APPENDIX 1

APPROPRIATE ASSESSMENT SCREENING REPORT

Planning and Environmental Consultants

Appropriate Assessment Screening Report

Umma More Renewable Energy Development

DOCUMENT DETAILS

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Planning and Environmental Consultants

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01	Draft	20.09.22	CT	PE
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03	Final	10/03/2023	PE	JH

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1. INTRODUCTION

1.1 Background

MKO has been appointed to provide the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment of the proposed renewable energy development which will comprise 9 No. wind turbines, and associated infrastructure in the townland of Umma More, and adjacent townlands, in Co. Westmeath (the Wind Farm Site), and a 110kV on-site substation and associated works, including 110kV underground electrical cabling connection to the national grid at Thornsberry 110kV substation, in the townland of Derrynagall or Ballydaly, near Tullamore, Co. Offaly (Grid Connection). Refer to Section 3 of the accompanying NIS for a detailed description of the Proposed Development (Wind Farm Site & Grid Connection).

MKO have provided the assessment of Special Areas of Conservation (SAC) and supporting wetland habitat for Special Conservation Interest species associated with Special Protection Areas (SPA).

Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive), where it cannot be excluded that a project or plan, either alone or in combination with other projects or plans, would have a likely significant effect on a European Site. Screening is the process of determining whether an Appropriate Assessment is required for a plan or project. The Proposed Development is not directly connected with, or necessary for, the management of any European Site consequently the project has been subject to the Appropriate Assessment Screening process.

The assessment in this report is based on a desk study and field surveys undertaken between April 2019 to March 2021. It specifically assesses the potential for the Proposed Development to result in significant effects on European sites in the absence of any best practice, mitigation or preventative measures.

This Appropriate Assessment Screening Report has been prepared taking consideration of the following guidance:

1. *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2001)*
2. *Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018)*
3. *Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010).*
4. *Council of the European Commission (1992) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Official Journal of the European Communities. Series L 20, pp. 7-49.*
5. *EC (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg.*
6. *EC (2007) 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.*
7. *EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission.*
8. *EC (2021) Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC*

1.2 Appropriate Assessment

1.2.1 Screening for Appropriate Assessment

Screening is the process of determining whether an Appropriate Assessment is required for a plan or project. Under Part XAB of the Planning and Development Act, 2000, as amended, screening must be carried out by the Competent Authority. As per Section 177U of the Planning and Development Act, 2000, as amended '*A screening for appropriate assessment shall be carried out by the competent authority to assess, in view of best scientific knowledge, if a Proposed Development, individually or in combination with another plan or project is likely to have a significant effect on the European site*.' The Competent Authority's determination as to whether an Appropriate Assessment is required must be made on the basis of objective information and should be recorded. The Competent Authority may request information to be supplied to enable it to carry out screening.

Consultants or project proponents may provide the competent authority, with the information necessary for them to determine whether an Appropriate Assessment is required and to assist them in the Appropriate Assessment Screening decision.

Where it cannot be excluded beyond reasonable scientific doubt at the Screening stage, that a proposed plan or project, individually or in combination with other plans and projects, would have a likely significant effect in view of the conservation objectives of a European site, an Appropriate Assessment is required.

Where an Appropriate Assessment is required, the Competent Authority may require the applicant to prepare a Natura Impact Statement.

The term Natura Impact Statement (NIS) is defined in legislation[1]. An NIS, where required, must present the data, information and analysis necessary to reach a definitive determination as to 1) the implications of the plan or project, alone or in combination with other plans and projects, for a European site in view of its conservation objectives, and 2) whether there will be adverse effects on the integrity of a European site. The NIS must be underpinned by best scientific knowledge, objective information and by the precautionary principle.

This Appropriate Assessment Screening Report has been prepared in compliance with section 177U of the Planning & Development Acts as amended.

1.2.2 Statement of Authority

The baseline ecological surveys were undertaken by Patrick Ellison (BSc., MSc., ACIEEM), Cathal Bergin (BSc), Rudraksh Gupta (BSc., MSc), Laura McEntagart (BSc.), Laoise Chambers (BSc.), Cora Twomey (B.SC) and Brónagh Boylan (B.Sc.) of MKO. All surveyors have relevant academic qualifications and experience in undertaking habitat and ecological assessments and are competent experts for the purposes of carrying out the field the surveys and assessments that they were required to do.

Dedicated bird surveys of the site of the Proposed Development (see Section 2.2) and the surrounding area (see Section 2.2.2.1) were undertaken between March 2019 and April 2021, and an ornithological assessment has been carried out by Donnacha Woods (MSc.), Project Ornithologist of MKO and

[1] 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

reviewed by Susan Doyle (MSc.), Senior Ornithologist. Both are suitably qualified ecologists with experience in completing avifaunal assessments and competent. The scope of works and survey methodology was devised by Padraig Cregg (MSc.) and is fully compliant with recent NatureScot (formerly Scottish Natural Heritage) guidance. Field surveys were undertaken by Peter Capsey (BA), John Curtin (BSc.), Niamh Graham, Patrick Manley (BSc.), Eric Dempsey, Jack Kennedy (BSc.), Pádraig Webb (BSc.), Kristina O'Connor (BSc., MSc.) and Tom Ryan (BSc.). Surveyors are suitably qualified for the purposes of the survey work they were required to do.

Incidental faunal sightings/signs were also recorded during bird surveys of the site and have also been included to inform this assessment.

This report has been prepared by Cora Twomey and Patrick Ellison (B.Sc., M.Sc., ACIEEM). Cora had relevant academic qualifications and over 6 months' experience in professional ecological consultancy experience. Patrick has over 6 years' professional experience in ecological consultancy, management and assessment. This report has been reviewed by John Hynes (B.Sc., M.Sc., MCIEEM). John is a highly experienced ecologist who has over 10 years' professional experience in environmental management and ecological assessment.

1.2.3 References to Proposed Development

For the purposes of this assessment:

- Where the 'Proposed Development' is referred to, this relates to all the project components comprising the Wind Farm Site and Grid Connection, as described in detail in Section 3 of the accompanying NIS.
- Where 'the Site' is referred to, this relates to the primary study area for the purposes of the AASR, as delineated by the Site Boundary in green as shown on Figure 2-1 of the accompanying NIS.
- Where the 'Wind Farm Site' is referred to, this refers to turbines and associated foundations and hard-standing areas, meteorological mast, junction accommodation works, access roads, temporary construction compound, underground cabling, spoil management, site drainage, tree felling and all ancillary works and apparatus. The planning application for the Wind Farm Site is made to An Bord Pleanála in accordance with the provisions of Section 37E of the Planning and Development Act 2000, as amended.
- Where 'Grid Connection' is referred to, this refers to the temporary construction compound and 110kV onsite substation, and associated underground 110kV cabling connecting to the existing Thornsberry 110kV substation, subject to a future planning application under Section 182A of the Planning and Development Act, 2000, as amended.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Site Location

The Wind Farm Site is located approximately 2 kilometres southwest of Ballymore, Co. Westmeath, 6.6 kilometres to the north of Moate, Co Westmeath and 12.2 kilometres northeast of Athlone, Co. Westmeath. It is proposed to access the Wind Farm Site via an existing access track off the L5363 Local road to the northwest of the site. The Wind Farm Site is served by a number of existing agricultural roads and tracks.

The Grid Connection includes for a 110kV on-site substation and temporary construction compound, and underground 110kV electrical cabling from the proposed onsite 110kV substation within the Wind Farm Site to the existing Thornsberry 110kV substation in the townland of Derrynagall or Ballydaly, County Offaly. The underground electrical cabling route, measuring approximately 31 km in length, is primarily located within the public road corridor.

Current land-use on the Wind Farm Site comprises coniferous forestry, and agriculture. There is a river flowing through the site, River Dungolman, a tributary of the river Tang, approximately 8.3km north of the Wind Farm Site.

Current land-use on the Wind Farm Site comprises coniferous forestry, and agriculture. Current land-use along the Grid Connection comprises of public road corridor, public open space, discontinuous urban fabric and agriculture. Land-use in the wider landscape of the Site comprises a mix of agriculture, peat cutting, quarrying, low density residential and commercial forestry.

The location of the site is shown in Figure 2-1.

2.2 Characteristics of the Proposed Development

2.2.1 Description of the Proposed Development

The development description for the current planning application as appears in the public notices is as follows:

The Proposed Development will consist of the provision of the following:

i. *9 No. wind turbines with an overall ground-to-blade tip height of 185 metres; a rotor blade diameter of 162 metres; and hub height of 104 metres, and associated foundations and hard-standing areas;*
ii. *A thirty-year operational life from the date of full commissioning of the wind farm and subsequent decommissioning;*
iii. *A meteorological mast with a height of 30 metres, and associated foundation and hard-standing area;*
iv. *Junction accommodation works and temporary access roads to facilitate turbine delivery to an existing entrance on L5363.*
v. *Upgrade of existing entrance on L5363 for provision of site entrance;*
vi. *Upgrade of existing tracks/ roads and provision of new site access roads, junctions and hardstand areas;*
vii. *Underground electrical (33kV) and communications cabling;*
viii. *A temporary construction compound;*
ix. *Spoil Management;*

x. *Site Drainage;*
xi. *Tree Felling;*
xii. *Operational stage site signage; and*
xiii. *All ancillary works and apparatus.*

The application is seeking a ten-year planning permission.

The Grid Connection, which will be subject to a separate planning application, includes for a 110kV on-site substation compound (2 no. control buildings with welfare facilities, all associated electrical plant and apparatus, security fencing, underground cabling, waste water holding tank, site drainage and all ancillary works), a temporary construction compound and approximately 31km of underground 110kV electrical cabling connecting the proposed on-site substation to the existing Thornsberry 110kV substation, near Tullamore, Co. Offaly.

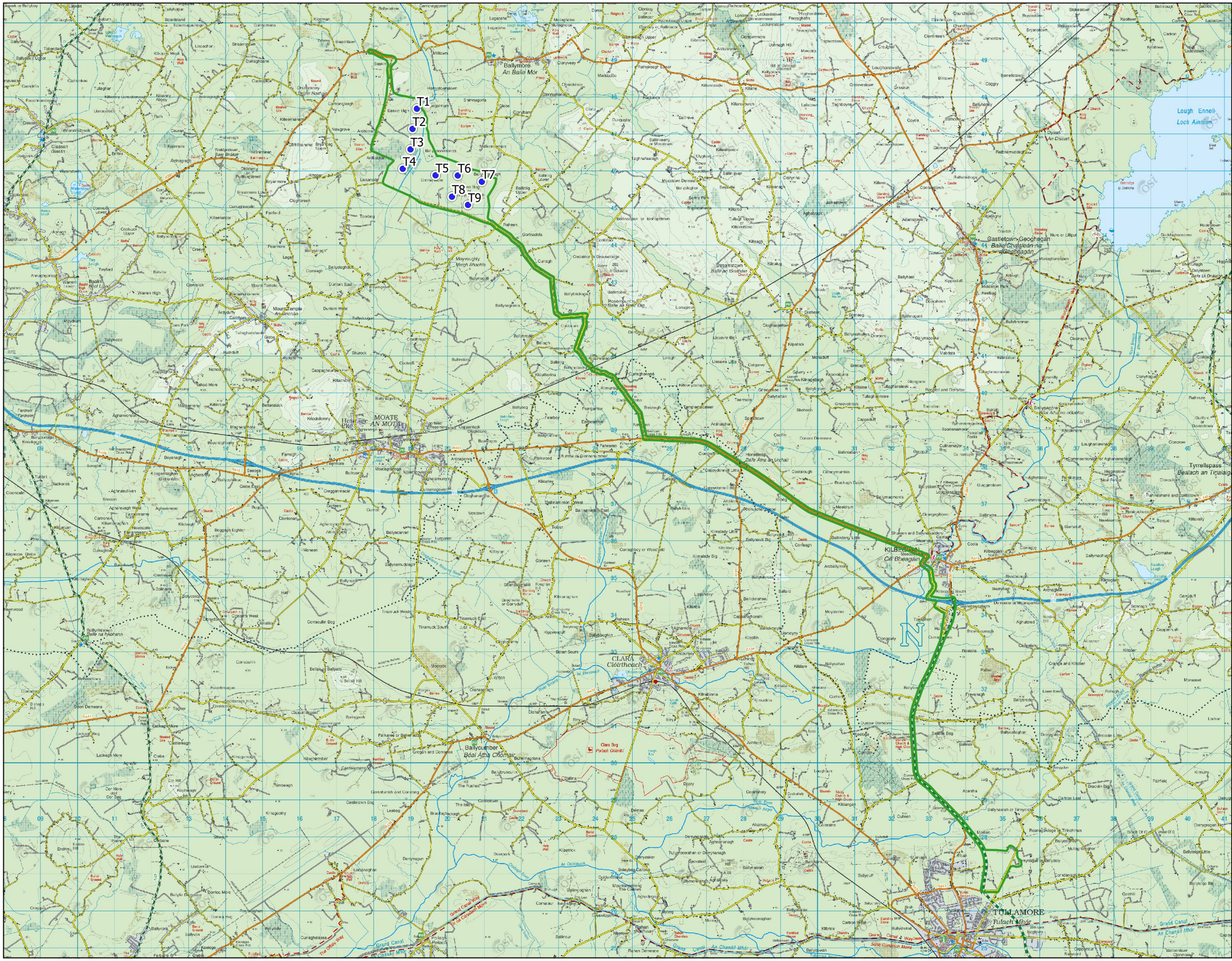
All elements of the Proposed Development, i.e. the Wind Farm Site and Grid Connection, have been assessed in relation to European Sites as part of this AA Screening Report.

2.3 Development Layout

The overall layout of the Proposed Development is shown in Figure 2-2, this includes the Wind Farm Site and Grid Connection.

The Proposed Development has been designed to minimise potential environmental effects, while at the same time maximising the energy yield from the Wind Farm Site. A constraints study, has been carried out to ensure that turbines and ancillary infrastructure are located in the most appropriate areas of the Wind Farm Site, makes use of the existing access tracks within the Wind Farm Site where appropriate. Similarly, a route selection constraints study was undertaken to ensure that the most appropriate route for the Grid Connection undergound electrical cabling was selected.. The Proposed Developement layout is shown in Figure 2-2 (Wind Farm Site) and Figure 2-3 (Grid Connection).

The Proposed Development is fully described in Section 3 of the accompanying NIS. Detailed site layout drawings of the Wind Farm Site are included in Appendix 6 of the NIS and the Grid Connection Infrastructure is inlcuded in Appendix 7 of the NIS.



Map Legend

- EIAR Site Boundary
- Proposed Turbine Layout

Drawing Title
Proposed Developement Site Boundary

Project Title
Umma More Renewable Energy Development

Drawn By	Checked By
PE	JH
Project No.	**Drawing No.**
201050	Figure 2-1
Scale	**Date**
1:90,000	2023-01-26

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1:2500 scale of Turbine, Hardstand and Foundation

1:2500 scale of Met Mast Location

Map Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Hardstands
- Proposed Turbine Foundation
- Proposed Met Mast Location
- Proposed New Roads
- Proposed Upgrades to Existing Roads
- Temporary Construction Compound
- Grid Connection - Subject to a Separate Application

Drawing Title

Wind Farm Site Layout

Project Title

Umma More Renewable Energy Development

Drawn By	Checked By
BT	EC
Project No.	Drawing No.
201050	Figure 2-2
Scale	Date
1:20,000	2023-01-31

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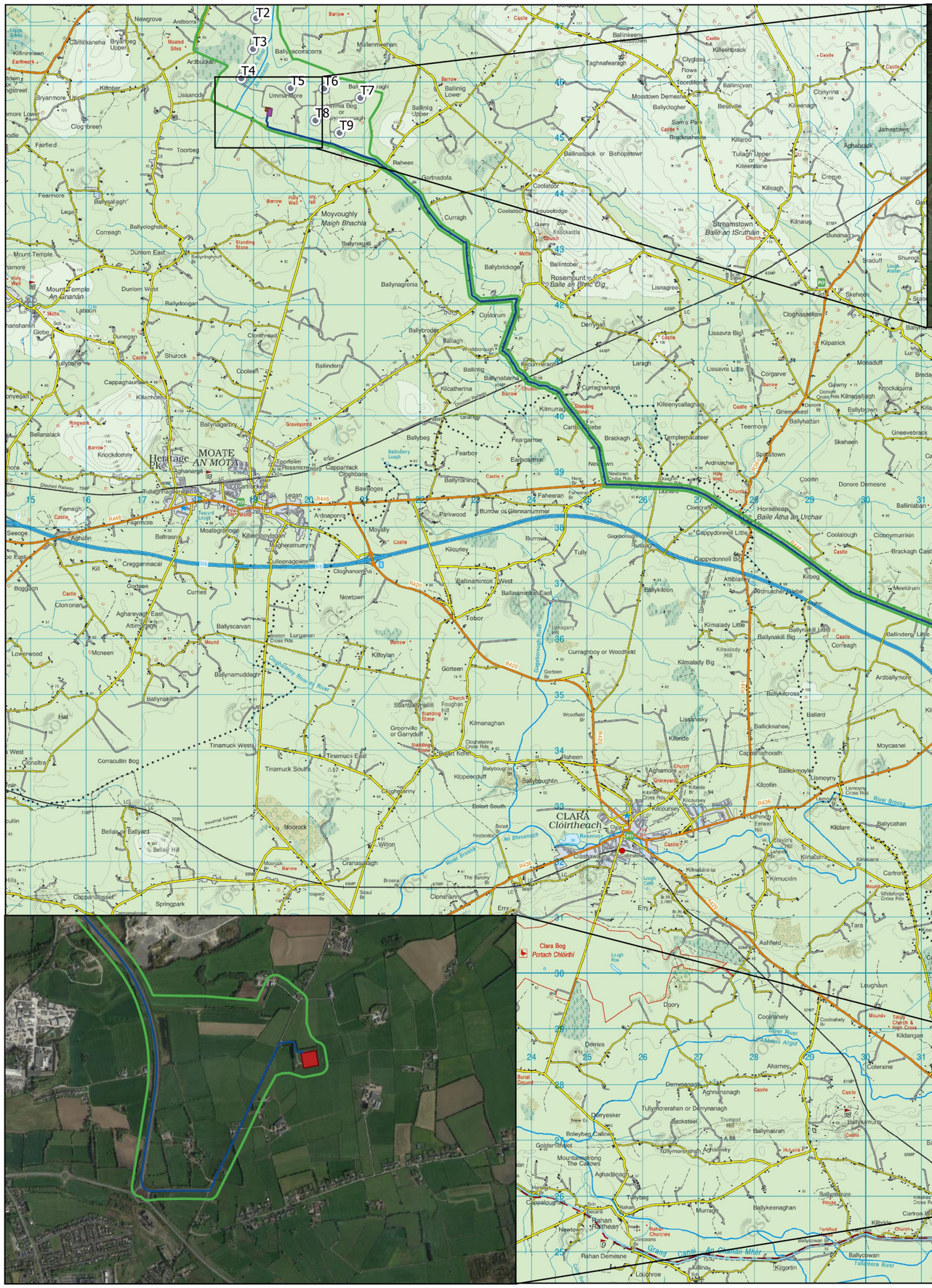

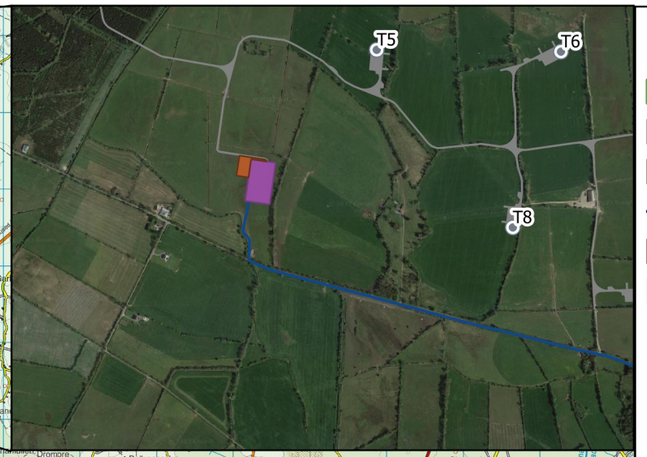

Map Legend

- EIAR Site Boundary
- Proposed 110kV Onsite Substation
- Proposed Temporary Construction Compound
- Proposed Underground Electrical Cabling Route
- Existing Thornsberry 110kV Substation
- Wind Farm Site Infrastructure - Subject to Separate Application

Drawing Title

Grid Connection Layout

Project Title

Umma More Renewable Energy Development

Drawn By	Checked By
NMcH	EC
Project No.	**Drawing No.**
201050	Figure 2-3
Scale	**Date**
1:80,000	2023-01-31

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2.4 Description of the Baseline Ecological Environment

2.4.1.1 Ecological Multidisciplinary Walkover Surveys (as per NRA Guidelines, 2009)

Multidisciplinary walkover surveys were undertaken on the 29th July 2021, 4th August 2021, 17th of February 2022, 11th of March 2022, 8th of April 2022 and the 19th of August 2022. Habitat surveys were carried out within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011). A comprehensive walkover of the entire site was completed with incidental records also incorporated from other dedicated species/habitat specific surveys including otter, bats, aquatic invertebrate surveys and quadrat surveys.

The multi-disciplinary walkover surveys comprehensively covered the lands within the Site Boundary and based on the survey findings, further detailed targeted surveys were carried out for features and locations of ecological significance. These surveys were carried out in accordance with NRA *Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna* on National Road Schemes (NRA, 2009).

During the multidisciplinary surveys, a search for Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) was conducted.

The methodology for the ecological surveys carried for the Proposed Development are described in further details in the accompanying NIS> Other targeted survey methodologies undertaken at the site relevant to the AA Screening are described in the following subsections.

2.4.1.1.1 *Otter Survey*

The Dungolman River and the Mullenmeehan stream flows through and adjacent to the Wind Farm Site boundary, and converge in the northern part of the Wind Farm Site. Sections of two other order 2 streams (the Moneynamanagh and the Raheen 26) also occur within the Wind Farm Site. Additionally, the Grid Connection underground electrical cabling route will require the crossing of 34 watercourse, culvert and drain crossings, 11 of which are existing EPA/OSI mapped watercourse crossing locations. These watercourses were identified as providing potential habitat for otter, and were subject to specialist targeted surveys on the 17th February 2022, and as part of dedicated aquatic site surveys carried out during August 2022.

The otter surveys were conducted as per TII (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). This involved a search for all otter signs e.g. spraints, scat, prints, slides, trails, couches and holts. In addition to the width of the rivers/watercourses, a 10m riparian buffer (both banks) was considered to comprise part of the otter habitat (NPWS 2009). The dedicated otter survey also followed the guidance as set out in NRA (2008) *'Guidelines for the Treatment of Otters Prior to the Construction of National Roads Schemes'* and following CIEEM best practice competencies for species surveys (CIEEM, 2013[2]).

[2] *CIEEM, 2013, Technical Guidance Series – Competencies for Species Survey, Online, Available at: https://cieem.net/resource/competencies-for-species-survey-css/ Accessed: 20.03.2021*

2.4.2 Habitats within the Wind Farm Site

A total of eleven habitats were recorded within the Wind Farm Site, including;

- Improved agricultural grassland (GA1)
- Wet grassland (GS4)
- Scrub (WS1)
- Arable land (BC1)
- Conifer Plantation (WD4)
- Drainage Ditches (FW4)
- Depositing Lowland Rivers (FW2)
- Hedgerows (WL1)
- Treelines (WL2)
- Spoil and bare ground (ED2)
- Recolonising bare ground (ED3)
- Buildings and Artificial Surfaces (BL3)

Further details on habitats within the Wind Farm Site are provided in Section 4-2 of the accompanying NIS.

2.4.3 Habitats along the Grid Connection

The Grid Connection onsite substation and temporary construction compound are located within the Wind Farm Site, and are located on lands made up of wet grassland.

The majority of the lands on either side of the road along the length of the Grid Connection route is made up of improved agricultural grassland, with associated Stonewalls and other stonework (BL1), hedgerow (WL1), Treelines (WL2), spoil and bare ground (ED2), associated buildings with depositing lowland rivers (FW2) and drainage ditches (FW4) crossing the route.

A number of watercourses (classified as Depositing lowland rivers (FW4)) occur along the proposed Grid Connection route. There are a total of 34 identified watercourse and existing culvert crossings along the proposed Grid Connection underground cabling route, of which 11 no. are EPA/OSI mapped crossings. The remaining crossings are classified as culverts over minor channels or manmade drains. Watercourses were generally slow flowing with a cobble or muddy substrate, see Plate 4-20. The construction methodology for the 11 no. EPA/OSI mapped crossings has been designed to eliminate the requirement for in-stream works on these locations requiring a crossing to be constructed to traverse the watercourse with the cabling ducts. A general description of the various construction methods employed at watercourse/ culvert/ drain crossings are described in Section 3.2.6.7 of the accompanying NIS.

2.4.4 Bird Surveys

2.4.4.1 Bird Surveys

2.4.4.1.1 *Current Survey Data*

Baseline ornithology surveys were conducted during the period of April 2019 to March 2021, consisting of two breeding seasons (April – September) and two non-breeding seasons (October – March), and were carried out in accordance with the relevant NatureScot (formerly SNH) Guidance (SNH 2017). Full details are presented in the relevant survey reports (see Appendix 5 of the accompanying NIS) with a summary provided below.

The survey areas used for the ornithological impact assessment differ according to receptor as recommended by relevant good practice survey guidance (SNH, 2017). These are summarised in the sections below and are described in more detail within the baseline survey reports (Appendix 5 to the NIS).

2.4.4.1.2 *Flight Activity Surveys*

Vantage point surveys were undertaken in accordance with SNH (2017) from April 2019 to March 2021. These surveys aimed to monitor flight activity on the Wind Farm Site to a 500m radius of the potential turbine positions. Surveys were conducted monthly throughout this period from two fixed point vantage points with comprehensive coverage of the Wind Farm Site (Figure 7-1 Appendix 5 of the NIS). The vantage point locations were selected by undertaking a viewshed analysis (described below) and confirmed by a recce visit and initial field surveys to ensure that the proposed turbine layout is entirely covered. Surveys were also undertaken from an additional five supplementary vantage point locations between April and September 2019 (Figure 7-3, Appendix 5 of the NIS). Surveys at these vantage point locations was ceased due to a reduction in the extent of the Wind Farm Site.

Viewshed analysis was carried out to inform coverage of the Wind Farm Site from the fixed vantage point location. A 500m buffer was applied to the outermost potential turbines, in line with SNH (2017). Viewsheds were calculated using Resoft Wind Farm ZTV (Zone of Theoretical Visibility) software in combination with Mapinfo Professional (Version 10.0) using a notional layer suspended at the minimum height considered for the Potential Collision Risk Area based on potential turbine models at the time the vantage point locations were selected. The notational layer was initially suspended at 20m, and also tested at 23m, both of which yielded the same viewshed. Note that while the relevance of being able to view as much of the site to ground level is acknowledged, the NatureScot guidance emphasises the importance of visibility of the 'collision risk volume' when the data is to be used to estimate the risk of collision with turbines by birds.

The viewshed analysis aims to identify the most suitable locations to site vantage points such that the airspace of the turbine rotor swept area is in view. The analysis aims to achieve this using the fewest possible number of vantage points. The vantage point locations were tested for visibility coverage by creating a viewshed point 1.5m in height (to represent the height of observer) on a map using 10m contours terrain data. The relative height of any surrounding forestry and its effects on visibility is also accounted for in the analysis. Using the ZTV software, a viewshed of 360 degrees was produced calculating an area from the height of the notational layer above ground level up to a 2km radius. The resulting viewshed image was then cropped to 180 degrees to give the viewshed, in line with SNH (2017). The visible viewshed is presented in Figure 7-2 within Appendix 5The visible viewshed for the additional five supplementary vantage point locations is presented in Figure 7-4 within Appendix 5.

Data on bird observations and flight activity was collected from a scanning arc of 180° and a 2km radius by an observer at the fixed vantage point locations for two 3-hour watches separated by a minimum 30 minute break (ie. 6 hours total) per month. Surveys were scheduled to provide a spread over the full daylight period, including dawn and dusk watches to coincide with the highest periods of bird activity. Along with target species, the presence of any additional (non-target) species observed was recorded to inform the evaluation of supporting habitat. The survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions. Table 4-1 below provides a brief summary of the survey effort. Note that data from VP1 and VP3 was used to inform the collision risk assessment and receptor evaluation. Supplementary VP2, VP2a, VP2b, VP4 and VP4a provide additional supporting data.

Table 2-1 Vantage point survey effort

Survey Season	Months	Effort per Vantage Point
2019 Breeding Season (2 VPs and 5 *supplementary VPs*)	Apr - Sep	36 hours at VP1 36 hours at VP3

		18 hours at VP2 *6 hours at VP2a* *6 hours at VP2b* *24 hours at VP4* *6 hours at VP4a*
2019/2020 Non-Breeding Season (2 VPs)	Oct – Mar	36 hours at VP1 36 hours at VP3
2020 Breeding Season (2 VPs)	Apr – Sep	36 hours at VP1 36 hours at VP3
2020/2021 Non-Breeding Season (2 VPs)	Oct - Mar	36 hours at VP1 36 hours at VP3

Each flight observation was assigned a unique identifier when mapped in the field and subsequently digitised using QGIS software. Observed flight activity was recorded as per defined flight bands. Bands were split into 0-10m, 10-25m, 25-175m and >175m. All flight activity within the height bands 10-25m, 25-175m and >175m is considered to be within the Potential Collision Height (PCH) with regard to the proposed turbine swept area.

2.4.4.1.3 *Breeding Walkover Surveys*

Breeding walkover surveys were undertaken to determine possible, probable or confirmed breeding bird activity within the Wind Farm Site to a 500m radius. The methodology was based on Brown and Shepherd (1993) and Calladine *et al.* (2009), combined with Common Bird Census methods (British Trust for Ornithology, 2021) for dense habitat, as per SNH (2017) recommendations. Transect routes were walked across different habitat complexes where access allowed. The surveyor regularly scanned with their binoculars the wider surroundings of each transect for target species. Along with target species, the presence of all additional (non-target) species observed were recorded to inform the evaluation of supporting habitat.

Breeding walkover surveys were conducted in daylight hours (08:00-18:00) over three visits during the core breeding season months April to July. Survey effort is presented in Appendix 5, including full details of dates, times and weather conditions for each survey Figure 7-5 within Appendix 5 shows the survey area.

2.4.4.1.1 *Winter Walkover Surveys*

Winter walkover surveys were undertaken to record the presence of bird species within the Wind Farm Site to a 500m radius. The methodology was adapted from the breeding walkover surveys outlined above. Transect routes were walked across different habitat complexes within the surveyed area where access allowed. Along with target species, the presence of all additional (non-target) species observed were recorded to inform the evaluation of supporting habitat.

Winter walkover surveys were conducted in daylight hours over four visits between October and March (ie. four visits in winter 2019/2020 and four visits in winter 2020/2021). All target species observations were mapped. Survey effort is presented in Appendix 5, including full details of dates, times and weather conditions for each survey. Figure 7-5 within Appendix 5 shows the survey area.

2.4.4.1.2 *Breeding Raptor Surveys*

Raptors include all harrier, falcon, buzzard, eagle, hawk, owl, kite and osprey species. Breeding raptor surveys were undertaken within the Wind Farm Site and within a 2km radius. Survey methodology followed Hardey *et al.* (2013), as per SNH (2017) recommendations. All raptor species were recorded during these surveys to identify occupied raptor territories and monitor their breeding success within the surveyed area.

Breeding raptor watches of 3 hours (supplemented by transects if necessary) were conducted at nine raptor vantage point (RVP) locations during daylight hours. Raptor vantage points were surveyed once per month during the core breeding season between April and July. However, due to COVID-19 restrictions, a visit was not conducted in April 2020. Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions Figure 7-6 within Appendix 5 shows the RVPs.

2.4.4.1.3 *Waterbird Distribution Surveys*

Waterbirds include: swans, geese and ducks; cormorant, shag, divers and grebes; auks and seabirds; gulls, terns and skuas; herons, egrets and crane; rails and crakes; waders; and kingfisher. Significant wetlands and waterbodies within 5km of the Wind Farm Site were surveyed for waterbirds during the 2019/2020 and 2020/2021 winter and passage seasons (August to May inclusive). However, due to COVID-19 restrictions, a visit was not conducted in April 2020. The area surveyed exceeds the 500m for foraging waterbirds and 1km for roosting waterbirds requirements of SNH (2017) and follows the recommendations of SNH (2016).

Survey methodology follows Gilbert *et al.* (1998) and the Irish Wetland Bird Survey (BirdWatch Ireland, 2021), as recommended by SNH (2017). Surveys were undertaken during daylight hours from suitable vantage points at wetlands and waterbodies. Target waterbird species observed were mapped. Survey effort, including details of survey duration and weather conditions, is presented in Appendix 5. Figure 7-7 of Appendix 5 shows the surveyed area.

2.4.4.1.4 *Multidisciplinary Walkover Survey*

The Grid Connection underground electrical cabling route was surveyed in February and March 2022 through a multidisciplinary walkover survey. The route was systematically walked, while the surveyor recorded a range of protected species, including birds.

2.4.4.2 Results pertaining to Special Conservation Interest (SCI) Bird Species of European Sites

Table 2-2 below summarises the results from the baseline surveys undertaken between April 2019 and March 2021 for SCI species associated with each SPA considered in this AA Screening Report (see Section 3) recorded during the surveys. SCI species not listed in Table 2-2 were not recorded within the Wind Farm Site.

2.4.4.3 Potential Sources of Significant Effects on SPA Bird Populations within the Likely Zone of Influence

This section identifies the sources of potentially significant effects that could occur on SPA bird populations within the likely zone of influence during the construction, operation and decommissioning of the Proposed Development, and the pathways through which effects could occur.

Wind farms present three potential risks to birds (Drewitt and Langston 2006, 2008; Band et al. 2007). Sources of potentially significant effects include:

- **Direct habitat loss** through the construction of wind farm infrastructure.
- **Displacement** (sometimes called indirect habitat loss) if birds avoid the wind farm and its surrounding area due to turbine construction and operation. Displacement may also include barrier effects in which birds are deterred from using normal routes to feeding or roosting grounds.
- Death through **collision** or interaction with turbine blades and other infrastructure.

For each of these three risks, the detailed knowledge of bird distribution and flight activity within and surrounding the Wind Farm Site has been used to predict potential impacts of the Proposed Development on birds. These impacts are assessed with regard to the construction phase, operational phase and decommissioning phase. They are also assessed cumulatively with other projects. Note that the Proposed Development is not located directly within any SPA and so there is no pathway for direct effects on any SPA itself.

Table 2-2- Summary of baseline for SCI species recorded during field surveys

SCI species	Baseline
Little Grebe (*Tachybaptus ruficollis)*	Current survey data › Little grebe was recorded 6 times during waterbird distribution surveys in the months of November, January, February, March and May. All observations were from Lough Sewdy and comprised of single birds calling and foraging. Little grebe was recorded on 6 occasions over the 2-year survey period. All observations comprised single birds at Lough Sewdy, located over 3km from the Wind Farm Site. There were no observations of little grebe within 500m of the Wind Farm Site. As such, there is no regularly occurring population within 500m of the Wind Farm Site and the Proposed Development has no potential to result in direct habitat loss, displacement or barrier effects for this species. No pathways for direct or indirect effects exist. Therefore, little grebe is not considered further in this assessment and the Wind Farm Site is not of significance to this species.
Eurasian teal (*Anas crecca)*	Current survey data › There was one observation of teal during vantage point surveys, comprising a flock of 4 birds travelling in March 2021. Time at PCH was 16s. › Teal were recorded 4 times during winter walkover surveys, in the months of December and January. All observations were of birds flushed from watercourses within the Wind Farm Site. Flock sizes were between 2-8 birds. › Teal were recorded 4 times during waterbird distribution surveys, in the months of December, January and March. Observations comprised individual birds at Lough Sewdy, a flock of 5 birds feeding in flooded agricultural field approximately 300m south-east of the Wind Farm Site, and a flock of 32 birds on a small lake in Calliaghstown, approximately 2km north of the Wind Farm Site. This species was recorded 9 times over the survey period. Flocks up to 8 birds were observed along watercourses within the Wind Farm Site to a radius of 500m. Thus, teal recorded during surveys in winter and passage season are considered to be a population of **Local Importance (Higher Value).**
Tufted Duck (*Aythya fuligula)*	Current survey data › Tufted duck was recorded 3 times during waterbird distribution surveys in the months of February and March. All observations were at Lough Sewdy and comprised a flock size of 2 birds.

SCI species	Baseline
	Tufted duck was recorded on three occasions over the 2-year survey period All observations comprised 2 birds at Lough Sewdy, located over 3km from the Wind Farm Site. There were no observations of tufted duck within 500m of the Wind Farm Site. As such, there is no regularly occurring population within 500m of the Wind Farm Site and the Proposed Development has no potential to result in direct habitat loss, displacement or barrier effects for this species. No pathways for direct or indirect effects exist. Therefore, tufted duck is not considered further in this assessment and the Wind Farm Site is not of significance to this species.
Mallard (*Anas platyrhynchos)*	Current survey data › Mallard was recorded 15 times during vantage point surveys, during the months of March, April, June July, August and November. Of these observations, 13 were within, or partially within, the Wind Farm Site. Flock sizes were between 1-6 birds and involved 290s at PCH. There was one observation of 2 mallard landing within the Wind Farm Site. › Mallard was recorded 3 times during winter walkover surveys, from the months of October, January and March. Observations comprised birds travelling over study area, and of birds being flushed from river within Wind Farm Site. Flock sizes were between 2-3 birds. › Mallard was recorded 3 times during breeding walkover surveys, all within the month of May. Birds were recorded travelling over Wind Farm Site with flock sizes of 1-2 birds, and an adult was recorded with 10 young on river within Wind Farm Site. › Mallard were recorded 23 times during waterbird distribution surveys, from the months of September, October, November, December, January, February, March and May. The majority of observations were from Lough Sewdy, and comprised birds on water and travelling over. Mallard was also recorded at Ballinderry bog and along the Dungolman River. Flock sizes were from 1-12 birds. › Mallard were recorded 23 times during waterbird distribution surveys, from the months of September, October, November, December, January, February, March and May. The majority of observations were from Lough Sewdy, and comprised birds on water and travelling over. Mallard was also recorded at Ballinderry bog and along the Dungolman River. Flock sizes were from 1-12 birds. This species was recorded 46 times over the survey period. Flocks up to 6 birds (County Importance) were observed within the Wind Farm Site to a radius of 500m. Thus, mallard recorded during surveys in winter and passage season are considered to be a population of **County Importance**.
Northern lapwing *Vanellus vanellus*	Current survey data › Lapwing was observed 17 times during vantage point surveys in the months of October, November, December, January and February over the 2 year survey period. These observations comprised flocks of between 1-150 birds travelling and circling within, or partially

SCI species	Baseline
	within, the Wind Farm Site. There were 7 observations of flocks landing in fields, of which 4 were within the Wind Farm Site and 3 were within 500m of the Wind Farm Site boundary. Four of these observations were from the same day in January 2020. › Lapwing was observed 3 times during breeding walkover surveys. A single bird was heard calling in May 2020 within 500m of the Wind Farm Site boundary. A flock of 20 birds was observed foraging within a field within the Wind Farm Site in June 2020, and a flock of 18 birds was observed roosting in the same field in July 2020. › Lapwing was recorded twice during winter walkover surveys, in December 2019 and January 2021. Both observations were of birds foraging in fields within the Wind Farm Site. Flock size was between 6-24 birds. › Lapwing was recorded 5 times during waterbird distribution surveys, in the months of October, November, January and February. All observations were at Lough Sewdy approximately 3.5km from the Wind Farm Site, and comprised birds in flight over the lake and surrounding farmland with flock sizes between 1-67 birds. › There was one incidental record of lapwing during a vantage point survey in February 2021, comprising a flock of approximately 100 birds travelling outside of the viewshed area, approximately 1km from the Wind Farm Site. Lapwing was recorded a total of 22 times within, or partially within, the Wind Farm Site over the survey period. The majority of observations comprised birds travelling and circling, with max a flock size of 150 birds (County importance) recorded. There were a total of 11 observations of lapwing foraging on fields, 8 of which were within the Wind Farm Site and 3 were within 500m of the Wind Farm Site, with a max flock size of 103 birds (County importance) recorded. These observations were predominantly within the winter season, in addition to two observations of flocks of 18-20 birds recorded in June and July 2020. No breeding activity was recorded, and this species is therefore not dependant on the Wind Farm Site for breeding. Thus, lapwing recorded during surveys in winter and passage season are considered to be a population of **County Importance**.
Whooper swan (*Cygnus cygnus)*	Current survey data › Whooper swan were recorded on four occasions during vantage point surveys. These observations comprised small groups of 2-5 birds in flight over the Wind Farm Site on two days in November 2020, and a flock of 21 birds recorded in late March 2021. › Whooper swan were recorded once during winter walkover surveys in October 2020. This observation comprised nine birds travelling south away from the Wind Farm Site. › Whooper swan were recorded on one occasion during waterbird distribution surveys. This recording comprised seven birds travelling north-east over Lough Swedy (located over 3km from Wind Farm Site), potentially having arisen from the lake.

SCI species	Baseline
	This species was recorded 6 times over the survey period, with a maximum flock size of 21 (County importance). Three of these records were from two consecutive days in November 2020. All 5 observations within 500m of the Wind Farm Site were of birds travelling, with no flocks were recorded on-ground. The only other observation was a flock of 7 birds at Lough Sewdy (3km from Wind Farm Site). As such, there is no regularly occurring population within 500m of the Wind Farm Site and the Proposed Development has no potential to result in direct habitat loss, displacement or barrier effects for this species. No pathways for direct or indirect effects exist. Therefore, whooper swan is not considered further in this assessment and the Wind Farm Site is not of significance to this species.

2.4.5 Hydrological connectivity identified between the Proposed Development and downstream aquatic dependant European Sites within the likely zone of influence

The baseline hydrology of the Proposed Development site and surrounding area has been fully assessed by Hydro-Environmental Services (HES) on behalf of MKO; the detailed assessment carried out by HES has been reported on within the detailed hydrological assessment report 'Water' prepared for the Proposed Development; this document has been reviewed and relied upon in the assessment within this AA Screening Report. A relevant summary of the information contained within the detailed hydrological assessment (Appendix 2 of the accompanying NIS) in relation to the hydrology of the Site and European Sites is provided below.

2.4.5.1 Regional and Local Hydrology

'On a regional scale, the Wind Farm Site is located in the Inny River surface water sub-catchment, which is in the Upper Shannon catchment within Hydrometric Area 26 of the Irish River Basin District (SIRBD). The Inny River flows to the northwest approximately 8.2km northwest of the Wind Farm Site. The Inny River discharges into Lough Ree approximately 10.6km northwest of the Wind Farm Site. A regional hydrology map is shown as Figure 9-1 (see Appendix 2 of the NIS).

On a more local scale, the Wind Farm Site is located in the Inny River sub-catchment (Inny[Shannon]_SC_090) with the majority of the Wind Farm Site located in the Dungolman WFD river sub basin (Dungolman_030) (refer to Figure 9-2 (see Appendix 2 of the NIS)*). A small section in the southwest of the Wind Farm Site is mapped in the Dungolman_020 river sub-basin while the northwestern corner of the Wind Farm Site is located in the Inny River (Inny_110) river sub-basin. However, none of the proposed turbines are mapped in the Dungolman_020 or Inny_110 river sub-basins.*

As stated above the majority of the Wind Farm Site is located in the Dungolman_030 river sub-basin. The Dungolman River (EPA Code: 26D06) flows to the northeast between T4 and T5. This watercourse then flows along the EIAR Site boundary to the east of T2 and T3 before veering to the northeast to the east of T1. Drainage in this river sub-basin is directed towards the Dungolman River via several smaller streams and drains. The Dungolman River continues to flow to the north before discharging into the Tang River (EPA Code: 26T02) approximately 5.15km north of the Wind Farm Site. The Tang River continues to flow to the northwest and eventually discharges into the Inny River (EPA Code: 26I01) approximately 8.3km northwest of the Wind Farm Site. The Inny River drains into the eastern side of Lough Ree.

Within the Dungolman_020 River sub-basin, the southwest of the Wind Farm Site drains towards the Dungolman River via the Toorbeg stream (EPA Code: 26T25). Meanwhile within the Inny_110 River sub-basin, the northwest of the Wind Farm Site drains to the northwest via the Ardnacrany south stream (EPA Code: 26A50) which discharges into the Dungolman River approximately 4.3km north of the Wind Farm Site.

The Grid Connection onsite 110kV substation and associated construction compound are located within the Wind Farm Site which is detailed above.

The Grid Connection underground electrical cabling route is located within the Upper Shannon catchment (26) and Lower Shannon catchment (25A) of the Irish River basin district. A Grid Connection hydrology map is shown in Figure 9-3 (see Appendix 2 of the NIS).

The Grid Connection underground electrical cabling route is located within the Inny (Shannon) SC_090, the Brosna_SC_030, Brosna_SC_020, Silver[Tullamore]_SC_010 and Tullamore_SC_010 subcatchments. Apart from the Inny (Shannon) SC_090 subcatchment, all the associated subcatchment rivers flow generally southwest towards the Lower Shannon catchment. The primary watercourse within this Lower Shannon catchment (of the underground electrical cabling route) is the River Brosna. The Silver River and Tullamore River drain into the River Brosna.'

A local hydrology map is provided within the detailed hydrological assessment report (included as Appendix 2 to the accompanying NIS).

2.4.5.2 Likely Significant Effects on European Sites

Section 9.3.11 of the detailed hydrology assessment (included as Appendix 2 to the accompanying NIS) assesses the potential for effects on European Sites as a result of a deterioration in water quality as a result of the Proposed Development. A summary of the assessment for all European Sites within the potential likely zone of impact of the Proposed Development site is provided below (no hydrological connectivity was identified to any European Sites in excess of 15km).

Lough Ree SAC and SPA

Lough Ree SAC, SPA and pNHA is located approximately 10km northwest and downstream of the Wind Farm Site. This designated site is hydrologically linked with the Wind Farm Site via the Dungolman and Inny Rivers.

On a regional scale, the Wind Farm Site is located in the Inny River surface water sub-catchment, which is in the Upper Shannon catchment within Hydrometric Area 26 of the Irish River Basin District (SIRBD). The Inny River flows to the northwest approximately 8.2km northwest of the Wind Farm Site. The Inny River discharges into Lough Ree approximately 10.6km northwest of the Wind Farm Site.

The majority of the Wind Farm Site is located in the Dungolman_030 river sub-basin. The Dungolman River (EPA Code: 26D06) flows to the northeast between T4 and T5. This watercourse then flows along the Site boundary to the east of T2 and T3 before veering to the northeast to the east of T1. Drainage in this river sub-basin is directed towards the Dungolman River via several smaller streams and drains. The Dungolman River continues to flow to the north before discharging into the Tang River (EPA Code: 26T02) approximately 5.15km north of the Wind Farm Site. The Tang River continues to flow to the northwest and eventually discharges into the Inny River (EPA Code: 26I01) approximately 8.3km northwest of the Wind Farm Site. The Inny River drains into the eastern side of Lough Ree.

Ballymore Fen SAC

The Ballymore Fen SAC is situated ~5.2km south of the Wind Farm Site on the south-eastern boundary of the Inny(Shannon)_SC_090 subcatchment. The majority of the fen is mapped in the adjoining Inny(Shannon)_SC_070 subcatchment. The location of the fen on the boundary of these two subcatchments, indicates its hydraulic nature, in that it is located on slightly higher ground and drains down towards the rivers in the lower subcatchments. It is therefore hydraulically upgradient of the Wind Farm Site and is excluded from further assessment.

Carn Park Bog SAC

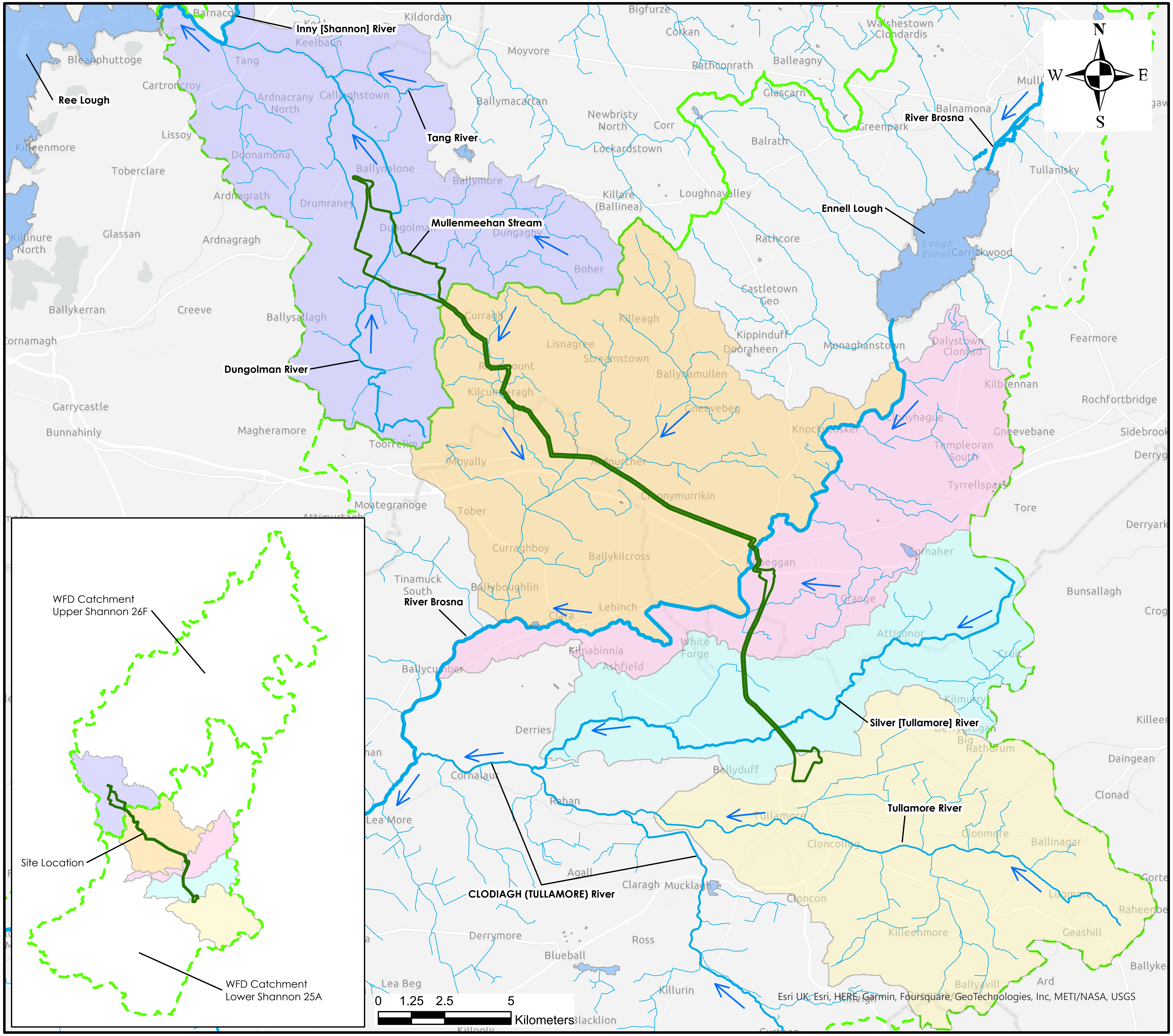
The Carn Park Bog SAC is located 6.3km southwest of the Wind Farm Site. The bog is located within the Breensford_SC_010 subcatchment which drains north towards the Inny River. The bog is located in a separate subcatchment to the Wind Farm Site at the upper reaches of a well defined basin. There is no hydrological connection between the Carn Park Bog SAC and pNHA and the Wind Farm Site, therefore it is excluded from further assessment.

Crosswood Bog

The Crosswood Bog SAC is located 9.7km southwest of the Wind Farm Site. The bog is located within the Shannon(Lower)_SC_010 subcatchment. This is significantly distal to the Wind Farm Site and the Inny(Shannon)_SC_090 subcatchment in which the Wind Farm Site is located. The Crosswood Bog SAC and pNHA is hydraulically isolated from the Wind Farm Site and as such is not carried further in the assessment.

River Shannon Callows SAC and Middle Shannon Callows SPA

The River Shannon Callows SAC and SPA are situated approximately 14.7km to the southwest of the proposed Wind Farm Site at their closest point. The only potential pathway to the River Shannon Callows SAC is via surface water pathways along the Grid Connection underground cable route; the Silver [Tullamore]_030 watercourse crossed by the route ultimately flows to the River Shannon, a total hydrological distance of approximately 38km.



Legend

- EIAR Site Boundary
- Watercourses
- Lakes
- WFD Catchments

WFD Subcatchments

- BROSNA_SC_020
- BROSNA_SC_030
- Inny[Shannon]_SC_090
- Silver[Tullamore]_SC_010
- Tullamore_SC_010

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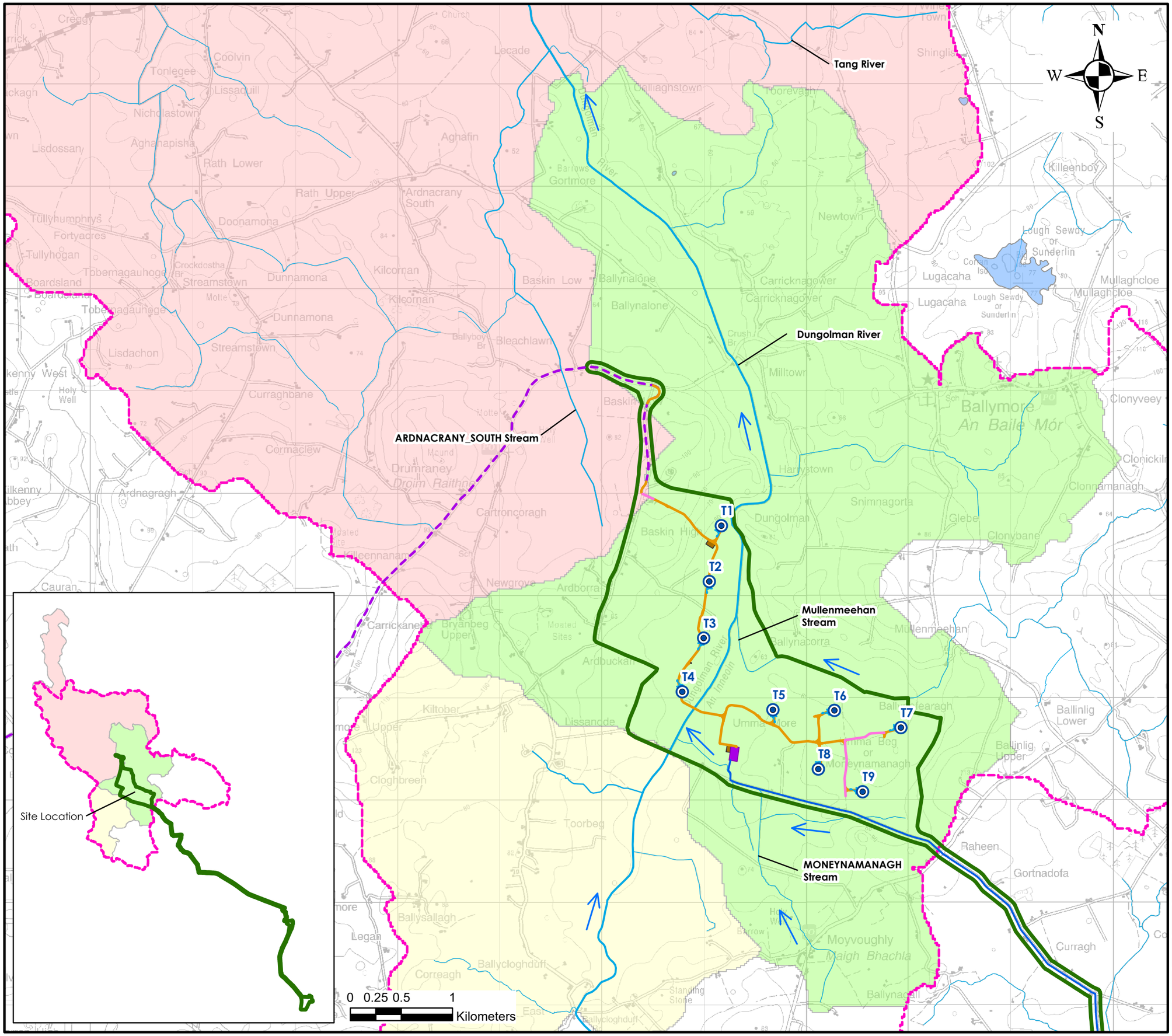
Client: MKO	
Job: Umma More Renewable Energy Development	
Title: Regional Hydrology Map	
Figure No: 2-4	
Drawing No: P1553-0-0123-A3-901-00A	
Sheet Size: A3	Project No: P1553-0
Scale: 1:135,000	Drawn By: GD
Date: 31/01/2023	Checked By: MG



Legend

- EIAR Site Boundary
- Proposed Turbine Layout
- Proposed Turbine Hardstands
- Proposed Met Mast Location
- Proposed New Roads
- Proposed Upgrades to Existing Roads
- Proposed Temporary Construction Compounds
- Proposed 110kV Onsite Substation
- Proposed Underground Electrical Cabling Route
- Proposed Turbine Delivery Route
- Watercourses
- Lakes

WFD Subcatchments

- Inny[Shannon]_SC_090

WFD River Sub-Basins

- DUNGOLMAN_020
- DUNGOLMAN_030
- INNY_110

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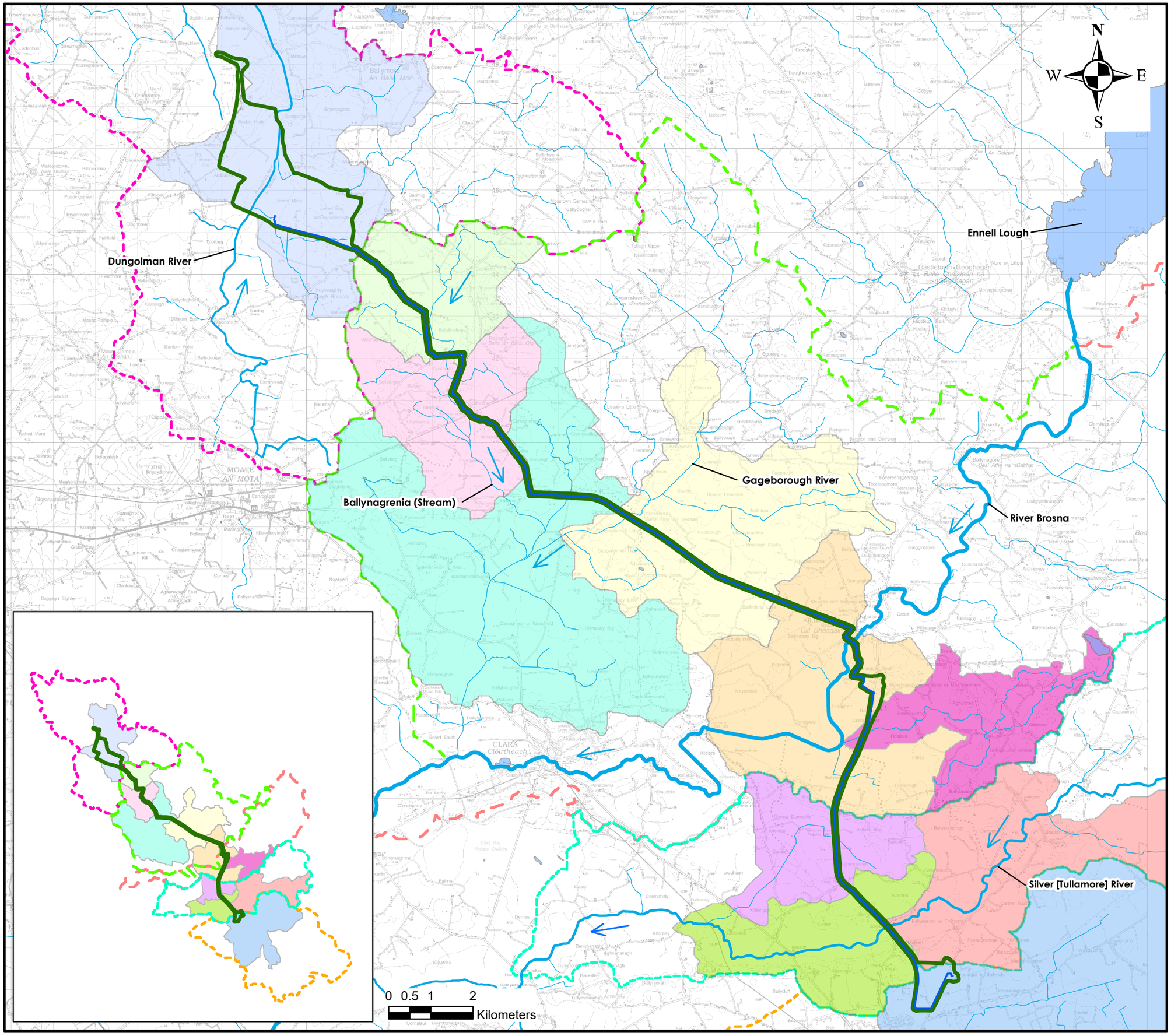
Client: MKO	
Job: Umma More Renewable Energy Development	
Title: Local Hydrology Map (Wind Farm)	
Figure No: 2-5	
Drawing No: P1553-0-0123-A3-902-00A	
Sheet Size: A3	Project No: P1553-0
Scale: 1:35,000	Drawn By: GD
Date: 31/01/2023	Checked By: MG



Legend

- EIAR Site Boundary
- Proposed Underground Electrical Cabling Route
- Watercourses
- Lakes

WFD River Sub-Basins

- BALLYNAGRENIA STREAM_010
- BALLYNAGRENIA STREAM_020
- BROSNA_070
- DUNGOLMAN_030
- DURROW ABBEY STREAM_010
- GAGEBOROUGH_020
- GAGEBOROUGH_030
- SILVER (TULLAMORE)_020
- SILVER (TULLAMORE)_030
- TONAPHORT_010
- TULLAMORE_030

WFD Subcatchments

- BROSNA_SC_020
- BROSNA_SC_030
- Inny[Shannon]_SC_090
- Silver[Tullamore]_SC_010
- Tullamore_SC_010

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Client: MKO	
Job: Umma More Renewable Energy Development	
Title: Local Hydrology Map (Grid Connection)	
Figure No: 2-6	
Drawing No: P1553-0-0123A3-903-00A	
Sheet Size: A3	Project No: P1553-0
Scale: 1:85,000	Drawn By: GD
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3. IDENTIFICATION OF RELEVANT EUROPEAN SITES

3.1 Identification of the European Sites within the Likely Zone of Impact

The following methodology was used to establish which European Sites are within the Likely Zone of Impact of the Proposed Development:

- Initially the most up to date GIS spatial datasets for European designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie) on the 01/03/2023. The datasets were utilized to identify European Sites which could feasibly be affected by the Proposed Development.
- Environmental Protection Agency (EPA) catchment mapping was used to establish or discount potential hydrological connectivity between the site of the Proposed Development and any European Sites. The hydrological catchments are also shown in Figure 3-1.
- In relation to Special Areas of Conservation (SACs), SACs in the area surrounding the Proposed Development site were identified and are shown on Figure 3-1. In addition, the potential for pathways for effect on European Sites at greater distances from the Proposed Development were also considered, but no complete source-pathway-receptor chain for significant effect was identified for any other European Site.
- In relation to Special Protection Areas (SPAs), in the absence of any specific European or Irish guidance in relation to such sites, the NatureScot (formerly SNH) Guidance (SNH, 2016) was consulted. This document provides guidance in relation to the identification of ecological connectivity between the Proposed Development sites and Special Protection Areas. The guidance is also relevant to Ireland for species that are also present in Ireland. The distances for core and maximum dispersal and foraging ranges are drawn from a literature review that examined ranging behaviour across a variety of locations in Britain, Ireland and beyond, not just in Scotland (Pendlebury *et al.* 2011). The guidance takes into consideration the distances species may travel beyond the boundary of relevant SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects. It goes on to state that "*in most cases the core range should be used when determining whether there is connectivity between the proposal and the qualifying Interests*". Where SPAs are at greater distance from the Proposed Development than the core foraging ranges for their listed SCI species, there is no likely ecological connectivity to the development and so the SPAs are outside the likely Zone of Impact. The only rare exception is where there is a lack of suitable foraging sites near an SPA, prompting an SCI species to travel further. This situation is not considered applicable for the suite of SPAs considered in this document, as they either provide suitable foraging habitat for their SCI species within the relevant SPAs or suitable foraging habitat is widely available within the immediately surrounding area.
- As stated above, SPAs surrounding the Proposed Development site were identified and are included in the screening assessment. In addition, the potential for ecological connectivity with SPAs at distances of greater than 15km from the Proposed Development was also considered.
- Table 3-1 provides details of all relevant European Sites as identified in the preceding steps and assesses which are within the potential likely Zone of Impact. The assessment considers any likely direct or indirect impacts of the Proposed Development, both alone and in combination with other plans and projects, on European Sites by virtue of the following criteria: size and scale, land-take, distance from the European Site or key features of the site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operation and decommissioning were considered in this Screening Assessment.

- The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report 01/03/2023. Figure 3-1 shows the location of the Proposed Development in relation to European sites in the vicinity.
- Where potential pathways for likely Significant Effect are identified, the site is included within the Likely Zone of Impact and further assessment is required.

Lough Ree SAC
Lough Ree SAC
Lough Ree SPA
Lough Ree SAC
Ballymore Fen SAC
Lough Owel SPA
Lough Owel SAC
Woo
Lough Ennell SAC
Lough Ennell SPA
Carn Park Bog SAC
Crosswood Bog SAC
Middle Shannon Callows SPA
Split Hills and Long Hill Esker SAC
iddle Shannon Callows SPA
ver Shannon Callows SAC
Pilgrim's Road Esker SAC
Mongan Bog SAC
Mongan Bog SPA
Fin Lough (Offaly) SAC
Clara Bog SAC
Raheenmore Bog SAC
Ferbane Bog SAC
Moyclare Bog SAC
Charleville Wood SAC
on Callows SPA

Map Legend

- EIAR Site Boundary - V5 - 20
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- WFD Catchments
- WFD Subcatchments
- WFD River Waterbodies

Drawing Title
European Sites within the Potential Likley Zone of Influence

Project Title
Umma More Renewable Energy Development

Drawn By	Checked By
PE	JH
Project No.	Drawing No.
123456	Figure 3-1
Scale	Date
1:140000	2023-01-20

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Table 3-1 Identification of European sites within the Likely Zone of Impact

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
Special Areas of Conservation (SAC)			
Ballymore Fen SAC [002313] **Distance: 4.2km north-east/ 5.2km north**	› [7140] Transition mires and quaking bogs	Detailed conservation objectives for this site (Version 1, October 2018[3]), were reviewed as part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002313.pdf	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist. Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. The Wind Farm Site is located within the same hydrological sub-catchment (Inny (Shannon)_SC_090) as the SAC, but no hydrological connectivity exists as the SAC is located upstream of the Proposed Development works. There is therefore no potential pathway for significant effects on the QI habitat of the SAC via hydrological pathways. No other potential pathway for significant effect on this SAC exists. **The SAC is *outside* the Likely Zone of Impact and no further assessment is required.**

[3] *NPWS (2018) Conservation Objectives: Ballymore Fen SAC 002313. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
Carn Park Bog SAC [002336] **Distance: 6.9km south-west/ 7.5km west**	› [7110] Active raised bogs* [7120] Degraded raised bogs still capable of natural regeneration	Detailed conservation objectives for this site (Version 1, November 2015[4]), were reviewed as part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002336.pdf	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist. Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. No other potential pathway for significant effect on this SAC exists. **Consequently, the SAC is *outside* the Likely Zone of Impact and no further assessment is required**
Lough Ree SAC [000440] **Distance: 8.9km west/ 12.5km north-west**	› [1355] Otter (*Lutra lutra*) › [3150] Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation › [6210] Semi-natural dry grasslands and scrubland facies on calcareous	Detailed conservation objectives for this site (Version 1, August 2016[5]), were reviewed as part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000440.pdf	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the construction, operational or decommissioning phases of the Proposed Development; therefore no pathways for direct effects on the QI habitats of the SAC exist.

[4] *NPWS (2015) Conservation Objectives: Carn Park Bog SAC 002336. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.*
[5] *NPWS (2016) Conservation Objectives: Lough Ree SAC 000440. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
	substrates (*Festuco-Brometalia*) (* important orchid sites) › [7120] Degraded raised bogs still capable of natural regeneration › [7230] Alkaline fens › [8240] Limestone pavements › [91A0] Old sessile oak woods with *Ilex* and *Belchnum* in the British Isles › [91D0] Bog woodland		The Proposed Development site and the SAC are within the same hydrological sub catchment (Inny(Shannon)_SC_090). As watercourses are present within the site, the construction phase of the Proposed Development may result in pollution via surface or groundwater pathways should groundwater be encountered during excavation works. This may result in potential hydrological connectivity to the SAC via the River Dungloman (IE_SH_26D060400) and the River Inny (IE_SH_26I011400). Therefore the works have the potential, in the absence of mitigation, to impact on water quality through pollutants including hydrocarbons, fuel, cement and sedimentation. No other potential pathway for significant effect on this SAC exists. **Consequently, the SAC is *within* the Likely Zone of Impact and further assessment is required**
Crosswood Bog SAC [002337] **Distance: 10.2km south-west/ 10.8km west**	› [7110] Active raised bogs › [7120] Degraded raised bogs still capable of natural regeneration	Detailed conservation objectives for this site (Version 1, February 2016[6]), were reviewed as part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002337.pdf	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist.

[6] *NPWS (2016) Conservation Objectives: Crosswood Bog SAC 002337. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
			Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. No other potential pathway for significant effect on this SAC exists. **The SAC is *outside* the Likely Zone of Impact and no further assessment is required.**
Clara Bog SAC [000572] **Distance: 13.4km south/ 4.6km west**	› [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) › [7110] Active raised bogs › [7120] Degraded raised bogs still capable of natural regeneration › [7150] Depressions on peat substrates of the *Rhynchosporion* › [91D0] Bog woodland	Detailed conservation objectives for this site (Version 1, August 2016[7]), were reviewed as part of the assessment and are available at: Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000572.pdf	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist. Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. No other potential pathway for significant effect on this SAC exists. **Consequently, the SAC is *outside* the Likely Zone of Impact and further assessment is required.**

[7] *NPWS (2016) Conservation Objectives: Clara Bog SAC 000572. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
Split Hills and Long Hill Esker SAC [001831] **Distance: 13.1km south-east/ 2.6km east**	› [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) ›	Detailed conservation objectives for this site (Version 1, June 2018[8]), were reviewed as part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001831.pdf	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist. Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. The proposed Grid Connection route is located within the same hydrological sub-catchment (Brosna_SC_030) as the SAC, but no hydrological connectivity exists as the SAC is located upstream of the Proposed Development works. There is therefore no potential pathway for significant effects on the QI habitat of the SAC. No other potential pathway for significant effect on this SAC exists. **The SAC is *outside* the Likely Zone of Impact and no further assessment is required.**
River Shannon Callows SAC	**Habitats**	Detailed conservation objectives for this site (Version 1, January 2022[9]), were reviewed as	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the

[8] *NPWS (2018) Conservation Objectives: Spits Hills and Long Hill SAC 001831. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.*
[9] *NPWS (2022) Conservation Objectives: River Shannon Callows SAC 000216. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
[000216] **Distance: 14.7km south-west/ 15.3km west**	› [6410] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) › [6510] Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) › [7230] Alkaline fens › [8240] Limestone pavements* › [91E0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)* **Species** › [1355] Otter (*Lutra lutra*) ›	part of the assessment and are available at: www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000216.pdf	construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist. Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. The site is located within a separate hydrological catchment to the SAC, however hydrological connectivity does exist. The proposed Grid Connection route crosses the River Brosna (ID: IE_SH_25B091000). The River Brosna ultimately flows into the River Shannon Callows SAC. Therefore, the works have the potential, in the absence of mitigation, to impact on water quality through pollutants including hydrocarbons, fuel and sedimentation. Due to the sensitive nature of the aquatic QI's listed in this SAC, further assessment is required to determine the potential impact, if any, from this Proposed Development. No other potential pathways for significant effect on this SAC exist. **Consequently, the SAC is *within* the Likely Zone of Impact and further assessment is required**
Lough Ennell SAC	› [7230] Alkaline fens	Detailed conservation objectives for this site (Version 1, January 2018[10]), were reviewed as	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the

[10] *NPWS (2018) Conservation Objectives: Lough Ennell SAC 000685. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
[000685] **Distance: 16.2km east/ 8.6km east**		part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000685.pdf	construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist. Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. The Proposed Development site and the Grid Connection route are located within a separate hydrological sub-catchment to the SAC, and no hydrological connectivity exists. There is therefore no potential pathway for significant effects on the aquatic dependant QI habitats and species of the SAC. No other potential pathway for significant effect on this SAC exists. **Consequently, the SAC is outside the Likely Zone of Impact and no further assessment is required**
Charleville Wood SAC [000571] **Distance: 22km south-east/ 2.6km south**	› [1016] Desmoulin's Whorl Snail (*Vertigo moulinsiana*) › [91E0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*	Detailed conservation objectives for this site (Version 1, November 2011[11]), were reviewed as part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000571.pdf	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist.

[11] *NPWS (2011) Conservation Objectives: Charleville Wood SAC 000571. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
			Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. The Wind Farm site is located within a separate catchment to the SAC and no potential hydrological connectivity exists. No hydrological connectivity exists from any watercourses crossing the Grid Connection underground cable route. Consequently, due to the lack of connectivity, there are no pathways of indirect effects on the semi-aquatic QI habitats or supporting habitat for QI species of this SAC. No other potential pathway for significant effect on this SAC exists. **Consequently, the SAC is *outside* the Likely Zone of Impact and further assessment is required.**
Raheenmore Bog SAC [000582] **Distance: 25km south-east/ 8.7km east**	› [7110] Active raised bogs › [7120] Degraded raised bogs still capable of natural regeneration › [7150] Depressions on peat substrates of the *Rhynchosporion*	Detailed conservation objectives for this site (Version 1, November 2015[12]), were reviewed as part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000582.pdf	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist.

[12] *NPWS (2015) Conservation Objectives: Raheenmore Bog SAC 000582. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
			Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. A section of the proposed Grid Connection underground route is located within the same hydrological sub-catchment (Silver (Tullamore)_SC_010) as the SAC, but no hydrological connectivity exists as the SAC is located upstream of the Proposed Development works. There is therefore no potential pathway for significant effects on the QI habitat of the SAC. No other potential pathway for significant effect on this SAC exists. **The SAC is *outside* the Likely Zone of Impact and no further assessment is required.**
River Barrow and River Nore SAC [002162] **Distance: 34km south-east/ 11.8km south**	› [1016] Desmoulin's whorl snail (*Vertigo moulinsiana*) › [1029] Freshwater pearl mussel *(Margaritifera margaritifera*) › [1092] White-clawed crayfish (*Austropotamobius pallipes)* › [1095] Sea lamprey (*Petromyzon marinus*)	Detailed conservation objectives for this site (Version 1 July 2011[13]), were reviewed as part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002162.pdf	There will be no direct effects as the project footprint is located entirely outside the designated site. There will be no land take or possibility of encroachment into the SAC as part of the construction, operational or decommissioning phases of the Proposed Development; therefore, no pathways for direct effects on the QI habitats of the SAC exist.

[13] *NPWS (2011) Conservation Objectives: River Barrow and River Nore SAC 002162. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
	› [1096] Brook lamprey (*Lampetra planeri*) › [1099] River lamprey (*Lampetra fluviatilis*) › [1103] Twaite shad (*Alosa fallax)* › [1106] Atlantic salmon (*Salmo salar*) (only in fresh water) › [1130] Estuaries › [1140] Mudflats and sandflats not covered by seawater at low tide › [1310] *Salicornia* and other annuals colonizing mud and sand › [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) › [1355] Otter (*Lutra lutra*) › [1410] Mediterranean salt meadows (*Juncetalia maritimi*) › [1421] Killarney fern (*Trichomanes speciosum*) › [1990] Nore freshwater pearl mussel (*Margaritifera durrovensis*) › [3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation › [4030] European dry heaths › [6430] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels		Given the intervening distance, and the nature and scale of the Proposed Development, no potential pathway for indirect effects on the terrestrial QI habitats of the SAC exists. The proposed site and Grid Connection route are in a separate hydrological sub-catchment as the SAC and no hydrological connectivity exists between the SAC and the Proposed Development works. There is therefore no potential pathway for significant effects on the aquatic dependant QI habitats and species of the SAC. No other potential pathway for significant effect on this SAC exists. **The SAC is *outside* the Likely Zone of Impact and no further assessment is required.**

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
	› [7220] * Petrifying springs with tufa formation (*Cratoneurion*) › [91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles › [91E0] * Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae*)		
Special Protection Area (SPA) [14]			
Lough Ree SPA [004064] **Distance: 9.0km west/ 10.9km north-west**	› [A004] Little Grebe *Tachybaptus ruficollis* › [A038] Whooper Swan *Cygnus* › [A050] Eurasian Wigeon *Mareca penelope* › [A052] Eurasian Teal *Anas crecca* › [A053] Mallard *Anas platyrhynchos* › [A056] Northern Shoveler *Anas clypeata* › [A061] Tufted Duck *Aythya fuligula*	This site has first-order site-specific conservation objectives which state the objective is (NPWS, 12/10/22[15]): "*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA"* And: "*To maintain or restore the favourable conservation condition of the wetland habitat*	There will be no direct effects to SCI species from habitat loss or damage as the Proposed Development is located entirely outside the designated site. The following SCI species were not recorded during surveys and so cannot be significantly affected by disturbance/displacement, barrier effects or collision mortality: › [A065] Common Scoter › [A056] Northern Shoveler › [A067] Goldeneye › [A193] Common Tern › [A050] Eurasian Wigeon

[14] *SCI bird species are labelled according to whether they are wintering (w), breeding (b) or wintering and breeding (w/b) species for each SPA as shown in the Natura 2000 Data Form.*
[15] *NPWS (2022) Conservation objectives for Lough Ree SPA [004064]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
	› [A065] Common Scoter *Melanitta nigra* › [A067] Goldeneye *Bucephala clangula* › [A125] Eurasian Coot *Fulica atra* › [A140] European Golden Plover *Pluvialis apricaria* › [A142] Northern Lapwing *Vanellus* › [A193] Common Tern *Sterna hirundo* › [A999] Wetland and Waterbirds	*at Lough Ree SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.*" Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004064.pdf	› [A125] Eurasian Coot The following SCI species were recorded during surveys: › [A038] Whooper Swan › [A004] Little Grebe › [A061] Tufted Duck › [A052] Eurasian Teal › [A053] Mallard › [A142] Northern Lapwing The wind farm site is located outside the potential foraging range of SCI species associated with the SPA E(SNH, 2016; Johnson *et al.*, 2014). It is also located outside the zone of sensitivity of any species that is listed as particularly sensitive to wind energy development in Mc Guinness *et al.* (2015). The Proposed Development is located upstream within the same hydrological sub-catchment to the SPA (Inny(Shannon)_SC_090); therefore, potential hydrological connectivity exists between the Proposed Development site and the SPA, as water flow from within the development site is to the north through the SPA. This may result in potential hydrological connectivity to the SAC, therefore the works have the potential, in the absence of mitigation, potential impact exists for significant effects on supporting Wetlands and Waterbirds [A999] habitat. Taking a precautionary approach, a potential pathway for indirect effects was identified in the form of deterioration of water

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
			quality via the percolation of polluting materials through the bedrock underlying the site during the construction and operational phases. Deterioration of water quality may result in adverse effects on the SCI Wetland and Waterbirds [A999] in the absence of mitigation. This SCI includes the supporting wetland habitat of all SCI species. **The SPA is considered to be *within* the Likely Zone of Impact and further assessment is required.**
Middle Shannon Callows SPA [004096] **Distance: 14.7km south-west/ 15.3km west**	› [A038] Whooper Swan (*Cygnus cygnus)* › [A050] Wigeon (*Anas Penelope*) › [A122] Corncrake (*Crex crex*) › [A140] Golden Plover (*Pluvialis apricaria*) › [A142] Lapwing (*Vanellus vanellus*) › [A156] Black-tailed Godwit (*Limosa limosa*) › [A179] Black-headed Gull (*Chroicocephalus ridibundus*) ›	This site has the generic conservation objectives (NPWS, 26/01/22[16]): "*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA"* And: "*To maintain or restore the favourable conservation condition of the wetland habitat at Middle Shannon Callows SPA as a resource*	There will be no direct effects to SCI species from habitat loss or damage as the Proposed Development is located entirely outside the designated site. The wind farm site is located outside the potential foraging range of SCI species associated with the SPA (SNH, 2016; Johnson *et al.*, 2014). It is also located outside the zone of sensitivity of any species that is listed as particularly sensitive to wind energy development in Mc Guinness *et al.* (2015). Therefore there will be no direct or indirect impacts on SCI species relating to collision or displacement. The site is located within a separate hydrological catchment to the SAC, however hydrological connectivity does exist. The proposed Grid Connection route crosses the River Brosna (ID:

[16] *NPWS (2022) Conservation objectives for Middle Shannon Callows SPA [004096]. Generic Version 9.0. Department of Housing, Local Government and Heritage.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
		for the regularly-occurring migratory waterbirds that utilise it." Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004096.pdf	IE_SH_25B091000). The River Brosna ultimately flows into the Middle Shannon Callows SPA. Therefore, the works have the potential, in the absence of mitigation, to impact on water quality through pollutants including hydrocarbons, fuel and sedimentation. Due to the importance of the wetland habitat provided by this SPA to the listed SCI species, further assessment is required to determine the potential impact, if any, from this Proposed Development **The SPA is *within* the Likely Zone of Impact and no further assessment is required.**
Lough Ennell SPA [004044] **Distance: 16.1km east/ 9.3km north-east**	› [A059] Pochard (*Aythya farina*) › [A061] Tufted Duck (*Aythya fuligula*) › [A125] Coot (*Fulica atra*)	This site has the generic conservation objectives (NPWS, 26/01/22[17]): "*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA"* And: "*To maintain or restore the favourable conservation condition of the wetland habitat at Lough Ennell SPA as a resource for the*	There will be no direct effects to SCI species from habitat loss or damage as the Proposed Development is located entirely outside the designated site. The wind farm site is located outside the potential foraging range of SCI species associated with the SPA. It is also located outside the zone of sensitivity of any species that is listed as particularly sensitive to wind energy development in Mc Guinness *et al.* (2015). Therefore there will be no direct or indirect impacts on SCI species relating to collision or displacement. The site is located within a separate hydrological sub-catchment to the SAC, and no hydrological connectivity exists. There is therefore, no potential pathway for significant effects on the

[17] *NPWS (2022) Conservation objectives for Lough Ennell SPA [004044]. Generic Version 9.0. Department of Housing, Local Government and Heritage.*

European Sites and distance from proposed Wind Farm Site/ Grid Connection	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 01/03/2023)	Conservation Objectives	Identification of Impact Pathways and Screening Assessment
		regularly-occurring migratory waterbirds that utilise it." Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004044.pdf	supporting wetland habitat of the SPA. **The SPA is *outside* the Likely Zone of Impact and no further assessment is required.**

3.2 Likely Cumulative Impact of the Proposed Development on European Sites, in-combination with other plans and projects

3.2.1.1 Development context – Ecological Plans and Policies

The following development plans have been reviewed and taken into consideration as part of this assessment:

- Westmeath County Development Plan 2021 - 2027
- Offaly County Development Plan 2021 - 2027
- National Biodiversity Action Plan 2017-2021
- Draft 4th National Biodiversity Action Plan 2023-2027
- Eastern and Midland Regional assembly: Regional Spatial and Economic Strategy 2019–2031 (RSES)

The review focused on policies and objectives that relate to Natura 2000 sites and natural heritage. Policies and objectives relating to sustainable land use were also reviewed.

Table 3-2: Review of land use and spatial plans

	Key Policies/Issues/Objectives Directly Related to European Sites In The Zone of Influence	Assessment of development compliance with policy
Westmeath County Development Plan 2021 - 2027	**CPO 12.1** Contribute as appropriate towards the protection of designated sites in compliance with relevant EU Directives and applicable national legislation. **CPO 12.2** Support the implementation of any relevant recommendations contained in the National Biodiversity Plan, the All Ireland Pollinator Plan and the National Peatlands Strategy. **CPO 12.4** Protect and conserve Special Areas of Conservation, candidate Special Areas of Conservation, Special Protection Areas and candidate Special Protection Areas, designated under the EU Birds and Habitats Directives respectively. **CPO 12.5** Ensure that no plans, programmes, etc. or projects giving rise to significant cumulative, direct, indirect or secondary impacts on European Sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Plan (either individually or in combination with other plans, programmes, etc. or projects). Footnote: Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be a) no alternative solution available, b) imperative reasons of overriding public interest for the project to proceed; and c) Adequate compensatory measures in place. **CPO 12.6** Ensure that any plan or project that could have a significant adverse impact (either by themselves or in combination with other plans and projects) upon the conservation objectives of any Natura 2000 Site or would result in the deterioration of any habitat or any species reliant on that habitat will not be permitted. Footnote: Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be a) no alternative solution available, b) imperative reasons of overriding public interest for the project to proceed; and c) Adequate compensatory measures in place. **CPO 12.7** Assess any plan or project in accordance with Article 6 of the Habitats Directive to determine whether the plan or project is likely to have a significant effect on the site either individually or cumulatively upon the integrity, conservation objectives and qualifying interest of any Natura 2000 Site. **CPO 12.8**	The plans were comprehensively reviewed with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified. There will be no impact on designated sites or other natural heritage interests as a result of the Proposed Development. Best practice preventative measures will be implemented to avoid effects on water quality as outlined in Section 6 of this report. There will be no adverse effects on sensitive aquatic receptors listed as QIs/SCIs of European Sites as a result of deterioration in water quality.

	Require an ecological appraisal for development not directly connected with or necessary to the management of Natura Sites, or a proposed Natura Site and which are likely to have significant effects on that site either individually or cumulatively. **CPO 12.9** Identify and provide appropriate buffer zones between Designated Sites and local biodiversity features and areas zoned for development.	
Offaly County Development Plan 2021 - 2027	**Designated and Non-designated Sites** **BLP-01:** It is Council policy to protect, conserve, and seek to enhance the county's biodiversity and ecological connectivity. **BLP-02:** It is Council policy to conserve and protect habitats and species listed in the Annexes of the EU Habitats Directive (92/43/EEC) (as amended) and the Birds Directive (2009/147/EC), the Wildlife Acts 1976 (as amended) and the Flora Protection Orders. **BLP-03:** It is Council policy to support and co-operate with statutory authorities and others in support of measures taken to manage proposed or designated sites in order to achieve their conservation objectives. **BLP-05:** It is Council policy to ensure that development does not have a significant adverse impact, incapable of satisfactory avoidance or mitigation, on plant, animal or bird species protected by law. **BLP-06:** It is Council policy to consult with the National Parks and Wildlife Service, and take account of any licensing requirements, when undertaking, approving or authorising development which is likely to affect plant, animal or bird species protected by law. **BLP-07:** It is Council policy to support the implementation of the National Biodiversity Action Plan 2017- 2021 and the Offaly Heritage Plan Key Actions 2017-2021 and future editions in partnership with relevant stakeholders subject to available resources. **BLP-08:** It is Council policy to work with all state agencies to promote the development of all aspects of park management in the Slieve Bloom Mountains.	The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the biodiversity, protected species and designated sites. No potential for negative cumulative impacts when considered in combination with the Proposed Development were identified.
Eastern and Midland Regional assembly: Regional Spatial and Economic Strategy 2019 – 2031	**11. Biodiversity and Natural Heritage** Promote co-ordinated spatial planning to conserve and enhance the biodiversity of our protected habitats and species including landscape and heritage protection. (NSO 7, 8)	There will be no adverse effects on QI's/SCI's/SSCO's as a result of deterioration in water quality or disturbance. The Proposed Development has been designed to avoid any

	Guiding Principles: **Integration of Land Use and Transport** Ensure the protection of Natura 2000 networks and associated ecological linkages. Plans and projects that have the potential to negatively impact on Natura 2000 sites should be subject to the requirements of the Habitats Directive. **Surface Water** Take opportunities to enhance biodiversity and amenity and to ensure the protection of environmentally sensitive sites and habitats, including where flood risk management measures are planned. Plans and projects that have the potential to negatively impact on Natura 2000 sites should be subject to the requirements of the Habitats Directive. **Regional policy objectives:** **Water Supply** **RPO 10.6:** Delivery and phasing of services shall be subject to the required appraisal, planning and environmental assessment processes and shall avoid adverse impacts on the integrity of the Natura 2000 network. **RPO 10.7:** Local authority core strategies shall demonstrate compliance with DHPLG Water Services Guidelines for local authorities and demonstrate phased infrastructure – led growth that is commensurate with the carrying capacity of water services and prevent adverse impacts on the integrity of water dependent habitats and species within the Natura 2000 network. Green Infrastructure **RPO 7.22:** Local authority development plan and local area plans, shall identify, protect, enhance, provide and manage Green Infrastructure in an integrated and coherent manner and should also have regard to the required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks, and protected species. Ports **RPO 8.24:** The EMRA supports the undertaking of feasibility studies to determine the carrying capacity of ports in relation to potential for likely significant effects on associated European sites including SPAs and SACs. Environmental Assessment and Assessment of Greenhouse Gas (GHG) Emissions	effects on water quality and/or designated natura sites outside the site as set out in section 5 of this NIS. The Proposed Development will be subject to a full environmental assessment i.e. EIA and AA.

	RPO 3.4: Ensure that all plans, projects and activities requiring consent arising from the Regional Spatial and Economic Strategy are subject to the relevant environmental assessment requirements including SEA, EIA and AA as appropriate. In addition the future strategic development of settlements throughout the Region will have full cognisance of the legal requirements pertaining to sites of International Nature Conservation Interest. Biodiversity and Natural Heritage **RPO 7.16:** Support the implementation of the Habitats Directives in achieving an improvement in the conservation status of protected species and habitats in the Region and to ensure alignment between the core objectives of the EU Birds and Habitats Directives and local authority development plans.	
Draft 4th National Biodiversity Action Plan 2023-2027	**Objective 2 - Meet Urgent Conservation and Restoration Needs** **Outcome 2A:** The protection of existing designated areas and species is strengthened and conservation and restoration within the existing protected are network are enhanced 29 **Outcome 2B:** Biodiversity and ecosystem services in the wider countryside are conserved 32 18 27 Navigation **Outcome 2C:** All freshwater bodies are of at least 'Good Ecological Status' as defined under the EU Water Framework Directive 36 **Outcome 2D:** Genetic diversity of wild and domesticated species is safeguarded 39 **Outcome 2E:** A National Restoration Plan is in place to meet EU Biodiversity Strategy 2030 nature restoration targets 41 **Outcome 2F:** Biodiversity and ecosystem services in the marine environment are conserved and restored 42 **Outcome 2G:** Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment	There will be no adverse effects on designated sites or biodiversity as a result of the Proposed Development. The Proposed Development will not impact on connectivity within the wider area and will maintain watercourses within and adjacent to the development site in good condition. No Invasive species were present within the Site, and the Proposed Development will not contribute to the spread of invasive species
National Biodiversity Action Plan 2017-2021	**Target 4.2**: Principal pollutant pressures on terrestrial and freshwater biodiversity substantially reduced by 2020. **Target 6.2** - Sufficiency, coherence, connectivity, and resilience of the protected areas network substantially enhanced by 2020.	There will be no adverse effects on designated sites or biodiversity as a result of the Proposed Development. The Proposed Development will not impact on connectivity within the wider area and will maintain watercourses within and adjacent to the development site in good condition.

3.2.1.2 Other Projects

Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the Proposed Development and was verified on the 13/02/2023. The material was gathered through a search of relevant online Planning Registers, reviews of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities and their environmental impacts. All relevant projects have been considered in relation to the potential for in-combination effects within the accompanying NIS. All relevant data was reviewed (e.g. individual AA reports, EISs/EIARs, layouts, drawings etc.) for all relevant projects. Projects considered are listed below.

3.2.1.2.1 *Other Wind Farm Sites*

There are 9 no. wind farm developments operational, consented or proposed, that have been identified due to either an application, a request for pre-application consultation having been lodged or permitted, or proposed wind farm projects identified in the Public Domain within the cumulative study area:

- Lemanaghan (Pre-Application Phase – ABP 310844) – 13-17 turbines
- Leabeg Wind Farm (Existing) – 2 turbines
- Coole Wind Farm (Significant FI requested) - 15 turbines / (Granted 27/03/2019 (subject to Judicial Review)) – 13 turbines
- Derrinlough (Granted) – 21 turbines
- Cloghan (Granted) – 9 turbines
- Kepack (Kilbeggan) (FI requested) – 1 turbine
- Lissanore (FI received) – 1 turbine
- Derryadd (Pre-Application Phase – ABP 314965) – 25 turbines

Any potential for cumulative affects arising in-combination with screened-in European Sites are considered in Section 8.2.2 of the accompanying NIS.

3.2.1.2.2 *Non Renewable Energy Developments*

Section 1.3 And Section 1.4 of Appendix 9 of the accompanying NIS provides a list of all non-wind farm development existing and approved projects as well as planning applications pending a decision within a 2km of the proposed turbine infrastructure within the Wind Farm Site and within 200m of the underground electrical cabling route. The material was gathered through a search of relevant online Planning Registers, reviews of relevant Appropriate Assessment, EIAR (or historical EIS) documents, planning application details and planning drawings, and served to identify past and future projects, their activities and their environmental impacts. Where relevant to the geographical boundaries of the various zones of sensitivity of and to the Proposed Development from which there may be potential for cumulative impacts to arise relative to screened-in European Sites (see Table 8-2 of the NIS), these other developments have been assessed within the accompanying NIS.

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3.2.2 Conclusion of In-combination Screening Assessment

Following the detailed assessment provided in the preceding sections, the potential for likely significant effects on the following European Sites cannot be excluded in the absence of mitigation:

- Lough Ree SAC [000440]
- Lough Ree SPA [004064]
- River Shannon Callows SAC [000216]
- Middle Shannon Callows SPA [004096]

Further assessment in relation to the above listed sites is carried out within the accompanying Natura Impact Statement for the Proposed Development.

All plans and projects identified in Appendix 9 of the accompanying NIS have been brought forward for further consideration to Stage 2 of the Appropriate Assessment process in relation to the above European Sites, and are considered further within the NIS document.

4. APPROPRIATE ASSESSMENT SCREENING STATEMENT AND CONCLUSIONS

4.1 Concluding Statement

Following an examination, analysis and evaluation of the relevant data and information set out within this AA Screening Report, it cannot be excluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the Proposed Development, individually or in combination with other plans and projects, would be likely to have a significant effect on the following sites:

- Lough Ree SAC [000440]
- Lough Ree SPA [004064]
- River Shannon Callows SAC [000216]
- Middle Shannon Callows SPA [004096]

As a result, an Appropriate Assessment is required, and a Natura Impact Statement has been prepared in respect of the Proposed Development in order to assess whether the Proposed Development will adversely impact the integrity of these European Sites, alone, or in combination with other plans and projects.

No pathways for significant effect on any other European Site were identified. Thus, it can be excluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the Proposed Development, individually or in combination with other plans and projects, would be likely to have a significant effect on any other European Sites than those listed above.

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