2022).
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018).
- Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC, 2021b).
- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01.

2.5 Appropriate Assessment methodology

Following screening and where the potential for LSEs identified (or could not be exclude) the assessment is progressed to the next step, known as AA. This step considers whether a project or plan, either alone or in-combination with other projects or plans, could have adverse effects on (European) site integrity. The information

collected (both field and desk based) and outlined in this NIS aimed to determine the potential for adverse effects on site integrity from the Proposed Development by:

- Providing an overview of the European sites identified at risk, including information on their conservation objectives and an understanding of current factors which either maintain or threaten those conservation objectives.
- Assessing aspects of the project proposals which could undermine the conservation objectives and integrity of European sites.
- Where potential adverse effects are identified provide specific mitigation measures that will be implemented to ensure adverse effects on European sites can be excluded.

Describing the project proposals and other plans or projects that may have an in-combination effect on any European sites. This NIS contains a complete, precise and definitive findings beyond all scientific reasonable doubt on any AESIs on any European sites.

The process is shown in Image 2, below:

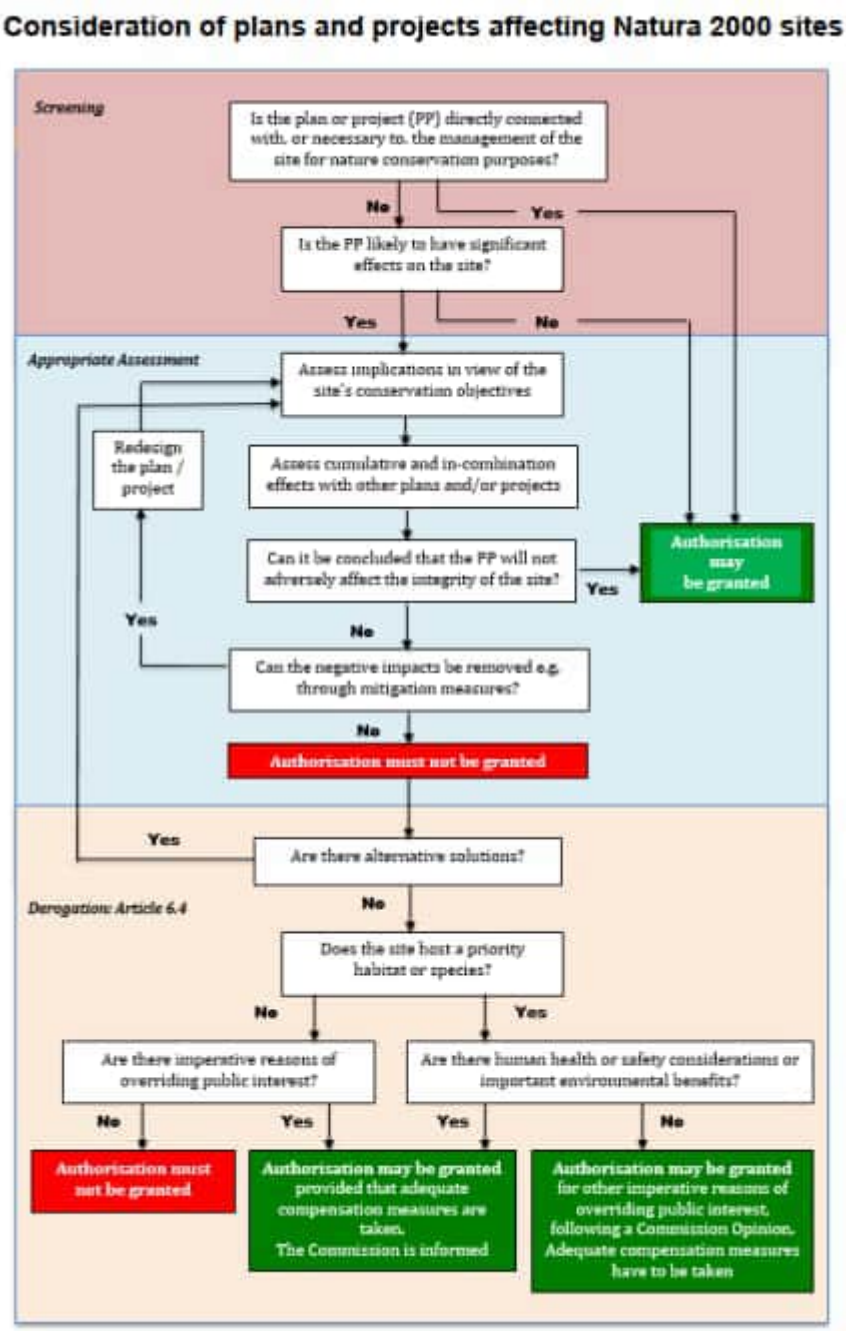

Image 2. Flow chart of Article 6 (3) and (4) procedure (European Commission, 2018).

3. Baseline characterisation

3.1 Receiving Environment

The results of the desk-based review of Rye Water/Carton SAC are presented in this section.

The only European site within the ZoI of the Proposed Development is the Rye Water Valley/Carton SAC. The location of this SAC is shown in Figure 1 (321084AH-JAC-ZZ-XX-DR-K-3036), Appendix A. The Proposed Development will be 6.2km west at its closest distance from the SAC (at Dolanstown). The shortest hydrological distance between the Proposed Development and this SAC is 8.15km, commencing at Kilcock (Rye Water, WB13, as shown in Figure 2 (321084AH-JAC-ZZ-XX-DR-K-3037), Appendix B).

The Rye Water Valley/Carton SAC is located between Leixlip and Maynooth, in Counties Meath and Kildare, and extends along the Rye Water, a tributary of the River Liffey. The site is a SAC selected for the following habitats and species on Annex I/II of the EU Habitats Directive. The numbers in brackets are Natura 2000 codes:

- Petrifying Springs [7220];
- Narrow-mouthed whorl snail (*Vertigo angustior*) [1014]; and
- Desmoulin's whorl snail (*Vertigo moulinsiana*) [1016].

The following site description is from the synopsis for the site – "The Rye Water in Carton Estate is dammed at intervals, creating a series of lakes. Reed Sweet-grass (*Glyceria maxima*) is frequent around the lakes, along with Yellow Iris (*Iris pseudacorus*), Reed Canary-grass (Phalaris arundinacea), Bulrush (*Typha latifolia*), Water Forget-me-not (*Myosotis scorpioides*), Marsh-marigold (*Caltha palustris*) and starworts (*Callitriche* spp.). Along the remainder of the site the river has been dredged and much of the reed fringe removed.

To the north-west of Carton Bridge a small clump of willows (*Salix* spp.), with dogwood (*Cornus* sp.), Alder (*Alnus glutinosa*), Ash (*Fraxinus excelsior*) and Elder (*Sambucus nigra*) occurs. The ground flora found here includes Golden Saxifrage (*Chrysosplenium oppostifolium*), Meadowsweet (*Filipendula ulmaria*), Common Valerian (*Valeriana officinalis*), Wavy Bitter-cress (*Cardamine flexuosa*) and Bittersweet (*Solanum dulcamara*).

The marsh, mineral spring and seepage area found at Louisa Bridge supports a good diversity of plant species, including stoneworts, Marsh Arrowgrass (*Triglochin palustris*), Purple Moor-grass (*Molinea caerulea*), sedges (*Carex* spp.), Common Butterwort (*Pinguicula vulgaris*), Marsh Lousewort (*Pedicularis palustris*), Grass-of-parnassus (*Parnassia palustris*). The mineral spring found at the site is of a type considered to be rare in Europe and is a habitat listed on Annex I of the E.U. Habitats Directive. The Red Data Book species Blue Fleabane (*Erigeron acer*) is found growing on a wall at Louisa Bridge.

The rare Narrowmouthed Whorl Snail and Desmoulin's Whorl Snail occur in marsh vegetation near Louisa Bridge. Both are rare in Ireland and in Europe and are listed on Annex II of the E.U. Habitats Directive. The scarce dragonfly, *Orthetrum coerulescens*, has also been recorded at Louisa Bridge.

The conservation importance of the site lies in the presence of several rare and threatened plant and animal species, and the presence of petrifying springs, a habitat type listed on Annex I of the E.U. Habitats Directive. (NPWS, 2013a).

3.1.1 Qualifying Interest Habitats - Rye Water Valley/Carton SAC

Petrifying springs are lime rich water sources which deposit tufa. The emerging spring water is rich in carbon dioxide and dissolved calcium carbonate. On contact with the atmosphere, carbon dioxide is outgassed and calcium carbonate is deposited as tufa. The resulting ecological conditions, with high pH and constant inundation by water and deposition of precipitated calcium carbonate, constitute a challenging environment for plants and animals to colonise and the communities associated with petrifying springs are therefore highly specialised. The ecological significance of petrifying springs is seldom confined to a point source; rather there is often a continuum of intergrading hydrological conditions from the spring head, through a flushed slope and into small streams.

Spring head may be distinct point locations giving rise to small streams immediately below the point of emergence or water may seep to the surface in a more diffuse pattern over a larger area (Lyons and Kelly, 2016).

Irish petrifying spring vegetation has been classified into eight plant communities. The spring vegetation at Louisa Bridge within Rye Water Valley/Carton SAC lies within Group 6: *Carex lepidocarpa* small sedge springs. This species-rich site contains a complex of springs, flushes and pools with paludal tufa, oncoids/ooids and marl. Tufa-forming springs and flushes are generally dominated by graminoid species, especially *Carex lepidocarpa C. panicea* and *Festuca rubra*, along with *Carex flacca, C. dioica, Eleocharis quinqueflora, Eriophorum angustifolium, Juncus articulatus* and *J. inflexus*. Bryophytes are abundant and locally dominant, with *Palustriella commutata, P. falcata, Scorpidium cossonii, Campylium stellatum, Fissidens adianthoides, Bryum pseudotriquetrum, Aneura pinguis* and *Riccardia chamedryfolia*. Forbs include *Anagallis tenella, Pinguicula vulgaris, Parnassia palustris, Samolus valerandi, Triglochin palustris, Crepis paludosa, Mentha aquatica* and *Succisa pratensis* (Lyons and Kelly, 2016).

The main area of petrifying springs with tufa formation within Rye Water Valley/Carton SAC is at Louisa Bridge and is estimated to have an area of 1250m^2 (Lyons, 2015). This seepage complex is irrigated by two independent spring systems which differ in the chemical composition of the spring waters (Lyons, 2015; Lyons and Kelly, 2016). The separate water sources comprise a deeper, older and warmer artesian groundwater system with high concentrations of sodium and chloride, and a more recent, shallow alkaline groundwater system (Kuczynska and Bartley, 2008). The water from the two sources mixes as it trickles down the hillside towards the Water River, creating a series of shallow pools and paludal habitats (Lyons, 2015).

At Louisa Bridge, the main vegetation community was long stalked yellow sedge (*Carex lepidocarpa)* small sedge springs (NPWS, 2021). Two indicators of local distinctiveness were present, narrow mouthed whorl snail and Desmoulin's whorl snail. These are also QI species of this SAC and are described below.

3.1.2 Qualifying interest species – Rye Water Valley/Carton SAC

Desmoulin's whorl snail

Desmoulin's whorl snail is known from one site in Rye Water Valley/Carton SAC, at Louisa Bridge (NPWS, 2021). All whorl snails favour damp or wet habitats where they live mostly in moss, leaves and decaying vegetation. They live on living and dead stems and leaves of tall wetland plants and feed on bacterial films and decaying vegetation. They require tall, structured vegetation containing tall riparian grasses and sedges, particularly reed sweet grass, common reed, greater pond sedge and *Cladium*. Sites are usually at the end of hydroseral succession and unmanaged, allowing the build-up of litter. As well as tall vegetation structure it requires stable hydrology with the water table at or slightly above the ground surface for much of the year and low amplitude seasonal flooding. It climbs tall vegetation in the summer autumn but in severe conditions aestivates on the lower leaves of plants. In winter it descends to the leaf litter and becomes less active (NPWS, 2019c).

Narrow-mouthed whorl snail

Narrow mouthed whorl snail was last recorded at Rye Water Valley/Carton SAC in 1997, within the same 1km grid square as Desmoulin's whorl snail, N9936. Further work is required to definitively establish the status of the species at this SAC (NPWS, 2021). All whorl snails favour damp or wet habitats where they live mostly in moss, leaves and decaying vegetation. They feed on bacterial films and decaying vegetation. They are sensitive to changes in hydrology and dampness of the habitat. Habitats they occupy include dunes, damp grassland, fen and marsh, salt marsh and flood plain. Occupied habitats may be elongated narrow zones in wetlands or extensive dune and coastal grassland sites (NPWS, 2019c).

3.1.3 Aquatic Environment

Waterbodies (WB) crossed by the Proposed Development with connectivity to Rye Water Valley/Carton SAC are shown in Table 3.1 Waterbodies crossed by the Proposed Development with connectivity toand in Figure 2 (321084AH-JAC-ZZ-XX-DR-K-3037), Appendix B.

Table 3.1 Waterbodies crossed by the Proposed Development with connectivity to the Rye Water Valley/Carton SAC

Waterbody number (WB)	Waterbody name (WFD)	Waterbody location – Grid reference	EU Code	WFD status 2016 - 2021	Risk rating
WB03	Rye Water_030	N 93930 45180	IE_EA_09R010400	Poor	At risk
WB04	Jenkinstown Stream_010	N 91730 45313	IE_EA_09J010950	Moderate	At risk
WB07	Jenkinstown Stream_010	N 89775 43468	IE_EA_09J010950	Moderate	At risk
WB08	Jenkinstown Stream_010	N 89661 43153	IE_EA_09J010950	Moderate	At risk
WB09	Unassigned stream	N 89419 43023	Unassigned stream	Unassigned stream	Unassigned stream
WB10	Rye Water_020 (Brides Stream)	N 89243 42178	IE_EA_09R010300	Good	Under review
WB12	Rye Water_010	N 88410 40767	IE_EA_09R010300	Good	Under review
WB13	Rye Water_010	N 88065 40613	IE_EA_09R010100	Moderate	At risk
WB14	Royal Canal	N 87874 40210	IE_09_AWB_RCMLE	Good	Under review

A number of drainage ditches, some wet and some dry at time of survey, were identified predominantly along field boundaries in the vicinity of the scheme.

4. Description of the Proposed Development

4.1 Construction

The Proposed Development is a 52.9km underground cable (UGC) between Dunstown substation in Kildare and Woodland substation in Meath (as shown in Image 1), of which 9.5km (18%) is off-road and 43.3km (25%) is in-road. The 400 kV UGC is proposed to be sited within the existing roads and will be in a trench excavated to 1.3m deep and 1.5m wide running the full length of the scheme. Approximately every 750m (on average) the cables will be joined together at a 'joint bay', of which there will be 70 in total. Joint bays are pre-cast concrete underground chambers approximately 2.5m wide by 10m long by 2m deep with two associated manhole covers to the side of the chamber. There are 31 off-road and 39 in-road joint bays. Where the joint bays are off road a permanent hard standing area in a 3m radius around the joint bay will be provided. At joint bays, there will be additional land take to facilitate construction. At each joint, except for those which are off-road, there will be provision for cars to pass around it at a passing bay. Passing bays are temporary structures, which may be in place for up to two years. Each temporary passing bay will be on average 5.5m wide with length of 100m (exact length to be determined by engineering constraints). Passing bays will be reinstated post-construction.

The routing of the cable and associated jointing and passing bays took into consideration the location of mature trees along the route. The route and bay positions were moved to avoid mature trees where possible. However, due to narrow treelined roads in several locations and the requirement for set distances between jointing bays, avoidance of vegetation loss was not possible in all areas and to accommodate the trenches for the UGC there will need to be significant removal of hedgerows, trees, including mature trees, which are lining the road network where the development is proposed to be. The other habitats which are impacted to the greatest extent by area comprise arable and pastural land, dry calcareous grassland, immature woods at the north of the scheme at Woodland substation. Refer to the Planning and Environmental Considerations Report (Jacobs, 2023) for further details of these habitats.

Six temporary construction compounds are proposed, each approximately one hectare in size. All temporary construction compounds will be secured with hoarding/ fencing around their perimeter as appropriate. Temporary construction compounds will include facilities such as construction phase car parking and welfare facilities and temporary material storage areas as necessary.

Access tracks comprise both temporary and permanent tracks. Where a permanent access track is required to access off-road joint bays, this will comprise of approximately 300mm of fill material and finished to approximately 100mm above ground level. The access track will remain in place to allow access to cables should future maintenance works be required. The permanent access track will be designed and constructed to accommodate heavy plant (5t axel loading) movement. Where a temporary construction road is required, engineering stone fill will be laid and compacted and maintained as required for the duration of the works. Once the works are completed, the engineered stone fill will be removed, and the land will be reinstated to its original condition.

Horizonal directional drilling (HDD) is proposed at major watercourse crossings or where there are significant constraints. There will be a 'launch' and 'reception' pit either side of the drilling and those temporary HDD compounds will be within the planning application boundary. There are six HDD proposed along the cable route including at Rye Water (WB13) which is approximately 6km direct distance over land and approximately 8km hydrologically, at the closed point.

Programme and Timing of Works

Subject to the grant of statutory approvals, it is anticipated that the construction phase will commence in Quarter 2, 2025 with the underground cable element of the Proposed Development becoming fully operational after construction and testing in Quarter 3, 2028.

The works at the Woodland substation are expected to last approximately 24 months while the works at Dunstown substation are expected to last approximately 12 months and will run concurrently with the cabling works.

Construction activities will gradually phase out from pre-construction to predominantly civil activities followed by commissioning and testing.

In general, it is anticipated that construction will occur during normal working hours i.e. Monday to Friday 7 am to 7 pm and Saturday from 7 am to 2 pm. There may be localised instances where night-time working is required to facilitate traffic management, however, should working outside these hours / days be required they will only be undertaken with prior agreement with Meath and Kildare County Councils.

Clearance of hedgerow, treeline or scrub vegetation, where required, will take place after 31 August and before 1 March in order to protect breeding birds, (i.e. outside of the bird breeding season). Clearance may take place during the restricted period, if a suitably qualified ecologist has determined that nesting birds and other protected species are absent. Enabling works have been provisionally programmed for Q1 2025.This allows sufficient time for habitat clearance outside of the breeding season. This would increase the construction period to 45 months if it is required.

Any element of the scheme requiring instream works in watercourses with fisheries value will be restricted to the fisheries open season (i.e. will only take place during the period July to September), unless with the agreement of IFI.

Table 4.1 Indicative Preliminary Construction Programme

Description	Est. Construction Programme (Months)	2025				2026				2027				2028			
		Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Proposed Development - Construction Duration																	
Overall Construction Duration	42																
Enabling Works	1 or 2 months*																
Phase 1: Installation of joint bay and passing bays structures	36																
Phase 2: Excavation and Installation of cable ducts	24																
Phase 3: Installation and Jointing of Cables	21																
Substation works	24																
Testing & Commissioning	9																
Energisation and permanent works construction complete	3																

*Enabling works have been provisionally indicated in Q1 2025 if required to allow for habitat clearance outside of the nesting season.

Indicative durations for the proposed works are detailed in Table 4.1. Subject to the grant of consents, it is anticipated that installation of the underground cable will take approximately 42 months in total. Safety requirements for the installation operations / procedures, detailed design considerations and weather condition will however ultimately dictate the final programme.

The majority of the construction activities are not dependent on outages on the existing transmission system, however, specific activities associated with the connection at the existing Woodland and Dunstown substations on to the existing transmission infrastructure will be planned and programmed into EirGrid's multi-year outage programme. This is because the existing live infrastructure needs to be switched off during such connection activities. EirGrid, as Transmission System Operator, develops a detailed plan for such outages each year to ensure the undertaking of the safe and efficient construction and maintenance activities involving or in proximity to existing infrastructure.

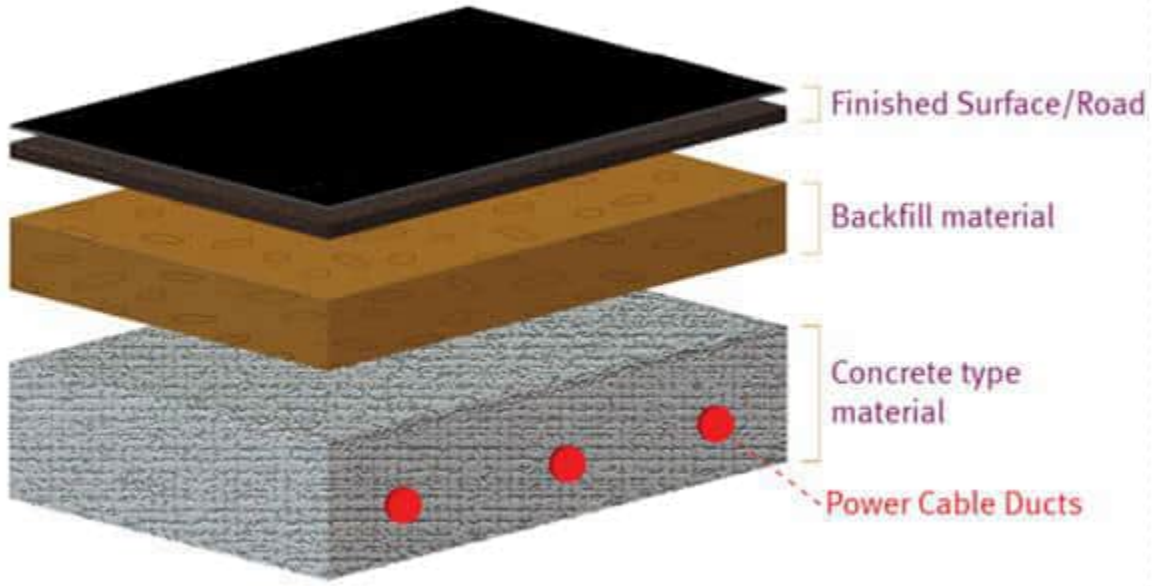

Image 3. Proposed Cable Design

The width and depth of the cable trench can vary for crossing of watercourses or crossings of utilities and other technical reasons.

4.1.1 Watercourse crossings

Several watercourse crossings will be required along the cable route. These crossings will be facilitated by either horizonal directional drilling (HDD) or open cut trenches, both of which are described in Section 6.3.

HDD, also known as directional boring, is a minimal impact trenchless method of installing underground utilities, including cables, in a relatively shallow arc along a prescribed underground path using a surface-launched drilling rig. HDD offers environmental advantages over open trench excavations and is used when conventional trenching is not practical or when minimal surface disturbance is required. Competent specialist contractors will be appointed to undertake the work.

Open cut trenches at water crossings have the potential to generate silt and suspended solids. In agreement with Inland Fisheries Ireland (sixteen) watercourses will be crossed using open cut trenching. To reduce the risk of discharging sediment, it is proposed to carry out all these works in a dry works area. The dry works area will be isolated by installing an impermeable barrier between the watercourse and the works area. The impermeable barrier will be tailored to the watercourse in question. If required by IFI, in-stream trenching works will not be carried out during extreme rainfall or high flow events. Met Éireann provides a 5-day weather forecast via its website (www.met.ie) and works will not take place during yellow, orange and red weather warnings. Unless otherwise agreed with IFI, any element of the works requiring in-stream trenching works will be restricted to the fisheries open season (i.e., restricted to July to September inclusive). Further details are described in Section 6.3.1.

5. Conclusion of Screening for Appropriate Assessment

An AA Screening report was prepared for the Proposed Development (Jacobs 2023b) and is summarised below. The assessment of likely significant effect is summarised in Table 5.1. Following a review of the relevant information including the nature of the Proposed Development, the surveys were carried out (shown in Table 2.1) and the likelihood of significant effects on any European site and applying the precautionary principle it is the professional opinion of the authors that on the basis of objective information it was not possible to exclude that the Proposed Development would have a significant effect on the following European site, either alone or in combination with other plans or projects:

- Rye Water Valley/Carton SAC (Site code 001398).

It was therefore recommended that a Stage 2 Appropriate Assessment (AA) of the Proposed Development be undertaken by a competent authority, informed by a Natura Impact Statement. The AA is required to determine if the Proposed Development could have adverse effects on the integrity of Rye Water Valley /Carton SAC either alone or in-combination with other plans or projects, considering the sites' conservation objectives. The information presented in the NIS should provide sufficient information for the relevant competent authority to carry out the AA.

The connectivity of all water crossings of the Proposed Development to European sites was assessed using Environmental Protection Agency maps (https://gis.epa.ie/EPAMaps/). The watercourses which have connectivity to Rye Water Valley/Carton SAC are shown in Table 5.2.

Table 5.1: European sites with the potential for LSEs from the Proposed Development

European site name and code	Distance of site from projects	Conservation Objectives and Qualifying Interests	Pathway	Potential for Likely Significant Effects (LSEs)
Special Area of Conservation (SAC)				
Rye Water Valley /Carton SAC (Site code 001398) v1. NPWS (2021)	Nearest distance as the crow flies is 6.2km (see table 5.2 below) The shortest hydrological distance between the Proposed Development and this SAC is 8.15km,	**Conservation Objectives** To restore to favourable condition the SAC's QI, as listed below: **Annex I habitat** Petrifying springs with tufa formation (Cratoneurion) [7220] **Annex II species:** Narrow mouthed whorl snail (*Vertigo angustior*) [1014] Desmoulin's whorl snail (*Vertigo moulinsiana*) [1016]	Water pollution	Yes. Site screened in for all the QI features due to their potential to be impacted by a pollution event at water crossings with connectivity to the SAC.

Table 5.2. Watercourse crossings along the Kildare to Meath Proposed Development with hydrological linkage to Rye Water Valley/Carton SAC (identified using water features tab on EAP maps and shown in Figure 2 (321084AH-JAC-ZZ-XX-DR-K-3037), Appendix B).

Waterbody number (WB)	Waterbody name (WFD)	Waterbody location – Grid reference	EU Code	Chainage	Type of water crossing
WB03	Rye Water_030	N 93930 45180	IE_EA_09R010400	3615	Diversion from in-road to off-road trench
WB04	Jenkinstown Stream_010	N 91730 45313	IE_EA_09J010950	6000	Diversion from in-road to off-road trench
WB07	Jenkinstown Stream_010	N 89775 43468	IE_EA_09J010950	10700	Diversion from in-road to off-road trench
WB08	Jenkinstown Stream_010	N 89661 43153	IE_EA_09J010950	111880	Diversion from in-road to off-road trench
WB09	Unassigned stream	N 89419 43023	Unassigned stream	11400	Diversion from in-road to off-road trench
WB10	Rye Water_020 (Brides Stream)	N 89243 42178	IE_EA_09R010300	12370	Diversion from in-road to off-road trench
WB12	Rye Water_010	N 88410 40767	IE_EA_09R010300	14400	Diversion from in-road to off-road trench
WB13	Rye Water_010	N 88065 40613	IE_EA_09R010100	15050	HDD
WB14	Royal Canal	N 87874 40210	IE_09_AWB_RCMLE	15400	HDD

6. Information for Appropriate Assessment

6.1 Rye Water Valley/Carton SAC

6.1.1 Summary of European site

Rye Water Valley/Carton SAC is located between Leixlip and Maynooth, in Counties Meath and Kildare, and extends along the Rye Water, a tributary of the River Liffey. The conservation importance of the site lies in the presence of two Annex II snail species, and the presence of petrifying springs, a habitat type listed on Annex I of the E.U. Habitats Directive. Further information on the European site is presented in Section 3.1.

6.1.2 Qualifying Interests potentially exposed to risk

6.1.2.1 Petrifying Springs

Petrifying springs are springs that typically form small calcareous or 'tufa' deposits. On contact with the atmosphere at the spring head, carbon dioxide is lost from calcium saturated water to the atmosphere or is depleted by the photosynthetic activities of plants. This results in the precipitation of a calcium carbonate marl or tufa. Seepage flow rates are crucial for the development of tufa. Further information on the petrifying springs at Rye Water Valley/Carton SAC is presented in Section 3.1.2.

6.1.2.2 Desmoulin's whorl snail

Desmoulin's whorl snail is known from one site in Rye Water Valley/Carton SAC, at Louisa Bridge (NPWS, 2021). All whorl snails favour damp or wet habitats where they live mostly in moss, leaves and decaying vegetation. They live on living and dead stems and leaves of tall wetland plants and feed on bacterial films and decaying vegetation. Further information on Desmoulin's whorl snail at this SAC is presented in the baseline, Section 3.1.3.

6.1.2.3 Narrow-mouthed whorl snail

Narrow mouthed whorl snail was last recorded at Rye Water Valley/Carton SAC in 1997, within the same 1km grid square as Desmoulin's whorl snail, N9936. Further work is required to definitively establish the status of the species at this SAC (NPWS, 2021). Further information on narrow-mouthed whorl snail at this SAC is presented in the baseline, Section 3.1.3.

6.1.3 Conservation status of Qualifying Interests of Rye Water Valley/Carton SAC

The conservation status of Rye Water Valley/Carton SAC QI at national level, key conditions underpinning favourable conservation status, attributes and threats to key conditions are presented in Table 6.1. The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of Annex I habitats and Annex II species of community interest for which the site has been designated.

Table 6.1: Conservation status and key conditions of Qualifying Interests of Rye Water Valley/Carton SAC potentially exposed to risk (NPWS 2019a; NPWS, 2019b, NPWS 2019c and NPWS 2021).

QI	National Conservation Status (NPWS 2019a and b)	Site Level Status (NPWS 2021)	Key conditions supporting favourable conservation status	Main pressures and threats	Mapping available for QI
Annex I habitat Petrifying springs with tufa formation (Cratoneurion) [7220]	Inadequate	Unknown	Permanent irrigation from upwelling groundwater	Abandonment of grassland management Over and/or under grazing Roads, paths railways Recreation/human disturbance Mixed source pollution to surface and groundwaters Drainage Modification of hydrological flow Natural succession	Yes Ireland distribution shown in NPWS 2019b, page 893. Location of petrifying springs within Rye Water Valley/Carton SAC shown in NPWS, 2021.
Annex II species: Narrow mouthed whorl snail (*Vertigo angustior*) [1014]	Inadequate	Unknown	Stable overall hydrological conditions. Permanently moist litter providing humid conditions, shaded by herbaceous or grassy vegetation but in overall open condition. Habitat must not be subject to inundation. In damp or wet habitat, this species is associated with decaying vegetation in the litter layer or damp moss in open unshaded habitats, where the openness is maintained by wetness or grazing levels.	Abandonment of grassland management Over and/or under grazing Recreation/human disturbance Development of recreational infrastructure	Yes Ireland distribution shown in NPWS 2019c, page 182 Location within Rye Water Valley/Carton SAC shown in NPWS, 2021.
Desmoulin's whorl snail (*Vertigo moulinsiana*) [1016]	Inadequate	Unknown	Stable overall hydrological conditions. Tall growing vegetation such as tall Carex species, sometimes with black bog rush, common reed. Wet habitat – water rises under light pressure. Prefers calcareous habitat. Water table at or slightly above the ground surface and low seasonal flooding. Dispersal	Natural succession resulting in species composition change Abiotic natural processes (e.g., erosion, drying-up, salinization) Abandonment of management Over and/or under grazing	Yes Ireland distribution shown in NPWS 2019c, page 197. Location within Rye Water Valley/Carton SAC shown in NPWS, 2021.

QI	National Conservation Status (NPWS 2019a and b)	Site Level Status (NPWS 2021)	Key conditions supporting favourable conservation status	Main pressures and threats	Mapping available for QI
			requires water-borne transportation		

To determine how the project would affect Rye Water Valley/Carton SAC's QIs, this assessment has focused on the effects that may possibly occur that could undermine the conservation objectives for the site. Table 6.1 shows the QI habitat and species and associated conservation objectives of relevance to the Proposed Development. One QI habitat, i.e., petrifying springs, and two QI species i.e., narrow mouthed whorl snail and Desmoulin's whorl snail potentially exposed to risk from the Proposed Development.

Locations of QI features within Rye Water Valley/Carton SAC 001398 (Conservation Objectives Series, NPWS 2021, v1), all of which are downstream of the hydrological connection to the Proposed Development:

- Petrifying springs are found near to Lousia Bridge, with an area estimated to be 1250m^2. Further unsurveyed areas may be present in the SAC. These petrifying springs have a hydrological distance of 14.29km from the Proposed Development (WB13)

- Narrow-mouthed whorl snail was last recorded at one site near Louisa Bridge within the 1km grid square N9936. It was not found in 2006, 2010 or 2016 (NPWS, 2021). Louisa Bridge has a hydrological distance of 14.52 to the Proposed Development (WB13)

- Desmoulin's whorl snail is known from one site in the SAC at Louisa Bridge, within the 1km grid square N9936. It was last recorded in 2018 (Long and Brophy, 2019). Louisa Bridge has a hydrological distance of 14.52 to the Proposed Development (WB13)

6.1.4 Conservation objectives

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of annexed habitats and annexed species for which an SAC has been designated. To determine how the project would affect the SAC's QIs, this assessment has focused on the effects that may possibly occur that could undermine the conservation objectives for the habitats and species.

The conservation objectives for the Rye Water Valley/Carton SAC (NPWS, 2021) are as follows:

- To restore the favourable conservation condition of petrifying springs with tufa formation (*Cratoneurion*);
- To restore the favourable conservation condition of narrow-mouthed whorl snail; and
- To maintain the favourable conservation condition of Desmoulin's whorl snail.

Conservation objective attributes and targets for Rye Water Valley SAC 001398 v1 are shown in Table 6.2. In this table, those attributes and targets directly related to water quality and flow are considered to have potential to undermine the conservation objectives. In contrast, those attributes and targets not directly related to water quality and flow are considered not to have the potential to undermine the conservation objectives.

Table 6.2: Conservation objective attributes and targets for Rye Water Valley SAC 001398 v1 (NPWS, 2021). Light green fill indicates potential to undermine the conservation objective of the QI.

QI	Attribute/ target	Potential to undermine conservation objectives
Petrifying springs with tufa formation	Habitat area: area stable or increasing	No. The proposed water crossings will not have an impact on the water supply to the petrifying springs.
	Habitat distribution: no decline, subject to natural processes	Yes. The Proposed Development must avoid pollution of connecting watercourse crossings to avoid any potential changes to natural processes at the SAC.
	Hydrological regime: maintain appropriate hydrological regime	No. The Proposed Development will not alter the flow regime to the petrifying springs.
	Water quality: maintain nitrate levels at less than 10mg/l; restore phosphate level to less than 15µg/l	No. This attribute relates to fertiliser run-off from agriculture, so is not specifically relevant to the SAC. However, to maintain water quality, the Proposed Development must not pollute the watercourse.
	Vegetation composition; community diversity: maintain variety of vegetation communities, subject to natural processes.	Yes. The Proposed Development has the potential to affect natural process by polluting connecting waterbodies from bentonite/drilling fluid break-out and/or sediments entering the connected waterbodies.
	Vegetation composition, positive/negative indicator species	No. Works will not affect botanical diversity.
	Vegetation composition: algal cover less than 2%.	No. This attribute relates to fertiliser run-off from agriculture, so is not specifically relevant to the SAC
	Vegetation structure: sward height	No. Works will not affect sward height at SAC.
	Physical structure: trampling/dung	No. Works will not affect livestock at SAC.
	Indicators of local distinctiveness	Yes. Distinct flora and fauna have the potential to be impacted by changes in water quality.
Narrow mouthed whorl snail	Distribution: no decline in number of 1km squares this species occupies in the SAC	Yes. The Proposed Development has the potential to change the snail's distribution in the event of a pollution event in hydrologically connected waterbody.
	Occurrence in suitable habitat: restore to self-sustaining population	Yes. The Proposed Development has the potential to change the occurrence in suitable habitat in the event of a pollution event in a hydrologically connected waterbody.
	Habitat area: restore area of suitable habitat, subject to natural processes	Yes. The Proposed Development has the potential to change the habitat area suitable for this snail in the event of a pollution event in a hydrologically connected waterbody.
	Habitat quality: water levels: restore suitable hydrological regime subject to natural processes	No. The Proposed Development will not alter the hydrological regime.
Desmoulin's whorl snail	Distribution: no decline in number of 1km squares this species occupies in the SAC	Yes. The Proposed Development has the potential to change the snail's distribution in the event of a pollution event in hydrologically connected waterbody.
	Occurrence in suitable habitat: no decline, subject to natural processes.	Yes. The Proposed Development has the potential to change the occurrence in suitable habitat in the event of a pollution event in a hydrologically connected waterbody.

QI	Attribute/ target	Potential to undermine conservation objectives
	Density within habitat: no decline, subject to natural processes.	Yes. The Proposed Development has the potential to change the density of snails in suitable habitat in the event of a pollution event at a hydrologically connected waterbody.
	Habitat area: area of suitable habitat stable or increasing, subject to natural processes.	Yes. The Proposed Development has the potential to change the area of suitable habitat for this snail in the event of a pollution event in a hydrologically connected waterbody.
	Habitat quality: occupied patches in at least sub-optimal condition: no decline, subject to natural processes.	No. The Proposed Development has no potential to change the sub-optimal condition of the site.
	Habitat quality; soil wetness: no decline subject to natural processes.	No. The Proposed Development has no potential to change the flow regime and therefore the soil wetness.

6.2 Appraisal of potential impacts on Rye Water Valley/Carton SAC

The following section assesses the potential for a pollution event at waterbodies crossed by the Proposed Development to affect the conservation objectives of Rye Water Valley/Carton SAC due to potential impacts on its three QI.

6.2.1 Petrifying springs with tufa formation

6.2.1.1 Potential impact – potential for pollution event at watercourse crossings

Details of the two methods used for watercourse crossings is given in Section 4.1.1. Given the large size of the cable and considering the excavation works required, there is the potential for a pollution event at these watercourse crossings by either in-stream trenching releasing sediments or sediment laden run-off. All the waterbodies in Table 5.2 flow into Rye Water which subsequently flows through Rye Water Valley SAC. At the location of HDD launch and reception sites the sediment is also likely to contain oils and chemicals from the drilling rig at Rye Water, WB13. There is potential for bentonite/drilling fluid breakout from the drilling process to contaminate Rye Water at WB13.

The following three attributes of petrifying springs are considered to relate directly to water quality, which in the absence of mitigation, have potential to adverse effects on this QI. Source pollution to surface and ground waters is listed as a 'high' pressure and a 'high' threat, see Table 6.1 and (NPWS, 2019b).

- Pollutions of surface water is considered to have the potential to alter the spring's distribution as petrifying springs depend on permanent irrigation from upwelling groundwater from natural processes. A pollution event would not be a 'natural process' and would temporarily affect its water quality.
- Pollution of surface water is considered to have the potential to alter the vegetation composition because the plants at the petrifying springs are highly specialised and therefore sensitive to water pollution.
- Pollution of surface water is considered to have the potential to cause a decline in distribution or population size of distinct flora and fauna due to its sensitivity to water quality.

6.2.2 Narrow mouthed whorl snail

6.2.2.1 Potential impact – potential for pollution event at watercourse crossings

For the same reasons as petrifying springs in Section 6.2.1.1, where a watercourse connects to the Rye Water (Table 5.2), in the absence of mitigation there is potential for pollutants (e.g., oil and fuel spillage, drilling fluid) to be subsequently transported to Rye Water Valley/Carton SAC since Rye Water flows through it.

Narrow mouthed whorl snail was last recorded at Rye Water Valley/Carton SAC in 1997. Using the precautionary principle, this snail is assumed to be present within the same 1km as it was last recorded. The following three attributes of narrow mouthed whorl snail i.e., distribution, occurrence in suitable habitat, and habitat area relate directly to water quality and are considered, in the absence of mitigation, to have potential to have adverse effects on this QI. Pollution is not included as a pressure or threat to this species in NWPS's species assessment (2019c), although this species is an indicator of local distinctiveness for which one the conservation objective attributes is 'no decline in distribution or population size of rare threatened or scarce species associated with the habitat AND to maintain features of local distinctiveness, subject to natural processes (NPWS, 2021).

- Pollution of surface water is considered to have the potential to alter distribution of this species because it feeds on bacterial films and decaying vegetation in moss, leaves, and decaying vegetation. Pollution of these food sources by surface water could affect the snail's ability to feed.

- Pollution of surface water is considered to have the potential to affect the occurrence of this species because the snail's food supply could become contaminated and inedible, thus causing the snail to starve.

- Pollution of surface water is considered to have the potential to affect the habitat area suitable for this species by contaminating the area supporting it.

6.2.3 Desmoulin's whorl snail

6.2.3.1 Potential impact – potential for pollution event at watercourse crossings

For the same reasons as presented for petrifying springs in Section 6.2.1.1, where a watercourse connects to the Rye Water (Table 5.2), in the absence of mitigation there is potential for pollutants (e.g., oil and fuel spillage, drilling fluid) to be transported to the SAC since Rye Water flows through it.

Four attributes of Desmoulin's whorl snail i.e., distribution, occurrence in suitable habitat, density within habitat and habitat area are considered to relate directly to water quality and are considered, in the absence of mitigation, to have potential to have adverse effects on this QI. Pollution is not included as a pressure or threat to this species in NWPS's species assessment (2019c), although this species is an indicator of local distinctiveness for which one the conservation objective attributes is 'no decline in distribution or population size of rare threatened or scarce species associated with the habitat AND to maintain features of local distinctiveness, subject to natural processes (NPWS, 2021).

- Pollution of surface water is considered to have the potential to alter distribution of this species because it feeds on bacterial films and decaying vegetation in moss, leaves, and decaying vegetation. Pollution of these food sources by surface water could affect the snail's ability to feed.

- Pollution of surface water is considered to have the potential to affect the occurrence of this species because the snail's food supply could become contaminated and inedible, thus potentially causing the snail to starve.

- Pollution of surface water is considered to have the potential to affect the occurrence of this species because the snail's food supply could become contaminated and inedible, thus causing the snail to starve.

- Pollution of surface water is considered to have the potential to affect the density of the species within the habitat by contaminating the area supporting it and affecting its ability to feed and breed.

6.2.3.2 Potential impact – potential for pollution event

The details of the construction operations require for cable crossing at watercourse crossing were unknown at the time of writing this NIS. However, given the large size of the cable and considering the excavation works required, there is potential for a pollution event at these watercourse crossings. For the same reasons as for petrifying springs, narrow mouthed whorl snail, and Desmoulin's whorl snail, where a watercourse connects to Rye Water (Table 5.2), in the absence of mitigation there is potential for pollutants (e.g., oil and fuel spillage, drilling fluid) to be transported to the SAC since Rye Water flows through it.

6.3 Mitigation measures

6.3.1 Ecological Clerk of Works

An on-site Ecological Clerk of Works will be on site for any works deemed sensitive i.e. within or in proximity to protected European sites or watercourses linked to such sites. Where sensitive habitats or species could be impacted the ECoW will be on site to implement all mitigation measures as described below. The ECoW will demonstrate experience and will be a member of a profession body such as CIEEM or similar.

The ECoW will oversee implementation of the mitigation by the Contractor, and advise of adaptive mitigation where required

6.3.2 Pollution

Potential pollution impacts from construction are via the following pathways: transport of pollutants into Rye Water Valley/Carton SAC from watercourses crossed by the Proposed Development either by in-stream trenching or HDD. Considering the potential for effects resulting from pollution and sediment laden run-off, control measures have been developed to ensure that the activities do not adversely impact upon the surface water environment. Measures to mitigate pollutants entering the watercourse during construction of the Proposed Development, and potentially affecting the QI of the site, are outlined below.

Measures set out herein will be implemented to ensure that there will be no pollution of surface water during the undertaking of the Proposed Development. The measures will be incorporated into the contractor's Construction Environmental Management Plan (CEMP) and the CEMP will be developed in accordance with the following guidance documents:

- CIRIA C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters-Williams *et al.*, 2001);
- CIRIA C648 Control of Water Pollution from Linear Construction Projects: Technical Guide (Murnane *et al.*, 2006a);
- CIRIA C649 Control of Water Pollution from Linear Construction Projects: Site Guide (Murnane *et al.*, 2006b);
- CIRIA C692: Environmental Good Practice on Site (Audus *et al.*, 2010);
- Guidelines for the Crossing of Watercourses during the Construction of National Road schemes (NRA, 2005); and

<u>Horizontal Directional Drilling</u>

The launch and reception pits for the drilling rig require the temporary installation of a level hardstanding area on a geotextile base. A pilot hole will be drilled from one side of the crossing to the other side while supporting the bored hole with bentonite. The drill bit will be oriented by the surveyor, and the driller will push the drill string into the ground to maintain the bore path. A steering system will be used by the surveyor to navigate the bores.

The drilled cuttings will then be flushed back by the drill fluid flowing via nozzles in the drill bit, to the surface, where they will be separated from the fluid fraction for disposal. A comprehensive closed-loop drilling fluid mixing

and circulation system with recycling capability will be utilised to minimise the volume of fluids required on site. As there is potential for bentonite break out to contaminate Rye Water (WB13), mitigation for this will be needed (see below).

Open-cut trenches at watercourse crossings

Open cut water crossings, in-stream trenching, have the potential to generate silt and suspended solids. To reduce the risk of discharging sediment into the watercourse, all these works will be carried out in a dry works area.

The dry works area will be isolated by installing an impermeable barrier between the watercourse and the works area. The impermeable barrier will be tailored to the watercourse in question. Techniques that will be employed include the use of inflatable dams, frame dams or, in smaller watercourses, sandbags (double-bagged and underfilled; containing only clean washed sand).

Water pumped from the dry works area will be treated using settlement tanks to remove sediment prior and allowed to filter back to the watercourse, rather than discharging directly back into the watercourse, thereby avoiding scouring. In consultation with Inland Fisheries Ireland (IFI), greater filtration of silt may be achieved prior to discharge, through proposed use of silt de-watering bags which trap silt and expel only clean water and can be left to biodegrade on riverbanks as a habitat enhancement measure.

Water will be conveyed over the isolated section of channel by pumping or the use of a temporary diversion. Where sufficient capacity is available, and there is no risk of excessive scour, the diversion will be within the footprint of the existing channel.

The existence of a temporary impermeable barrier within the channel, will have a direct impact on the cross section of the channel and is expected to give rise to localised changes in water depth, velocities, and sediment erosion / deposition.

Where in-stream trenching is proposed, site restoration works will be carried out following completion of the crossing, in agreement with IFI. These works will include riverbank stabilisation, gravel replacements etc. In all cases, the site will be restored post installation.

If required by IFI, in-stream trenching works will not be carried out during extreme rainfall or high flow events. Met Éireann provides a 5-day weather forecast via its website (www.met.ie) and works will not take place during yellow, orange and red weather warnings.

Unless otherwise agreed with IFI, any element of the works requiring in-stream trenching works will be restricted to the fisheries open season (i.e. restricted to July to September inclusive).

Mitigation for accidental pollution

Mitigation measures with respect to accidental pollution are focused on prevention and safeguarding the approach to the storage and handling of materials and managing vehicles during the temporary construction phase.

The following measures will be implemented on site for the storage of materials:

- No oil, diesel or other fuels will be stored outside of any construction compound location and will be at least 30 m from any watercourse, drainage ditch, or surface water drains.
- Spill kits and drip trays will be provided for all equipment and at locations where any liquids are stored and dispensed.
- Storage areas for solid materials, including waste soils, will be designed and managed to prevent deterioration of the materials and their escape (via surface run off or wind blow).
- Storage areas will be kept secure to prevent acts of vandalism that could result in leaks or spills.
- All containers of any size will be correctly labelled indicating their contents and any hazard warning signs.

The following measures will be implemented on site for the prevention of spills:

- Fuel tanks, drums and mobile bowsers (and any other equipment that contains oil and other fuels) will have a secondary containment, for example, double skinned tanks. All tanks, drums and mobile bowsers will be located in a sealed impervious bund with sufficient capacity to contain at least 25% of the total volume of the containers or 110% of the largest container, whichever is the greatest;
- Any discharges from temporary welfare facilities will be connected to a sealed holding tank to be emptied and disposed of off-site by a licensed contractor to an approved licensed facility, located in the wider area.
- Storage areas will be covered, wherever possible, to prevent rainwater filling the bunded areas;
- Fuel fill pipes will not extend beyond the bund wall and will have a lockable cap secured with a chain.
- Where fuel is delivered through a pipe permanently attached to a tank or bowser:
  - Any pipe will be fitted with a manually operated pump or a valve at the delivery end which closes automatically when not in use;
  - Any pump or valve will be fitted with a lock;
  - Any pipe will be fitted with a lockable valve at the end where it leaves the tank or bowser;
  - Any pipework will pass over and not through bund walls; tanks and bunds will be protected from vehicle impact damage;
  - Tanks will be labelled with contents and capacity information;
  - All valves, pumps and trigger guns will be turned off and locked when not in use. All caps on fill pipes will be locked when not in use.
- Suitable precautions will be taken to prevent spillages from equipment containing small quantities of hazardous substances (for example, chainsaws and jerry cans) including:
  - each container or piece of equipment will be stored in its own drip tray made of a material suitable for the substance being handled; and
  - containers and equipment will be stored on a firm, level surface.
- For deliveries and dispensing activities, it will be ensured that:
  - site-specific procedures are in place for bulk deliveries;
  - delivery points and vehicle routes are clearly marked; and
- Emergency procedures are displayed, and a suitably sized spill kit is available at all delivery points, and staff are trained in these procedures and the use of spill kits.

The following measures will be implemented to reduce the risk of fuel and oil leaks from vehicles and plant:

- Vehicles and plant provided for use on the site will be in good working order to ensure optimum fuel efficiency, and are free from leaks;
- All machinery will be fully compliant with the relevant standards and requirements to reduce the potential for leaks;
- Sufficient spill kits will be carried on all vehicles;
- Vehicles and plant will be regularly maintained to ensure that they are working at optimum efficiency and are promptly repaired when not in good working order;
- Vehicles and plant will not park near or over drains and will be washed in accordance with the commitments set out above; and
- Refuelling of vehicles and plant will be carried out on hard standing, using drip trays to ensure no fuel can contaminate the ground outside of the bunded areas.

The following measures will be implemented to reduce the risks associated with drilling fluid release:

- An Emergency Incident Response Plan will be developed in consultation with IFI. This will be provided to effectively address inadvertent releases of sediment through frac-outs, or other releases of sediment laden water from the project site. The plan shall clearly outline the steps that the contractor is to take in the event of a sediment release or other type of spill. The plan will clearly outline the steps involved to mitigate an inadvertent return or frac out after it occurs and should not rely solely on the contractor to take all necessary steps to minimize the impacts. Contingency Plans will include the provision of a vacuum truck, or alternative means of containing or cleaning up a sediment release, at the time of construction in sensitive areas. If vacuum trucks are to be utilized, they should be on-site during construction, and be ready to contain any spill, as it occurs, before it enters a surface water feature. If a sediment spill occurs within the watercourse, adequate isolation of the release will be provided to contain the sediment, and the vacuum truck be ready to remove the drilling fluid and any other frac out soil. Additional measures may include having a supply of products that can be used to stop a frac-out, such as 'Poly Swell', or equivalent. This product can be mixed into both water and filling mud to seal or fill fractures. All products used on site are to be environmentally safe. Frac mitigation wells may also be considered to relieve drilling pressures. The Contingency Plan should indicate if, and when, HDD activities are to resume;
- When using HDD, the drilled cuttings will then be flushed back by the drill fluid flowing via nozzles in the drill bit, to the surface, where they will be separated from the fluid fraction for disposal. A comprehensive closed-loop drilling fluid mixing and circulation system with recycling capability will be utilised to minimise the volume of fluids required on site;
- The shaft and borehole will be kept a minimum of 50m away from any watercourse where possible. However, given that the shaft will be kept as short as possible to reduce the risk of the drilling machine becoming stuck, it may not be possible to keep 50m from a watercourse. In this case a bunded area will be created around the temporary working space to prevent slurry washing into the SAC in the case of accidental release;
- Breakout will be mitigated through management of pressures;
- Use will be constantly monitored by the contractor through materials balance calculations, pressure monitoring in the lines and above ground visual assessment of the works. The pressure will be lowered, if necessary, to prevent a breakout. Any sudden drop in pressure which could indicate a bentonite breakout will result in immediate cessation of bentonite pumping;
- Appropriate drilling mud formulation and management for the conditions and appropriate drilling practices will be adhered to by the contractor at all times; and
- The contractor will prepare an emergency action plan (in-line with the measures presented in the CEMP for the Proposed Development) which will include containment, control and clean-up measures in the event of drilling fluid release into the environment. Containment measures include the installation of interception devices (e.g., silt fence, staked straw bales, sediment curtains, collection sumps).

The following methods will be implemented to maintain fish passage when dry cutting waterbodies:

- Map fish habitat prior to works;
- Remove fish removed prior to dewatering;
- Secure bunded area preventing fish entering works area;
- Use silt fencing and over pumping;
- Facilitate fish passage by using two flumes;
- Retain vegetation up/ downstream of works;
- Use a temporary access bridge across river to prevent workers walking across riverbed;
- Define the works area; and
- Compact bare earth to reduce run-off.

If silt laden run off is formed on site, the following measures will be implemented to prevent silt laden surface water flowing into surface water receptors

- Silt fences are required between works areas and water features to prevent potentially contaminated surface water run-off from works areas reaching the surface water feature.
- Silt fences will be installed downgradient of the potential source of the silt/ sediment;
  - The silt curtain will contain the area where silted waters are being generated and shall terminate on high ground;
  - They will be constructed using permeable filter fabric (Hy-Tex Terrastop silt fence or similar) rather than a mesh material;
  - The vegetated turves will be peeled back and not detached from the ground, the materials inserted and the turves replaced to hold the base in place;
  - The silt fence will be inspected regularly by the EcCoW and contractor during the working day and weekly during construction, and in particular following heavy rainfall;
  - Silt fences will remain in-situ until the vegetation on the disturbed ground is re-established;
  - The fence will not be pulled from the ground, but cut at ground level and the stakes/ posts removed;
  - Should water build up behind the fences, the sediment will settle to the bottom. Water can be released, but sediments will remain;
  - Two lines of silt fencing will be installed in sensitive areas. This will follow a judgement call by the ECoW; and
  - A record of its installation, inspection and removal must be maintained by the EcCoW

The following measures will be implemented to reduce risks associated with concrete pouring:

- A suitable risk assessment for wet concreting will be completed prior to works being carried out and this will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil.
- When working in or near the surface water and the use of introduced materials e.g. oil cannot be avoided, the use of alternative materials such as biodegradable oils shall be used.
- Placing of concrete in or near watercourses will be carried out only under the supervision of the Ecological Clerk of Works (ECoW)
- There will be no hosing of concrete, cement, grout or similar material spills into surface water drains. Such spills shall be contained immediately, and runoff prevented from entering the watercourse;
- Concrete waste and wash-down water will be contained and managed on-site to prevent pollution of all surface watercourses; and
- Washout from concrete lorries will not be permitted on-site and will only take place at the batching plant (or other appropriate facility designated by the manufacturer).
- Construction vehicles will be sent back to the construction compound for wash down as per CIRIA C648 recommendations.
- Silt fencing will be installed along watercourses adjacent where works are proposed, in some instances double silt fencing may be required. This includes areas where concrete pouring is to be undertaken and where there is a risk to European designated sites.

The following measures will be implemented to ensure reinstatement of land and vegetation to protect watercourses:

- For off-road surfaces, land will be reinstated to its baseline condition, in so far as possible. The reinstatement operation will start with restoration of the subsoil by scarifying / ripping it with flat lift rippers, pulled by a bulldozer to a minimum uniform depth of 300mm, with care taken to prevent

damage to field drainage and other services. The depth of ripping will be selected to scarify / loosen any material compacted during construction. In all cases the depth of ripping will exceed the depth of subsoil compaction. All surface stones and roots over 150mm in diameter will be picked up and removed. Re-grading subsoil using excavators / graders will be carried out and will include side slopes, where applicable;

- For off-road surfaces the spreading of subsoil and later topsoil will be carried out during favourable weather conditions when the soil is drier and more friable. The subsoil stockpiled for reinstatement will be pulled back from the fence line using excavators to allow bulldozers to push it evenly back across the corridor and leaving it generally level. Then the separately stockpiled topsoil will be pulled back from the fence line using excavators to allow bulldozers to push it evenly back across the corridor and leaving it generally level so as to present a neat and level appearance (the level of the trench area shall be the same as that of the undisturbed surrounding ground around one year after restoration is completed);
- For off-road surfaces, reseeding will then be carried out on completion of the topsoil spreading, if required. The rate of seeding, time and method of sowing, including the application of fertiliser will be undertaken in agreement with an experienced ecologist and will follow the regulations for the protection of watercourses (S.I. No. 40/2020 - European Union [Good Agricultural Practice for Protection of Waters] [Amendment] Regulations 2020) and guidance on reseeding (Teagasc, 2014);
- As part of the CEMP there will be a toolbox talk given to all site personnel to highlight any environmental sensitivities and the boundaries of sensitive habitats; and
- Post construction off road sites, the site will be revegetated.

7. In-combination assessment

To take account of in-combination effects, plans, and projects that are completed, approved but uncompleted, or proposed (but not yet approved) have been considered in the appropriate assessment (EC, 2001). Therefore, in the case of projects, only those that have been submitted for planning have been included. A search of the National Planning Application Database (NPAD) (DoHLGH, accessed March 2023) in the vicinity of the Proposed Development in the last five years has been undertaken to identify other projects that may result in cumulative impacts. The majority of recent planning applications in the vicinity of the Proposed Development are small scale domestic and commercial applications, whose codes and date of submission are shown below. The NIS contains information which the competent authorities, may consider in making its own complete, precise and definitive findings and conclusions and upon which it is capable of determining that all reasonable scientific doubt has been removed as to the effects of the Proposed Development, alone or in-combination with any other plan or project, on the integrity of the relevant European sites.

The planning applications that have been proposed or granted permission in the nearby vicinity which constitute significant works are presented below in Table 7.1. The majority of recent planning applications in the vicinity of the Proposed Development are small scale domestic and commercial applications.

Table 7.1 Plans and developments in the vicinity of the Proposed Development.

Planning ref.	Planning Authority	Project Description	Comment
N/A	Meath County Council	Meath County Development Plan 2021-2027. A Natura Impact Report was prepared (Scott Cawley, 2021) in support of The Meath County Development Plan 2021-2027. This report assessed potential impacts arising from the Meath County Development Plan 2021-2027 (Meath County Council, 2021). No adverse effects on site integrity were identified from the mitigated plan on any of the European sites identified within the ZoI or the vicinity of the Proposed Development. As such, no in-combination effects are anticipated between the Proposed Development and the Meath County Development Plan 2021-2027.	No in-combination effects are anticipated.
N/A	Kildare County Council	Kildare County Development Plan 2017-2023. A Natura Impact Report was prepared (CAAS, 2017) in support of the Kildare County Development Plan 2017-2023. This report assessed potential impacts arising from the Kildare County Development Plan 2017-2023 (Kildare County Council, 2017). No impacts were identified on any of the European sites identified within the ZoI or the vicinity of the Proposed Development. As such, no in-combination effects are anticipated between the Proposed Development and the NIS prepared in support of the Kildare County Development Plan 2017-2023.	No in-combination effects are anticipated.
N/A	Kildare County Development Plan 2023-2029	Kildare County Development Plan 2023-2029. A Natura Impact Report was prepared (Arup, 2022) in support of the Draft Kildare County Development Plan 2023-2029. This report assessed potential impacts arising from the Draft Kildare County Development Plan 2023-2029. The EirGrid	No in-combination effects are anticipated.

Planning ref.	Planning Authority	Project Description	Comment
		Transmission Development Plan 2020-2029 was included in the assessment. No impacts were identified on any of the European sites identified within the ZoI or the vicinity of the Proposed Development. As such, no in-combination effects are anticipated between the Proposed Development and the Kildare County Development Plan 2023-2029.	
N/A	EirGrid Grid Implementation Plan 2017-2022	The policies, objectives and projects within EirGrid's Grid Implementation Plan were screened for their potential to have Likely Significant Effects (LSEs) on European sites and five projects identified with the potential for LSE. These were assessed in the NIS for the plan. No impacts were identified on any of the European sites identified within the ZoI or the vicinity of the Proposed Development. As such, no in-combination effects are anticipated between the Proposed Development and the NIS prepared in support of the Grid Implementation Plan 2017-2022.	No in-combination effects are anticipated.
201143	Kildare County Council	Conditional permission granted for a proposed extension to a Distribution Centre of height 19 m to comprise of a: warehouse extension (approx. 11,82 m^2), main office extension over two storeys; dispatch and extension goods-in office over two storeys; new one storey transport office; and vehicle maintenance unit extension. The gross floor area of the premises will increase from 29,106 m^2 to 41,891 m^2, an increase of 12,785 m^2. Some demolition will be required. Additional new vehicle parking areas will be provided including a new HGV parking area located to the east of the Distribution Centre and a new additional car parking area to the south of the Distribution Centre, on the south side of the R148. Provision of 172 no. car parking spaces; 175 no. HGV trailer parking spaces; 27 no. tractor (HGV cab) parking spaces; and 128 no. bicycle parking spaces and associated infrastructure. The development will involve minor alterations to the existing entrance at R148 which will provide vehicular, pedestrian and cyclist access and egress to the Distribution Centre. An additional new vehicular, pedestrian and cyclist access and egress will be provided off R148 to a new car parking area to the south of the main Distribution Centre site. A pedestrian crossing over this road will be provided connecting the southern car park to the main site. The associated site and infrastructural works include provision for all landscaping works; boundary treatment; internal roads and footpaths; PV panels and electrical services. The Proposed Development will involve modifications to a previous permission - Planning Register Reference 02/1561.	An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) were submitted to the Planning Authority with the planning application (Scott Cawley, 2020). This NIS concluded that 'the Proposed Development will not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plants or projects and there is no reasonable scientific doubt in relation to this conclusion.

Planning ref.	Planning Authority	Project Description	Comment
		Project has hydrological connectively with Rye Water Valley /Carton SAC and lies 9.1km from it.	
20840	Kildare County Council	Conditional permission granted for the construction of a 5627 m^2 Specialist Packaging Single Storey High Level Manufacturing Facility with Three Storey Head office incorporating administration, sales, design, research and development departments, staff changing room, staff canteen, car parking, bicycle parking, ESB sub station, two storey services plant room, loading bay, entrance gates, pedestrian gate, building signage, landscaping, extension to existing estate service road and all associated siteworks on a site of 2.5672 ha. KCC (20840) does not cross a watercourse. The nearest watercourse to the Proposed Development is the Grand Canal which lies approximately 70 m to its east and has no connectivity with Rye Valley/Carton SAC.	No in-combination effects are anticipated.
18303023	Kildare County Council	Conditional permission granted for a strategic housing development (SHD) (ABP Decision) consisting of 125 no. new residential units. Provision of a total of 251 no. car parking spaces, including 228 no. spaces serving the residential units and 23 no. visitor spaces are dispersed throughout the scheme. The Proposed Development includes all ancillary and associated site and infrastructural works, including an extension of the access road permitted under KCC Reg Ref 15/848 (ABP Reg Ref PL09.246859) to provide pedestrian / cycle and vehicular access to the application site from the R448 Kilcullen Road. KCC (18303023) does not cross any watercourse and has no hydrological connectivity with Rye Valley/Carton SAC.	No in-combination effects are anticipated.
19305701	Kildare County Council	Conditional permission granted for a strategic housing development (SHD) (ABP Decision) involving the demolition of an existing dwelling and agricultural buildings on the subject site and the construction of a residential development of 314 no. dwellings, a crèche, and retail unit. Demolition of 1 no. existing single storey house required as well as derelict unroofed agricultural buildings. Ancillary landscape works with public lighting, planting and boundary treatments including re-grading / re-profiling of site where required as well as provision of cycle paths and pedestrian connections and landscaping integrated with Rathasker Road and pedestrian bridge over Yeomanstown Stream (also known as Rathasker Stream) required. Vehicular and pedestrian access from 2 no. existing access points from the constructed Devoy Link Road for Area A and use of existing entrance to Elsmore Phase 1 for Area	No in-combination effects are anticipated.

Planning ref.	Planning Authority	Project Description	Comment
		B (from the Devoy Link Road), 578 no. car parking spaces and 159 no. cycle parking spaces (including single storey bin / cycle stores) will be provided. KCC (19305701) has no connectivity with Rye Valley/Carton SAC.	
22837	Meath County Council	GDA Energy 4 Ltd Battery Storage Park- planning permission has been consented to a third party for an energy park to the north of the existing Woodland substation The Proposed Development is immediately adjacent to the Proposed Development. An AA screening report has been submitted as part of that application and has concluded that there are no likely significant effects for that application. Based on that conclusion and the nature the Proposed Development, it is concluded that there is no potential for LSEs in-combination with the Proposed Development.	No in-combination effects are anticipated.
N/A	Meath County Council/Fingal County Council	CP1021: EirGrid - A project which will add a high-capacity electricity connection between Belcamp substation in Dublin and Woodland substation in Meath. The need for the project is integration of generation and an increase in demand on the east coast. The project is currently in the design stage and so a planning application has not been submitted as yet. However, the study area within which the preferred option will be defined does not overlap the Liffey WFD catchment in which the Rye Water is located. EirGrid is including European sites as a key environmental consideration in the (Step 4) optioneering of CP1021 routes, the project will be subject to its own AA Screening (and if necessary, AA).	No in-combination effects are anticipated.
221550	Meath County Council	CP1194: EirGrid Woodland 400 kV Extension Project. The northern end of the Kildare Meath Grid Upgrade project connects to the Woodland substation. EirGrid is proposing to upgrade and expand the Woodland substation in order to accommodate potential future upgrades to the electricity network in Meath. The Woodland station is outside the Liffey WFD Catchment, in which the Rye Water SAC is located. An AA screening report has been submitted as part of that application and has concluded that there are no likely significant effects for that application. Based on that conclusion and the nature the Proposed Development, it is concluded that there is no potential for LSEs in-combination with the Proposed Development.	No in-combination effects are anticipated.

Planning ref.	Planning Authority	Project Description	Comment
211175	Kildare County Council	EirGrid Dunstown 400 kV series Compensation project. The southern end of the Kildare Meath Grid Upgrade project connects to the Dunstown substation. Permission was granted for development on lands to the west of the Dunstown substation within the townland of Dunstown, Brannockstown, Naas, Co. Kildare. The Proposed Development will consist of an extension to the western boundary of the existing Dunstown substation to allow connection of series compensation equipment to the Dunnstown-Moneypoint 400 kV circuit. The AA screening report has been submitted as part of that application and has concluded that there are no likely significant effects on European sites for that application. Based on that conclusion and the nature the Proposed Development, it is concluded that there is no potential for LSEs in-combination with the Proposed Development.	No in-combination effects are anticipated.
N/A	Various including County Meath	North-South 400 kV Interconnection Development EirGrid plc (EirGrid) and System Operator Northern Ireland Ltd (SONI) (the respective applicants)1 are jointly planning a major cross-border electricity transmission development between the existing high-voltage transmission networks of Ireland2 and Northern Ireland. The overall interconnection project is a 400 kV overhead line (OHL) circuit linking the existing substation in Woodland, County Meath with a planned substation in Turleenan, County Tyrone. The proposed interconnector will provide a second high-capacity electricity interconnector between Ireland and Northern Ireland. The existing interconnector is a 275 kV double circuit OHL which connects the existing Tandragee and Louth substations. The proposed interconnector is planned to traverse the counties of Tyrone, Armagh, Monaghan, Cavan and Meath	No effects are likely on the Rye Water /Carton SAC from the Interconnector Development as there is no hydrological linkage to the SAC.
22314564	Kildare County Council	Proposed development (30,839 m^2 GFA) will consist of the demolition of a detached, vacant cottage (gfa 69 m^2) and the construction of 272 residential units (149 no. houses, 65 apartments and 58 duplexes), childcare facility and foul pumping station along with associated ancillary works and site works. The 149 no. dwellings consist of: • 40 no. 4 bed 2 storey houses (House Type A1, A2, A3, A4, A5) • 8 no. 4 bed 3 storey houses (House Type E1, E2) • 90 no. 3 bed 2 storey houses (House Type B1, B2, B3, C1, C2)	An AA screening Report carried out by Niamh Ní Bhroin in 2022 for the planning application Ltd. found no likely significant effects were no LSE therefore no in combination effects are possible

Planning ref.	Planning Authority	Project Description	Comment
		• 11 no. 2 bed 2 storey houses (House Type D1) The proposed apartments and duplexes are provided in 7 no. blocks (Blocks A, B, C, D, E, F, G) ranging in height from 3 to 4 storeys, with the exception of 1 no. Duplex Block (Type N1), which is a 3 storey, end of terrace unit. Block A and Block B contain Rooftop terraces at 4th floor level. The Duplex Blocks (Type J1, Type, J2, Type J3, Type J4, Type K1, Type L1, Type M1, Type N1) are all 3-storey and contain 58 units divided as follows: • 6 no. 1 bed ground floor apartment units (Units L1-A) • 23 no. 2 bed ground floor apartment units (Units J1-A, J2-A, J3-A, J4-A, K1-A, M1-A, N1-A) • 1 no. 2 bed duplex unit (two-storey unit) (Units K1-B) • 25 no. 3 bed duplex units (two-storey units) (Units J1-B, J2-B, J3-B, J4-B, L1-B) • 3 no. 4 bed duplex units (two-storey units) (Units M1-B, N1-B) The 65 apartments are located within Blocks A, B, C and D divided as follows: - • 17 no. 1 bed units (Type F1, Type F2, Type F3, Type F4, Type F5, Type F6) • 37 no. 2 bed units (Type G1, Type G2, Type G3, Type G4, Type G5-A, Type G5-B, Type G6, Type G7, Type G8) • 11 no. 3 bed units (Type H1, Type H2) Block D also contains a childcare facility (gfa.526.2 m^2) and includes a dedicated outdoor play area (c.210 m^2). Ancillary works including 1 no. vehicular entrances off the R148 to the north and 1 no. vehicular entrance off the R158 to the west, a spine road which will link with the permitted spine road on the adjoining lands to the south-east under PL09.306826, internal roads, footpaths, cycle lanes, car parking (465 no. spaces), cycle storage/parking (426 no. spaces), 2 no. bus stops, bin storage, public open space, hard and soft landscaping, natural play area, play equipment, boundary treatments, public lighting, 3 no. substations (14 m^2 each) and controlled pedestrian crossing on the R148.	
2043	Kildare County Council	Project involves the demolition of an existing building on site and recladding the shared gable to match the remaining neighbouring building. The construction of a new three storey over basement mixed use development consisting of a basement car park and plant room, pharmacy unit, convenience store unit	No potential for in combination effects given the scale and location of the project.

Planning ref.	Planning Authority	Project Description	Comment
		and retail unit at ground floor, 4 No. units of medical consultation suites at first floor and 1 unit of medical consultation suites. Ancillary works include office space at second floor, car-parking, boundary treatments, new site entrances and siteworks.	
22325	Kildare County Council	Project involves the installation of new external steel racking to the existing materials yard (the racking is to be mounted on top of the existing concrete hard standings) and all associated site works. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.
20597	Kildare County Council	Project involves the side and front boundary wall piers increasing in height from circa 0.8 m to circa 2 m, a wrought iron railing between piers, a wrought iron sliding gate and all associated site works. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.
21386	Kildare County Council	Project involves (a) Erection of a single storey type house; (b) Garage/fuel store for domestic use; (c) Installation of septic tank and percolation area; and (d) Upgrading of existing agricultural entrance to a new recessed vehicular entrance and all associated site works. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.
191291	Kildare County Council	Project involves conversion and alterations of an existing workshop/office to create a two storey two-bedroom dwelling. New roof and raising of overall height of workshop, new doors and windows are proposed to the existing building. 2 no. new vehicular entrances, new wastewater treatment system for dwelling and associated works. Relocation of the parents' wastewater treatment system. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.
18502	Kildare County Council	Project involves alteration works to an existing bungalow on the grounds of Painestown House (Protected Structure Ref. No. B14-30). The works include the construction of a single and two storey extension circa 73 m^2, a detached single storey shed and carport, landscaping around the house, new treatment plant, percolation area and all associated ancillary works. Painestown House is also a recorded monument, NIAH No. KD010-034. No works proposed directly affect Painestown House. AASR	No potential for in combination effects given the scale and location of the project.

Planning ref.	Planning Authority	Project Description	Comment
		carried out and no potential for significant negative environmental effects were identified.	
19154	Kildare County Council	Project involves (1) Upgrade of existing farm entrance to modern day safety standards as detailed on drawing No. E3639-5, Commercial-Agricultural Entrance, as published by the Roads Department of Kildare County Council. (2) To carry out realignment works to the existing fence line on the north side of the proposed upgraded entrance for the purpose of attaining safe sightlines as required by the Roads Department of Kildare County Council. The above upgrading and improvement works are to be carried out to facilitate the safe operation of modern-day machinery while entering and exiting farm. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.
191303	Kildare County Council	Project involves constructing a one and half storey type house, detached domestic garage, recessed vehicular entrance, effluent treatment system, and all associated ancillary site-works. Revised by Significant Further Information which consists of a revised Site Layout Plan and amendment to planning application boundary to facilitate the relocation of entrance to provide a dual entrance with the adjoining dwelling.	No potential for in combination effects given the scale and location of the project.
223	Kildare County Council	Project involves alterations and extension to existing dormer style dwelling. The application will include the following: (a) Single storey extensions to the rear and side of the dwelling to provide new living room and utility room. (b) New entrance porch to the front of the dwelling. (c) Alterations to the elevational treatment of the dwelling, along with all associated site development and facilitating works including site landscaping. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.
181214	Kildare County Council	Project involves retention permission for 4 no. existing booths (used for drying, shotblasting and painting) and ancillary storage rooms (476.9 m^2 combined), standalone office (21 m^2) along with the change of use of the cottage to office / storage unit (136 m^2). Planning permission is sought to: • Demolish domestic garage (25 m^2). • Construct an extension to the north side of the shot blasting booth in order to contain all dust associated with shotblasting (37 m^2) • Construct a new shed structure to the front of the existing workshop (414 m^2.) in order	No potential for in combination effects given the scale and location of the project.

Planning ref.	Planning Authority	Project Description	Comment
		to protect trailers from the weather during shotblast / repainting process and also, critically, to prevent dust emissions. The shed will have a maximum ridge height of 6.38 m high and will be enclosed on 3 sides with the south elevation open to allow trailers to enter. It includes a new doorway connection to the existing cottage building. • Alter the access arrangements to provide single access to the business and family dwelling and significantly improve sightlines and safety (includes new gates and dwelling). • Create new ordered trailer parking area to the rear of the workshop (significantly smaller area than previous application – approximately one third the size) including a dedicated turning area. • Provide new lined car parking for staff and visitors (12 spaces) and dedicated HGV parking (12 spaces) • Decommission the existing on-site treatment system and percolation area and provide new high specification on-site foul treatment system at a location to the rear of the site. • Provide new surface water drainage infrastructure. • Provide new landscaping with significant screening planting along the front boundary with family dwelling. • Carry out all associated site works.	
211814	Kildare County Council	Project involves the construction of an agricultural style building to be used to the storage of vintage cars for hobby purposes and all associated site works. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.
21846	Kildare County Council	Project involves extensions to the rear and side of 123 m^2. Retention of change of use from garage to habitable space of 23 m^2. Retention of removal of block archways to the front elevation and retention of new septic tank and percolation area to existing detached bungalow. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.
20974	Kildare County Council	Project involves 1) the extension to existing house will comprise of a bathroom and access corridor area 18.4 m^2. 2) The conversion of an existing domestic garage, area c65 m^2, providing a one-bedroom family flat comprising of; living room, kitchen, storage,	No potential for in combination effects given the scale and location of the project.

Planning ref.	Planning Authority	Project Description	Comment
		bathroom and bedroom and all associated site works. AASR carried out and no potential for significant negative environmental effects were identified.	
RA200481	Meath County Council	Project involves a two-storey dwelling house, domestic garage, waste-water treatment system and percolation area, vehicular entrance onto public road and all associated site works. Significant further information/revised plans submitted on this application. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.
RA201288	Meath County Council	Project concerns a storey and a half type dwelling house, domestic garage, waste-water treatment system and percolation area, vehicular entrance onto public road and all associated site works.	No potential for in combination effects given the scale and location of the project.
RA190130	Meath County Council	Project involves the construction of a two-storey dwelling and detached domestic garage, the installation of a proprietary domestic effluent system, new site entrance and all associated site works. AASR carried out and no potential for significant negative environmental effects were identified.	No potential for in combination effects given the scale and location of the project.

8. Conclusion

This NIS examined the potential for changes in the baseline conditions from the Proposed Development against the conservation objectives of relevant European sites including the Rye Valley/Carton SAC 001398. The NIS details water pollution mitigation measures which have been prescribed to ensure the Proposed Development will not result in adverse effects on European site integrity either alone or in-combination with other plans or projects.

Based on the best available information, it is considered that with the mitigation measures detailed above, there will be no adverse effects on the integrity of Rye Valley/Carton SAC, or any other European sites alone or in-combination with other plans or projects considering the site's conservation objectives. The NIS contains information which the competent authorities, may consider in making its own complete, precise and definitive findings and conclusions and upon which it is capable of determining that all reasonable scientific doubt has been removed as to the effects of the Proposed Development, alone or in-combination with any other plan or project, on the integrity of the relevant European sites.

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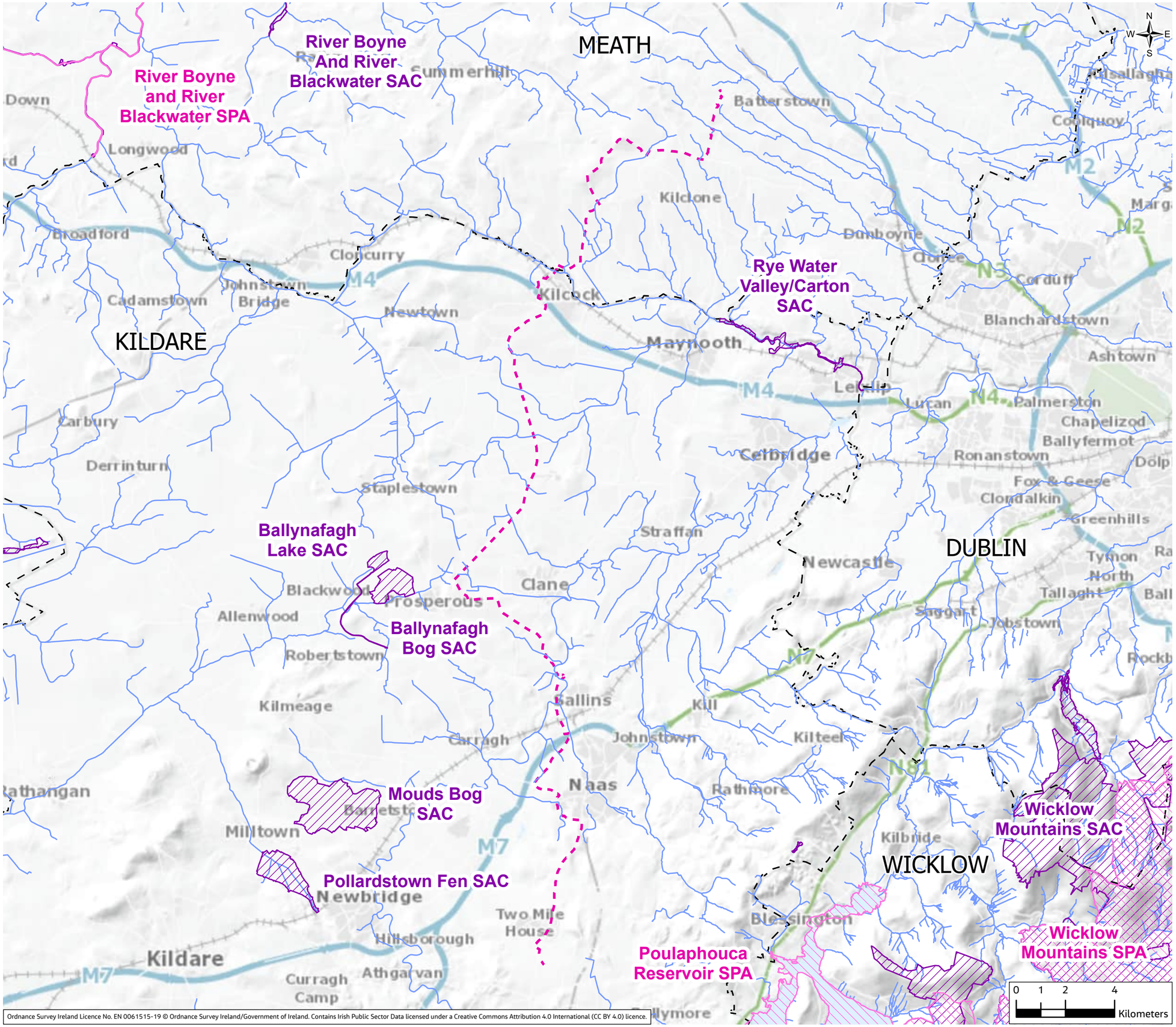
Appendix A. Figure 1 (321084AH-JAC-ZZ-XX-DR-K-3036). Cable route, with nearest European sites and Watercourses



Appendix A; Figure 1

Legend

- Proposed Cable Route
- County Boundary
- Watercourses

European sites

- Special Area of Conservation (SAC)
- Special Protection Area (SPA)

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
01	Apr 2023	Final	PM	SJ	FL	FB

Client: EirGrid

Jacobs
Merrion House, Merrion Road, Dublin, D04 R2C5, Ireland.
www.jacobs.com

Project: Kildare-Meath Grid Upgrade

Drawing Title: Proposed cable route and nearby European Sites

Drawing Status: Final

Scale @ A3	1:150,000	DO NOT SCALE
Jacobs No.	321084AH	
Client No.	CP966	

Drawing No.: 321084AH-JAC-ZZ-XX-DR-K-3000

Appendix B. Figure 2 (321084AH-JAC-ZZ-XX-DR-K-3037). Waterbodies with connectivity to Rye Water Valley/Carton SAC

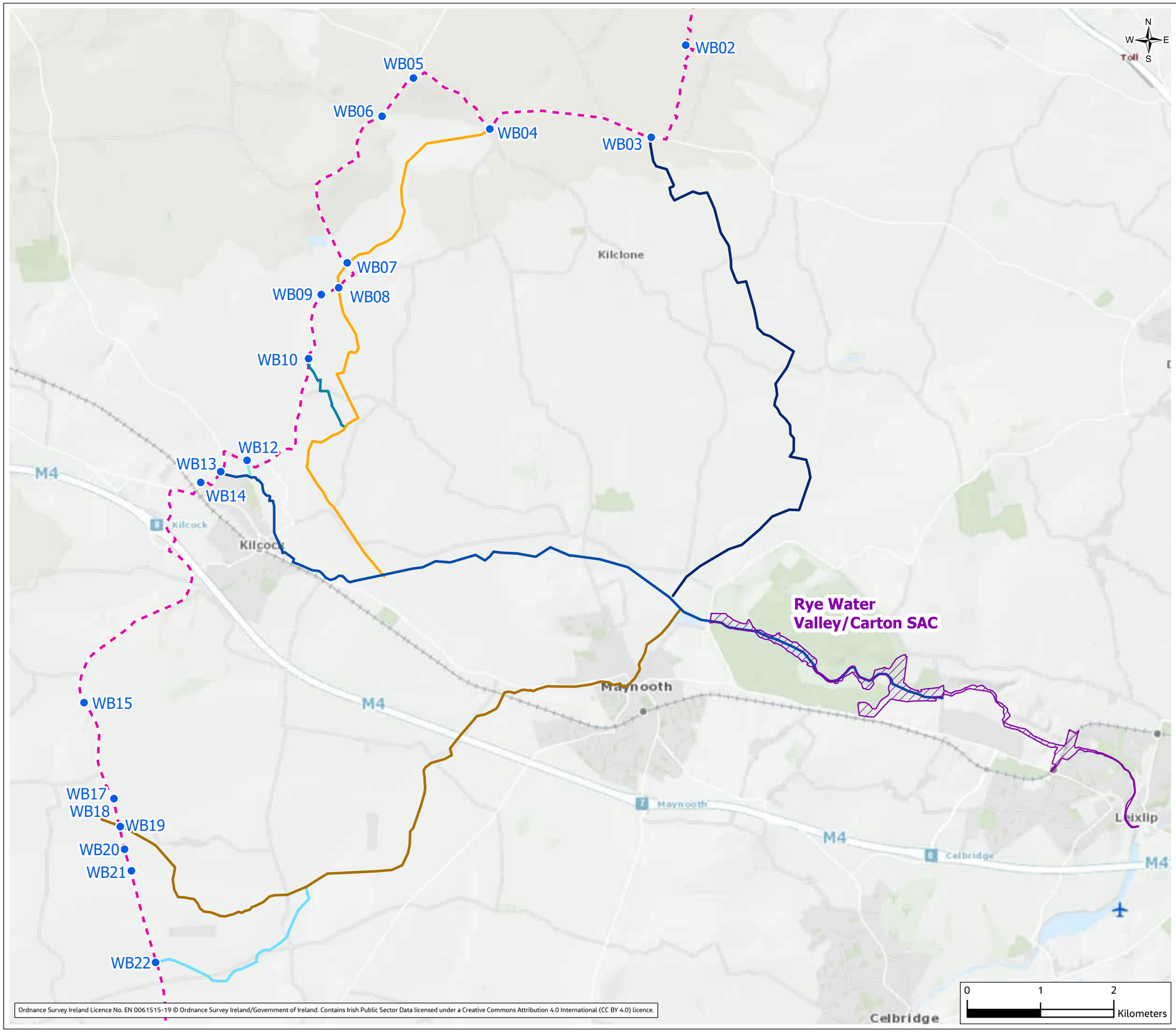


Figure 2

Legend

- Proposed Cable Route
- Waterbody (WB) Cable Crossing Number

Waterbodies

- Rye Water

Tributaries of Rye Water

- Baltracey River flows into River Lyreen
- Bride Stream
- Cullendrach
- Jenksinstown Stream
- River Lyreen
- Baltracey River
- Unnamed drain into Lyreen River
- Unnamed flows into Rye Water
- Unnamed stream into Rye Water

European sites

- Special Area of Conservation (SAC)

Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
	Mar 2023	Final	PM	SJ	FJ	FB

Client: EIRGRID

Jacobs
Merrion House, Merrion Road, Dublin, D04 R2C5, Ireland.
www.jacobs.com

Project: Kildare-Meath Grid Upgrade

Drawing Title: Waterbodies with connectivity to Rye Water Valley/Carton SAC

Drawing Status	Final	
Scale @ A3	1:50,000	DO NOT SCALE
Jacobs No.	321084AH	
Client No.	CP966	
Drawing No.	321084AH-JAC-ZZ-XX-DR-K-3036	

Appendix C. Appropriate Assessment Screening Report

Available at www.eirgridkildaremeath.ie