Perigus Energy Ireland Midco Limited

Proposed Greenhills Renewable Energy Park, County Cork

Planning and Environmental Report

RSK Project No. 605444

AUGUST 2026

AUGUST 2026

CONTENTS

TABLES

FIGURES

APPENDICES

LIST OF ACRONYMS

Abbreviation	Description
AC	Alternating Current
AIS	Air Insulated Substation
BEMP	Biodiversity Enhancement Management Plan
BESS	Battery Energy Storage System
BPM	Best Practicable Means
CEO	Chief Executive Officer
CIEEM	Ecology and Environmental Management
CLO	Community Liaison Officer
CBGM	Cement Bound Granular Material
DAA	Dublin Airport Authority
DC	Direct Current
DRP	Decommissioning and Restoration Plan
DSM	Digital Surface Model
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EMI	Electromagnetic Interference
EMC	Electromagnetic Compatibility
EMF	Electromagnetic Field
EnCOW	Environmental Clerk of Works
FAQs	Frequently Asked Questions
HDPE	High-Density Polyethylene
HGV	Heavy Goods Vehicle
HVAC	Heating, Ventilation and Air Conditioning
IAA	Irish Aviation Authority
IPP	Independent Power Producer
KERs	Key Ecological Receptors
LVIA	Landscape and Visual Impact Assessment
NIAH	National Inventory of Architectural Heritage
MW	Megawatt
MWh	Megawatt Hour
NBS	Nature Based Solutions
NMS	National Monuments Service
OCM	Outline Construction Methodology
OHL	Overhead Line
OPW	Office of Public works
PER	Planning and Environmental Assessment Report
PV	Photovoltaic
QI	Qualifying Interests

REDIII	Renewable Energy Directive III
RMU	Ring Main Unit
RPS	Record of Protected Structures
RWMP	Resource and Waste Management Plan
SCI	Special Conservation Interests
SI	Site Investigations
SID	Strategic Infrastructure Development
SMR	Sites and Monuments Record
SSZ	Solar Safeguarding Zones
SuDS	Sustainable Drainage System
TDR	Transformer Delivery Route
UGC	Underground Cabling
ZTV	Zone of Theoretical Visibility

EXECUTIVE SUMMARY

This Planning and Environmental Assessment Report (PER) provides a comprehensive overview of the Greenhills Energy Park, the Proposed Development, submitted by Perigus Energy Ireland Midco Limited[1]. The report has been prepared by RSK Ireland, Jennings O'Donovan, and other RSK Group companies, with contributions from specialist consultants, to support a planning application to Cork County Council under Section 34 of the Planning and Development Act 2000 (as amended) The aim of this PER is to provide detailed information and analysis to inform the Planning Authority's assessment of the Proposed Development.

The Proposed Development comprises three main components: a solar farm spanning circa 323 hectares across four areas of agricultural land; a Battery Energy Storage System (BESS) consisting of 56 battery units arranged in 14 rows, complete with inverters, transformers, and Ring Main Units (RMUs); and a 220kV air-insulated substation (AIS) to be integrated with the national grid via a loop-in to the existing Knockraha-Cullenagh 220kV overhead line. The substation element will include temporary accommodation works for transformer delivery and is subject to a separate planning application with An Coimisiún Pleanála.

The PER assesses the Proposed Development within the context of national, regional and local planning policy, including the Cork County Development Plan, and demonstrates that the Proposed Development aligns with strategic objectives relating to renewable energy generation, climate action and the transition to a low-carbon economy.

The design and layout of the Proposed Development have been informed by a detailed understanding of the receiving environment and have evolved to avoid, reduce and mitigate potential environmental effects.

A comprehensive suite of environmental assessments has been undertaken, covering ecology, landscape and visual impact, traffic and transport, land, soils and geology, hydrology and hydrogeology, glint and glare, cultural heritage and archaeology, noise and vibration, and Electromagnetic Fields (EMF) and Electromagnetic Compatibility (EMC). These assessments conclude that, with the implementation of the proposed mitigation measures, the Proposed Development is unlikely to give rise to any significant adverse environmental effects.

Overall, the PER demonstrates that the Proposed Development is generally consistent with the principles of proper planning and sustainable development and aligns with the objectives of the Cork County Development Plan. Subject to the assessment of the Planning Authority and consideration of all material planning considerations, the Proposed Development is considered capable of being accommodated within the receiving environment and of delivering net positive environmental effects, while making a meaningful contribution to Ireland's renewable energy and climate action objectives.

[1] Since the pre-application consultation process with Cork County Council and the lodgement of Planning Application Ref. 25/6876 (subsequently deemed incomplete by Cork County Council by notice dated 10th February 2026), the applicant company has changed its registered name from **Orsted Onshore Ireland Midco Limited** to **Perigus Energy Ireland Midco Limited**. This is a change of name only and does not affect the legal entity, or interest in the Proposed Development. Accordingly, all references in this report and its appendices to **Perigus Energy Ireland Midco Limited** or **Orsted Onshore Ireland Midco Limited** refer to the same legal entity. Further details are provided in the Application Cover Letter.

1 INTRODUCTION AND BACKGROUND

1.1 Introduction

This Planning and Environmental Assessment Report (PER) has been prepared by RSK Ireland, Jennings O'Donovan and other companies within the RSK Group (along with associated specialist consultants, including Ai Bridges, Macro Works and TLI), on behalf of Perigus Energy Ireland Midco Limited[2] (the Applicant).

This PER has been prepared in accordance with Section 34 of the Planning and Development Act 2000, (as amended) as part of a planning application made to Cork County Council to construct, operate, and decommission the proposed Greenhills Renewable Energy Park in County Cork (hereafter referred to as the 'Proposed Development'). The purpose of this Report is to furnish the Planning Authority with detailed information on the Proposed Development to support their decision-making process.

The three key components that are described throughout this PER are listed below:

- The proposed solar farm which consists of four distinct areas of circa 323 hectares located on agricultural lands.
- The Battery Energy Storage System (BESS) which comprises a linear array of 56 battery units arranged in 14 rows with inverters, transformers and Ring Main Units (RMUs).
- A proposed 220kV air insulted substation (AIS) substation to be connected to the national grid by looping into the existing Knockraha-Cullenagh 220kV overhead line which runs through the southern side of the site. The proposed substation includes temporary accommodating works along a substation transformer delivery route (TDR) to the Proposed Development.

The term 'Proposed Development' collectively describes the above three components which are assessed within this PER. The solar farm and BESS elements form part of the planning application made to Cork County Council, while the grid connection and loop-in 220 kV substation is subject to a separate strategic infrastructure development (SID) planning application being made to An Coimisiún Pleanála.

In addition to setting out the planning policy context relevant to the Proposed Development, this PER examines potential environmental impacts resulting from the Proposed Development under the following topics:

- Ecology
- Land, Soils, Geology, Hydrology and Hydrogeology (including Flood Risk Assessment (FRA) and Drainage Design)

[2] Since the pre-application consultation process with Cork County Council and the lodgement of Planning Application Ref. 25/6876 (subsequently deemed incomplete by Cork County Council by notice dated 10th February 2026), the applicant company has changed its registered name from **Orsted Onshore Ireland Midco Limited** to **Perigus Energy Ireland Midco Limited**. This is a change of name only and does not affect the legal entity or interest in the Proposed Development. Accordingly, all references in this report and its appendices to **Perigus Energy Ireland Midco Limited** or **Orsted Onshore Ireland Midco Limited** refer to the same legal entity. Further details are provided in the Application Cover Letter.

- Landscape and Visual
- Glint and Glare
- Archaeology and Cultural Heritage
- Noise and Vibration
- Electromagnetic Fields (EMF) and Electromagnetic Compatibility (EMC)

1.2 The Applicant

The applicant is Perigus Energy Ireland Midco Limited (hereafter referred to as 'Perigus). Perigus owns and operates a 373 MW portfolio of onshore wind farms in local communities across the island of Ireland, with an additional 136MW of solar and 43MW of wind energy currently under construction and a further 1GW+ at various stages of planning.

Perigus specialises in the development of renewable energy projects, working with communities from pre-planning stage to operational stage, and creating long lasting local partnerships. The Perigus Irish team are based in Cork and are led by one of Europe's most experienced renewables management teams, which also benefits from Perigus' position as a global leader in the field. Perigus is committed to developing projects with successful outcomes for all stakeholders. Working with integrity and care for the local environment, Perigus' wind farms have been contributing to Ireland's energy market since 1997.

1.3 Site Location

The Proposed Development is located in the townlands of Knocknagappagh, Barnaviddane, Ballyneague, Ballydaniel, Youghalpark, Ballydaheen and Cornaveigh of County Cork. More specifically, it is located adjacent to the R634 road approximately 7km north-west of the settlement of Youghal and 6.5km north-east of Killeagh, see Figure 1.1 below.

The site area is relatively flat and comprises agricultural lands in a rural setting with low population density. The high level of solar irradiance in the southern region of the country makes it ideal for the development of renewable solar photovoltaic projects.

Figure 1.2 illustrates the main components of the Proposed Development.

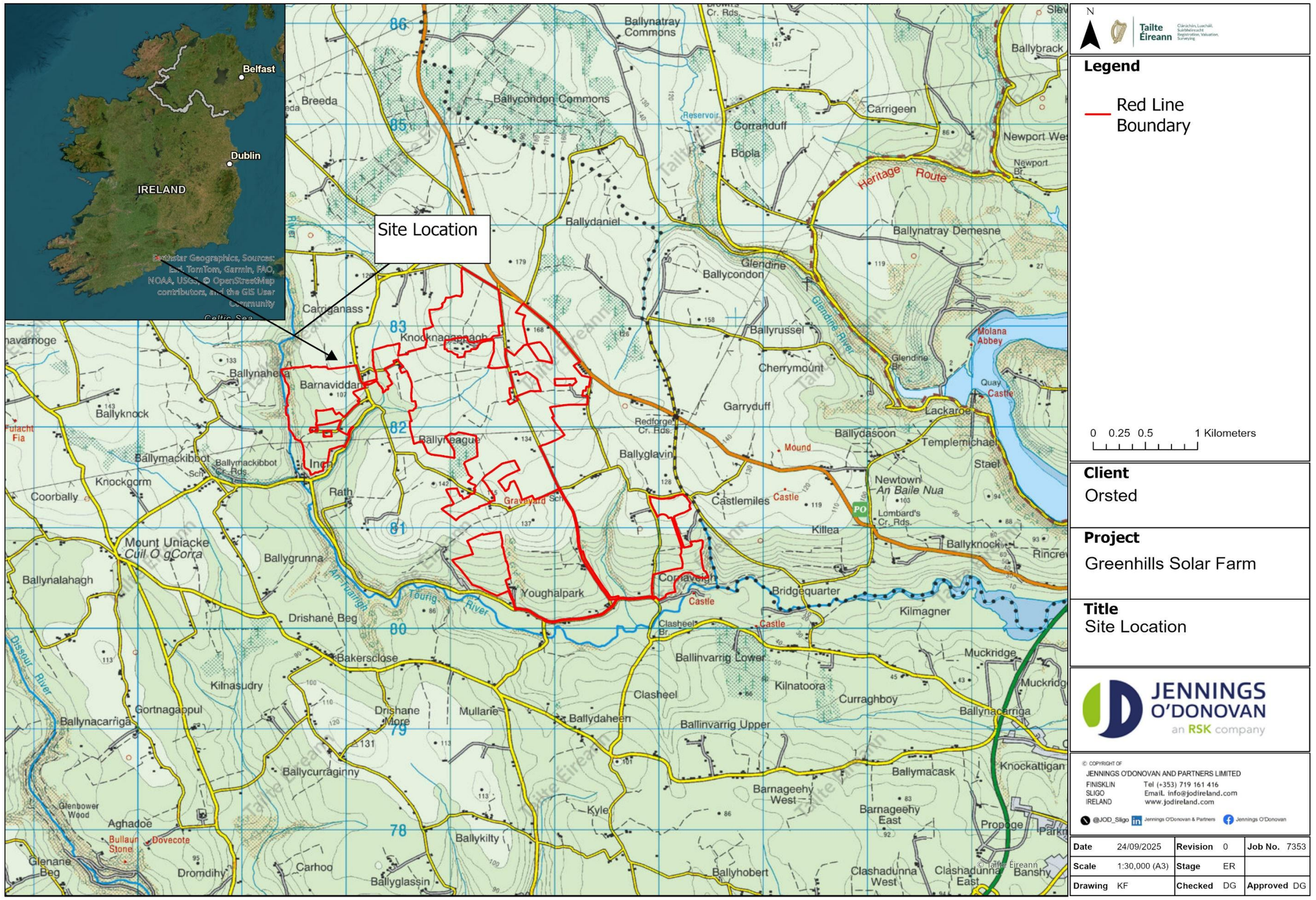


Figure 1.1: Proposed Development Site Location

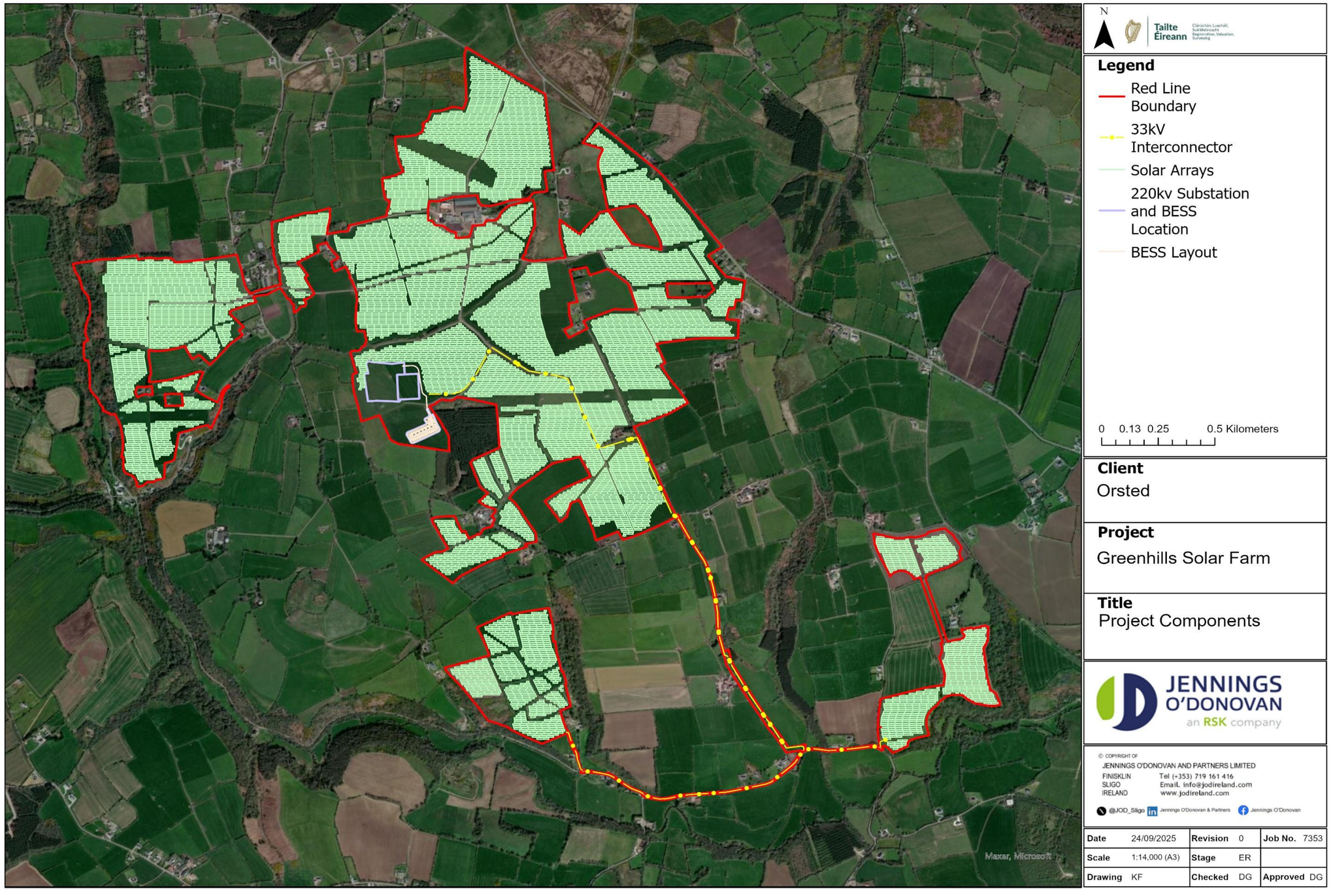


Figure 1.2: Proposed Development Main Components

1.4 Relevant Planning History

There is an established principle supporting renewable energy development as a result of previous planning permissions granted on part of the landholding. There were two previous granted planning applications on the site as follows, providing a foundation for the Proposed Development:

- Planning permission was granted by CCC on the 19th January 2004 under planning application reference 02/4588 for 2 no. wind turbines and all ancillary works.
- A further application for an extension of duration was granted permission by Cork County Council under planning application reference 08/9956, but was not implemented.

Building on this precedent, the current application seeks to integrate new technologies and design solutions while addressing both environmental and community considerations in line with local policy objectives.

1.5 Permission Sought

The planning application to Cork County Council seeks a 10-year planning permission for the construction of a renewable energy development comprising a solar farm and BESS with an operational life of 40 years.

The Proposed Development comprises the following components:

- An approximately 323 ha solar farm with ca. 210 ha of solar panels fixed on ground-mounted frames.
- The provision of 54 no. inverter/transformer stations placed on concrete pads on hardcore sized 120m^2.
- Site access tracks formed from the provision of 5,135m of new site access tracks and the upgrade of 7,115m of existing access tracks/roads to facilitate access to all onsite infrastructure.
- The provision of 1 no. new permanent site entrance for construction and operational access, with the addition of a temporary overrun area from the R634 regional road in the townland of Ballydaniel (site entrance 1).
- The permanent realignment of 1 no. existing field access for construction and operational access from the L7806 local road in the townland of Knocknagappagh (site entrance 2).
- The provision of 1 no. new permanent site entrance for construction and operational access from the L3803 local road in the townland of Barnaviddane (site entrance 3).
- The permanent realignment of 1 no. existing entrance for construction and operational access from the L3808 local road in the townland of Youghalpark (site entrance 4).
- The permanent realignment of 1 no. existing entrance for construction and operational access from the L38081 local road in the townland of Cornaveigh (site entrance 5).
- The permanent realignment of 2 no. existing field entrances for construction and operational access from the L7828 local road in the townland of Ballyneague (site entrance 6 and 7).

- The permanent realignment of 3 no. existing field access for construction and operational access from the L7829 local road in the townland of Ballydaniel (site entrance 8, 9 and 10).
- The permanent realignment of 1 no. existing entrance for construction and operational access from the L38032 local road in the townland of Knocknagappagh (site entrance 11).
- Underground electrical ducting and cabling, including 3 no. road crossings (local roads L7829, L3803 and L78281) and 3 no. culvert crossings on the L3808.
- The provision of 5 no. Temporary construction compounds of which there will be 1 main temporary construction compound (Compound No. 1 located in Ballyneague) ca. 5,200m^2 with associated temporary offices, staff facilities parking and security fencing, and 4 no. additional temporary laydown areas of ca. 2,000m^2 each located in the townlands of Ballydaniel, Barnaviddane, Cornaveigh and Youghalpark.
- Landscaping works encompassing the removal of 395m hedgerow, the planting of 1,400m of new hedgerow and up to 31,000m of linear hedgerow and mosaic hedgerow as required all included in a Landscape Mitigation Plan.
- The provision of Biodiversity Enhancement Areas.
- The provision of 1 no. temporary spoil storage area.
- The construction of a ca. 7,800m^2 Battery Energy Storage System (BESS) compound including 56 no. Battery Container Units, 7 no. Inverter Twin Skid Units each consisting of 2 no. Inverters and 1 no. Transformer housed in Modular Enclosures, Communications Building housing switchgear and controls, House Transformer, Back-up Generator and Fuel Supply located in a Bunded Reinforced Concrete Plinth Area, Control Building, Internal Access Tracks, Security Fencing, CCTV, Lighting, Drainage any all other ancillary infrastructure.
- All ancillary development such as drainage infrastructure (clean water cut off drains), security fencing, CCTV, weather stations and storage containers for spare parts.
- A separate planning application for the on-site 220kV AIS Substation and loop in Grid Connection (Pre-Application no. 25-322687) will be submitted to An Coimisiún Pleanála under S182A of The Planning Act 2000 (As Amended).

2 ARRIVING AT THE FINAL DESIGN

Arriving at the final design for the Proposed Development was an iterative process of collaboration between Perigus, the designers, environmental and planning consultants as well as stakeholder consultation to achieve a final layout which minimised the potential impacts on the surrounding sensitive receptors.

The design also took into consideration the requirements of the Cork County Development Plan, particularly policies relating to planning, biodiversity protection, transport, landscape and visual including scenic and protected views, archaeology and cultural heritage and the potential impacts on the local community.

2.1.1 Design Philosophy

The design philosophy was to minimise potential impacts of the Proposed Development on the surrounding environment. This was achieved by building a comprehensive picture of the Proposed Development area through both desk based and field survey work, followed by design phase mitigation, which included avoidance and/or protection of sensitive receptors. This led to a comprehensive set of constraints that identified development areas which would have the minimum impact on key receptors while maximising the renewable energy output from the Proposed Development.

The key objectives of the design phase was to:

- Minimise the visual impact on local dwellings through appropriate buffer set-backs and screening.
- Identify key landscape and visual constraints providing exclusion areas and tailored set-backs to accommodate views from the public roads.
- Minimise the impact on biodiversity through robust design, inclusion of appropriate buffers for existing treelines and hedgerows, potential bat roosts, badger setts and protected bird species if present on site.
- Avoid areas with identified invasive species through appropriate buffering.
- Identify potential biodiversity enhancement measures which could be integrated into the Proposed Development.
- Protect archaeological and cultural heritage assets through appropriate buffering and screening.
- Identify and protect drainage infrastructure with appropriate buffers allowing for nature based solutions to attenuate any surface flows from the Proposed Development and avoid potential for downstream flooding.
- Utilise existing access points to the Proposed Development area to reduce the need for new access locations.
- Utilise internal trackways for transport delivery during construction, operation and decommissioning thereby reducing potential loss of treelines and hedgerows and potential impacts on the public road infrastructure.
- Utilise internal trackways to the extent possible for internal cabling between solar arrays and the substation location thus minimising potential loss of treelines and hedgerows.

- Minimise disruption of existing infrastructure such as transmission and distribution networks.

2.1.2 Constraints Identification

A key step in finalising design was to identify areas where Proposed Development should be excluded and where appropriate screening could be developed. To achieve this the below actions were implemented.

2.1.2.1 Community

To ensure adequate buffer zones for communities and individual dwellings, all dwellings within a 1.5 km distance from the Proposed Development's red line boundary were identified, see Figure 2.1. This facilitated the establishment of landscape and visual impact exclusion areas and appropriate tailored buffer zones.

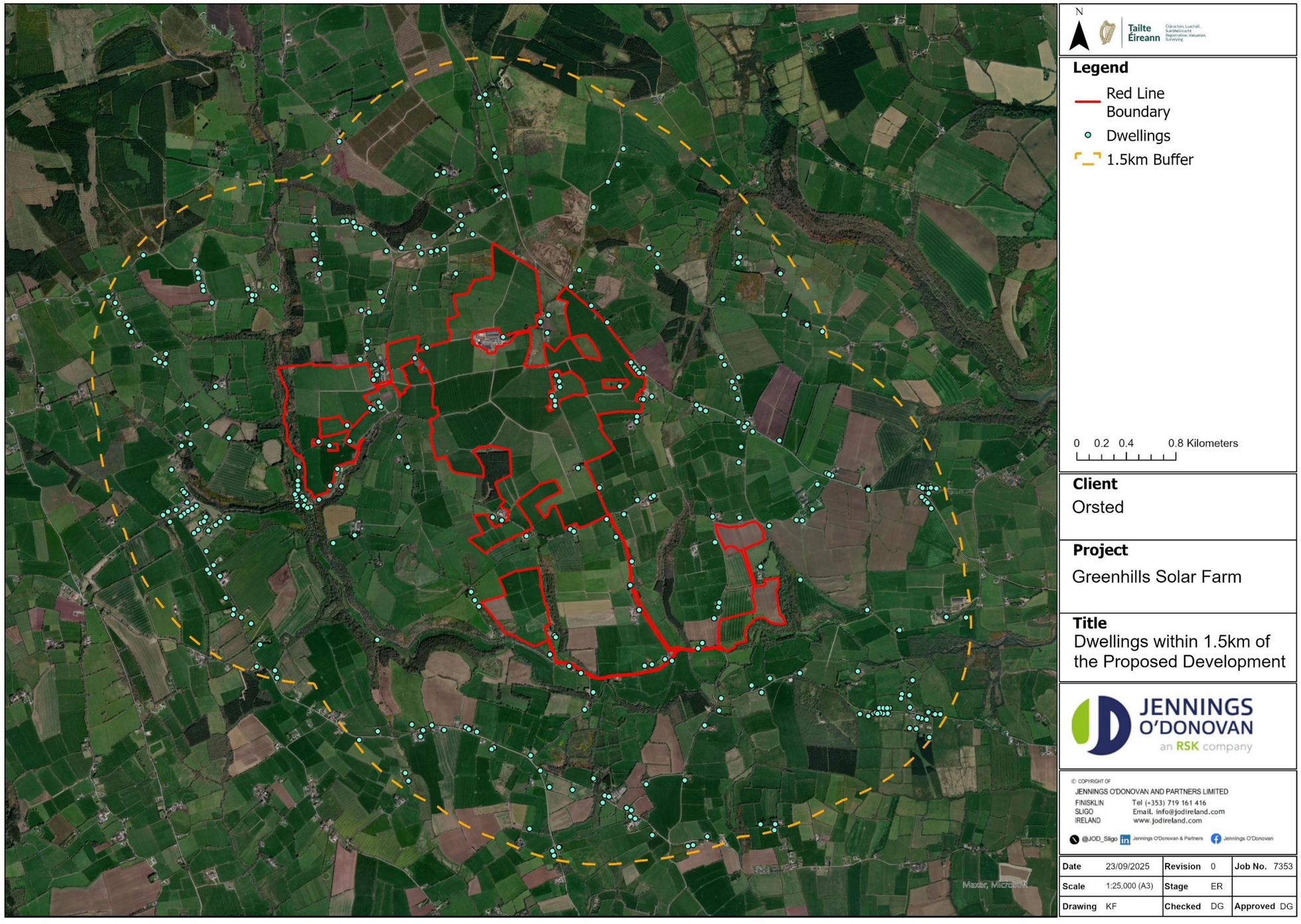


Figure 2.1: Dwellings within 1.5km of the Proposed Development Red Line Boundary

2.1.2.2 Landscape and Visual Surveys

Field surveys and desk-based studies identified that the Proposed Development is located in a robust rural landscape and is not contained within a susceptible high value landscape designation. When identifying constraints, the existence of some degree of scenic amenity was taken into account, principally relating to views across the River Blackwater in the opposite direction of the site. Also taken into consideration was the Scenic View S45 'Road Between Youghal and Tallow' which is located northeast of the site. The site visits also identified that there are some locally elevated parts of the landscape present with a higher degree of scenic amenity where open views are afforded across the surrounding rural landscape.

The field surveys identified viewpoints, see Figure 2.2, which encompass all local and wider area receptors in the study area and which covered the local community, scenic designations, centres of population, amenity and heritage receptors and major routes.

Arising from this, visual offsets have been included throughout the site and incorporated into the design to diminish visual effects at the nearest surrounding receptors, see Figure 2.3. These offset buffers identified areas where no solar development will take place and tailored solar array set-back distances and landscape mitigation measures were identified. Further information is presented in Chapter 12 of this PER.

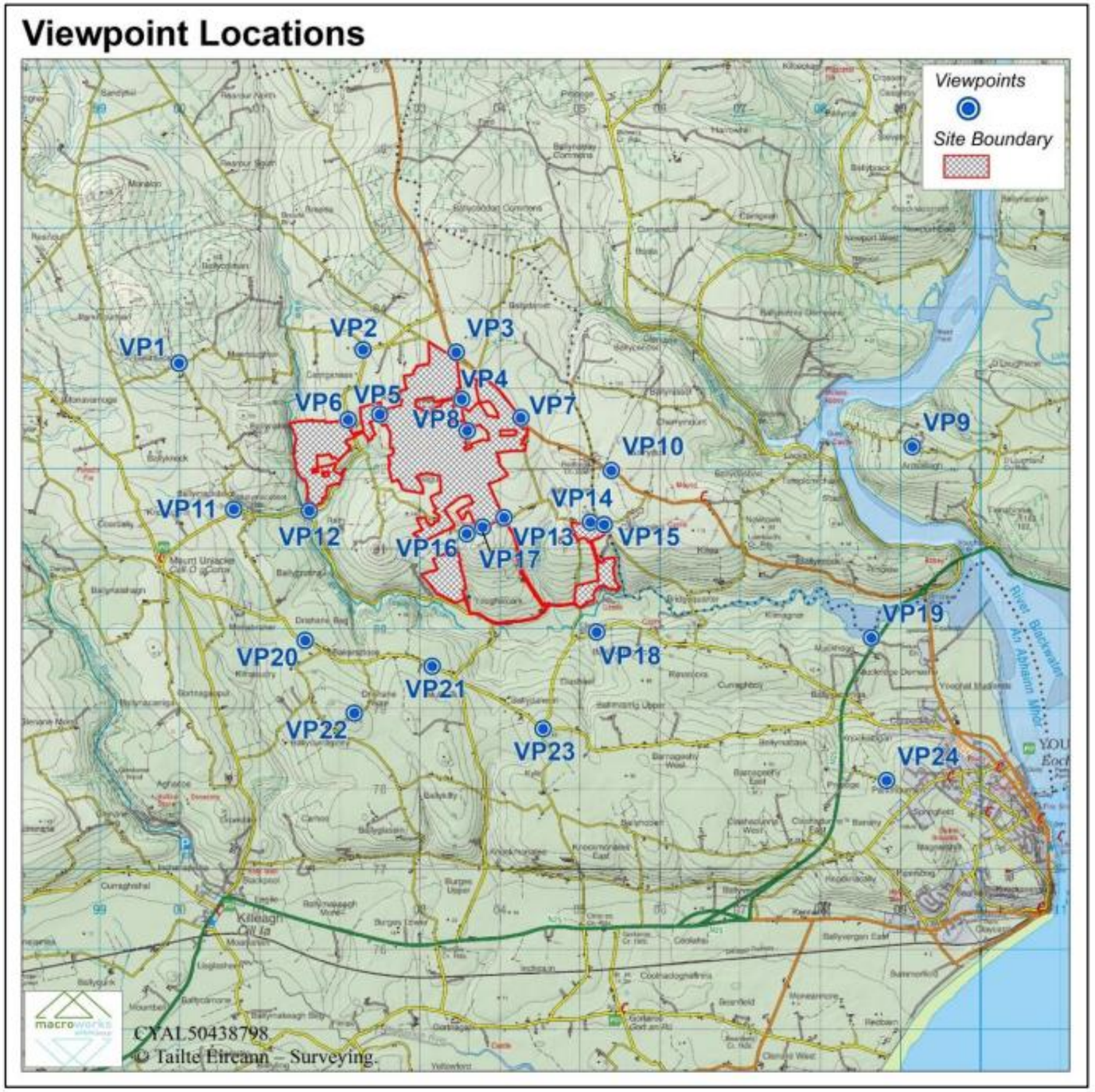


Figure 2.2: Viewpoint Plan

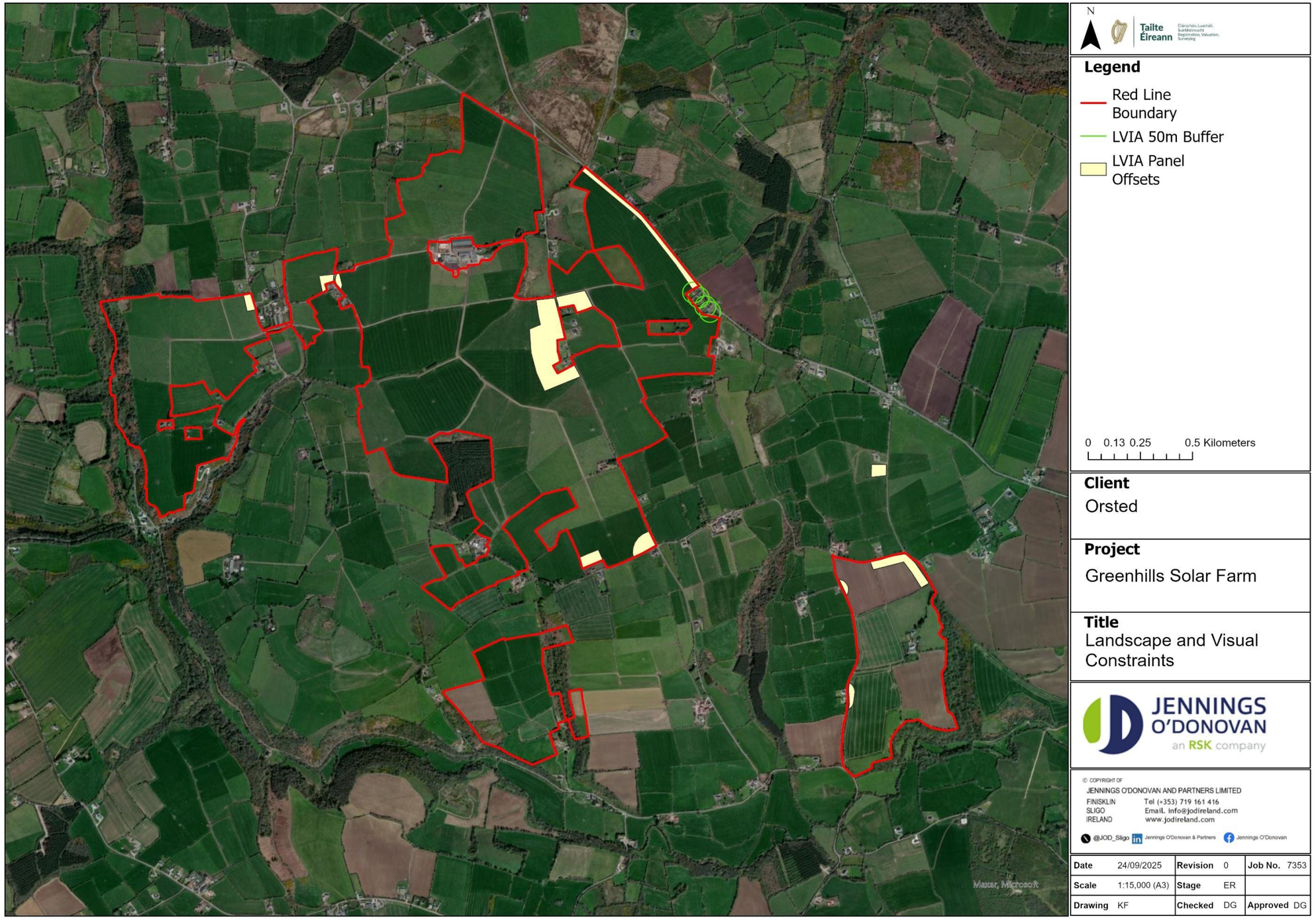


Figure 2.3: Landscape and Visual Constraints

2.1.2.3 Biodiversity

The Proposed Development does not form part of any Natura 2000 designated area. It is located circa 2km to the west of the of the Blackwater Estuary SPA and circa 2km west of the Blackwater River (Cork Waterford) SAC, see Figure 2.4. There are proposed Natural Heritage Areas with 15km of the Proposed Development, see Figure 2.5.

Hydrologically, the Proposed Development is connected to the Blackwater Estuary SPA (Site Code 004028) and the Blackwater River (Cork Waterford) SAC (Site Code 002170) by the Tourig River, whose tributaries drain the Proposed Development area, see Figure 2.6. The Natura 2000 sites, pNHAs and hydrological connection were taken into account in designing biodiversity surveys and identifying appropriate buffer distances for the Proposed Development components.

Biodiversity field surveys and desktop reviews identified that the site consists of large areas of improved agricultural grassland connected by a network of treelines and hedgerows with areas of scrub also present. The southeast section has areas of arable farming present. Three main watercourses are present which run through some areas of the site.

The surveys included:

- Water connectivity surveys: A vantage point survey was carried out to determine the presence of waterbird's during dusk or dawn periods flying through or actively using the project site. Breeding bird transect surveys were carried out to identify bird populations using the site
- Field assessments to evaluates the presence of species, habitats and buildings including Invasive species
- IWeBS: To assesses the distribution and abundance of waterbird activity within a project site.
- Emergence Surveys (Bats): To assess the presence and activity of bat species at predetermined sites which were identified during the Preliminary Roost Assessment.

The site exhibited low densities of common bird species typical of environments such as agricultural grassland which make up most of the site.

Badgers were recorded onsite and six setts were identified. Buffer zones around these setts were included in the final design layout. Buffer zones around identified invasive species locations were also incorporated as were buffers for identified potential bat roosts.

A key consideration in design was to minimise treeline and hedgerow loss through retention of these site features where possible. Should any sections of existing hedgerows need to be removed for construction, like-for-like planting with similar species will take place to ensure there is no net loss of hedgerow habitats. A further key consideration is the presence of protected areas hydrologically connected to the site. The key ecological constraints and buffer setbacks used in the design layout are shown in Figure 2.7.

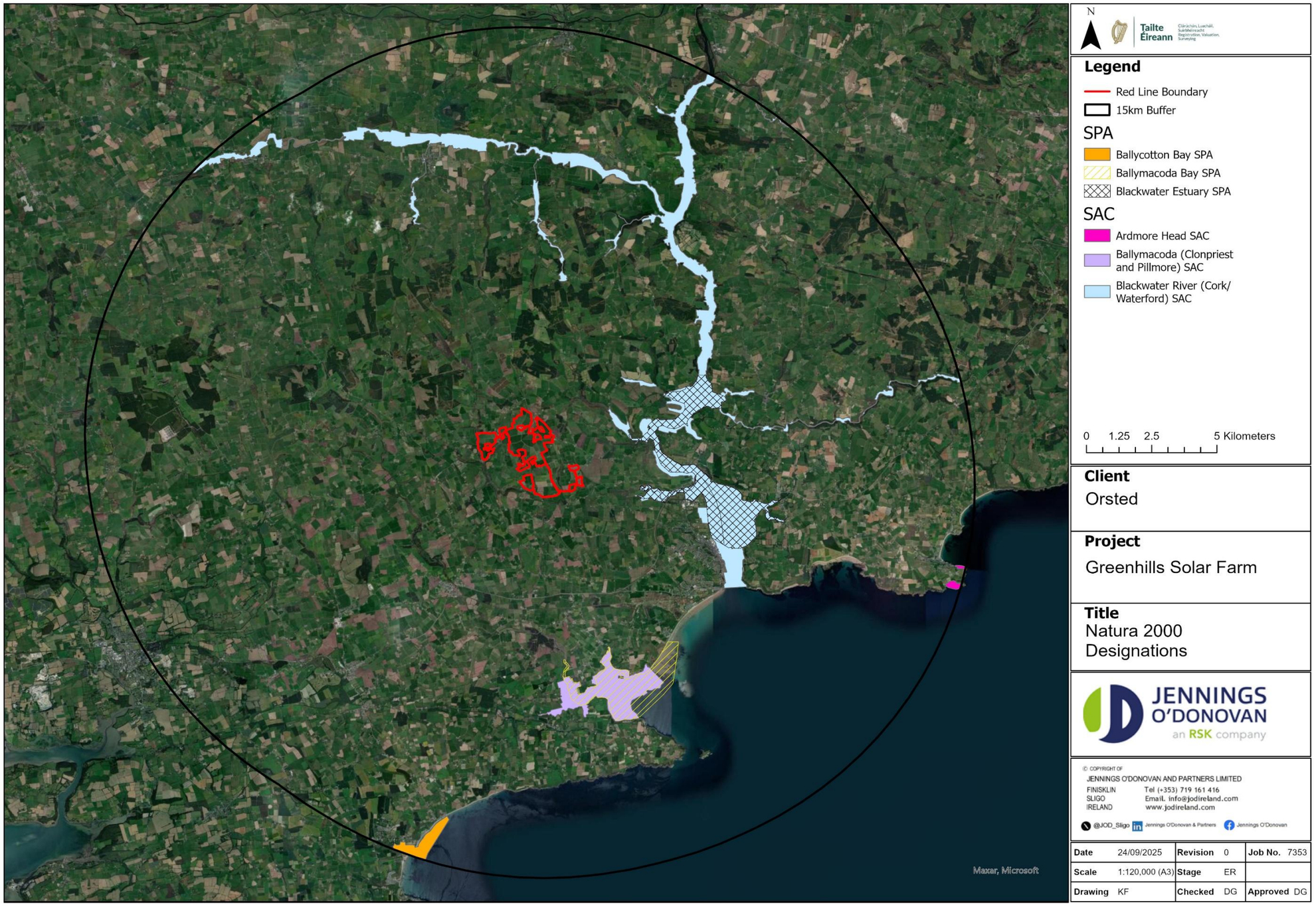


Figure 2.4: Natura 2000 Designations

N

Tailte Éireann

Legend

- Red Line Boundary
- 15km Buffer
- Proposed Natural Heritage Area (pNHA)

0 1.25 2.5 5 Kilometers

Client
Orsted

Project
Greenhills Solar Farm

Title
Proposed Natural Heritage Areas (NHA) within 15km

JENNINGS O'DONOVAN an RSK company

FINISKLIN SLIGO IRELAND
Tel (+353) 719 161 416
Email. info@jodireland.com
www.jodireland.com
@JOD_Sligo Jennings O'Donovan & Partners Jennings O'Donovan

Date	24/09/2025	**Revision**	0	**Job No.**	7353
Scale	1:120,000 (A3)	**Stage**	ER		
Drawing	KF	**Checked**	DG	**Approved**	DG

Figure 2.5: Proposed Natural Heritage Areas (NHA) with 15km

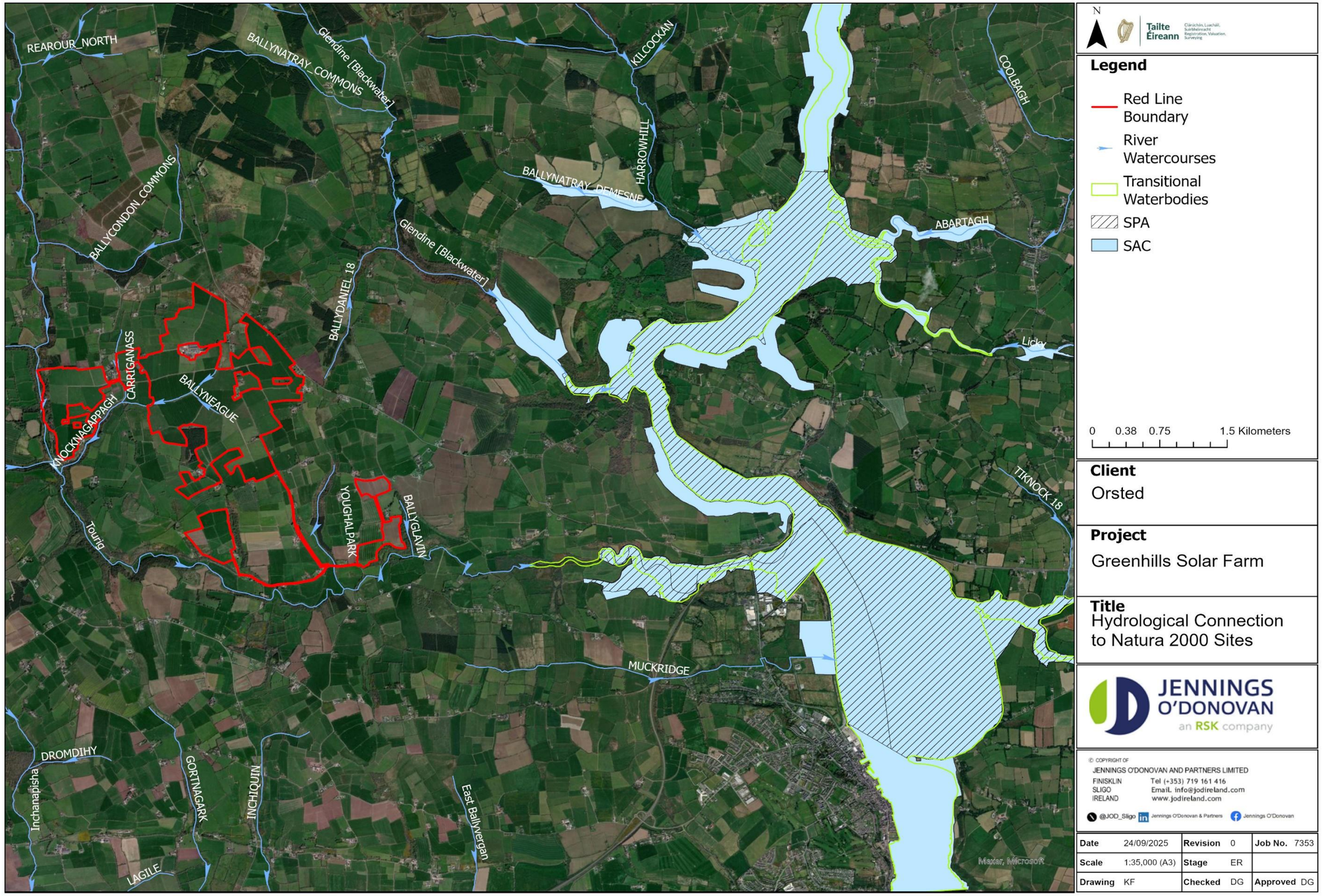


Figure 2.6: Hydrological Connection to Natura 2000 sites

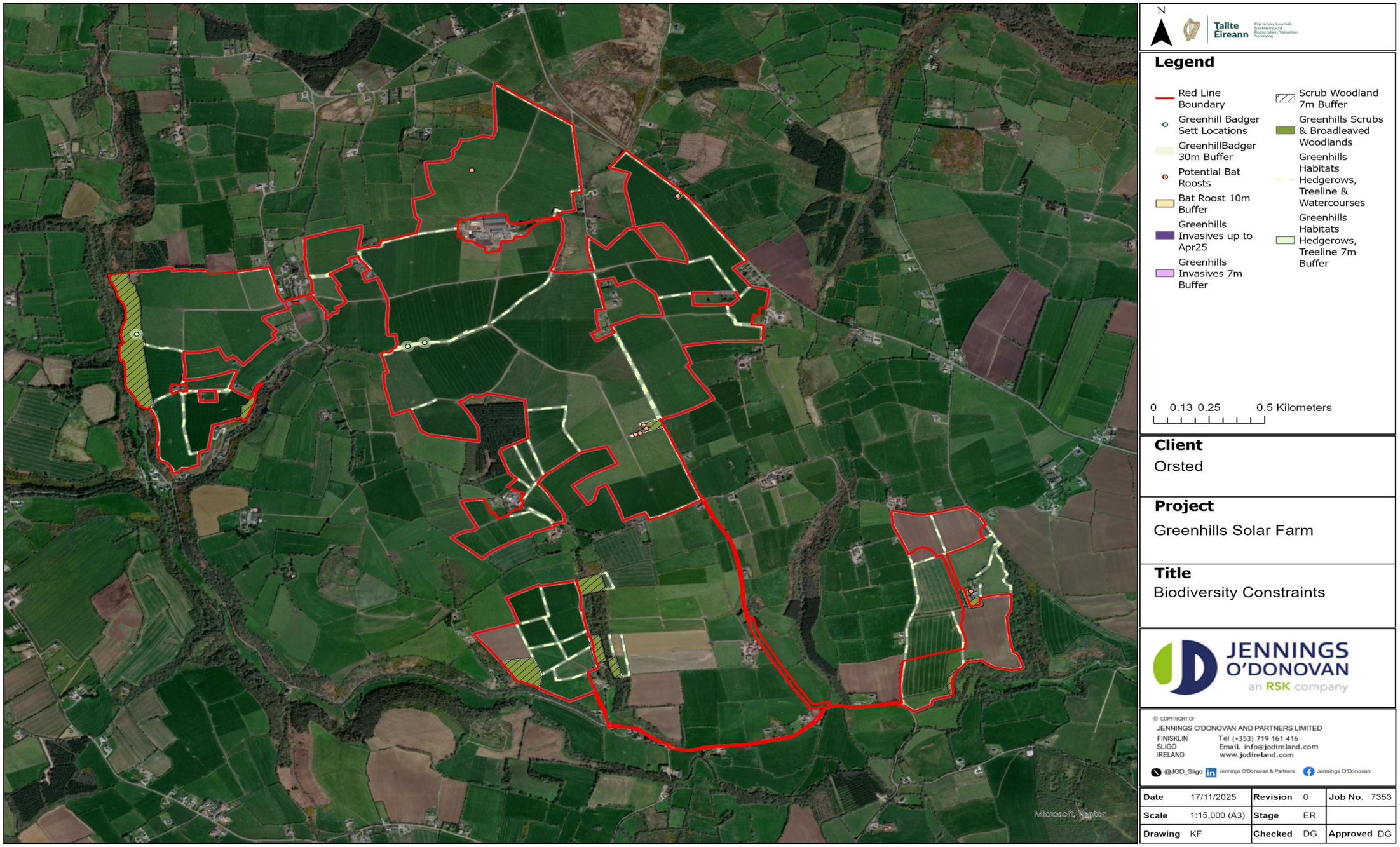


Figure 2.7: Biodiversity Constraints

2.1.2.4 Drainage and Hydrology

Historic mapping was reviewed and field walkover surveys conducted to identify and map drainage features on site. The field surveys identified the main hydrological connectivity to the Tourig River flowing west of the site which connects to the designated areas as described in Section 2.1.2.3.

The Proposed Development area is drained by the Carrignass Stream, Knocknappagh Stream, Ballyneague Stream, Youghalpark Stream and Ballyglavin stream (all tributaries of the Tourig River), as well as internal local drainage connected to these. All watercourses and significant artificial drains which were identified were avoided though incorporation of appropriate buffers into the overall design, see Figure 2.8.

No flood zones were identified within the site. A flood area is located along the Tourig water course (EPA 18T03), located to the west of the northern area of the site and south of the southern and southeast areas, though this appears to be limited to the main channel.

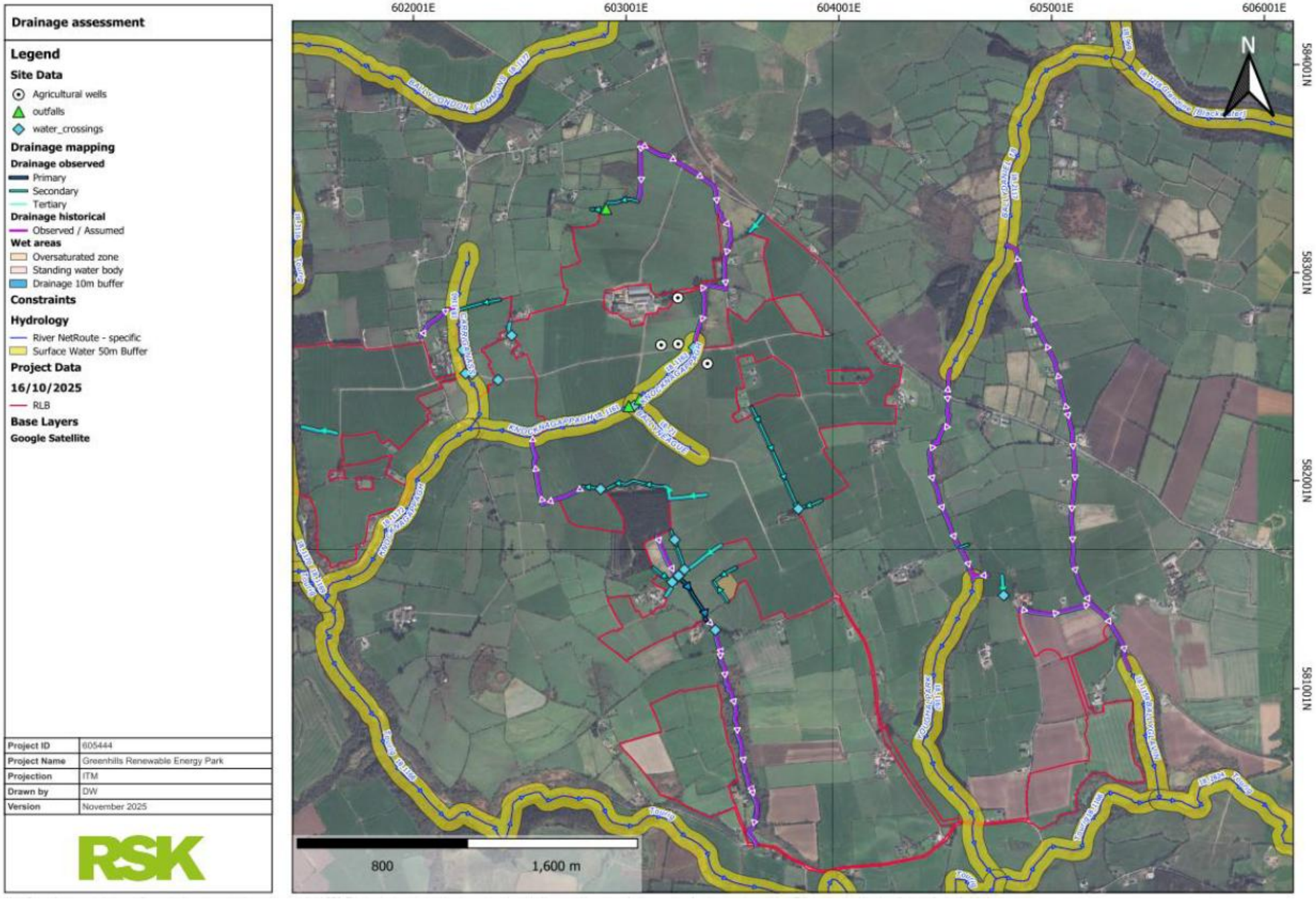


Figure 2.8: Drainage and Hydrological Constraints

2.1.2.5 Archaeological and Cultural Heritage

Desk-based research and site walkovers were completed to identify potential impacts. Based on this, no direct effects are predicted on world heritage sites, architectural conservation areas, national monuments, historic parks and gardens, known underwater cultural heritage, or any buildings listed on the Record of Protected Structures (RPS).

All recorded archaeological sites and Sites and Monuments Record (SMR) zones on the sites and monuments record have been identified and either excluded from site boundary or an appropriate buffer has been placed around them as mitigation to avoid harmful direct effects. No direct effects are predicted on any buildings recorded on the national inventory of architectural heritage (NIAH).

The Proposed Development area does not contain a high level of historic field boundaries, but the design approach has been that surviving historic field boundaries will generally be preserved in situ and enhanced where possible.

No significant effects are predicted on the settings of any historic structures listed on the record of protected structures. No significant effects are predicted on the settings of any buildings recorded on the NIAH.

Surviving 19th century historic structures (that are not recorded by the National Monuments Service (NMS), NIAH or Cork County Council) have been identified, with buffer zones proposed to mitigate potential effects during both construction and operational phases.

See Figure 2.9 which illustrates the archaeological and cultural heritage constraints identified and associated buffers.

A programme of geophysical survey was also undertaken across areas the site. The geophysical report is presented in Appendix I to the Archaeological, Architectural and Cultural Heritage Baseline Report (Appendix R to this PER).

The geophysical survey identified four discrete anomalies, referenced as M1-M4 in the geophysical report. These anomalies may represent archaeological features, including possible enclosure and ring-ditch remains. The anomalies are shown on Figure 7 of the Archaeological, Architectural and Cultural Heritage Baseline Report where they are mapped as Anomalies 88, 89, 90 and 91.

The archaeological potential of these anomalies is considered sufficient to warrant a precautionary avoidance strategy. Embedded mitigation has therefore been incorporated into the design through the use of non-intrusive above-ground gabion basket/ballasted foundation systems and associated stand-off buffers. This approach avoids excavation and preserves any surviving archaeological remains in situ.

Elsewhere across the site, the geophysical survey identified a limited number of linear anomalies that are interpreted as former field boundaries or historic land divisions together with isolated anomalies of uncertain origin. These features are largely capable of being preserved beneath the proposed solar infrastructure through micrositing.

Figure 2.9: Archaeological and Cultural Heritage Constraints

2.1.2.6 Site Access, Roads and Trackway Network

The Proposed Development is served primarily by the N25 national primary road, N72 national secondary road, R634 regional road and the L7829, L7806, L3803, L38032, L7828 and L3808 local roads. The public road network in the vicinity of the Proposed Development is shown on Figure 2.10.

Preliminary Traffic Management measures (included as part of the Traffic Impact Assessment, Appendix M) were developed which identified local roads that could be utilised and those which were unusable to identify potential access points. Road access to the individual sections of the proposed solar farm site will be from existing local road junctions with the R634 using the local road network. The land areas which make up the proposed solar farm are serviced by existing field entrances onto the local road network. There are also a number of field accesses onto the R634 regional road. Suitable haul routes were identified which fed into the location and design of the site access locations.

Existing access points to the land areas, eleven in total have been incorporated into the overall design where possible to minimise requirement for new access locations thereby reducing hedgerow and tree loss, see Figure 2.11 and Table 2.1**.** Existing access points into agricultural fields have been utilised where possible in the design of the project. Existing trackways within the site are being utilised for construction and operation to minimise use of the local road network.

Table 2.1: Site Access Points

Entrance Number	Easting	Northing	Description
Site Access 1	604151.97	582750.33	Main site entrance off the R634 and haul route access for the abnormal load (transformer) , Substation, BESS and solar panel development areas.
Site Access 2	603267.02	583503.66	Located on the L7806 and providing haul route access to the northern section of the solar farm.
Site Access 3	602071.85	582577.35	Located on the L3803 local road and providing haul route access to the westernmost section of the solar farm.
Site Access 4	603554.85	580335.39	Located on the L3808 local road and providing haul route access to the southwest) section of the solar farm.
Site Access 5	604896.94	580390.38	Located on the L3808 local road and providing haul route access to the southeast section of the solar farm.
Site Access 6	603189.47	581405.10	Located on the L7828 local road and providing haul route access to the

Entrance Number	Easting	Northing	Description
			southwest area of the central section of the solar farm.
Site Access 7	603177.94	581404.32	Located on the L7828 local road and providing haul route access to the southwest area of the central section of the solar farm also.
Site Access 8	603503.49	582647.66	Located on the L7829 local road and providing haul route access to the central section of the solar farm.
Site Access 9	603511.48	582648.49	Located on the L7829 local road and providing haul route access to the central section of the solar farm.
Site Access 10	603801.29	581869.05	Located on the L7829 local road and providing haul route access to the south section of the solar farm.
Site Access 11	602317.31	582622.06	Located on the L38032 local road and providing haul route access to the west section of the solar farm.

All HGV delivery vehicles will access the Proposed Development from the R634 regional road and use the site entrances shown on Figure 2.11. Deliveries to site access 1 will access directly from the R634. Deliveries to site access 2 will use the L7829 and L7806 local roads. Deliveries to site access 3 will use the L3083 local road. Deliveries to site access 4 and 5 will use the L7829 and L3808 local roads. Deliveries to site access 6 and 7 will use the L3803 and L7828 local roads. Deliveries to site access 8, 9 and 10 will use the L7829 local road. Deliveries to site access 11 will use the L3083 and L38032 local roads.

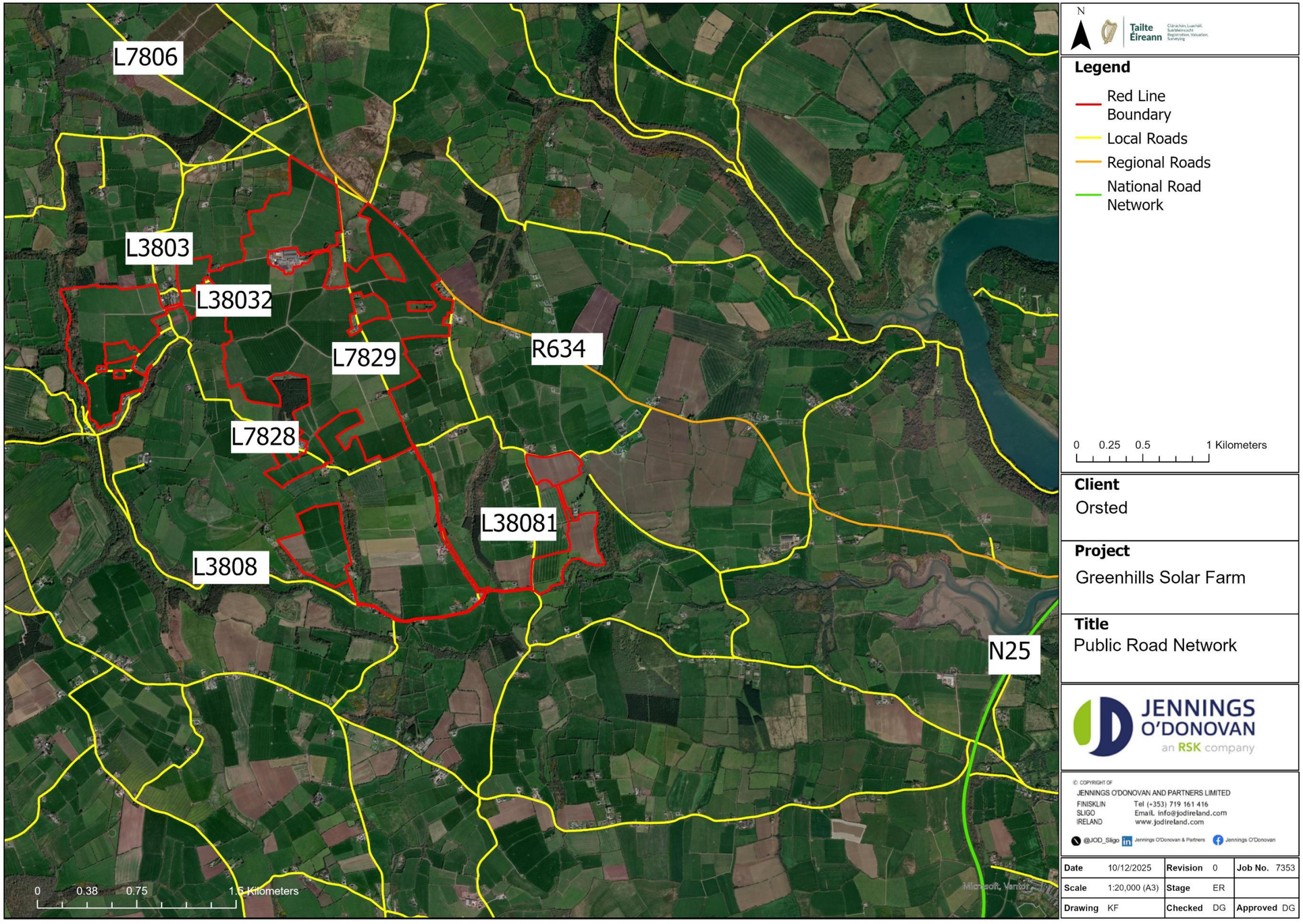


Figure 2.10: Public Road Network

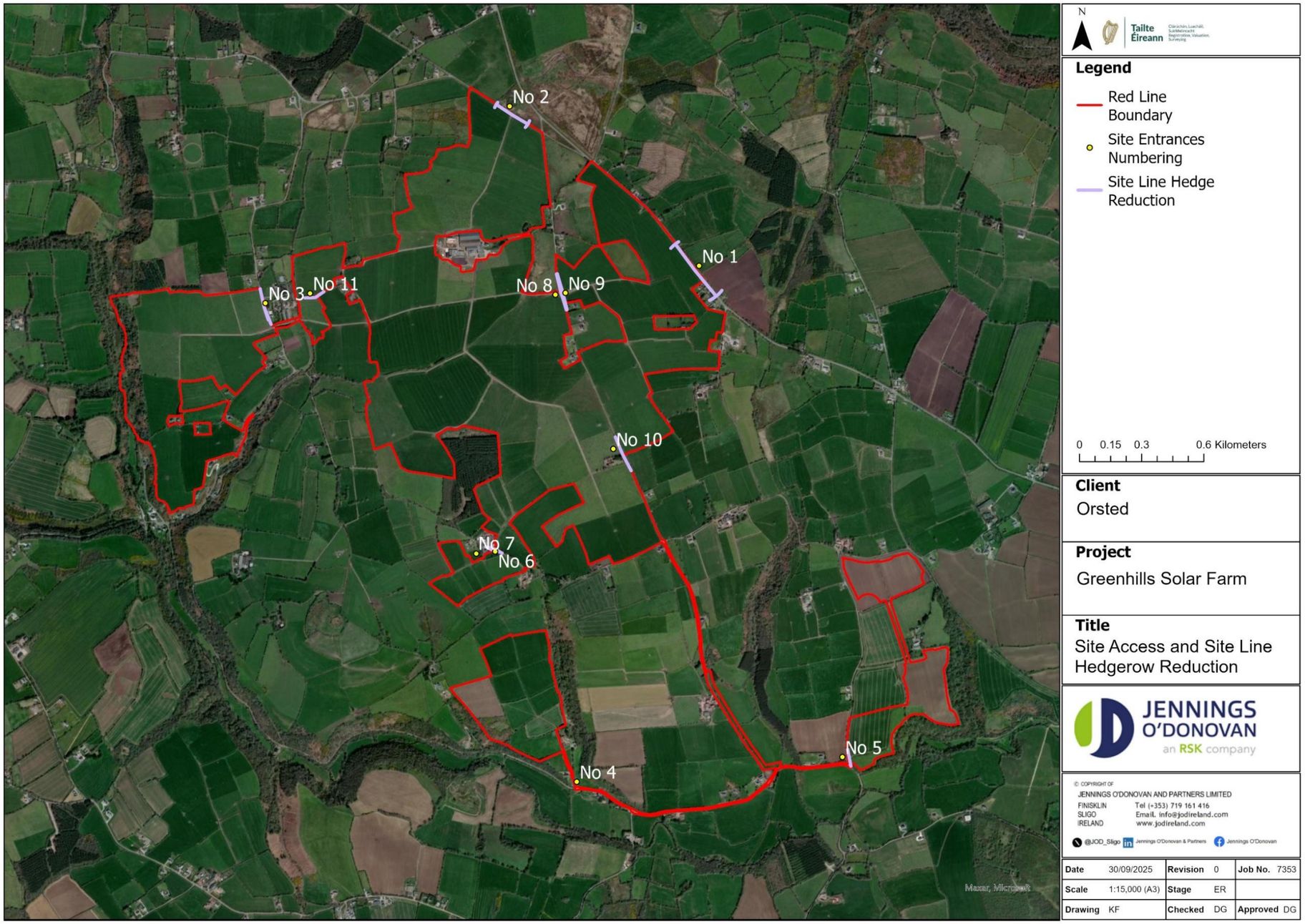


Figure 2.11: Site Access and Site Lines Required

2.1.2.7 Electrical Infrastructure

The existing Knockraha-Cullenagh 220kV overhead line runs through the site in an east-west direction, and a buffer zone along this line has been incorporated into the design. Buffers have also been incorporated where the proposed loop-in towers are located that intersect the existing 220kV Overhead Line (OHL).

Medium voltage (10kV and 20kV) and low voltage (230V and 400V) distribution lines also run across parts of the site and appropriate buffers are included for these as well.

To avoid the need for a long grid connection utilising the public road network in the area, the option to export power from the Proposed Development by loop-in to the existing Knockraha-Cullenagh 220kV overhead line, which passes through the development site in an east-west direction was adopted. This has the advantages of both minimising impact and disruption along the public road network and reducing the length of grid connection required.

Six main options (A to F) for the AIS Substation and configurations were developed and reviewed. These options are shown on Figure 2.12.

Options A, B and C are located south of the 220kV OHL. Placement of the proposed AIS substation in this location was ruled out due to the site confines (available lands, drainage, overhead line orientation and number of towers required to loop-in to the existing 220kV OHL).

Options to the north of the existing 220kV OHL (D, E and F) were also investigated. Of these, Option E was excluded on the basis of distance to visual receptors, being highly visible to dwellings located to the east.

Options D and F were identified as more favourable from the visual intrusion aspect as the general area is downslope of the land adjacent to the 220kV OHL. Of these two options, **Option F was adopted** as it requires only two loop-in towers to be constructed (Option E located towards the northern end of the field would require four).

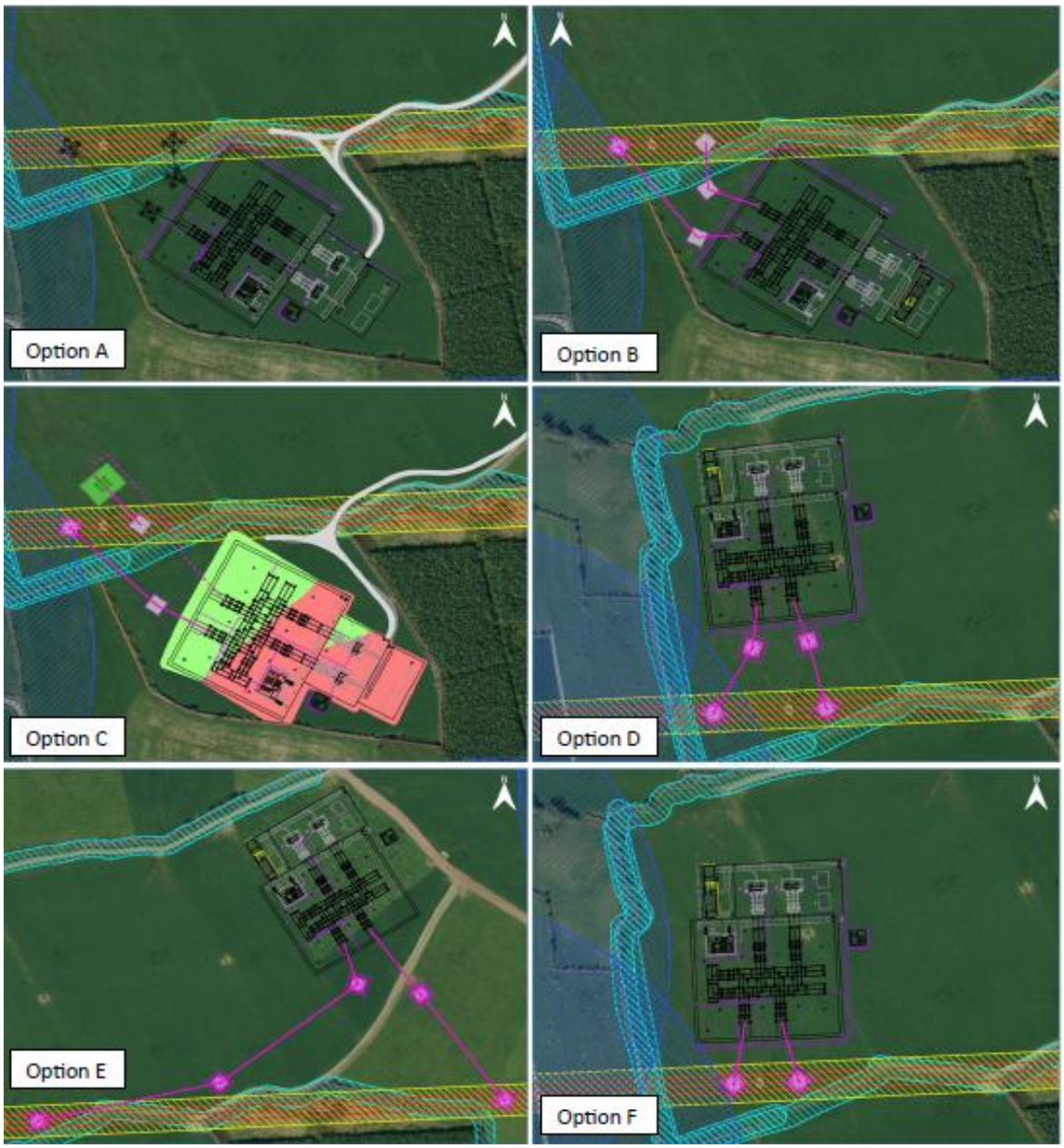


Figure 2.12: Substation Location Options

To minimise the electrical connection length to the national grid, the area identified as optimum for the BESS is located adjacent to the proposed substation, just south of the existing 220kV OHL, see Figure 1.2. Battery layouts were also considered and an option which would significantly reduce the footprint of the BESS was adopted. This comprised modular units capable of being transported to site in smaller loads, reducing potential impact on the road network and bridges as smaller vehicles can be utilised for component delivery, see Figure 2.13.

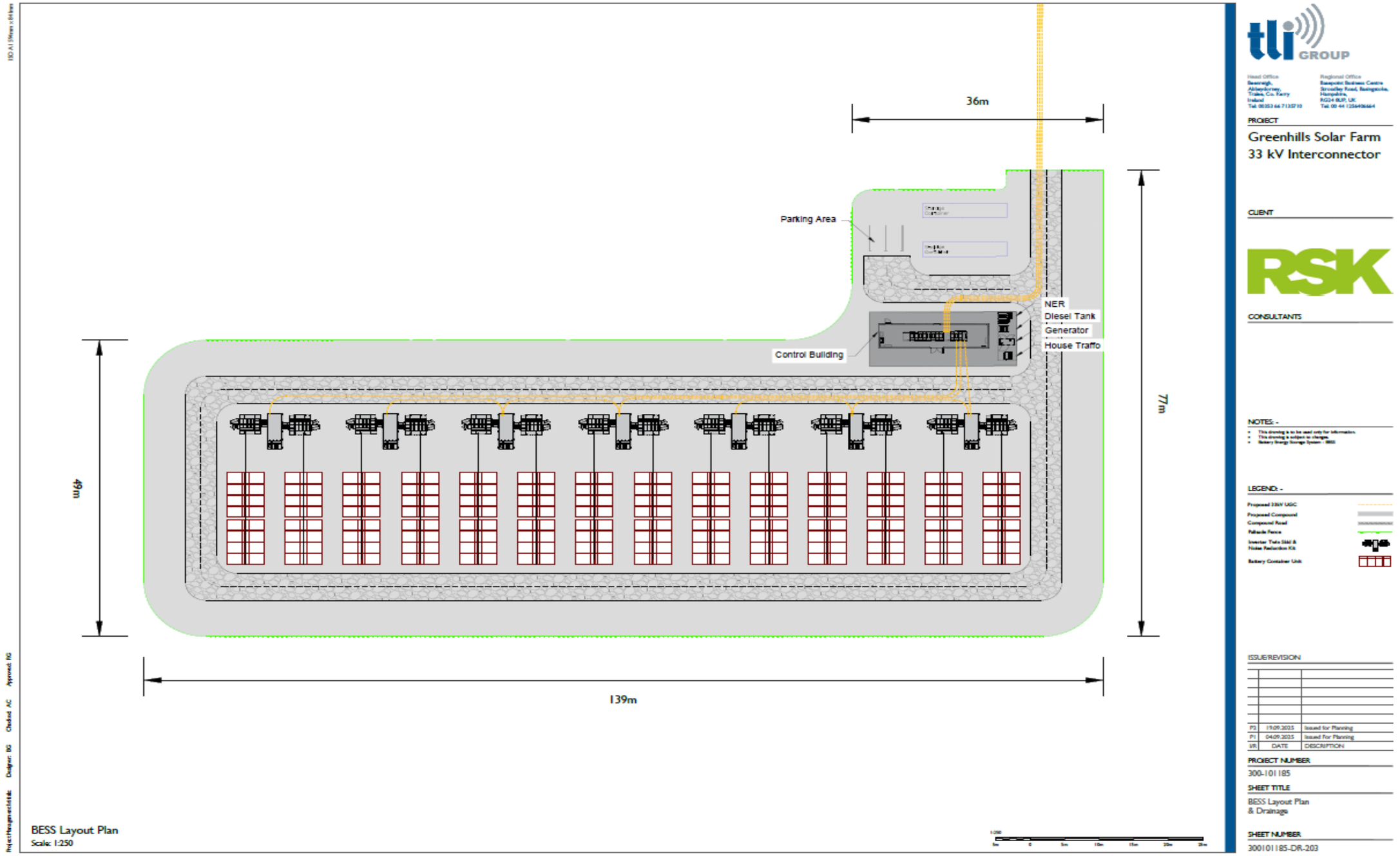


Figure 2.13: BESS Layout

2.1.3 Summary of Site Constraints

In summary, the key constraints, offsets and set back distances used in arriving at the final design are set out in Table 2.2 and Figure 2.14 below.

Table 2.2: Overall Site Constraints and Setback Buffers Distances

Key Constraint	Element	Set-back/buffer adopted or use of existing infrastructure
Biodiversity	Habitat - scrub and woodland	7m
	Habitat - hedgerows, treeline	7m
	Invasive species	7m
	Potential bat roosts	10m
	Badger setts	30m
	Bat buffers	10m
Landscape and Visual	Housing - General Landscape and Visual Impact Assessment (LVIA) buffer	50m
	Housing - tailored panel offsets	50m
	Housing - tailored panel offsets	80m
	Housing - tailored panel offsets	100m
	Housing - tailored panel offsets	150 m
	Offset planting with native thicket	20m
	Offsets planted with hedgerows	Individual
	Removal of panel areas	Individual
Archaeology and cultural heritage	Archaeology – buffer zones around recorded archaeological sites and SMR zones	50m for NMS structures and custom buffers for other structures and buildings noted
Hydrology	River buffer zone	20m
	Drainage	10m
Transmission and distribution infrastructure	Existing 220kV OHL	10m from outer conductor
	Medium voltage 10kV and 20kV OHL	10m
	Low voltage 230V and 400V OHL	4m
	Existing 220kV tower	23m
Traffic and Transport	Site access	Using existing access points where feasible including along the R634 Regional Road
	Road network	Maximises use of internal existing trackways to minimise using local road network

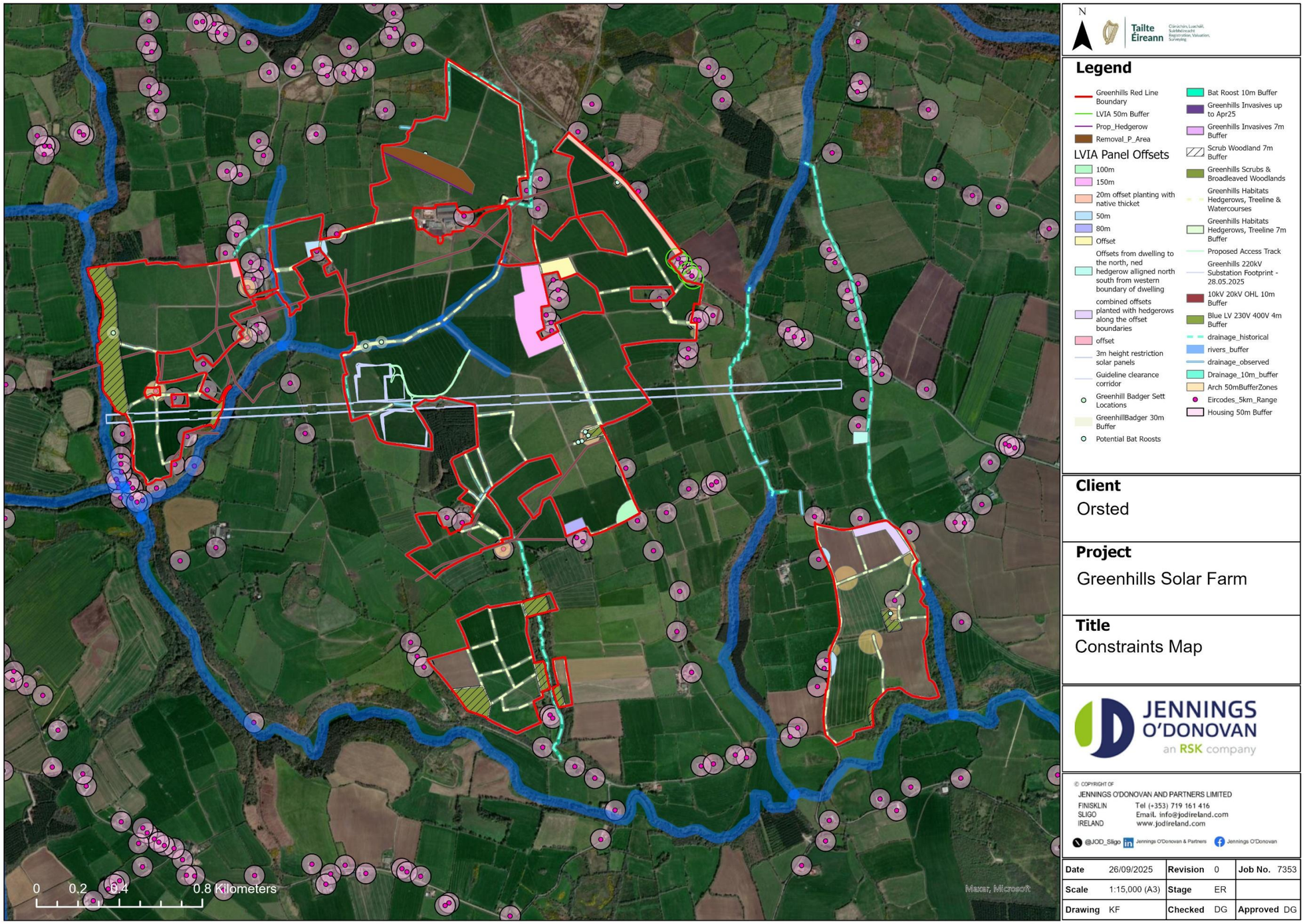


Figure 2.14: Overall Site Constraints and Setback Buffers

3 CONSULTATIONS UNDERTAKEN

3.1 Dual Consenting Process

A pre-planning meeting with Cork County Council was held on the 2nd of July 2025 to discuss the solar farm and BESS element and all ancillary infrastructure. This meeting was held over Microsoft Teams and was attended by representatives of Perigus as well as the Client's planning and environmental consultants. At this meeting, the location of the Proposed Development was discussed, as were the provisions and objectives of the Cork County Council Climate Action Plan 2024-2029 and the Cork County Development Plan 2022-2027. The discussion also included reference to the comprehensive site selection process, which was undertaken and the key facilitators and constraints of the preferred/selected site (see Table 3.1 below).

Table 3.1: Key Matters Raised at Pre-Planning Meeting with Cork County Council and How Each Matter Has Been Addressed

Matter No.	Matter Raised / Comment Made	Response / Action Taken
1	• National policy and local policy supports this development in principle. • The key principles are how it will respond and fit into the landscaping and how it may impact on local communities. • It is a very large development with macro and micro impacts. Advises of a buffer of 80/100 metres from residential property. Scheme will be controversial with local community. No national policy guidance. • Need to examine and design in local benefits. • There are existing schemes of scale in East Cork and evidence of surface water management issues and localised flooding. Opportunity to enhance biodiversity at watercourse. • Meeting a global challenge but providing local gains. • Need to look at surveying. • Haulage route, local network. There will be a lot of vehicle movements.	Chapter 7 of this PER sets out how the Proposed Development is supported by national and local policies. Local benefits will occur through community gain established for the Proposed Development, local authority rates and the economic, environmental and aesthetic benefits of biodiversity enhancement and management. A comprehensive LVIA with photomontages prepared from several viewpoints (see Chapter 12) has been prepared. It is noted that these vantage points locations were presented at the meeting and no additional points were requested. A separate assessment on glint and glare has also been prepared and included in the application (see Chapter 13). Offsets at sensitive locations have been included in the design of the solar array areas (ranging from a minimum of 50m to a maximum of 150m). A Landscape Mitigation Plan has also been prepared (see Appendix E of this PER). A FRA has been prepared for the Proposed Development, as part of the Land, Soils, Geology, Hydrology and Hydrogeology Impact Assessment (see Appendix N of this PER). A separate Drainage Plan incorporating nature based solutions such as

Matter No.	Matter Raised / Comment Made	Response / Action Taken
		check dams, swales and settlement ponds has also been prepared (see Appendix B of this PER). Site access points and site haulage routes have been identified, including proposed site entrances (11 in number including two new), with the majority of the traffic to access the site via the new regional road access point. A Traffic and Transport Assessment (including and preliminary Traffic Management measures) has been prepared (see Chapter 10 of this PER).
2	This is the largest solar farm Cork County Council have encountered. Assessment needs to have an assessment of cumulative impacts including New wind farm permitted on Waterford border.	A search was conducted of planning applications (projects) within the vicinity of the Proposed Development, using the Cork and Waterford County Council planning portal map viewers, the Department of Housing, Planning and Local Government EIA portal map viewer and an Coimisiún Pleanála Planning Map Search tool. The search was limited to the five-year period preceding the date of issue of this report and excluded retention applications (i.e. typically local-scale residential or commercial developments where an impact has already occurred), incomplete, withdrawn or refused applications.

Matter No.	Matter Raised / Comment Made	Response / Action Taken
		A cumulative impact assessment of plans and projects with which the Proposed Development could potentially have cumulative effects with has been included in all topic assessments within the PER. This includes the new permitted wind farm (Lyrenacarriga Wind Farm) on the Waterford Border.
3	• Depending on type of bats, the roosting will be different. Tree root protection zones required. Very concerned about the removal of hedgerows. Should be retained as much as possible. Up to one year of bird survey may be required given proximity to Blackwater River SAC. The Tourig River has a direct link to Blackwater River SAC.	The potential for the Proposed Development to impact bats has been comprehensively assessed within the ecological impact assessment which forms part of the PER (see Chapter 9). In the design phase of the Proposed Development, setback distances from existing hedgerows and treelines were established. Hedgerow loss was kept to a minimum and fully assessed in the ecological impact assessment (see Chapter 9) with additional proposed new hedgerow establishment and bolstering of existing hedgerow proposed. There will be nett biodiversity gain as a result of the Proposed Development. Seasonal bird surveys, including winter bird surveys were carried out and potential impacts assessed in the ecological impact assessment (see Chapter 9), as well as the Appropriate Assessment (AA) Screening and Natura Impact Assessment (NIS), which are submitted separately as part of the planning application.

Matter No.	Matter Raised / Comment Made	Response / Action Taken
4	• Local flooding issues potentially – localised channelling and conveyance of water within sites needs to be managed. A Drainage Impact Assessment is required and it that incorporate Nature Based Solutions. Opportunity for comprehensive multi-disciplinary solution. Detailed hydrological modelling required. • To include climate change factor of 20%	A FRA has been prepared for the Proposed Development, as part of the Land, Soils, Geology, Hydrology and Hydrogeology Impact Assessment (see Appendix N of this PER) It includes a climate change factor of 20%. A Drainage Plan has also been prepared for the site, (see Appendix B of this PER). The Drainage Plan has been incorporated into the site design. The Land, Soils, Geology, Hydrology and Hydrogeology Impact Assessment incorporates the Drainage Plan and nature based solutions as mitigation against excessive runoff.
5	• There will be increased run-off from the solar farm. The site is quite an altered landscape. Little internally hedgerow. Localised flood in nearby Inch Village. Plenty of scope for nature based solutions. • Need to examine green field run-off. • Good road network, regional road is in good conditions. Some local roads will not be suitable. • The traffic impact report should provide specific detail on this. • Clarification needed on grid connection.	A stated above, a FRA, Drainage Plan and mitigation measures incorporating nature based solutions have been prepared for the Proposed Development. In addition, a Landscape Mitigation Plan has been prepared, which incorporates establishment of new native woodland, new hedgerow establishment and bolstering of existing hedgerows (see Chapter 12 for further information). A Traffic and Transport Assessment is included in this PER (see Chapter 10). A description of the grid connection is included in the PER (see Chapter 4). The Proposed Development

Matter No.	Matter Raised / Comment Made	Response / Action Taken
		will be connected to the national grid via a loop-in 220kV AIS substation within the boundary of the site. Two short sections of 220kV OHL (each circa 48.5 in length) will connect the substation into the existing Knockraha – Cullenagh 220 kV OHL.
6	It was noted that the substation element and 220kv loop in will be a separate application to An Coimisiún Pleanála. It will not be on the public road as the loop in will be via an onsite substation. Impact on road network will be traffic. There will be interconnector cabling which will run along a small section of road to the south.	A pre-application Meeting with An Coimisiún Pleanála has been undertaken. The Planning Reference File for the Pre-app is ABP-322687-25. Short sections of interconnector cabling will be required to connect the southernmost Proposed Development solar array areas to the Proposed Development AIS onsite substation.
7	Need to provide a justification for the interconnector on the public road over third-party lands. Need to see an assessment of this. Greater concern is surface water run-off.	The interconnector cables along the public local roads have been described in this PER have been fully assessed in terms of potential environmental impacts. Third-party lands were investigated as a first option, but ultimately were not available.
8	• Meeting notes to be circulated. • Make enhancement for water management, biodiversity. Mitigation measures are very important. Deal with the local issues. • How sensitive it is local constraints. Will require detailed assessment for archaeology, cultural heritage, biodiversity. • What is the timeline for the development to be operational?	Water management has been addressed in the PER Report Chapter 11, including the FRA and the Drainage Plan. Biodiversity is addressed in the ecological impact assessment (PER Chapter 9), the AA Screening and NIS.

Matter No.	Matter Raised / Comment Made	Response / Action Taken
		An Archaeology and Cultural Heritage Assessment has also been addressed in this PER (see Chapter 14). A project timeline is provided in Chapter 5.4 of this PER.
Addendum to above (ecology issues)		
9	Policy - It is recommended that applicants would have regard to CDP Policies; BE 15-2, BE 15-6, BE 15-7, BE 15-8, ET 13-2, ET 13-14, GI 14-1, GI 14-3, GI 14-9, WM 11-1, WM 11-2, WM 11-3, WM 11-10, WM 11-11, WM 11-13 and to CCC Guidance - Biodiversity and the Planning Process in the development of the scheme and completion of required assessments.	Regard has been given to the relevant CDP Policies and Cork County Council Guidance - Biodiversity and the Planning Process in preparing the ecological impact assessment, AA Screening and NIS.
10	Site Ecology / Biodiversity – Objective BE 15-6 of the County Development Plan 2022 provides for the protection and enhancement of biodiversity in the development management process. Therefore, from an ecological standpoint the applicant should be cognisant of the ecological sensitives of the site and avoid habitats of high ecological value. The Ecology Office welcomes the applicant willingness to conserve and protect existing habitats of high ecological on site such as established hedgerows and treelines.	The ecological impact assessment, AA Screening and NIS have taken account of Objective BE 15-6. There will be no net loss of biodiversity and the Proposed Developed will result in a biodiversity net gain overall.
11	As per the provided document, an Ecological Impact Assessment (EcIA) Report is to be prepared and submitted within any future application. It is the recommendation of the Ecology Office that the EcIA should include the following:	An EcIA has been prepared for the Proposed Development (see Chapter 9).

Matter No.	Matter Raised / Comment Made	Response / Action Taken
12	A detailed description and evaluation of the extant terrestrial and aquatic habitats on site be provided. Applicants should be advised to have regard to Heritage Council Guidelines – Best Practice Guidance for Habitat Survey and Mapping and Irish Ramsar Committee Irish Wetland Types – Identification Guide and Field Survey Manual. The report should include a map identifying the extent of all mapped habitats and a description of these to include information on soils and species mix etc.	The guidance used is set out in the EcIA and all habitats have been mapped accordingly.
13	The report should include an assessment of the predicted implications of what is proposed for habitats of high natural value e.g. woodland, treelines, wetland habitats etc. Mitigation by avoidance through sensitive design of the project shall be employed in the first instance in line with the mitigation hierarchy. Objective BE 15-2 of the County Development Plan 2022 provides for the protection of habitats of high ecological value.	Mitigation by avoidance has been utilised in the project design with maximisation of the use of existing trackways and site entrances. Although some small losses of hedgerow will occur, a net gain in biodiversity will occur through planting of new hedgerow, new native woodland and enhancement of existing hedgerows.
14	Regard should be had to the Root Protection Zone of trees to be retained as part of the proposal and Objective BE WM 11-11 ensures adequate protection measures along watercourses, keeping them free from development by ensuring development is kept 10m or other appropriate distance from stream and riverbanks is line with best practice for riparian corridors.	Root protection zones have been taken into account with Proposed Development elements set back from existing hedgerows and treelines. At the design phase, a buffer set back of 20m for mapped rivers and streams and 10m from drainage features was utilised except at minor stream crossings.
15	Consideration shall be given to the potential presence of plants listed on the Irish Red List and the Flora (Protection) Order. The NPWS is to be notified if any rare or protected floral species are identified on the site.	Desk and field based surveys were carried out to establish habitats and species on the site (see Chapter 9 of this PER for additional information).

Matter No.	Matter Raised / Comment Made	Response / Action Taken
16	A description of the species occurring at the site i.e. breeding birds, mammals and amphibians, and an assessment of possible implications of what is proposed for protected species / species of conservation concern identified to be occurring within the zone of influence of the proposed works area. It would be advised that any such assessment be based on up-to-date scientific research, including that in relation to local bat activity (foraging and commuting)	A detailed assessment of birds, mammals amphibians has been carried out, see Chapter 9 of this PER for additional information and also the separately submitted AA Screening and NIS. The EcIA includes an assessment of bats (including a preliminary bat roost assessment and emergence surveys).
17	Solar panels have been shown to reflect polarised light that can be potentially mistaken for waterbodies i.e., 'Lake effect' by certain faunal species e.g., waterfowl and waterbirds. Therefore, the applicant is recommended to carry out an assessment of the potential operational implications the proposal may have on the following fauna; Avian and bats species through direct mortality due to attraction to solar arrays to roost, forage and/or drink; and Polarotactic insects of nearby watercourses and their reproductive biology etc. A precautionary approach should be adopted with 'white borders' considered to mitigate against any potential for the lake effect.	The EcIA and AA Screening and NIS includes a full assessment of avifauna and bats.
18	Appropriate mitigation should be proposed in the event that it is determined that the operation of this proposal will result in significant related impacts to faunal species e.g. white borders on solar panels.	The EcIA and AA Screening and NIS incorporates appropriate mitigation measures to ensure no significant effect occurs to habitats or species.
19	The EcIA should be prepared to accord with CIEEM Guidelines and provide details of ecological survey methods and techniques used for habitats and species surveys completed	The EcIA clearly sets out the approach and methodologies used which are in accordance with Chartered Institute of Ecology and Environmental Management (CIEEM) and relevant other guidelines.

Matter No.	Matter Raised / Comment Made	Response / Action Taken
20	Any species-specific surveys which are deemed to be required including bird surveys must be completed by qualified and experienced practitioners following recognised best practise methods. It is the opinion of the Ecology Office that up to 1 year of ornithological surveys spanning particularly the breeding and wintering periods, would be required in this instance given scale of the proposal and proximity to wetland areas	Surveys and assessments were undertaken and completed by qualified and experienced practitioners following recognised best practice methods.
21	It would be also advised that should there be a requirement for exploratory ground works such as archaeological trenching then there is communication with the appointed ecologist as to ensure avoidance of direct interventions in habitats of high ecological value, where possible, and to ensure the results of any species-specific surveys being undertaken at that time are not skewed.	A need for geophysics and/archaeological trenching has not been identified at the planning stage of the Proposed Development, either by Cork County Council or by the Project Archaeologist. However, should this be requested by Cork County Council by way of pre-construction planning compliance, any such proposed groundworks will be planned and assessed with full consideration of potential ecological impacts, with avoidance being the first priority.
22	While it is likely that no artificial lighting of the site should be necessary during the operation phase, if security lighting is deemed necessary, a lighting strategy including a lux plot should be submitted to the Planning Authority for consideration. The lux plot should demonstrate that a level of 0.5 lux or less can be achieved at the edges of sensitive ecological features. Regard should be had to the 'Bats and Artificial Lighting at Night – Guidance Note 08/23'.	No artificial lighting will be incorporated into the perimeter fencing surrounding the solar arrays (circa 30km). Highly directional, louvered lighting will be used at the substation and BESS location as the occasion requires in line with health and safety regulations and Eirgrid functional specifications. The impact on Biodiversity has been assessed in the ecological impact assessment.

Matter No.	Matter Raised / Comment Made	Response / Action Taken
23	Overall, information gathered during the survey stage should be used to inform the design of the proposal to ensure that areas around sensitive ecological receptors are avoided.	A constraints-led approach incorporating both desktop and field surveys was used to identify key constraints (e.g. badger setts) and appropriate set back distances incorporated into the overall design of the Proposed Development.
24	Invasive species survey should also be carried out in respect of the development. The extent of this survey should include the proposed development site, any site access route and areas adjacent to the proposed works area outside of the site. Should the works pose a threat to cause a spread of invasive species, an Invasive Species Management Plan shall be prepared by a competent person and shall be agreed with the planning authority in advance of the commencement of development. Any Invasive Species Management Plan shall be prepared in accordance with the best practice up-to-date guidelines and shall be site and specifies specific.	A survey of alien invasive species has been carried out for the Proposed Development and Invasive Species Report has been prepared, see Appendix L to the PER.
25	As in line with Objective BE 15-6 of the County Development Plan 2022, the Ecology Office supports the principle of biodiversity net gain and assesses all planning applications in that context. As such, it is the recommendation of the Ecology Office that a Biodiversity Enhancement and Management Plan be prepared for the site which should be prepared having regard to principle of biodiversity net gain. The plan should include the following: Details of all measures to be taken to protect and enhance habitats of local biodiversity value occurring at the site and the species which utilise the same. See the All-Ireland Pollinator Plan guidance document 'Pollinator-friendly management of Solar Farms' for some examples;	A Biodiversity Enhancement Management Plan (BEMP) has been prepared for the Proposed Development and is included as Appendix D to the PER.

Matter No.	Matter Raised / Comment Made	Response / Action Taken
	A description of target habitats and range of species appropriate to the site. Site planting shall be of native species of Irish provenance only and should be cognisant of adjacent areas of ecological sensitivity; Appropriate strategies for maintaining existing and targeted habitats and species; Information in relation to details of habitat linkages and continuity of habitat within and outside the site; Timelines for new planting and habitat creation; The plan shall include a map identifying the areas to be managed; Details of ecological oversight and monitoring - This should include provision for review and updating of the plan arising from assessment of results / observations collected during ecological monitoring;	
26	European Designated Sites – As per the pre-planning presentation provided, a NIS will be submitted with the application. It is advised that the NIS be prepared by persons with competence and experience in Habitats Directive reporting. The qualifications and experience of contributors to the NIS should be cited in the document. The NIS shall include details relating to the environmental measures / procedures which will be implemented at the site during the construction and operational phase. It should be clear from the submitted information, how and when environmental protection measures will be implemented, and who will be responsible for overseeing these. As the Proposed Development site supports grassland habitat which may have had value for field feeding species for nearby Special Areas of Protection, it is the Ecology Office recommendation that the applicants undertake a winter bird survey and provide any information as to any previously known usage of this area, if available, by field feeding birds species. The results of the surveys should inform the assessment provided.	An AA Screening and NIS have been prepared by qualified and experienced consultants, as stated in the AA and NIS, for the Proposed Development. This incorporates a full assessment of habitats and species, their Special Conservation Interests (SCIs) and Qualifying Interests (QIs) and the potential for impact at construction, operational and decommissioning stages of the Proposed Development. Appropriate and detailed mitigation measures and responsibilities have been set out. The AA Screening and NIS references the EcIA and the survey details undertaken for key avifauna and habitats.

Matter No.	Matter Raised / Comment Made	Response / Action Taken
	Should the provision of overhead lines form part of the application, potential collision risk with species of conservation interest of the SPA (and birds in general) should also be assessed and mitigation measures provided if deemed necessary. This advice may not have identified all issues which could arise at the site. The appointed ecologist will be placed to identify the relevant issues following site visits and desk-based analysis of the site.	
27	• The proposed development is adjacent to the River Tourig which provides a direct Source-Pathway Linkage to two sensitive receptors: • Proposed Natural Heritage Areas: Blackwater River And Estuary, Site Code 000072, Site Name: Blackwater River And Estuary. • Special Protection Areas: Blackwater Estuary SPA, Site Code 004028, Site Name Blackwater Estuary SPA. • And a further linkage (indirectly but may be affected via tidal activity) Special Area of Conservation: Blackwater River (Cork/Waterford) SAC, Site Code 002170, Site Name: Blackwater River (Cork/Waterford) SAC.	All relevant designated areas whether directly or indirectly linked have been assessed.

The substation and associated grid connection are considered to constitute 'strategic infrastructure' in accordance with the provisions of the Planning and Development (Strategic Infrastructure) Act 2006. As such, a pre-planning meeting was also held with An Coimisiún Pleanála on 8th December 2025 as part of the Strategic Infrastructure Development (SID) screening process. This meeting was held over Microsoft Teams and was attended by representatives of Perigus as well as the Client's planning and environmental consultants. At the time of submitting this PER, we are currently awaiting a formal determination from An Coimisiún Pleanála as to whether the Proposed Development is classified as a SID, in accordance with section 37A of the Planning and Development Act 2000, as amended (case reference number ABP-322687-25). The planning application for the proposed substation and grid connection elements of the Proposed Development is likely to be made to An Coimisiún Pleanála under Section 182A of the Planning and Development Act 2000 (as amended).

3.2 Public Consultation

While there is no prescribed requirement under planning legislation to carry out community engagement prior to submitting an application for a solar development, Perigus has a history of engaging positively with local communities. In line with this approach, Perigus has carried out community consultation activities to share information about the Proposed Development and to gather initial feedback. Appendix A summarises the public consultation undertaken to date for the Proposed Development and also provides copies of the newsletters issued to the local community.

4 DESCRIPTION OF THE PROPOSED DEVELOPMENT

4.1 Solar Array and Associated Infrastructure

The solar array element of the Proposed Development will cover an area of circa 323ha. and will consist of ground mounted solar panels on supporting table arrays. The solar array field areas will be aligned with the site topography throughout, see Figure 4.1. The ground mounted frames will be installed by simple screw or pile driving following geotechnical assessment, thereby minimising ground disturbance. Where ground conditions require, then concrete or ballast footing may be required, though this is expected to be minimal.

A programme of geophysical survey was undertaken across areas the site. The geophysical report is presented in Appendix I to the Archaeological, Architectural and Cultural Heritage Baseline Report (Appendix R to this PER). The geophysical survey identified four discrete anomalies, referenced as M1-M4 in the geophysical report. At these locations, a buffer zone will be marked out to delineate the areas in which gabion basket / ballasted foundations are to be used for the mounting of solar panels (details of such gabion baskets/ballasted foundations is provided in Appendix D of the Construction and Environmental Management Plan (CEMP), see Appendix F to the PER).

Alternatively, if suitable, the standard piled foundations may be microsited to avoid these areas,

The panels, table arrays and any gabion baskets or ballasted foundations will be removed upon decommissioning of the solar farm and taken off-site for disposal to a licenced waste facility.

The maximum height of the table arrays above ground will be dependent on underlying ground topography but in all cases the solar photovoltaic (PV) panels will be set on angled racks fixed to the frames spanning a minimum height of 0.7m and a maximum height of up to 3.4m. The tables will range in height from 0.7m to 1.5m from the ground.

The panels themselves will have no moving parts, will be installed with a tilt angle of 10-25 degrees, depending on local topography and will be oriented southwards to maximise solar radiation capture. Solar array field areas will be connected to the proposed 220kV AIS Substation via 33kV underground cabling.

Installations of the interconnector cable comprise trenching for an underground medium voltage electrical cable and associated joint slabs and infrastructure. Cabling will be installed, along the Youghal Park (L-3808) public road and turning North along the L-7829 and 2,299 metres in length along the solar farm land, with the remainder installed within the solar farm access tracks and offroad locations.

Multiple solar panel manufacturers exist globally, with new optimised design and technology variations being released to market on a regular basis. Therefore, individual panel dimensions may vary but overall table array dimensions shall remain as described here regardless of final solar panel selection. The below permutations are assessed in each of the technical assessments.

Solar panel modules will be sized 1.1m to 1.5m by 2m to 2.5m. Panels may be fixed in either a landscape or portrait orientation, depending on detailed engineering design and contractor preference. A landscape orientation would typically involve from 4 up to 8 panels aligned in a column. A portrait orientation would typically involve from 2 up to 4 panels aligned in a column.

Regardless of final configuration selected, overall table array dimensions shall remain as per the details described here. The angle of the panels will range from 10-25 degrees. These are shown in Planning Drawing No. 7353-PL-501.

Pitch (distance between the back of one table to the back of the adjacent table) between the tables will range from 6.5m to 14m and the angle (10-25 degrees) will allow light to reach the ground and vegetation to grow underneath. This is illustrated in **Figure 4.2.**

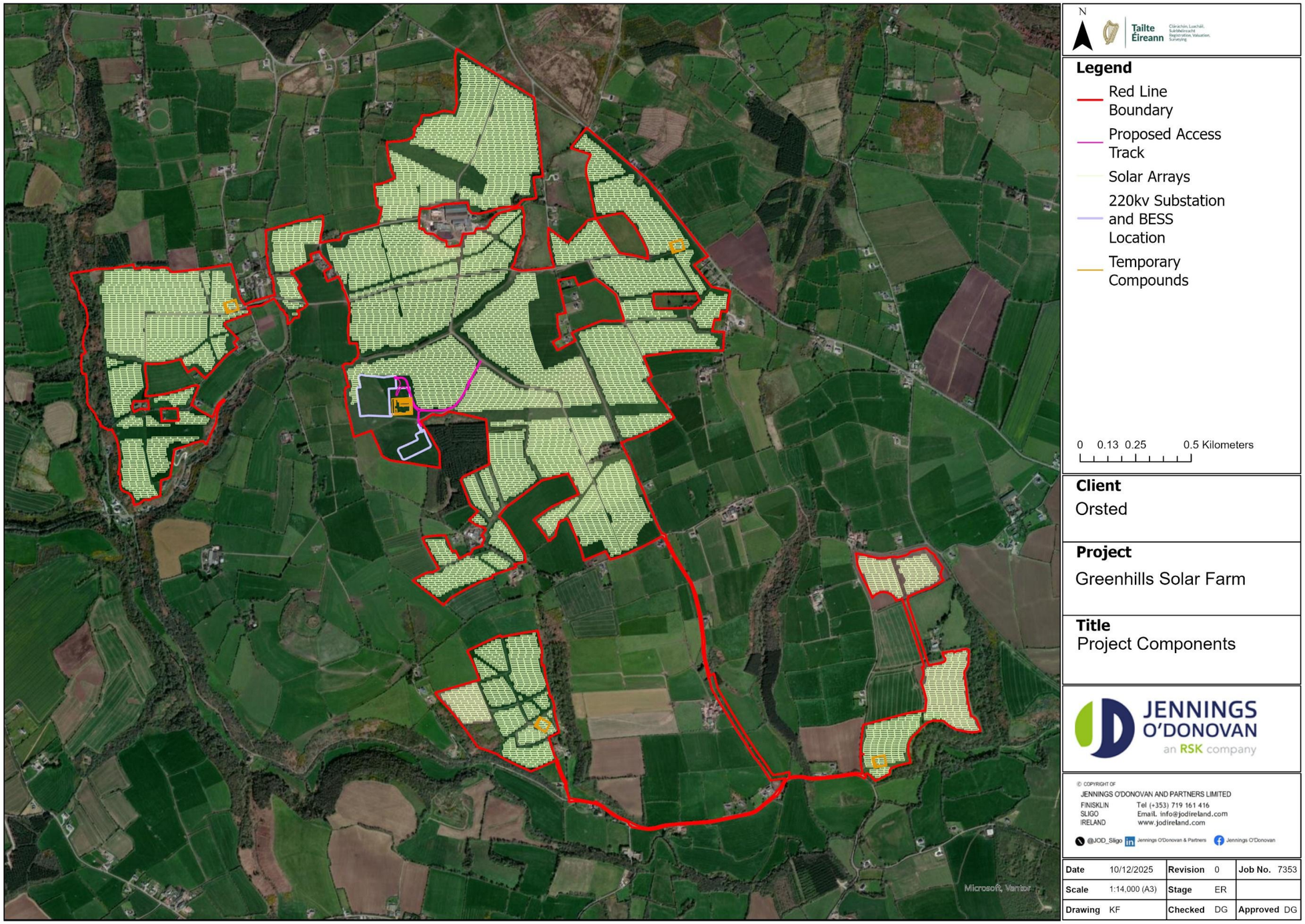
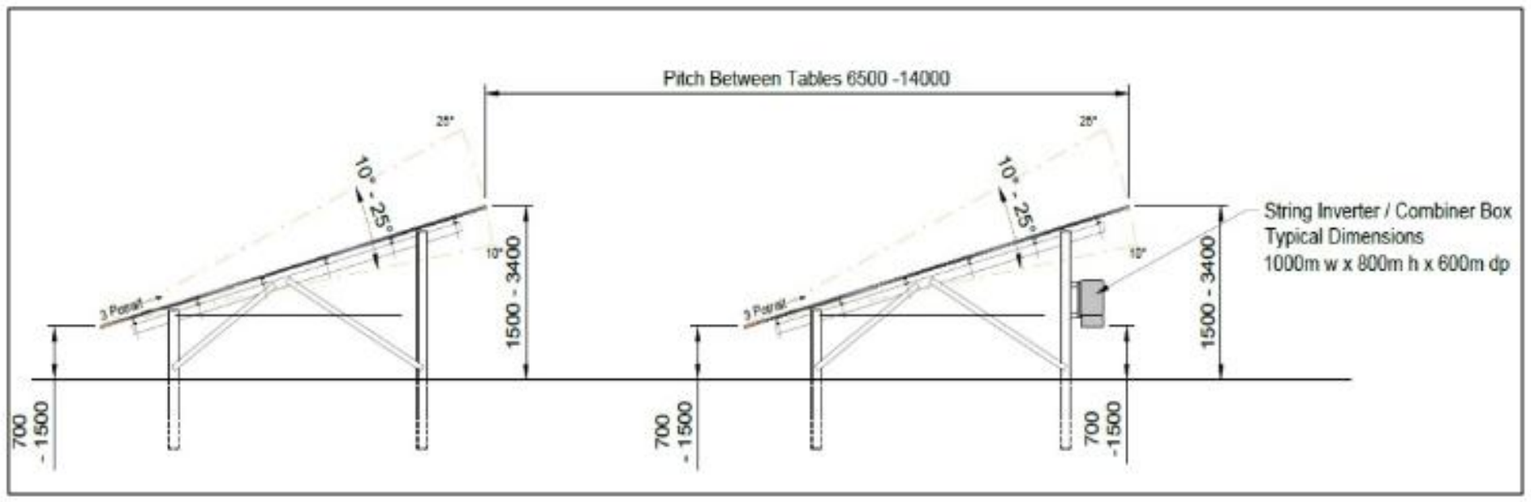
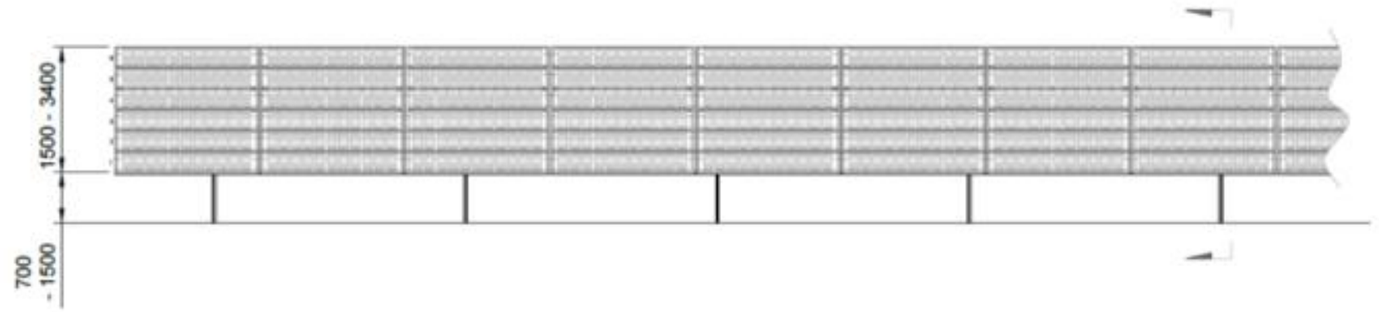


Figure 4.1: Solar Array, 220kV Substation and BESS Locations





Front Elevation : Panels Laid In Landscape Orientation-

Figure 4.2: Typical Solar Pitch

The areas under the panels will be seeded with grasses to replicate the existing drainage. Once operational, periodic grass trimming will assist in maintaining the habitat as grassland.

The solar array area will be developed on the circa 323ha site within the redline boundary with appropriate setback for constraints and mitigation. The total solar array area will be circa 210 hectares.

4.1.1.1 Inverters/Transformers

A solar inverter takes the direct current (DC) electricity generated by solar panels and converts it to alternating current (AC) electricity. String inverters will be sized 0.7 to 1m, by 1 to 1.5m by 0.36m and located on the table arrays.

A total number of 54 invertor combiner kiosk / transformers have been incorporated into the layout with concrete pads on hardcore, sized at 120m^2. Each hardstand will have either 1 no. 40ft container or 2 nos. 20ft containers placed upon concrete ground beams. These incorporate transformers, inverter/transformer interface kiosks and/or inverters as required. These units are manufactured offsite and delivered installation ready. Typical layouts are shown in Planning Drawing Nos. 7353-PL-502 and 503. Load bearing crane hardstanding areas of 170m^2 are required adjacent to each invertor combiner kiosk / transformer hardstand during construction to support the cranes as they lift the inverter / transformers from the delivery vehicles. The hardstand will be constructed from Class 6F1 or Class 1A Stone Material, capped with 50mm of Cl 804 material. This is shown in Planning Drawing No. 7353-PL-506 and on **Figure 4.3.**

Ring Main Unit (RMU) are also included in the layout, this will be located on a hardstanding sized 15m by 8m (stone finish). This is shown in Planning Drawing No. 7353-PL-505.

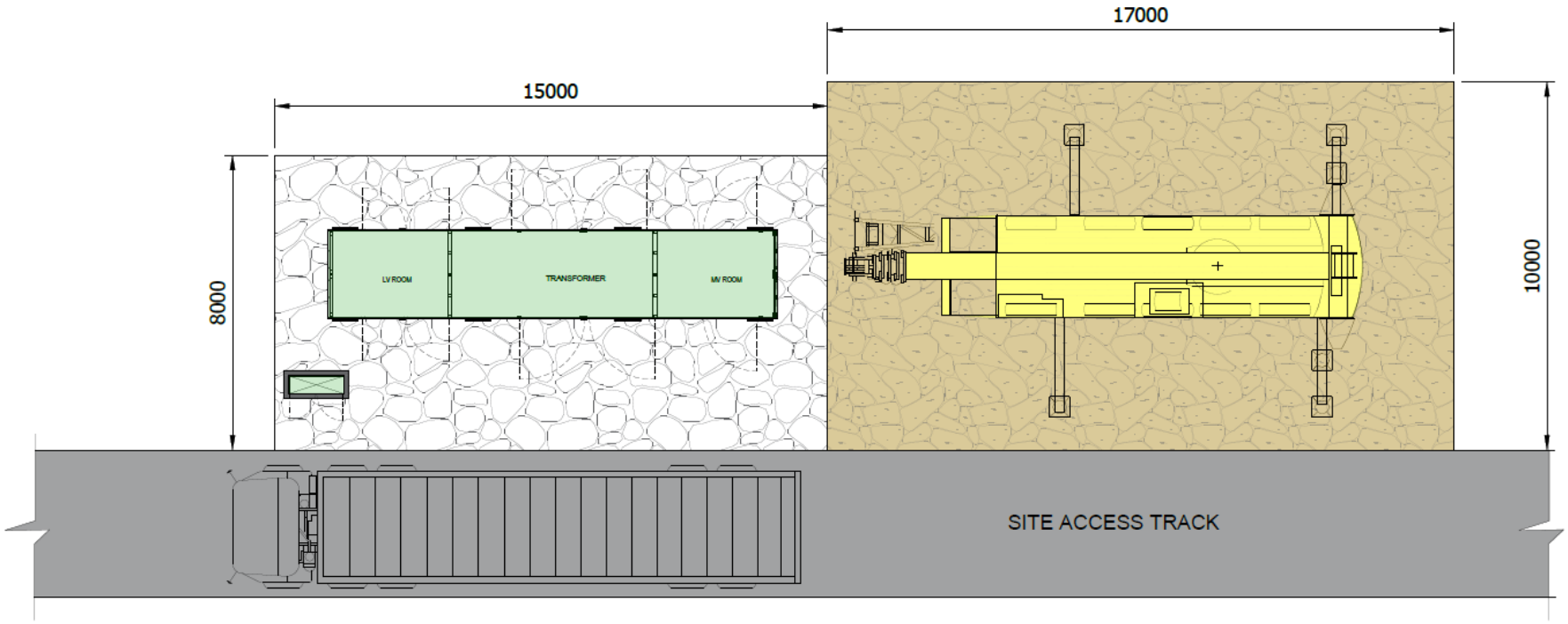


Figure 4.3: Transformer Unit and Crane Hardstand

4.1.1.2 Cabling

The proposed 220kV AIS substation is located in the townland of Ballyneague. The solar farm comprises a main solar array area with additional separate areas located in the southeast, southwest and west of the Proposed Development in the Townlands of Knocknagappagh, Ballydaniel, Ballyneaguue, Barranaviddane, Ballyglavin, Youghal Park and Cornaveigh. The solar PV arrays will be connected to the proposed substation via single and double 33kV circuits. The southwest area will require one circuit of 33kV underground cabling (UGC) and the southeast area will require one circuit of 33kV UGC within the public road and adjacent private land area. Where these two routes meet on the L-7829, the two circuits will enter private lands, run in parallel up adjacent to the road before entering back onto the public road, until they will be ducted offroad into the main solar array area and then to the substation Independent Power Producer (IPP) switchgear room. In the main array areas themselves, the 33kV cabling from the solar array areas will be ducted through private farm lands.

The lengths of circuit required to connect the southeast and southwest solar array areas to the IPP switchgear room are shown in Table 4.1.

Table 4.1: Circuit Lengths to Connect the Southeast and Southwest Solar Arrays

Section	Type	Description (all lengths are approximate and to be confirmed at detailed design stage)
Section 1	Single circuit from the southwest area along the L-3808 to the start of the L-7829	The single 33kV underground circuit runs for approx. 1,287 meters from the SW parcel in the public road, L-3808, before joining with the single circuit from the SE Parcel. The cable crosses 2 culverts and an approx. number of 1 joint slab will need to be installed..
Section 2	Single circuit from the southeast area along the L-3808 to the start of the L-7829	The single 33kV underground circuit runs for approx. 387 meters from the SE parcel in the public road, L-3808, before joining with the single circuit from the SW Parcel. The cable crosses 1 culvert and there is no need for cable joining on a joint slab to be installed in this section.
Section 3	Double circuit along the field to the L-7829	The double circuit from the southern parcels runs in a northerly direction off road before it heads to the local road L7829 for approx. 590 meters. The cable crosses one open drain and one joint slab will need to be installed for each circuit.
Section 4	Double circuit along the L-7829 to the solar farm	The double circuit runs along the local road L-7829 for approx. 714 meters before entering in the Solar Farm field. One joint slab will need to be installed for each circuit.

Section	Type	Description (all lengths are approximate and to be confirmed at detailed design stage)
Within the solar farm lands	Solar farm lands to IPP switchgear room	The double circuit run for approx. 1,685 meters from the local road L-7829 to the IPP Switchgear room on the solar farm lands. Two joint slabs will need to be installed for each circuit
Total circuit length		1,674m of single circuit 33kV Underground Cable 2,989m of double circuit 33kV Underground Cable

There are a number of small watercourse crossings located along the route which will be crossed either in the road decking above existing culverts or by dam and flume methodology at appropriate times of the year and in accordance with Inland Fisheries Ireland Guidance.

The proposed 33kV interconnector cable routes are shown in Planning Drawing Nos. 300101185-DR-301, 302 and 303.

4.1.1.3 Haul routes and access to the Proposed Development

Access to the Proposed Development will be from 11 no. site entrance points located on the regional and local road network, as listed below.

- Site access 1 will be located on the R634 regional road.
- Site access 2 will be located on the L7806 local road.
- Site access 3 will be located on the L3803 local road.
- Site access 4 and 5 will be located on the L3808 local road.
- Site access 6 and 7 will be located on the L7828 local road.
- Site access 8, 9 and 10 will be located on the L7829 local road.
- Site access 11 will be located on the L38032 local road.

The location of the site entrance points to the Proposed Development are shown on Figure 2.11.

A compacted gravel access track up to 4 metres wide will provide internal access to the solar arrays and associated infrastructure. It is intended to utilise the existing farm trackways for site access during construction, operation and decommissioning. Where required, some upgrading of these will take place.

The Proposed Development includes circa 7,775m of existing track and circa 5,380m of new access tracks.

A new access track will also be constructed from the R634 to the substation and BESS locations to facilitate abnormal load delivery and heavier construction elements (site access 1). This will also serve as the main site entrance for construction purposes. From this access point, an access track will be constructed utilising the existing internal site trackways and onwards to the proposed 220kV substation and the BESS area. See Figure 4.4.

All heavy goods vehicle (HGV) deliveries will access the Proposed Development from the R634 regional road and use the site entrances shown on Figure 2.11.

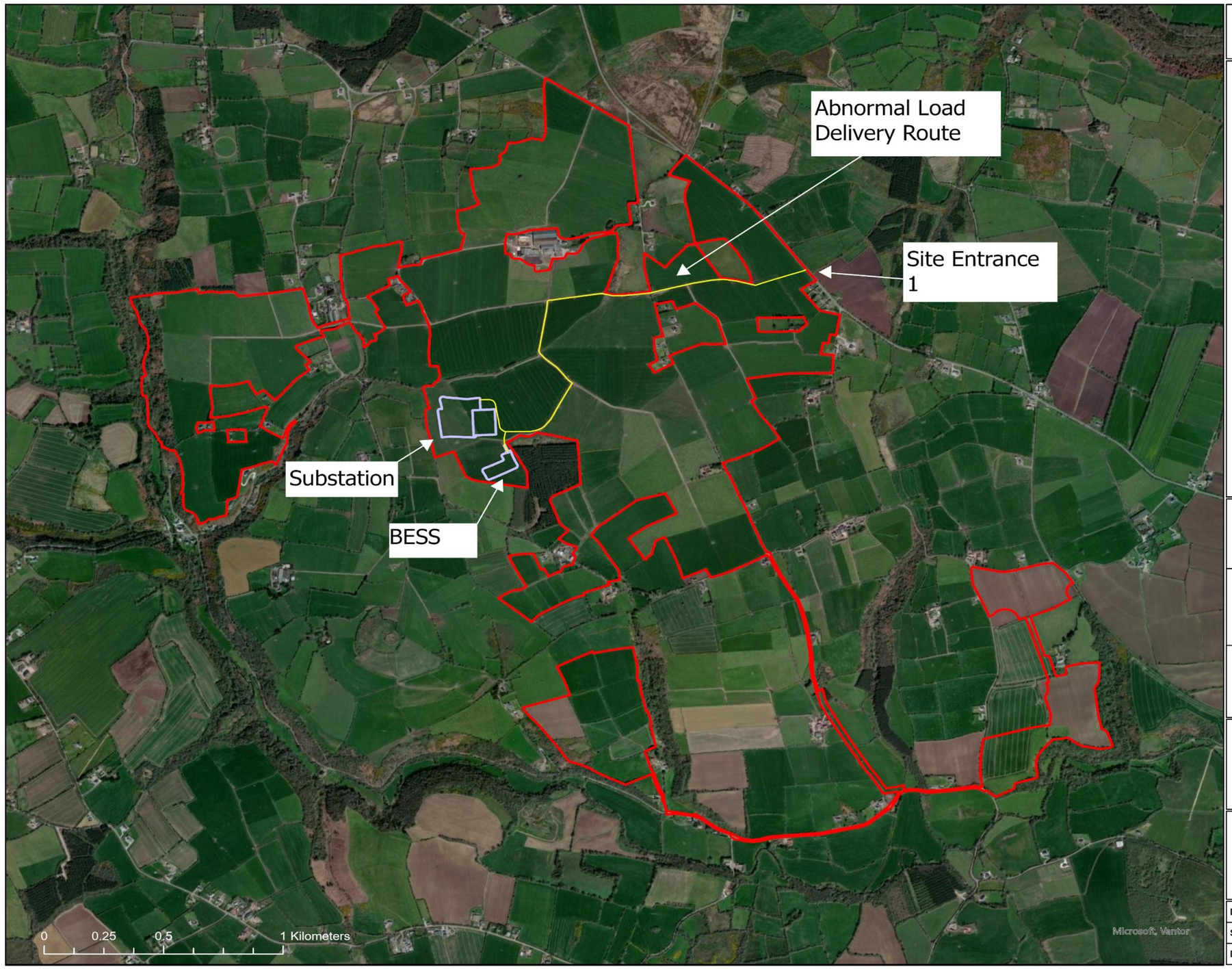


Figure 4.4: Abnormal Load Delivery Route

4.1.1.4 Ancillary Elements

A perimeter fence up to 2.4m in height will be erected to provide security and restrict unauthorised entry. This fence will be stock proof in nature and sympathetic to the agricultural character of the site. The footings for the fence will either be pre-moulded or localised in-situ concrete, to be determined once a contractor is appointed. The installed fencing will incorporate mammal friendly access. Fencing will prevent access by members of the public and therefore prevent any potential incidents of vandalism.

There will be no perimeter lighting at the solar farm, the inverter/transformers at the solar farm will require minimal lighting inside the containers used for maintenance purposes and only turned on as required, as any maintenance will most likely occur during daylight hours. No outside lighting is required. There will be 4 No. 20ft containerised storage cabins for spare parts sized 6.05m x 2.35 and 2.6m high shown in Drawing No. 7353-PL-806.

4.2 Battery Energy Storage System (BESS)

BESS projects support the integration of renewable energy, enhance grid stability, and improve the overall reliability of electricity supply in Ireland. The Greenhills BESS will provide a power reserve to the national grid allowing energy storage when electricity generation exceeds demand and will be used during periods when electricity generation is below actual demand on the system. It will also increase the security and reliability of the national grid through the provision of system services (in line with the EirGrid DS3 Programme for Delivering a Secure, Sustainable Electricity System), such as frequency support through rapidly injecting or absorbing power and, facilitating renewable electricity generation access to the grid during periods of high availability. The BESS will be capable of responding rapidly to support the national grid operator.

4.2.1 BESS Location and Size

The Proposed Development will consist of a grid-scale BESS (see Planning Drawing No. 300101185-DR-203) constructed on a footprint of circa 7,800 m^2, see Figure 4.5.

The proposed BESS electrical plant will consist of 7 no. inverter twin skid (2 inverters + 1 transformer + 1 RMU) units with 4 no. associated electrical plant batteries per inverter (each unit consists of a skid and 4 battery pods). In total, there will be 56 no. battery container units within a fenced compound adjacent to the proposed 220 kV AIS substation.

4.2.2 BESS Fundamental Components

A list of the fundamental BESS components are as follows:

- Modular skids containing electrical and control command centre, cooling / heating, ventilation and air conditioning (HVAC) equipment, lithium-ion (or equivalent) battery cells, power control system hardware, associated cabling.
- Inverter units and transformers in modular enclosures.
- Communications building housing switchgear and controls.
- Concrete plinths for equipment and container units.
- House transformer, back-up generator and fuel supply in a bunded reinforced concrete plinth area.

- Ancillary infrastructure, including internal access tracks, security fencing, CCTV, lighting, and drainage.
- Temporary construction compound in the area allocated to future EirGrid expansion.
- Electrical UGC connection to the proposed 220kV AIS substation.

The BESS area will be hardcored with the battery container units (5.3m in width x 4.47m in height), arranged in linear groups on concrete plinths. The battery container units will be fixed to concrete plinths within the hardcored area. The BESS area is L-shaped with the main dimensions being 139m in length and 49m in width, with an additional area for parking and storage containers (28.4m x 36m), see Planning Drawing No. 30010118-DR-202. The IPP control building extends into this additional area and will be constructed adjacent to the BESS units. A 4m wide access road will be included around the equipment with a 6m gap from the road to the fence to facilitate crane installation and maintenance.

N

Tailte Éireann
Clárúcháin, Luacháil, Suirbhéireacht
Registration, Valuation, Surveying

Legend

Red Line Boundary

BESS Layout

Client
Orsted

Project
Greenhills Solar Farm

Title
Battery Energy Storage System Layout

JENNINGS O'DONOVAN
an RSK company

FINISKLIN
SLIGO
IRELAND
Tel (+353) 719 161 416
Email. info@jodireland.com
www.jodireland.com
@JOD_Sligo Jennings O'Donovan & Partners Jennings O'Donovan

Date	29/09/2025	**Revision**	0	**Job No.**	7353
Scale	1:800 (A3)	**Stage**	ER		
Drawing	KF	**Checked**	DG	**Approved**	DG

Figure 4.5: BESS Layout

The BESS will be connected to the proposed 220kV AIS substation via a short section of circa 3 x 350m 33kV UGC within the site. It will be located in the southern area of the site just south of the proposed location for the 220kV AIS substation and existing 220kV overhead line on lands currently in agricultural use.

A 2.6m high palisade fence will be constructed around the BESS area.

4.2.3 BESS Safety and Fire Prevention

Safety and fire prevention are key considerations for BESS developments. The BESS will incorporate multi-layer protection systems designed to meet or exceed industry safety standards. The safety features will include fire testing certification and multi-layer protection systems to prevent and manage thermal events.

4.3 Proposed 220kV AIS Substation

Electricity from the solar array areas will be ducted to an on-site new 220kV AIS substation, which will be connected to the national grid via a loop-in grid connection to the existing Knockraha-Cullenagh 220kV overhead line, which runs through the middle of the site. The proposed 220kV AIS substation, loop-in grid connection and BESS compound are located in the townland of Ballyneague, circa 6.5 kilometres north of Killeagh, see Figure 4.1. See also **Figure 4.6** which provides the substation layout plan.

The proposed 220kV AIS substation (centre co-ordinates x = 602704.4, y = 582070.1) will comprise the following main components:

- EirGrid control building including welfare facilities
- IPP control building including welfare facilities
- Diesel generator & tank
- Space for future filter and reactive compensation equipment
- Up to 2x 220 kV transformers
- Surge arrestors
- Disconnects
- Combined current/voltage transformers
- Circuit breakers
- Busbar
- 2x gantry
- Neutral earthing resistor
- Associated internal cabling
- 18 m lightning masts
- Typical lighting poles
- 36m telecom mast
- Palisade fence

- Post and rail fence
- Internal site access roads
- Associated site development plant equipment
- Four storage containers
- Drainage details (including surface water and foul wastewater drainage)
- Temporary set down compound

The substation site has an elevation ranging from approximately 97 – 113m above sea level and the BESS compound has an elevation ranging from approximately 119 – 122m.

The dimensions of the substation are as follows:

- IPP area: 143.6m x 51m
- EirGrid Area: 132m x 116m

A site construction compound will be utilised (circa 45m x 65m of level crushed rock base) to house a canteen, toilet facilities, office modules, parking facilities and material laydown area.

The telecoms mast located within the substation will be 36m in height, the lightning protection mast will be 18m in height and the palisade fencing will be 2.6m in height.

Adequate lighting will be installed around the compound on the lighting masts. Lightning protection masts of approximate height 18m will be installed to protect the station from direct lightning strikes.

The proposed substation development will include a temporary site construction compound, on an set aside for potential future EirGrid extension, of circa 45m x 65m of level crushed rock base, to house a canteen, toilet facilities, office modules, parking facilities and material laydown area. These built elements will result in some small areas of reprofiling to accommodate the flat compounds and will result in some areas of cut and fill.

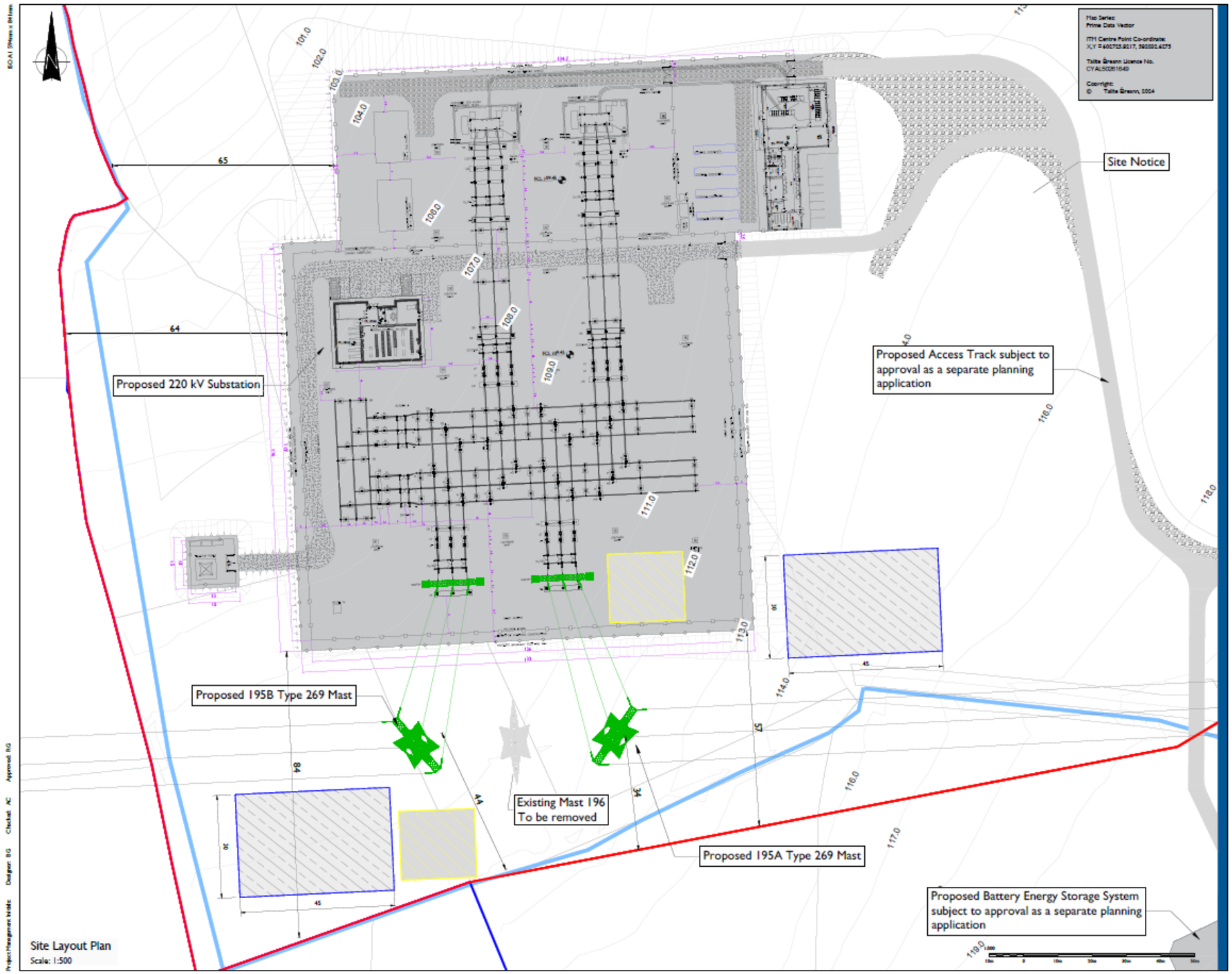


Figure 4.6: 220kV AIS Substation Layout Plan and Loop in Connection (illustrative purposes only)

4.3.1.1 Loop-in Grid Connection

The proposed design for the 220kV loop-in to the existing OHL will require two short sections of overhead line connections from the substation gantries. Two new 27m to 36m, 269E single circuit, steel lattice, strain towers with Shieldwire, will be constructed under the existing 220kV OHL, see Figure 4.6.

Typical tower dimensions are shown in Figure 4.7. The towers are to divert the existing Knockraha - Cullenagh 220kV OHL into the proposed 220 kV AIS substation. The existing conductor will be removed between the steel lattice end mast structures, with the new connection looped through to the new Proposed Development on site 220kV AIS substation.

One existing steel lattice tower (Mast 196) which forms part of the exiting Knockraha – Cullenagh Overhead line will be dismantled and removed from site.

Two 13.5m high conductor attachment height gantries (total height 20m) will be constructed to terminate the Knockraha - Cullenagh circuit and connect into the substation.

The new steel lattice end mast structure locations were selected based on ground surveys, ground profiles, allowable angles and ruling span checks. The expected duration of works is expected to be circa four months for overhead line structures with a further six weeks for connection to the existing OHL and commissioning. This will include the construction of foundations circa 10 days each followed by concrete curing time, erection of the steel lattice end mast structures circa seven days, weather dependant.

Temporary crane hardstands will be provided for tower lifts (from the substation compound or one to the south of the line 20m x 10m) and laydown area (45m x 30m) to build tower sections before lifting into place.

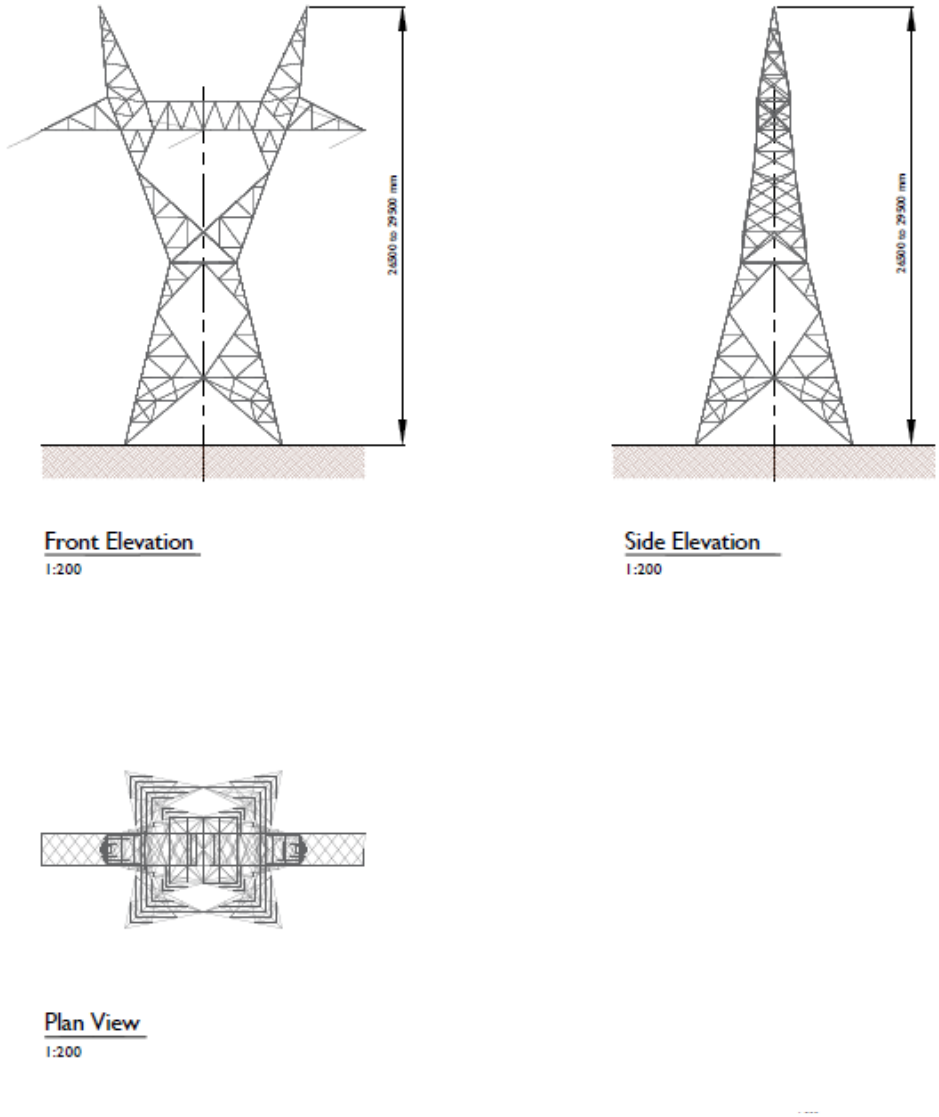


Figure 4.7: Steel Lattice Towers with Shieldwire

4.4 Site Drainage

The site is characterised by a relatively extensive network of historic drains, with occasional non-mapped natural and artificial drainage channels. Permanent site drainage will adopt a Sustainable Drainage System (SuDS) which is a nature-based approach to management of rainwater runoff. The approach to drainage ensures that existing site hydrology is maintained. Nature based solutions such as shallow collector drains with shallow swales to slow down surface water flow have been designed into the Proposed Development. Refer to Appendix B for the Proposed Development Drainage Plan.

4.4.1 Solar Array Areas

The majority of the Proposed Development area remains a permeable surface under solar panels, where previous studies have shown that PV panel installations typically do not cause any significant change to drainage patterns where underlying ground / surface conditions are unaffected. However, to ensure no increased flow and to provide a reduction in surface flow, a drainage system will be installed downslope from panel array areas which will contain check dams which will terminate in vegetated swales before being dispersed across vegetated areas. These will collect surface water runoff from the solar array areas, slowing down the rate of flow and ensuring no risk of flooding occurs on or as a result of the Proposed Development.

In addition, new made surfaces are limited to proposed permeable (unbound gravel) tracks, and hardstandings for invertor combiner kiosk / transformers and the associated crane hardstands, substation and BESS areas. Rainfall will infiltrate through the unbound gravel surface, at level track surfaces into subsoils responding to rainfall in an identical way as existing fields. On steeper track sections where water is likely to flow, runoff will be directed to the surrounding vegetated ground. The proposed invertor combiner kiosk / transformers, crane hardstands are relatively small and free standing, and all rainwater will run directly off these surfaces to the adjacent permeable surfaces of either grass or site access tracks made of crushed stone.

At site entrances, soakaway and interceptor drains for all entrances will be provided. These will prevent surface water from discharging into the public road. No surface water runoff will be discharged onto public roads, foul sewers, or adjacent property.

Proposed drainage minimises alterations to the ambient site hydrology and hydrogeology and preserves green-field runoff rates and volumes. Drainage systems are designed for rainfall storm events of 1 in 100 years including climate change, thereby, safeguarding no detrimental impacts of flooding at the site and to adjacent areas.

These nature-based solutions ensure that runoff from the Proposed Development which will discharge to watercourses or groundwater is of a high standard.

In relation to existing watercourses and field drains:

- Existing land drains and watercourses were taken into account in the design phase using appropriate buffer zones 10m for land drains and 20m for watercourses.
- Key land drains will be preserved where required, and will be maintained during the Proposed Development lifespan, with appropriate drain management practices being implemented.
- On low lying ground, existing land drains under solar panels will be allowed to naturally degrade over time through lack of maintenance. This will not affect operation of the site

and is likely to cause a beneficial effect to flooding downstream by “slowing the flow”, where water will not drain runoff the land as quickly as it presently does.

During the construction phase, portable toilet facilities will be provided for workers. All associated waste will be disposed off-site by a suitably licensed waste contractor. There is no requirement for foul drainage during the operational phase.

Appropriate pollution prevention measures will be implemented during the construction phase, to ensure that runoff from the construction site is not contaminated by fuel, sewage or lubricant spillages.

4.4.2 220kV AIS Substation and BESS

The proposed substation and BESS site drainage will also adopt a SuDS nature-based approach to management of rainwater runoff. The approach to drainage ensures that existing site hydrology is maintained. Surface water drainage will be ducted to a percolation area of circa 5m x 5m x 1.8m deep at the substation site which has been confirmed through site percolation testing to be suitable for surface water infiltration for this purpose, see site investigation (SI) Report in Appendix C. It is located within the substation and all surface water drainage will be directed to this percolation area.

Infiltration rate testing was carried out at parts of the substation and BESS SI works, see SI Report in Appendix C.

4.5 Landscaping and Biodiversity Enhancement

The Proposed Development consists of large areas of improved agricultural grassland connected by a network of treelines and hedgerows with areas of scrub also present. The southeast section has areas of arable farming present.

At the Proposed Development, the purpose of biodiversity enhancement is to prescribe detailed mitigation, enhancement and monitoring approaches to achieve enhancements for the species and habitats present onsite, notably for hedgerow and treeline habitats, birds, bats, and pollinators. A BEMP is included in Appendix D. The primary objectives of this plan are:

- To establish appropriate buffer setbacks at the design phase (see Table 2.2 above).
- To retain and maintain existing hedgerows where possible such that commuting and foraging habitat is not lost during construction, operation and decommissioning phases of the Proposed Development.
- To ensure on-site replacement of equivalent lengths/areas and species compositions of hedgerows and treelines following the removal of such habitats, such that commuting and foraging habitat is not lost during construction, operation and decommissioning phases of the Proposed Development.
- To ensure a minimum 20% net increase of ecological receptor habitats.
- To create and maintain shelter belts of native woodland to provide commuting and foraging corridors for wildlife.
- To create and maintain native wildflower meadow onsite to provide foraging habitat or birds and pollinators.
- To retain and maintain existing scrub onsite to provide commuting and foraging habitat for wildlife.

- To place and monitor artificial Otter *Lutra lutra* holts to encourage establishment of Otter in the area, which may in turn act as biological control for the invasive American Mink assumed to be present onsite.

External hedgerows will largely be retained with a minor loss of 260 linear metres where access to the public road infrastructure occurs. Internal hedgerows have largely been retained except approximately 135 linear metres to be removed to allow access, fencing and gates. This gives a total of 395 linear metres of hedgerow, which will be removed throughout the site. This will be offset by 1,400 linear metres of new hedgerow planting, as well as the bolstering of up to 31,000m of linear hedgerow and mosaic hedgerow where necessary, to fill any gaps in existing hedgerows. In addition, some 19,600m^2 of native woodland will be planted for screening purposes. A Landscape Mitigation Plan has been prepared as part of the Landscape and Visual Assessment in Appendix E.

5 CONSTRUCTION OF THE PROPOSED DEVELOPMENT

5.1 Construction Methodology

It is anticipated that potential effects for the solar array element will be short term and localised during the construction phase. All construction methods will be in accordance with international and national best practice and comply with health and safety requirements to reduce potential adverse environmental impacts and effects from the Proposed Development. An overarching CEMP has been developed for the project and is provided in Appendix F. In addition, separate focused Construction Environmental Management Plans have been prepared for the Grid connection element which includes the Substation and loop-in to the existing 220kV OHL and for the BESS which are appended to the overarching CEMP.

5.2 Construction Management

The construction of the Proposed Development will be undertaken by appointed contractor(s) following a tender process. A more detailed CEMP and/or detailed Construction Method Statement (CMS) will be developed prior to the commencement of activities on-site so that the Proposed Development is constructed to appropriate standards and minimises any potential effects on the environment. These documents will include the following:

- Measures for controlling water quality
- Noise & vibration
- Dust and nuisance control
- Waste and spoil management
- Management of fuels and oils
- Management of concrete
- An Emergency Response Plan in the Event of a Spillage/Incident

5.3 Footprint of the Major Components

The Proposed Development will be constructed on existing agricultural lands, mainly improved grasslands. The footprint of the Proposed Development is provided in Table 5.1.

Table 5.1: Footprint of Proposed Development

Item	Description	Area
New access tracks	Constructed on existing grassland (circa 4m wide).	5,135 m
Upgraded existing access tracks	Reinforcement of existing trackways (circa 4m wide).	7,115 m
Temporary compounds (4 in number 2000m^2 each)	Geotextile on existing grassland loaded with granular material at 4 locations which will be used for solar array.	8,000 m^2
Main temporary compound	Located adjacent to the substation on the EirGrid future expansion area.	5,200 m^2
Inverter hardstandings	54 Inverter hardstands each 172m^2 on existing grassland.	9,180.00 m^2
Inverter pads	54 Inverter pads each 120m^2 on existing grassland.	6,480 m^2
PV panels	Estimate of area covered by PV panels on existing grassland .	2,100,000 m^2
BESS - infrastructure	BESS footprint on cut and fill area.	7,760 m^2
220 kV AIS Substation	220kV AIS substation footprint on cut and fill area	21,493 m^2
Cable in public road - excavation	Temporary excavation of linear trench and backfilling.	1,890 m^2
33kv cables within site and offroad - cables and ducts	Temporary excavation of linear trench and backfilling on grassland area.	2,070 m^2
Hedgerow removal	A total of 395 linear metres of hedgerow will be removed throughout the site for sightlines at access points, access tracks, gates and fencing.	395 m

Item	Description	Area
Biodiversity enhancement areas	1,400 linear metres of new hedgerow planting, as well as the bolstering of up to 31,000m of linear hedgerow and mosaic hedgerow where necessary, to fill any gaps in existing hedgerows. In addition, some 19,600m2 some 19,600m^2 of native woodland will be planted for screening purposes.	1,400 m Up to 31,000 m 19,600 m^2

5.4 Construction Timeline

It is envisaged that construction will take circa 21 months to complete. However, this is subject to various factors including weather conditions. The timeline includes preliminary works such as detailed design, marking out and procurement activities.

Deliveries of project components are scheduled from September 2028 to June 2029 depending on the element of the Proposed Development under construction.

The main construction activities, which includes civil engineering, fencing, tracks, compounds, hardstands, drainage, substation and BESS is scheduled for the period September 2028 to September 2029.

For the solar array element, pile foundation, frame structure assembly and solar PV module installation is scheduled to occur between January 2029 and September 2029.

Trenching for electrical cabling instruction, inverter and transformer installation is scheduled for the period March 2029 to October 2029. Short term local road openings to allow cable ducting will occur during this period.

Construction of the loop-in grid connection and commissioning of the Proposed Development is scheduled to occur during the period August 2029 to March 2030. During the loop-in construction the existing 220kV Knockraha to Cullenagh Overhead line will be interrupted for a period of circa 17 weeks. The exact timing of this line outage will be agreed in advance with EirGrid and ESB Networks.

The indicative construction timeline is shown in Table 5.2. This also indicates the overlapping time periods when most delivery and construction activities will occur , mainly between March 2029 and October 2029.

It is anticipated that the Proposed Development will be grid connected and fully operational by April 2030.

Table 5.2: Greenhills Solar and BESS Proposed Development – Indicative Construction Timeline

Greenhills Solar and BESS Proposed Development Indicative Construction Timeline																								
Construction Element	**Start**	**Finish**	**Approximate Duration in time period**	**Aug-28**	**Sep-28**	**Oct-28**	**Nov-28**	**Dec-28**	**Jan-29**	**Feb-29**	**Mar-29**	**Apr-29**	**May-29**	**Jun-29**	**Jul-29**	**Aug-29**	**Sep-29**	**Oct-29**	**Nov-29**	**Dec-29**	**Jan-30**	**Feb-30**	**Mar-30**	**Apr-30**
Project Detailed Design, Marking Out & Procurement	Aug-28	Jul-29	11 months																					
Deliveries -Fframes	Sep-28	Jan-29	5 months																					
Deliveries - PV Modules	Sep-28	Feb-29	6 months																					
Deliveries - Inverters	Jan-29	Mar-29	3 months																					
Deliveries - Transformers	Mar-29	Jun-29	4 months																					
Deliveries - BESS	Mar-29	Jun-29	4 months																					
Deliveries - Cabling	Mar-29	Jun-29	4 months																					
Construction - Civils, Fencing, Tracks, Compounds, Hardstands, Drainage, Substation, BESS	Sep-28	Sep-29	12 months																					
Construction - Pile Foundations	Jan-29	Jul-29	7 months																					
Construction - Frame Structure Assembly	Feb-29	Sep-29	8 months																					
Construction - Solar PV Module Installation	Mar-29	Sep-29	7 months																					
Construction - Electrical - Trenching, Cabling, Inverter & Transformer Installation	Mar-29	Oct-29	8 months																					
Grid Connection & Commissioning of the Site	Aug-29	Mar-30	7 months																					
COD	Apr-30																							

5.4.1 Working hours

Working hours for construction will be from 08:00 to 18:00 on weekdays, with reduced working hours at weekends, from 08:00 to 16:00 on a Saturday. No woks will generally occur on Sundays or bank holidays. During certain stages of the construction phase, it is expected that some work will have to be carried out outside of normal working hours. However, this will be kept to a minimum and will be undertaken where prior written approval has been received from the planning authority. Construction activities will gradually phase out from pre-construction to predominantly civil activities followed by commissioning and testing of the solar equipment.

5.5 Site Preparation and Construction

5.5.1 General

Works on-site to construct the solar array, BESS, loop-in Substation and grid connection will involve the following:

- Discharge of all prior to commencement conditions which may be imposed by the Planning Authority.
- Ecological walkover.
- Site access and signage.
- Health and safety requirements.
- Establishment of temporary construction compounds and services.
- The Proposed Development construction areas will be marked out and fenced off before any clearance works take place.
- Archaeological features and buffer zones will be fenced off.
- Biodiversity enhancement area will be fenced off/signage erected preventing entry for construction vehicles.
- Existing services in the area will be marked out.
- Surface water management facilities will be installed.
- All site staff will be informed at the induction process of the location of any existing services and ecological features which must be avoided.
- Construction mitigation and monitoring measures will be put in place.
- Completion and hand over of health and safety file, technical documentation, full discharge of planning and building regulations requirements etc.

5.5.2 Site Access

The site access points will be constructed to withstand HGV wheel loading and to facilitate the turning movements of HGV vehicles which will be required to visit the site during the construction period.

Site access 1 will be constructed with a temporary overrun area to accommodate the swept path of the abnormal load vehicle delivering the transformer to the substation within the Proposed

Development. The temporary overrun area will be removed following the delivery of the transformer.

Gates at the site entrances will be set back from the public road so as not to obstruct through traffic on the public road in the event that the gates are closed.

Existing drainage at the site entrances will be upgraded and incorporated into the site drainage. Drainage will be detailed to prevent any outfall of water onto the public road network. Boundary and verge vegetation adjacent to the site entrances will be trimmed and maintained for visibility during the lifetime of the Proposed Development.

5.5.3 Installation of Solar Panels

Construction of the solar PV panel installation will also entail:

- Installation on ground mounted frames (driven into the ground attached driven steel piles), installation of concrete ballast foundations where required (expected to be minimal).
- Excavation of trenches for cables connecting solar panels to inverter/transformers, to join the land areas and to connect the solar farm to the proposed 220kV AIS Substation.
- Erection of the stock proof fencing and gates.
- Laying of stone and concrete beams/plinths for inverter/transformers, crane hardstands and RMU.
- Installation of solar panels.
- Placing of containers and inverter/transformers and RMU.
- Landscaping.
- Electrical fit out.
- Installation and testing of all below ground cables including 33kV interconnector cable.
- Energization and start up testing.
- Commissioning and compliance testing.

Each solar PV panel will be erected on a galvanised steel support structure/ frame. This method of installation causes minimal ground disturbance and occupies less than 1% of the land area. The angled racks will be anchored to the ground using one of the following methods:

- Screw piles or rammed piles: This is the preferred method of founding the racks, as it is the quickest to construct and most economical. This can be considered the default method, and it is expected that the vast majority of the site will use screw or rammed piles as anchors. The galvanised frame is attached to ground anchors (galvanised steel posts) which are driven into the ground using a piling unit until a suitable depth is reached to provide a secure footing.
- Pre-drilled holes with backfilling/concrete: In certain cases, geotechnical conditions such as the presence of rock close to the surface may require foundation holes to be pre-drilled prior to ramming the piles. These holes would then be backfilled with concrete or other aggregate. A pre-construction geotechnical assessment will confirm if this type

of anchor is required. It is expected that this would only be deployed in localised pockets of land where rock was present, if at all.

- Gabion baskets/ ballast foundations (concrete shoes): A programme of geophysical survey was undertaken across areas the site. The geophysical report is presented in Appendix I to the Archaeological, Architectural and Cultural Heritage Baseline Report (Appendix R to this PER). The geophysical survey identified four discrete anomalies, referenced as M1-M4 in the geophysical report. At these locations, a buffer zone will be marked out to delineate the areas in which gabion basket / ballasted foundations are to be used for the mounting of solar panels (details of such gabion baskets/ballasted foundations is provided in Appendix D of the CEMP, see Appendix F to the PER).
- There are a number of gabion basket/ ballasted/ precast concrete solutions in the market specifically designed for avoiding disturbance of sub-soil archaeology. The solutions chosen in detailed design may vary slightly from what is described in Appendix D to the CEMP but the key elements and concepts will be maintained, with no below ground works. It is clearly established that there are ways of building solar arrays without disruption to potential archaeology in the sub soil.
- Alternatively, if suitable, the standard piled foundations may be microsited to avoid these area.
- In localised circumstances where penetration of the ground surface is not possible, this method uses concrete anchors to counteract any lift forces generated by wind loading on the modules. Ballast foundations could be deployed in areas of the site in the event of rock near the surface, or where there is potential for sub-surface archaeology.

During the construction sequence a foundation team move ahead pile driving, framers follow behind them erecting the frames on the piles and then the solar PV panel team erect the panels on the frame. The panels are then wired to the internal cabling to the inverters.

With the exception of a specific scenario where pre-drilled holes are necessary, there are no concrete works required in the installation process.

5.5.4 Temporary Site Compounds

There will be one main temporary construction compound (Compound No. 1) circa 5,200m^2 in area adjacent to the substation construction location and four additional temporary laydown areas of circa 2,000m^2 each located across the solar array areas. See Table 5.3 and Figure 4.1.

Table 5.3: Temporary Site Compounds

Compound No	Easting	Northing	Area m^2
Compound 01	602825	582026	5,200
Compound 02	604059	582747	2,000
Compound 03	602051	582477	2,000
Compound 04	604972	580426	2,000

Compound No	Easting	Northing	Area m^2
Compound 05	603454	580592	2,000

5.5.5 BESS

The proposed BESS will be constructed just south of the proposed 220kV Loop-in substation on the southern side of the existing 220kV Knockraha-Cullenagh OHL. The key construction elements will include:

- Installation of clean water cut off drains around the BESS construction area and temporary spoil storage.
- Construction of the access track from the trackway accessing the substation site to the BESS site and around the BESS itself. This access track will pass under the existing Knockraha-Cullenagh 220KV line and will be constructed around the BESS.
- Topsoil clearance and storage for landscaping purposes.
- Excavation and levelling of the BESS footprint through cut and fill operations.
- Construction of the concrete plinth on which the containers housing the battery units will be placed.
- Construction of the communications building housing electrical components and bunded diesel tank and generator.
- Construction of underground ducting for the BESS electrical cabling to the proposed substation.
- Construction of the drainage network around the BESS and access trackway.
- Delivery and installation of the inverters, transformers and containers with battery units using a lift crane from the constructed access trackway.
- Electrical connection to the substation via 3 x 33kV underground cables of circa 350m in length, which will be pulled through the installed cable ducts.
- Commissioning of the BESS.

The sloping ground on which the proposed BESS will be located will be levelled through cut and fill during the construction period. All subsoil excavated material will be utilised for the fill to provide a level base for the substation and for landscaping purposes. The cut and fill volume is estimated to be 2,396m^3. Topsoil excavated on site will be stored temporarily (estimated at 2,629m^3) and will be reused on site for landscaping purposes.

In addition, circa 3,272m^3 of stone fill will be used to cap the BESS site to a depth of 400mm. This will be imported from suitable licenced quarries.

The expected duration of works is approximately 12 months and may run concurrently with the main substation construction.

An Outline Construction Methodology (OCM) has been prepared for the BESS and is provided in Appendix G.

5.5.6 220kV Greenhills AIS Substation and Grid Connection

5.5.6.1 220kV AIS Substation

An OCM for the proposed 220kV AIS substation has been prepared and is provided in Appendix H. The proposed substation will be constructed just north of the existing 220kV Knockraha – Cullenagh OHL and will consist of the following key construction elements:

- Construction of the access track to the substation site.
- Establishment of the temporary construction compound (this will also serve the construction of the BESS loop-in tower construction).
- Installation of clean water cut off drains around the proposed substation construction area, temporary spoil storage and temporary construction compound area.
- Topsoil clearance and storage for landscaping purposes.
- Excavation and levelling of the substation footprint through cut and fill operations.
- Associated ground works for the substation platform, Traffos and transformer bays and storage facilities.
- Construction of the EirGrid control building and IPP control building housing electrical control and switchgear equipment, bunded diesel tank and generator, welfare facilities and storage.
- Construction of underground ducting for the substation electrical cabling.
- Construction of the drainage network around the and substation and construction of the percolation area.
- Delivery and installation of the transformers, electrical switchgear and containers with battery units using a lift crane from temporary crane hardstands.

The sloping ground on which the proposed 220kV AIS substation will be located will be levelled through cut and fill during the construction period. All excavated material will be utilised for the fill to provide a level base for the substation and for landscaping purposes

The cut and fill volume is estimated to be 25,013m^3. Topsoil excavated on site (estimated at 8,307m^3) will be reused on site for landscaping purposes. In addition, circa 9,320m^3 of stone fill will be used to cap the substation site to a depth of 400mm. This will be imported from suitable licenced quarries.

The expected duration of works is circa 16 months. Once all construction works are complete, the work areas will be reinstated with excavated soil and either seeded out with native species, allowed to vegetate naturally or reinstated with excavated grass turves and will be restored to their original condition. This work will be carried out in consultation with the landowner and in line with any relevant measures outlined in the planning application, CEMP and any planning conditions.

5.5.6.2 Loop-in Grid Connection to Knockraha-Cullenagh 220kV Overhead Line

An OCM for the proposed 220kV AIS substation which covers the loop in connection has been prepared and is provided in Appendix H. Loop-in to the existing 220kV OHL will be by two short sections of overhead line, each circa 48.5m in length or a total of circa 97m, from the proposed 220kV substation to the existing 220kV OHL crossing east west through the site.

Two new masts Type 269E with shieldwire (195A and 195B) will be constructed under the existing Knockraha-Cullenagh 220kVcircuit and placed between the existing mast No.195 and No.197. The new steel lattice mast structures locations were selected based on ground surveys, ground profiles, allowable angles and ruling span checks.

Connection to the substation is via two new masts, with the configuration of existing mast No. 195 - mast No. 195A –Gantry and Gantry – mast No. 195B – existing mast No. 197.

The proposed loop-in grid connection will involve the following construction elements:

- Liaison with EirGrid/ESBN to initiate the existing line outage.
- Temporary disconnection of conductors from tower to be removed.
- Dismantling of the existing intermediary steel tower and removal of materials off site including excavation of foundations and backflling or removal of concrete foundation to a depth of 300mm below ground level and backfilling with suitable subsoil and topsoil.
- Topsoil clearance and storage for landscaping and reinstatement purposes at the new tower locations.
- Excavation of the tower foundations and temporary storage of topsoil and subsoil separately.
- Formwork for concrete foundations and concrete pouring and curing.
- Erection of the loop-in steel towers using cranes on temporary hardstand.
- Connection of the steel towers to the Traffos in the proposed new substation.
- Connection of the Loop-in towers to the existing 220kV overhead line.
- Commissioning of the substation and the loop-in connection.

The duration of works of the overhead line construction is expected to be approximately four weeks. Construction of foundations for masts circa seven days each, with time for curing of the concrete, erection of the masts circa five days each, weather dependant. Stringing of conductor will be a two-week process and final connection to the existing grid will be carried out by ESB Networks and at that point in time commissioning of the substation can start.

5.5.7 Earthworks

Minimal earthworks will be required for the overall development of the solar array element of the Proposed Development, this includes:

- UGC trenches and cabling connecting the sections of the solar farm, to the proposed 220kV AIS Substation.
- Associated ground works for inverter combiner kiosk / transformer, crane hardstands, RMU and storage cabins.
- Upgrading of existing tracks and new access tracks.

Cut and fill operations will occur at both the BESS location and the proposed 220kV substation location as described above.

Any surplus excavated materials, such as a topsoil and subsoil, will be re-used on-site for landscaping and backfilling cable trenches.

5.5.8 Site Security Fencing

In addition to the fencing surrounding the 220kV AIS Substation and the BESS, a 2.4m high stock proof fence will be installed around the perimeter of the solar array layouts. The total length of this fencing is circa 30,600m.

The site entrances will generally be locked, to prevent unauthorised entrance by the public. Gates will only be unlocked to allow operations and maintenance staff access to the site when needed.

Security cameras with remote monitoring will be installed. These will be oriented towards the solar farm and will not be oriented towards any external properties. These are shown on Planning Drawing No. 7353-PL-804.

5.5.9 Hedgerow Loss and Planting

As part of the Proposed Development some limited loss of hedgerow will occur due to development of site access locations and due to upgrading and construction of new access tracks, gates and fences. In addition, trimming of hedgerows at site entrances due to routing maintenance to ensure unobstructed site lines will be required. This is estimated in a worst case scenario to be as per Table 5.4.

Table 5.4: Estimated Hedgerow loss and maintenance requirement

Hedgerow Removal	Length (m)
Removal due to site entrances	260
Removal due to access stack, gates and fence line	135
Hedgerow Maintenance	**Length (m)**
Site line maintenance	468

The loss of hedgerow will be offset by bolstering of existing hedgerows and the establishment of new hedgerow areas. This is set out in the Landscape and Visual Impact assessment as mitigation and will serve both to screen the Proposed Development from viewpoints and also to offset hedgerow loss and enhance biodiversity.

As set out in the Chapter 12, it is proposed to bolster existing perimeter and internal hedgerows with under-planting and inter-planting of whip transplants (i.e. Hedgerow 'Type 1', see Figure 5.1 below) in order to ensure dense and consistent screening of the site in perpetuity. This will be undertaken where required to thicken and fill gaps in the existing hedgerow network prior to the construction phase, thus allowing for any growth in the period between a grant of planning permission and construction of the development. Advanced nursery stock in the form of 8-10cm girth trees will be used to fill any noticeable gaps and plant species will be selected to complement the existing broadleaf hedgerow species mix around the site and will be of local provenance.

It is proposed to bolster up to 31,000m of existing linear hedgerow and mosaic hedgerow where necessary.

Where not already exceeded by existing vegetation, it is intended to manage hedgerows up to 3-4m in height. This height will be achieved by a combination of allowing lower sections of existing hedgerows to mature, filling obvious gaps with advanced nursery stock and providing an additional line of whip planting to selected hedgerows that require densification. Refer to the Landscape Mitigation Plan in Appendix E for details.

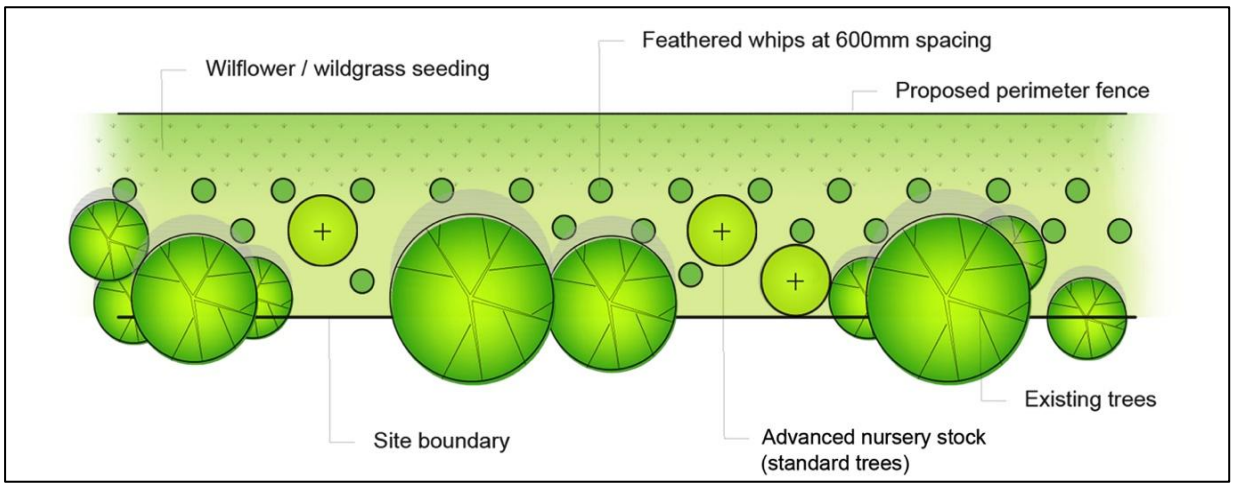


Figure 5.1: Hedgerow Type 1: indicative boundary planting detail

It is also proposed to plant new 'Type 2' hedgerows (see Figure 5.2) with whips and a high proportion of advance nursery stock trees (circa 3m planted height), along the boundaries of some of the proposed areas to further screen the Proposed Development from some of the nearest surrounding receptors (Refer to the Landscape Mitigation Plan in Appendix E for details). All of this planting will be allowed to mature up to a maintained height of 3-4m.

It is proposed to establish an estimated 1,400 linear meters of Hedgerow Type 2 (New Native hedgerow).

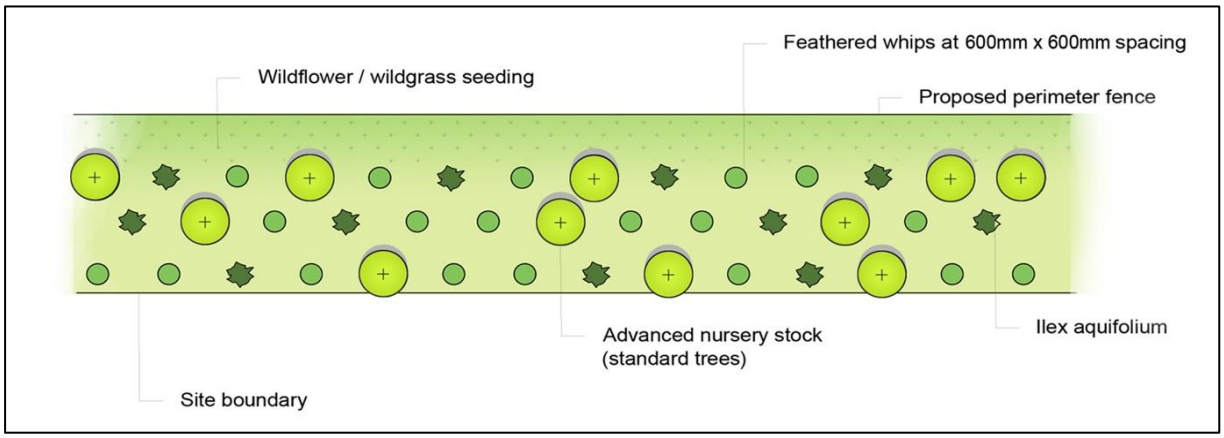


Figure 5.2: Type 2 Indicative boundary planting Type 2

Native woodland thickets are also proposed in localised areas along the perimeter of the Proposed Development. These native thickets/woodlands will be provided in the form of high canopy (dominants) species, low canopy (sub-dominant) species, understory and fringe (higher shrubs) species and understory and edge (lower shrub) species, and will comprise of a mix of advanced

nursery stock and whip planting of local provenance. The proposed planting will be allowed to grow out to reach maturity and will break up the visual mass of the main solar array and substation development. An estimated 19,600m^2 of native woodland will be established.

5.6 Underground Cabling

An OCM has been prepared for the 33kV UGC in the public road sections and is provided in Appendix I. Installations of the interconnector cable comprise trenching for an underground medium voltage electrical cable and associated joint slabs, where cable lengths will be joined and infrastructure.

All power, communication and control cabling on the solar farm will be installed underground in excavated trenches, which will be routed from the solar array areas to the proposed 220kV AIS substation. Electricity generated by the solar photovoltaic panels will be fed through the internal site power cables to the substation along the path of the existing site access tracks and along part of the local road network.

In vegetated areas, when trench excavation works commence, the surface vegetated topsoil will be removed from the trench path and retained on the ground surface adjacent to the trench.

Any excess subsoil excavated material will be reused on the Proposed Development site.

The 33kV UGC single circuit will consist of 1 no. 160mm diameter high-density polyethylene (HDPE) power cable duct within which all three phases of the cable will be located and 1 no. 110mm diameter HDPE communications duct to be installed in an excavated trench, see Planning Drawing No. 300101185-DR-302, with a typical example provided in Figure 5.3. The trench will typically be circa 360mm wide by circa 1,160mm deep, with variations on this design to adapt to road, service, and watercourse crossings. Where cable duct trenches are installed in the solar farm access tracks the trench width will be circa 400mm and of similar depth, see Planning Drawing No. 300101185-DR-301.

The Double Circuit will consist of 2 no. 160mm diameter HDPE power cable ducts, separated by 450mm. The three phases of each cable will be located in each 160mm duct with 2 no. 110mm diameter HDPE communications ducts to be installed in an excavated trench. The trench will typically be circa 1,370mm wide by circa 1,160mm deep, with variations on this design to adapt to road, service, and watercourse crossings. Where double circuit cable duct trenches are installed in the solar farm access tracks the trench width will be circa 1,010mm in width and of similar depth.

The location of the cables will be finalised at the detailed design stage, within the parameters set out in this application and as shown in the drawings.

Permanent Reinstatement

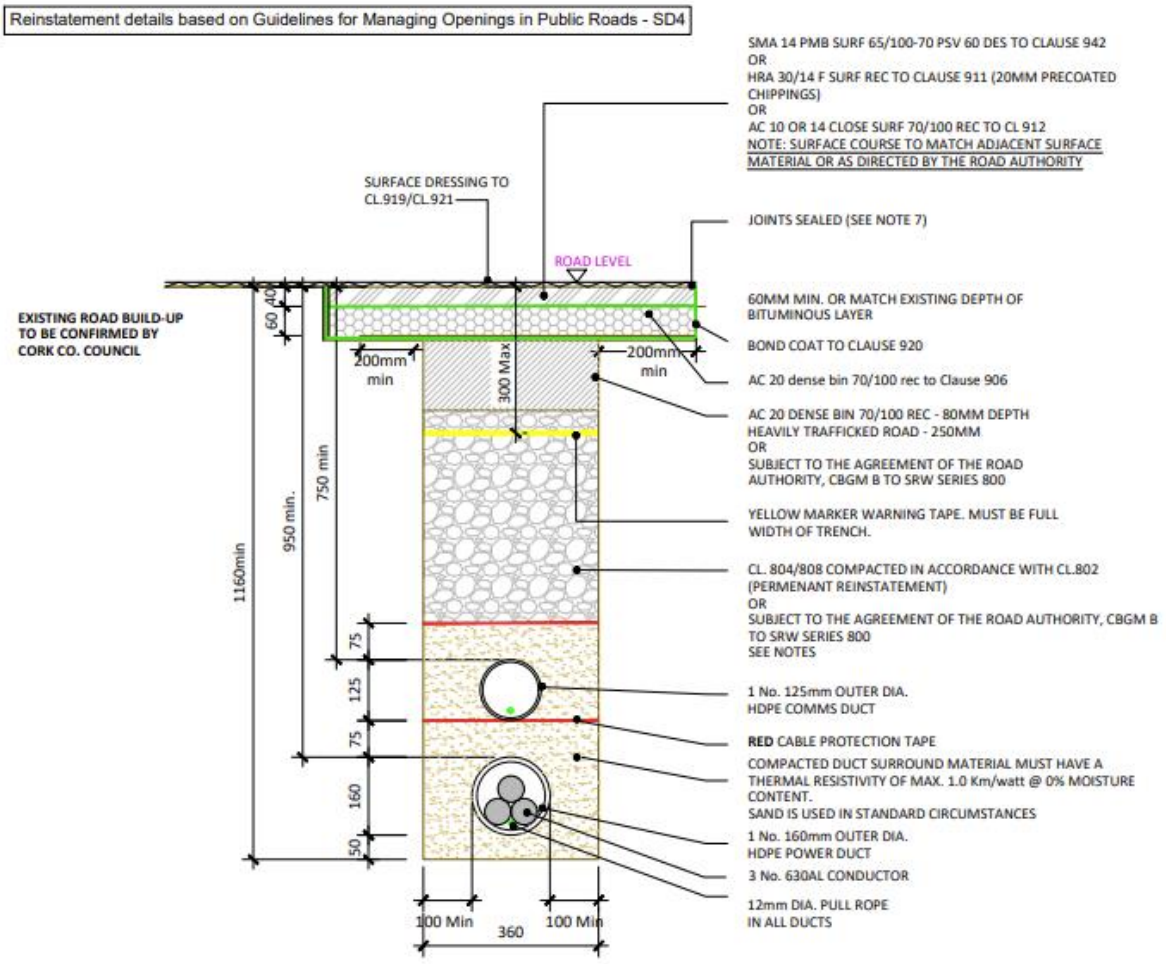


Figure 5.3: Typical Single Circuit Section Through Public Road

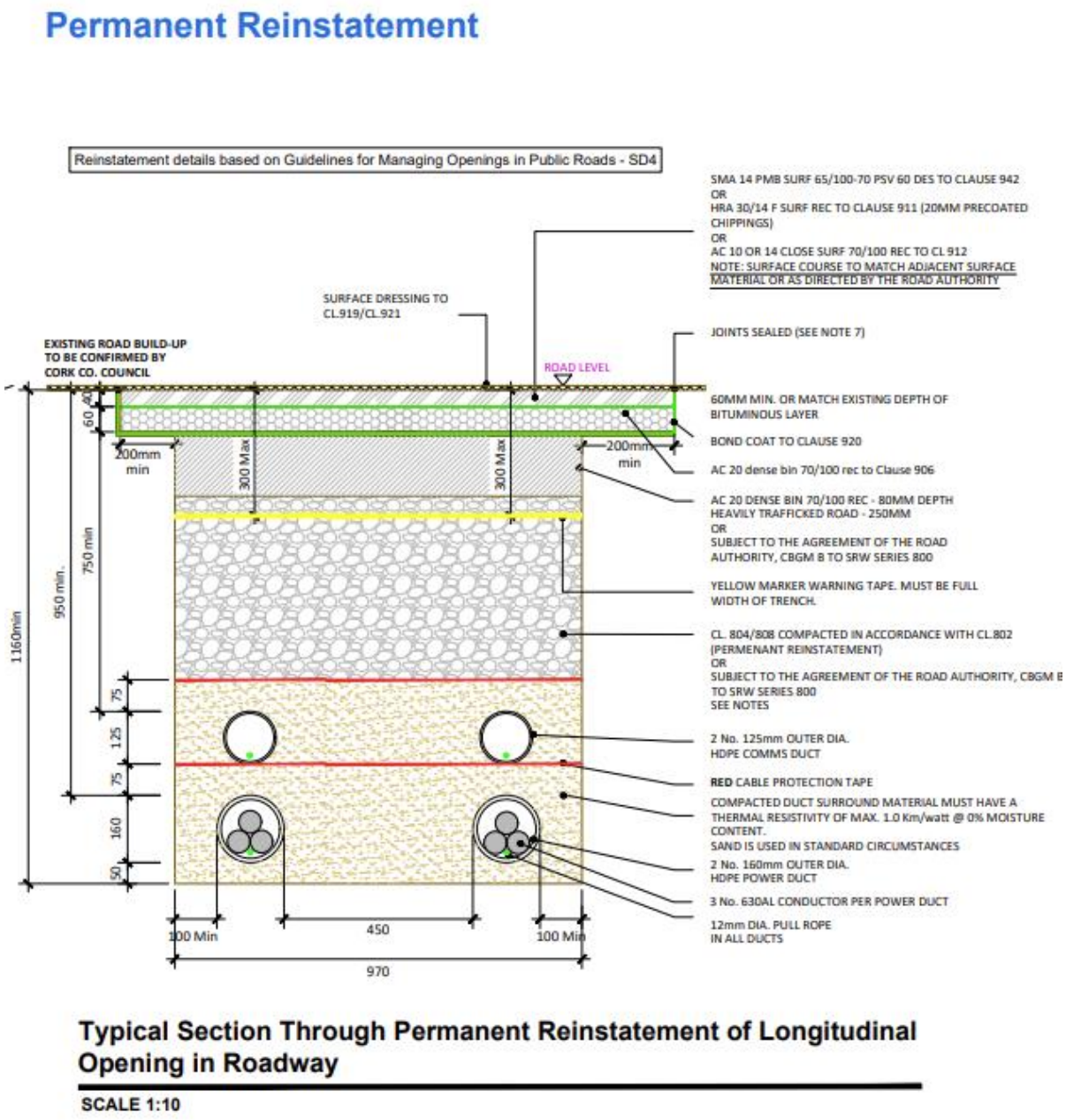


Figure 5.4: Typical Double Circuit Section Through Public Road

For the works crossing or along the local roads, a detailed Traffic Management Plan will be prepared and agreed upon with Cork County Council before the commencement of construction. Preliminary Traffic Management Measures are included as part of the Traffic Impact Assessment, Appendix L. Some work areas may require a temporary road closure where it is not possible to safely implement a Stop/Go system. Where temporary road closures are necessary, a suitable diversion will be implemented using appropriate signage, following consultation and agreement with Cork County Council. Careful and considered local consultation will be carried out, as per conditions of planning, to minimise the amount of disturbance caused during works. All plant and

equipment employed during the works (e.g. diggers, tracked machines, footwear etc.) will be inspected prior to arrival and departure from the site. Vehicles will be cleaned on access and egress to prevent the spread of invasive species, dust and soil to the surrounding areas.

The total length of the IPP cable route in public roads is 1,674m of single circuit and 714m of double circuit 33kV Underground Cable route. Excavations of surface material and subsoil will be required. Where suitable this will be required to backfill around the cable ducting with excess material removed from the construction areas and disposed of by a licensed waste contractor and taken to a licenced waste facility.

The electrical cabling/fibre cable will be pulled through the installed ducts. Construction methodologies implemented and materials used will ensure that the UGC is installed in accordance with the detailed design.

The following section outlines the construction methodology to be followed during trenching works.

- The Contractor, and their appointed Site Manager, will prepare a targeted Method Statement concisely outlining the construction methodology and incorporating all mitigation and control measures as required by planning conditions where relevant.
- All existing underground services along the UGC route shall be confirmed prior to the commencement of construction works.
- At watercourse crossings, the contractor will be required to adhere to environmental control measures as described in the project CEMP and the 33kV UGC OCM (Appendix F and I).
- A detailed Traffic Management Plan will be prepared and agreed with Cork County Council. Preliminary Traffic Management measures are included as part of the Traffic Impact Assessment in Appendix M.
- Excavated material will be temporarily stockpiled onsite for re-use during reinstatement. Stockpiles will be restricted to less than 2m in height. Stockpiles will be located a minimum of 50m from surface water features, and all stockpiling locations will be subject to approval by the Site Manager and Project Ecological Clerk of Works (ECoW).
- Excavated material shall be employed to backfill the trench where appropriate and any surplus material will be transported off site and disposed of at a fully licensed soil recovery site.
- Any earthen (sod) banks to be excavated will be carefully opened, with the surface sods being stored separately and maintained for use during reinstatement.
- If required, the excavated trench will be dewatered from a sump installed within the low section of the opened trench. Where dewatering is required, dirty water will be fully and appropriately attenuated through silt bags before being appropriately discharged to vegetation or surface water drainage features.
- Where required, grass will be reinstated by either seeding or by replacing with grass turves.
- No more than a 100m section of trench will be opened at any one time. The second 100m will only be excavated once the majority of reinstatement has been completed on the first.

- The excavation, installation and reinstatement process will take approximately one day to complete between each jointing slab.
- Where the 33kV interconnector cable is being installed in a roadway, temporary reinstatement may be provided to allow larger sections of the road to be permanently reinstated together.
- Following the installation of ducting, pulling the cable will take approximately one day between each joint bay, with the jointing of cables taking approximately one week per joint slab location.

The trenching and ducting works will be implemented as follows.

- Grade, smooth and trim trench floor when the required depth and width have been obtained.
- Place a bedding layer of sand or Cement Bound Granular Material (CBGM) in accordance with the design.
- Lay the bottom conduit(s) as detailed on drawings. Use spacers as appropriate to establish horizontal duct spacing. Fit a secure cap / bung to the end of each duct run to prevent the ingress of dirt or water.
- Carefully surround and cover ducts with sand / CBGM in accordance with the drawings and specifications and thoroughly compact without damaging ducts.
- Place cable protection strips on compacted sand / CBGM directly over the ducts.
- Lay the top row of ducts above the cable protection strips above the bottom row of ducts. Place a secure cap at the end of each duct to prevent the ingress of dirt or water.
- Carefully surround and cover ducts with sand or CBGM in accordance with drawings. Thoroughly compact the sand without damaging ducts.
- Place red cable protection strip on top of compacted sand over each set of ducts as shown on the drawings.
- Place and thoroughly compact Clause 804 (a type of crushed stone) or excavated soil backfill as specified and place warning tape at the depth shown on the drawings.
- For concrete and asphalt / bitmac road sections, carry out immediate temporary / permanent reinstatement in accordance with the specification and to the approval of the local authority or landowner, unless otherwise agreed with local authorities.
- For unsurfaced/grass sections, backfill with suitable excavated material to ground level leaving at least 100mm topsoil or match the existing level at the top to allow for seeding or replace turves as per the specification of the local authority or landowner.
- Clean and test the ducts in accordance with the specifications by pulling through a brush and mandrel. Install 12mm polypropylene draw rope in each duct and seal all ducts using robust duct end seals fitted with rope attachment eyes in preparation for cable installation at a later date.

Marker posts will be used on non-roadway routes to delineate the cable route and joint bay positions. Corrosion-proof aluminium triangular danger sign, with a 700mm base, and with a centred lightning symbol, on an engineering grade fluorescent yellow background shall be installed

in adequately sized concrete foundations. Marker post shall also be placed in the event that the cable burial depth is not standard. Siting of any marker posts will be agreed upon with the client and local authority as part of the detailed design process.

All excavated material will be temporarily stored adjacent to the trench prior to re-use in the trench reinstatement (where applicable). Excess material, excavated tar, etc., will be transported off-site by an appropriately authorised waste collector and disposed of at an appropriately licenced waste facility.

Once all works have been completed to the proposed UGC, the work areas will be reinstated to their original state in consultation with the landowner. This will be carried out using the excavated soil and in line with any relevant measures outlined in the planning application, CEMP and any planning conditions.

5.6.1 Culvert and Drain Crossing

Water course crossings have been identified as noted in Table 4.1. These will be crossed by constructing the cable ducts in the road above the existing culverts or bridge decking or alternatively using the open trench dam and plume method followed by excavation to install the cable conduits. Preliminary assessment indicates that there is sufficient depth in the road structure to allow construction in road. Should dam and plume be required this will be agreed in advance of any construction works at water crossings with Inland Fisheries Ireland and Cork County Council.

Where open trench dam and flume is deemed necessary which is a sustainable approach employed to manage water flow during trenching activities in watercourses, it will be implemented as follows:

5.6.1.1 Damming the watercourse

Construct dams upstream and downstream of the proposed trench location. These dams create a controlled environment, allowing the water to be diverted safely.

Place a flume pipe, typically ranging from 500mm to 1000mm in diameter, between the two dams. This pipe permits the continuous flow of water, ensuring that the watercourse remains operational and undisturbed. The flume pipe serves as a passage for the water, creating a dry cell for trenching activities.

5.6.1.2 Execution of Trenching Works

Once the flume pipe is in place, excavate the trench and install the underground cables across the watercourse.

After the cables are laid, carefully reinstate the riverbed to its original condition, ensuring that the natural habitat and water flow patterns are restored.

5.6.1.3 Dismantling and Restoration

Once the trenching work is complete, dismantle the dams and remove the flume pipe. This step restores the watercourse to its natural state.

Ensure that the watercourse is reinstated to its pre- works condition, promoting ecological balance and maintaining the integrity of the aquatic environment.

This method is environmentally advantageous as it minimises the stirring of suspended solids compared to traditional pumping methods. Without the need for mechanical pumps or complex equipment, the method is more reliable and less prone to mechanical failures, enhancing operational efficiency and safety aiming to carry out the trenching works with minimal ecological impact, ensuring a smooth and environmentally responsible process.

5.6.2 Road Crossings

The UGC cabling will cross three local roads, the L7829, the L3803 and the L78281. The methodology will be the same as the trenching for the rest of the 33kV interconnector cable route and will require the temporary closure/diversion of these local roads prior to the commencement of the construction phase of the Proposed Development. As noted above, a detailed Traffic Management Plan will be prepared by the Contractor for agreement with the Cork County Council and An Garda Síochána. Preliminary Traffic Management measures are included as part of the Traffic Impact Assessment in Appendix M.

While traffic diversions are in place, local access will be maintained at all times. All access points (domestic, business, farm) will be considered when finalising the proposed road closures and diversions. Additional measures such as local road widening, traffic shuttle systems and 'Stop-Go' systems will also be considered subject to agreement with Cork County Council. Road closures will be scheduled in consultation with local residents and the Contractor shall endeavour to avoid times of high agricultural activity e.g. silage cutting.

5.6.3 Joint Slabs

The cable is manufactured and delivered to site in drums, in lengths of circa 600 metres. This requires jointing bays along the 33kV interconnector cable route to connect consecutive lengths of cable together and to facilitate cable pulling. An approximate number of nine joints slabs are to be installed, approximately every 750m - 1000m along the UGC route to facilitate the jointing of UGC. Joint slabs are used to connect these lengths into a single continuous circuit. Joint slabs are typically 2.7m x 1.57m x 0.2m concrete slabs that are installed circa 1.3m below finished ground level.

In association with the joint slabs, if required, communication chambers are located in proximity to facilitate communication links between the solar farm areas and the future 220 kV loop-In substation.

A typical double joint slab is shown below in Figure 5.5. The joint slab construction methodology is provided in the 33Kv UGC OCM in Appendix I.

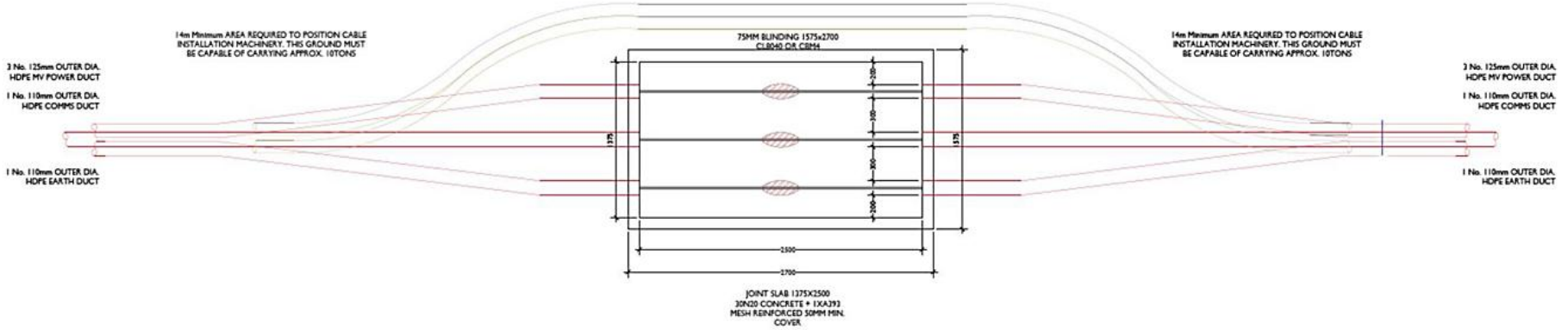


Figure 5.5: Typical Details of Joint Bay Plan View

5.7 Materials Required

Construction materials will be sourced from local suppliers where possible. The following general materials are likely to be required for the construction of the Proposed Development:

- Concrete
- Reinforced steel
- Solar panels and frames
- Inverter Combiner Kiosks/Transformers and RMU
- Cable ducting
- Insulation for cables
- Imported sand
- Imported stone (Clause 804 or similar and Class 6F1 or Class 1A Stone Material)
- Fencing materials
- Containers
- Battery Container Units
- Steel towers
- Conductor cables

The typical materials and typical equipment for each element of the Proposed Development is provided in Table 5.5.

Table 5.5: Typical Materials and Equipment

Typical Materials Required	Typical Equipment Required
Cable Duct Trenching Materials • Sand for pipe bedding • Ready-mix concrete where necessary (delivered to site) • Trench backfilling material (excavated material and aggregates) to relevant specifications • 100mm diameter HDPE ducting • 125mm diameter HDPE ducting • Temporary surface reinstatement materials	**Cable Duct Trenching Equipment** • Tracked excavator (only rubber tracked machines will be allowed on public roads else delivery by HGV) • Tracked dumper or tractor and trailer • Drum roller • HGV trucks • 4x4 vehicles
Joint Slab Materials • Sand for pipe bedding • Blinding concrete where necessary • Clause 804 material • 160mm diameter HDPE ducting • 125mm diameter HDPE ducting • Precast chamber units / relevant construction materials for chambers • Link box	**Joint Slab Equipment** • Excavator Operator • 360˚ tracked excavator (13 ton normally, 22 ton for rock breaker) • 1 no. tracked dumper or tractor and trailer

Typical Materials Required	Typical Equipment Required
Steel Gantry Materials • Insulators • Electrical connections • Concrete (foundation) • Aggregate • Insulators • Steel guy ropes • Electrical connections • Crushed rock & timber (foundation) • Crushed rock and concrete (alternative foundation)	**Gantry Construction Equipment** • 4X4 Vehicle • Winch • Tractor and trailer • Crane • Teleporter • Chains/small tools • Tracked excavator • Sheet piling rig • Tracked dumper • Steel gantry • Insulators • Electrical connections • Concrete (foundation) • Aggregate • Insulators • Steel guy ropes

Typical Materials Required	Typical Equipment Required
	• Crushed rock & timber (foundation) • Crushed rock and concrete (alternative foundation)
Substation Materials • Stone • Geotextile • Lighting • Paving • Fencing • Steel uprights • Concrete • Timber • Cladding • Doors	**Substation Equipment** • Up to 10 electrical/civil crews • Tracked excavators • 360˚ tracked excavators (13 ton normally, 22 ton for rock breaker) • Tracked dumpers / tractors and trailers • Crane • Hoist • Power Tools • Generator • Scaffolding
BESS Materials • Stone • Geotextiles • Lighting • Paving	**BESS Equipment** • Tracked Excavators • 360˚ tracked excavators (13 ton normally, 22 ton for rock breaker) • Tracked dumpers / tractors and trailers • Crane

Typical Materials Required	Typical Equipment Required
• Fencing • Steel uprights • Concrete • Timber • Cladding • Doors	• Hoist • Power tools • Generator • Scaffolding
	Preliminary SI Equipment • 4x4 vehicle • Wheeled dumper • Soil compactor • 360° tracked excavator (wheeled excavator where required) • Borehole drill equipment

5.8 Construction Traffic

Construction vehicles and equipment will be delivered to the Proposed Development at the commencement of the relevant construction phase and will remain on-site until the work relating to that stage is completed. Typical equipment will include wheeled and tracked excavators, dumpers and graders for earthworks and cranes for lift and assembly of components.

The total number of construction staff on-site will vary during the construction phase of the works but are expected to peak at approximately 100 persons.

A Traffic Impact Assessment has been undertaken, see Chapter 10 for further information.

5.9 Reinstatement of Excavated Materials

Reinstatement of excavated works will include the placement of topsoil as required, for example:

- Areas of disturbed ground including local roads.
- Exposed substrata areas as a result of the construction works.
- Adjacent access tracks.
- The construction compound and other temporary works areas and redundant features which are not required as part of the permanent works.

5.10 Resource and Waste Management

A Resource and Waste Management Plan (RWMP) has been prepared for the Project and forms an part of the CEMP (Appendix F). This will be updated by the appointed contractor for the construction phase.

An overall objective of the Proposed Development is to prevent, reduce, reuse and recycle as much of the waste material generated on-site as possible during the construction phase and to ensure correct disposal of waste material taken off-site. This is in line with the relevant National Waste Management Guidelines and the European Waste Management Hierarchy. All efforts will be made by the appointed contractor to minimize the creation of waste throughout the construction phase.

The key objectives will be to:

- Follow a Waste Management Hierarchy (prevention, minimisation, reuse, recovery, recycling) to reduce waste generation and landfilling, while ensuring compliance with legislation and promoting sustainable development.
- Promote waste prevention in the first instance.
- Follow best available techniques.
- Expand the range and use of recycled products.
- Create a market demand for recycled products and segregating more material on-site to allow for recycling.
- Work towards reuse, recycling and other material recovery (including beneficial backfilling operations using waste as a substitute) of 70% by weight of construction and demolition non-hazardous waste (excluding natural soils & stone).

Waste management provisions that will be implemented include:

- Excavated materials will be reused for on-site landscaping works and backfilling where possible.
- Where waste is generated, the waste hierarchy will be followed and waste recycling will be optimised through waste segregation of recyclable materials and provision of clearly labelled suitable containers to facilitate this.
- No accumulation of waste will occur on site to reduce risk of fire and control the risk of vermin.
- Tool box talks will be provided to all operators to ensure minimisation of waste materials from on-site activities
- Prefabrication of design elements will be used where suitable to eliminate waste generation on-site.
- Material requirements will be carefully identified and delivery will be scheduled and optimised to ensure minimisation of surplus materials which could be classed as waste.
- Where possible, materials will be reused on-site for other suitable purposes. No waste concrete will be allowed to enter any watercourses.
- Foul effluent generated during the construction phase will be collected and removed off-site.
- Cable drums will be returned to the supplier for reuse and cable cut offs will be sent for recycling.

5.11 Monitoring

An Environmental Clerk of Works (EnCoW) and an ECoW will be appointed for the construction phase of the Proposed Development. The construction works will be subject to periodic monitoring by the appointed EnCoW and ECoW as appropriate, to ensure that the works will be completed in line with the measures and recommendations made within this Planning and Environmental Report and the CEMP as well as any planning conditions.

In addition, all personnel working on the site will receive sufficient environmental information through toolbox talks from either the EnCow/ECoW or via a sufficiently trained and designated person.

6 OPERATION AND DECOMISSIONING OF THE PROPOSED DEVELOPMENT

6.1 Operating Schedule

It is expected that the Proposed Development will operate 24 hours per day and seven days per week with an operational lifetime of up to 40 years. The technology associated with solar photovoltaic cells and solar farms have made rapid advances in recent years and has resulted in the expected physical lifetime of modern solar photovoltaic equipment to be at least 40 years. In addition, the manufacture warranty for solar photovoltaic equipment is typically that of 40 years or greater.

6.2 Maintenance

The Proposed Development will be operated and managed by the Applicant and monitored by an onsite operations supervisor during working hours, as well as remotely 24/7 via a SCADA system and CCTV for performance, security and safety. It is not expected that many of the panels will need to be replaced over the lifetime of the solar farm. It is not expected that significant maintenance works will be required during the operational phase.

Maintenance of the solar farm will include:

- Grass cutting as necessary.
- Maintenance of drainage features.
- Maintenance of hedgerows.
- Replacement of any damaged panels or parts and washing of panels if required.
- Maintenance of site security e.g. fencing.

Approximately 2 - 4 maintenance visits will be required per month to undertake routine maintenance such as site inspections, cable and power plant checks/servicing and hedgerow maintenance. Only small vans/jeeps will be required for these visits. Traffic generation during the operational phase will be minimal.

Waste produced during the operational phase will be minimal. Welfare provisions (toilets, sink, etc.) are proposed for the Proposed Development substation, once operational.

The inverter combiner kiosk / transformer units will contain oil that will be bunded to prevent leaks, no emissions will occur during normal operation as the oil is maintained within the system. These will be monitored and maintained regularly to prevent leaks.

6.3 Decommissioning

The design life of the Proposed Development will be approximately 40 years as determined by the grant of planning permission. At the end of the operational life of the solar farm, the Proposed Development will be decommissioned, and the site returned to agricultural usage or its life extended through a new planning application to Cork County Council with more modern technology being employed.

The solar panels, inverter/transformer stations and BESS components will be removed from site as part of the decommissioning works.

Decommissioning of the solar farm elements will involve:

- removal of solar panels, supporting frames, gabion ballast/ballasted foundations and piles
- removal of the Inverter/Transformer infrastructure such as the concrete plinths at the Inverter/Transformer base, crane hardstand and geogrid material
- Cranes will be used to disassemble each Inverter/Transformer and they will be removed from the site. The foundations of the Inverter/Transformer plinths will be removed as will the fill material and geogrid in the crane hardstand areas, and the ground will be covered by soils typical of the surrounding environment and then reseeded or left to re-vegetate according to ecological requirements.
- Cranes will be used to disassemble the BESS units and ancillary infrastructure at the BESS site.
- It is proposed that site access tracks will remain to allow access through the site for farm access, as considered appropriate at the time.
- It is proposed that site entrances will remain to allow access through the site for farm access, as considered appropriate at the time
- Underground cables will be cut back at the solar farm termination points, pulled through ducting and will be removed from site for recycled.

Decommissioning will take approximately 2 months to complete.

- It is envisaged that the Proposed 220kV AIS Substation and loop-in grid connection will be handed over to the Network Operator (EirGrid/ESB Networks) and will not be decommissioned.

The land on which the proposed development will be located is agricultural land for tillage and grazing. It is proposed that site access tracks and site entrances will remain to allow access through the site for farm access, as considered appropriate at the time. Following development, the hardstands and crane pads will be grassed over, and the internal access tracks will be utilised to access farmlands. A Decommissioning and Restoration Plan (DRP) is included as Appendix J of this PER.

7 PLANNING POLICY & LEGISLATIVE FRAMEWORK

7.1 Introduction

This chapter sets out the planning policy context relevant to the Proposed Development by providing an overview of the international, national and regional legislation and policy of relevance, as well as a detailed review of the planning policy framework within which the application will be assessed. It outlines relevant guidance on solar developments and provides a brief overview of the most up-to-date statistics on Irish renewable energy production, climate emissions, and the benefits the Proposed Development can bring to helping meet Ireland's legally binding 2030 and 2050 targets. It also outlines how the Proposed Development can help achieve the commitments the Government has set out in 'Ireland's Climate Action Plan 2025.

The urgent need to fight climate change and society's rising demand for energy is prevalent across the policies reviewed. Renewable energy is identified throughout this review as being required to play a vital role in mitigating climate change by transitioning to a low carbon economy and society and meeting future demand. The deployment of solar farms in Ireland has the potential to increase energy security, contribute to our renewable energy targets, and support economic growth and jobs, their relatively quick construction is also a major benefit.

This planning policy assessment demonstrates that the Proposed Development is consistent with the European, National, Regional and Local Plan Policies. In particular, the Proposed Development will help to meet the objectives of the Climate Action Plan 2025 and the Climate Action Low Carbon Development (Amendment) Act 2021.

7.2 International Policy

7.2.1 The United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCC) implemented by the United Nations in May 1992, determined a long-term objective to lessen greenhouse gases in the atmosphere, with the purpose of preventing anthropogenic interference with the climatic system. Subsequently, the Kyoto Protocol was implemented in 1997. National governments who signed up to the Kyoto Protocol are committed to reducing their greenhouse gas emissions. The UNFCCC recognises that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The convention enjoys near universal membership, with 197 countries listed as being Parties to the Convention.

In Doha, Qatar, on 8 December 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes:

- New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 1 January 2013 to 31 December 2020;
- A revised list of greenhouse gases ("GHG") to be reported on by Parties in the second commitment period; and

- Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

The COP21 UN Paris Agreement 2015 seeks to accelerate and intensify the actions and investment needed for a sustainable low carbon future. Ireland, as part of the European Union (EU), was a signatory to the Paris Agreement. Its central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century to well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The Agreement also aims to strengthen the ability of countries to deal with the impacts of climate change. The Paris Agreement commits the EU to reduce greenhouse gas emissions by at least 40% by 2030, compared with 1990 levels, and by 80-95% by 2050.

The United Nation's (UN) 26th global climate summit; The COP26 UN Climate Change Conference, was held in 2021 in Glasgow, where nations committed to a range of decisions in a collective effort to limit global temperatures to 1.5 degrees. The conference focussed on driving action across:

- Mitigation - reducing emissions
- Adaptation - helping those already impacted by climate change
- Finance - enabling countries to deliver on their climate goals
- Collaboration - working together to deliver even greater action

COP26 also had an active stance on the ongoing need for more renewable energy developments as countries were asked to produce targets that align with net zero by 2050. Countries will need to accelerate the phase-out of coal, oil and gas, curtail deforestation and encourage investment in renewable energies to meet these targets.

The 27th Global climate summit; The COP27 UN Climate Change Conference, was held in 2022 in Egypt. Agreement was reached on financing loss and damage from the impacts of climate change.

7.3 Background to the Proposed Development

Ireland is one of the 186 countries signed up to the Paris agreement, under the terms, Ireland is required to reduce greenhouse gas emissions by at least 40% by 2030 when compared with levels in 1990. The Proposed Development will displace heavily polluting fossil fuels by producing renewable solar energy.

The Proposed Development is being planned in response to international, European, and national policy on climate change and reduction in carbon emissions.

The United Nations Environment Programme's 2024 Emissions Gap Report indicates globally that:

"GHG emissions have reached unprecedented levels, with projections suggesting a potential global temperature rise of 3.1°C by the end of the century if current policies persist. This trajectory significantly exceeds the 1.5°C target set by the Paris Agreement, highlighting the necessity for immediate and substantial emissions reductions."

The Paris Agreement to which Ireland is a signatory sets the objectives, of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts

to limit the temperature increase to 1.5°C above pre-industrial levels. This is in recognition of the fact that such a limit would significantly reduce the risks and impacts of climate change.

On an EU basis, the European Green Deal makes a commitment to achieve climate neutrality in the EU by 2050. The EU has set legally binding EU-wide targets of reducing net GHG emissions by at least 55% by 2030, compared to 1990 levels, and achieving net-zero GHG emissions by 2050 under European Climate Law.

Ireland, in response, has set national climate objective, under the Climate Action and Low Carbon Development (Amendment) Act 2021 requiring the State to pursue and achieve, by no later than the end of the year 2050, the transition to a climate-resilient, biodiversity-rich, environmentally sustainable, and climate-neutral economy. The Act also requires a reduction of 51% in GHG emissions by 2030, compared to 2018 levels.

When consented and constructed, It will produce renewable energy which will displace fossil fuels and mitigate climate change and will assist Cork County Council in reaching its renewable energy targets as per the Cork County Council Climate Action Plan 2024 - 2029.

7.4 International Frameworks and European Policy

The Proposed Development is supported by a range of International Frameworks, EU Policies, Directives and Legislation and National Policies and legislation which are discussed briefly here.

7.4.1 Global Policies and Commitments

7.4.1.1 United Nations Framework Convention on Climate Change (UNFCCC) (1992)

The key objective of this framework is '*to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system*'.

7.4.1.2 Kyoto Protocol 1997

Acknowledging the differing capacities of individual countries to address the climate change issue the Kyoto Protocol is based on the principle of common responsibilities.

7.4.1.3 Paris Agreement 2015

The Paris Agreement replaced the 1997 Kyoto Protocol as the framework for achievement of the objective of the UNFCCC. It established specific goals relating to temperature, climate resilience and financial flows as follows:

- hold the global average temperature increase to well below 2°C and pursue efforts to limit the increase to 1.5°C
- enhance adaptive capacity and foster climate resilience and low-emission development in a manner that does not threaten food production
- make finance flows consistent with a pathway towards low GHG emissions and climate-resilient development.

7.4.1.4 United Nations Sustainable Development Goals (SDGs) 2015.

The 17 SDGs, adopted by all United Nations member states, at the heart of the 2030 Agenda for Sustainable Development, address the environmental, economic, and social challenges that all countries need to tackle by 2030 to achieve inclusive, people-centered, and sustainable development with no one left behind. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. SDG 13 refers to the need to take urgent action to combat climate change and its impacts.

7.4.2 EU Policies and Legislation

7.4.2.1 EU Green Deal (2020)

Europe's Green Deal is the European Commission's over-arching strategy to make the EU more sustainable by 2050. Recognising climate change and degradation of the natural environment as critical threats, it includes an action plan and operates across nine policy areas - three of the key policy areas are of relevance to the Proposed Development and include:

- Clean Energy;
- Sustainable Mobility; and
- Climate Action

To achieve a competitive low carbon economy in 2050, long term goals have been developed which include the EU's target of reducing greenhouse gas (GHG) emissions by 80-95% below 1990 levels by 2050. A key to this is the long-term goal of decarbonisation of the power sector which leads to a significant requirement for an increase in the contribution of renewables to the energy mix for Ireland.

European goals and targets to tackle climate and energy have been set in the form of EU Climate and Energy Packages.

7.4.2.2 EU 2030 Climate and Energy Framework

The EU 2030 Climate and Energy Framework includes EU-wide targets and policy objectives for the period from 2021 to 2030. It sets new targets and measures to make the EU's economy and energy system more competitive, secure and sustainable. Binding targets are set relating to greenhouse gas (GHG) emissions, renewables and energy efficiency to be met by each Member State by 2030, as follows:

- a 40% cut in GHG emissions (relative to 1990 levels).
- a renewable energy target of at least 27% of energy consumption.

7.4.2.3 European Climate Law

The goals set out in the European Green Deal for Europe's economy and society to become climate-neutral by 2050 sets a legally binding target to achieve net zero greenhouse gas (GHG) emissions by 2050. The law also sets the intermediate target of reducing net greenhouse gas (GHG) emissions by at least 55% by 2030, compared to 1990 levels.

7.4.2.4 'Fit for 55'

In 2023, the EU adopted a series of proposals, known as the 'Fit for 55' package, which revised all relevant policy instruments necessary to achieve the 2030 climate target. With the 'Fit for 55' legislation setting the EU on a path to reach its climate targets by 2030 in a fair, cost effective and competitive way.

7.4.2.5 EU Renewable Energy Directive III (RED III)

The urgency to meet the Paris Agreement targets is also reflected in the EU Renewable Energy Directive III (RED III), which is designed to accelerate the transition to renewable energy by 2030 by accelerating the Green Transition. It sets a binding EU wide target, of at least 42.5% of gross final energy consumption to be from renewable sources. It also sets out the requirement to simplify and speed up the consenting process for renewable projects and sets sector specific targets ensuring renewable energy deployment contributes to the EU's energy independence and climate goals by reducing reliance on fossil fuels and improving energy security. It also requires EU Members to designate "renewables acceleration areas" by early 2026, where deployment is expected to have minimal environmental impact, allowing for even shorter permitting timelines. The implementation of RED III will contribute to the EU's climate targets and overall commitment to the Paris Agreement.

7.4.2.6 REPowerEU Plan, (May 2022 & Updated April 2024)

Although the EU does not have a standalone "Solar Action Plan" solar energy goals are integrated into broader frameworks like the REPowerEU Plan and the Affordable Energy Action Plan (2025). These aim to rapidly increase solar capacity, streamline permitting, promote energy security, and lower costs by leveraging investments and reforms to accelerate renewable energy deployment.

REPowerEU promotes significant investment massive investment in renewable energy throughout the European Union thereby accelerating the green transition. Importantly, it recognises the need to accelerate the consenting and permitting process, proposing that Member State designate 'go-to' areas where renewable energy development would be permitted in principle, and declares renewable energy as an overriding public interest.

The European Council adopted Regulation 2022/2577 in December 2022 laying down a strategic framework to accelerate the deployment of renewable energy throughout the European Union to give effect to this.

In March 2023, the EU agreed on stronger legislation to increase its renewables capacity, raising the EU's binding target for 2030 to 42.5%, with the ambition to reach 45% - this would almost double the existing share of renewable energy in the European Union.

7.4.2.7 The Project's support for European Renewable Energy Policy

The Project strongly aligns with accelerating European policy to support renewable energy and climate action throughout the European Union. The proposal will lead directly to a reduction in greenhouse gas (GHG) emissions, and an enhanced share of renewable energy and electricity, as required by European Directives and policies.

7.4.3 National Policy and Legislation

7.4.3.1 Climate Action and Low Carbon Development (Amendment) Act 2021.

In response to the EU acceleration to tackle climate change in a sustainable manner Ireland, has set national climate objectives under the Climate Action and Low Carbon Development (Amendment) Act 2021 requiring the State to pursue and achieve, by no later than the end of the year 2050, the transition to a climate-resilient, biodiversity-rich, environmentally sustainable, and climate-neutral economy. The Act also requires a reduction of 51% in GHG emissions by 2030, compared to 2018 levels.

7.4.3.2 Climate Action Plan 2025

Ireland's Third Climate Action Plan (Climate Action 2025) prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021, builds on actions and commitments taken over previous years. It outlines, along with its predecessors, the strategies necessary to progress towards the goals re-affirmed in the Governments Programme for Government of a 51% reduction in greenhouse gas (GHG) emissions by 2030 and reaching climate neutrality by no later than 2050. For the Electricity Sector key carbon budgets have been set 40 MtCO2eq. (2021-2025) and with a reduction to 20 MtCO2eq. in the period 2026-2030. Electricity generation targets have also been set in the CAP 2025.

Table 7.1: National Targets

National Target	2025	2030
Renewable Electricity Share	50%	80%
Onshore Wind	6 GW	9 GW
Solar	Up to 5 GW	8 GW
Offshore Wind	-	At least 5 GW
New Flexible Gas Plant	-	At least 2 GW
Demand Side Flexibility	15-20%	20-30%

CAP 2025 indicates that more than 40% of global electricity generation came from zero-carbon technologies in 2023, with solar and wind representing more than 90% of global energy capacity. This is underpinned by a global recognition of the economic benefits of the transition to climate neutrality and demonstrates the need for rapid action to ensure Ireland's future in a low-carbon world.

Ireland has made progress in achieving its Electricity Sector CAP targets. In the period 2018 to 2023, electricity emissions decreased by 26.2%, to a provisional ~7.6 MtCO2eq. due to the increasing share of renewable generation and net electricity imports. Wind energy now counts for over a third of our electricity supply with solar energy increasing rapidly. Emissions in the first half of 2024 from the electricity sector were down over 17%,(their lowest level for decades) with

increasingly positive signs across solar and wind energy. However, despite the fact that the annual emissions are reducing the EPA have identified that mitigation will be insufficient, with a projected excess around 1 MtCO2eq. (2023-2050 EPA Projections Report).

7.4.3.3 European Union (Planning and Development) (Renewable Energy) Regulations 2025 (S.I. 274 of 2025)

The transposition of RED III into Irish National law, has commenced with the publication of the European Union (Planning and Development) (Renewable Energy) Regulations 2025 (S.I. 274 of 2025). These Regulations have been introduced to align Ireland's planning framework with the Directive's requirements, making amendments to the Planning and Development Act 2000. They introduce new mandatory timelines for Statutory Authorities to issue decisions on renewable energy developments and are applicable to the Greenhills Solar Energy Park.

Under the Regulations the Greenhills Solar energy Park Project is deemed to be a RED III project and the applicable timeline for decision upon receipt of confirmation of a complete application is 52 weeks (Renewable energy development with an electrical capacity of 150kW or more).

7.5 National Policy

7.5.1 Project Ireland 2040: The National Planning Framework First Revision

The Government's National Planning Framework (NPF) is high-level strategic plan for shaping the future growth and development of Ireland out to 2040. It anticipates, that in the period between 2022 and 2040 an additional one million people will reside in Ireland, requiring new jobs, housing and infrastructure. If growth is not planned and managed in a sustainable manner it may have a detrimental effect on our natural environment limiting the potential for future generations to thrive and prosper.

The Vision of the NPF is seen as developing a region-focused strategy for managing growth; linking this to the Project Ireland 2040 National Development Plan; supported by the strengthened, more environmentally focused planning at local level; and backing the framework up in law, with oversight by the Office of the Planning Regulator; in the overall context of Ireland's existing international and EU obligations and commitments

Strengthened and more Environmentally Focused Planning at Local Level The future planning and development of our communities at local level is being refocused to tackle Ireland's higher than average carbon-intensity per capita1 and enable a national transition to a competitive low carbon, climate resilient and environmentally sustainable economy by 2050, through harnessing our country's prodigious renewable energy potential. The NPF provides for more strategic and coordinated planning of cities and large towns across local authority boundaries, including statutorily backed Metropolitan Area Strategic Plans in the five cities of Dublin, Cork, Limerick, Galway and Waterford. A new streamlined and integrated planning process has been introduced to more effectively manage our marine areas and land-sea interface to double the economic value we gain from our ocean wealth by 2030, and by more beyond that.

7.5.2 Project Ireland 2040: National Development Plan 2021-2030

There are two national plans under the umbrella of Project Ireland 2040 – The National Planning Framework and the National Development Plan.

The National Planning Framework sets out targeted strategic outcomes relating to Transition to a Low Carbon and Climate Resilient Society (NSO 8), Compact Growth (NSO 1), Sustainable Mobility (NSO 4), and the Sustainable Management of Water, Waste and other Environmental Resources (NSO 9). These will ensure that climate action is enshrined in spatial planning in order to tackle Ireland's higher than average carbon-intensity per capita and enable a national transition to a competitive low carbon, climate resilient and environmentally sustainable economy by 2050.

National Planning Objective 54 – an objective to reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives, as well as targets for greenhouse gas emissions reductions supports these outcomes

The National Development Plan established a government fund of at least €500 million (up to 2027) to further the aim of achieving Ireland's climate and energy targets.

7.5.3 Best Practice Guidelines Report For Large Scale Solar Energy Development In Ireland

In November 2023, the Irish Solar Energy Association (ISEA) published the Best Practice Planning Guidance Report for Large Scale Solar Energy Development In Ireland to assist potential developers, stakeholders and Local Authorities in site selection, preparation of applications for planning consent and considerations relating to construction, associated infrastructure and operational procedures from a planning and environmental perspective. The guidance notes that a secure, sustainable, and competitive energy sector is central to Ireland's economic growth in terms of the State's ability to attract and retain Foreign Direct Investment and sustain Irish enterprise. It credits solar energy as making a notable contribution to Ireland's renewable energy targets, while being one of the fastest-growing sources of electricity globally. It notes that the solar industry creates jobs, especially in rural areas estimating that 0.7 jobs are created per MW for a solar project's operational/maintenance lifetime. It notes that one of the fundamental driving forces for the increased scale of solar farm projects in Ireland is the requirement to maximise the use of existing electrical infrastructure and gain economies of scale.

The guidance from the report in terms of site selection and layout and project delivery have been summarised in Table 7.2.

Table 7.2: Key Guidance from Best Practice Planning Guidance Report For Large Scale Solar Energy Development In Ireland

Considerations for Solar Farms	Relevance to the Proposed Development
Grid Connection Solar farm sites need to be either within immediate proximity to an existing overhead power line with capacity or nearby an existing substation connected to the national grid with capacity. Where overhead lines traverse a potential solar site, the overhead lines should either be re-routed or appropriate setbacks from same should be incorporated into the design of the solar farm.	The Proposed Development includes an on-site 220kV AIS substation, which will be connected to the national grid via a loop-in grid connection to the existing Knockraha-Cullenagh 220kV overhead line, which runs through the middle of the site. The proposed 220kV AIS substation, loop-in grid connection and BESS compound are located in the townland of Ballyneague,

Considerations for Solar Farms	Relevance to the Proposed Development
	circa 6.5 kilometres north of Killeagh, Co. Cork. The Eirgrid Transmission Line and Solar Farm Guideline set out the buffers required from transmission infrastructure and solar panels. These have been utilised in the design of the solar array.
Land Orientation and Siting In general, land should be relatively flat, oriented in a southerly direction and free from excessive shadowing so to maximise solar radiation collection. PV arrays are tilted at an angle that ensures maximum sunlight; this is typically at 15 degrees but can range from 10-25 degrees.	The site area is relatively flat and comprises agricultural lands in a rural setting with low population density. The high level of solar irradiance in the southern region of the country makes it ideal for the development of renewable solar photovoltaic projects. The layout has been designed to provide buffer areas to hedgerows and trees; this assists in avoiding over shadowing issues. Fields allow for south facing alignment of solar panels. The panels will have a tilt angle of 10-25 degrees to the horizontal depending on local topography and will be oriented southwards to maximise solar radiation capture.
Planning Policy; It is paramount that all prospective applicants and stakeholders check and review the Policies and Objectives of City and County Development Plans at the feasibility stage.	A review of the relevant policy objectives of the relevant county development plan is presented in Chapter 7.7 of this PER.
<u>Adjacent Road Network & Site Access;</u> Consideration should be given to site access and potential haul routes in the area of any potential development. A suitably designed site entrance with adequate sight lines that comply with TII standards and or the local County Development Plan standards. Habitat features such as hedges and treelines should be protected, and existing accesses utilized where possible. Where a site access is limited with regard to sightlines, mitigation measures can be incorporated into the design and construction of the project.	The site is accessible by a total of 11 Site entrances and are serviced by a number of local roads and is serviced by the R634 which runs between the N72 to the north and the N25 to the south, as outlined in Chapter 10 of this PER. External hedgerows will largely be retained with a minor loss of 260 linear metres where access to the public road infrastructure occurs. Internal hedgerows have largely been retained except approximately 135 linear metres to be removed to allow access, fencing and gates. This gives a total of 395

Considerations for Solar Farms	Relevance to the Proposed Development
Mitigation measures can include: the incorporation of signage on public roads and the use of banks men to ensure that the proposed construction traffic will not create a potential traffic hazard on the existing road network. In addition to the site access, the ease of haulage of construction materials to the site should be considered at an early stage.	linear metres of hedgerow, which will be removed throughout the site. This will be offset by 1,400 linear metres of new hedgerow planting, as well as the bolstering of up to 31,000m of linear hedgerow and mosaic hedgerow where necessary in accordance with Section 40 of the Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000 and the Heritage Act 2018. Traffic impacts and mitigation including signage, etc. are included in the Traffic Impact Assessment prepared for the Proposed Development. A summary of same is presented in Chapter 10 of this PER.
<u>Landscape/ Visual impact</u> It is best practice in considering the potential landscape impacts on any landscape that the following criteria are considered: • Landscape character, value, importance, and sensitivity; • Magnitude of likely impacts; and • Significance of landscape effects • County Development Plan identified suitable solar areas Given the relatively low profile of solar panels and its flexibility, normally landscape impacts can be mitigated by avoiding certain parts of the land or through the incorporation of mitigation measures such as enhancement of hedgerow enhancement, additional screening planted or incorporation of setbacks from panels.	A Landscape and Visual Impact Assessment has been completed for the project and a summary of same is presented in Chapter 12 of this PER. This concludes that the Proposed Development is suitably sized and scaled. Although the Proposed Development is of a relatively notable scale and extent, its perceived scale and extent are considerably less due to the heavily contained nature of this landscape context and the dense screening provided by the surrounding layers of dense vegetation. Furthermore, in terms of the surrounding landscape and visual policy, it is considered that the Proposed Development is contained in a robust and modified rural area that is not highly distinctive or susceptible to change that can well accommodate a development of this scale and nature without impacting County Waterford also. External hedgerows will largely be retained with a minor loss of 260 linear metres where access to the public road infrastructure occurs. Internal hedgerows have largely been retained except approximately 135

Considerations for Solar Farms	Relevance to the Proposed Development
	linear metres to be removed to allow access, fencing and gates. This gives a total of 395 linear metres of hedgerow, which will be removed throughout the site. This will be offset by 1,400 linear metres of new hedgerow planting, as well as the bolstering of up to 31,000m of existing linear hedgerow and mosaic hedgerow where necessary, to fill any gaps in existing hedgerows. In addition, some 19,600m^2 of native woodland will be planted for screening purposes. A Landscape Mitigation Plan has been prepared as part of the Landscape and Visual Assessment in Appendix E.
Conservation designations and ecology At an early stage it should be established whether any proposed site is designated as a Special Area of Conservation (SAC), Special Protection Area (SPA), Natural Heritage Area (NHA) or proposed Natural Heritage Area (pNHA). A high-level review should be undertaken of any habitats located on any potential site with particular consideration of habitats listed on Annex I of the Habitat Directive 92/43/EEC. It is recommended that the avoidance of areas of ecological sensitivity outside designated sites where solar development would/could result in impacts to habitats of ecological value and/or to protected species (e.g., wetland habitats). To ensure that this is achieved, it is recommended that the input of an ecologist is required at the earliest stages of the process when sites are being identified and layouts designed. Engagement with the and the design should be informed and influenced by ecological assessments.	The Proposed Development is not located within a designated site. A summary of the EcIA undertaken for the Proposed Development is provided in Chapter 9 of this PER, and a BEMP is provided in Appendix D with details of the various enhancement areas, retention and removals. A separate NIS has also been prepared and submitted as part of the Planning Application for the Proposed Development. Any areas identified of ecological importance have been avoided in the layout of the Proposed Development. Constraints mapping informed the design of the solar farm, avoiding areas of higher ecological value identified during site surveys and ecological assessments, including hedgerows, and identifying habitat protection areas for the duration of the project, see Chapter 2.1.2.

Considerations for Solar Farms	Relevance to the Proposed Development
Flood risk An assessment of the potential for and scale of flood risk may be needed. Flooding is not seen as a hard constraint as solar farm can be built in areas of flood risk. Mitigation measures can be introduced such as raising the solar panel arrays to be constructed above predicted flood levels within a site and the supporting structures do not impede the conveyance of floodwaters or result in the displacement of floodwaters. The only equipment related to solar farms that is sensitive to flood risk are the inverters, transformers, substation & electrical buildings which would need to be located outside the flood zone. It is important to apply the precautionary principal and ensure developments on flood zones do not impede the sites ability to provide an essential ecosystem service or impact/disturb wetland habitats or protected wildlife species. It is imperative that sites, following development, do not subsequently require drainage to address flooding issues.	The potential risk of flooding on the site was incorporated into the constraints mapping of the site. Furthermore, a FRA has been prepared for the Proposed Development, as summarised in Chapter 11 of this PER. No flood zones were identified within the site. A flood area is located along the Tourig water course (EPA 18T03), located to the west of the northern areas of the site and south of the southern and southeast areas, though this appears to be limited to the main channel. A Drainage Management Plan has also been prepared which incorporates nature based solutions to control flow from the site and prevent pollution of downstream areas.
Cultural Heritage and Archaeology A high level review should be undertaken of all known archaeological, architectural and other cultural heritage sites which may be located within or affected by a Proposed Development. This can typically be undertaken by a suitably qualified archaeologist either as a desktop study or site based constraints study. The guidance also advises that Potential solar farm sites should also have regard to tourism and heritage assets, often in relation to visual impact and proximity to such sites.	Archaeological desk-based research and site walkovers have been completed for the Proposed Development, and no direct effects are predicted on world heritage sites, architectural conservation areas, national monuments, historic parks and gardens, known underwater cultural heritage, or any buildings listed on the record of protected structures. Appropriate buffers were applied as necessary to protected any features of importance, as noted in Chapter 2.1.2.
Residential Dwelling Proximity Due to the relatively low profile of solar arrays, they are considered broadly compatible in residential areas subject to appropriate separation distances and buffers. There are no recommended separation distances between solar farm development and residential units, however it is recommended that **a**	The Proposed Development is located in a relatively remote area with a low population density. The dwellings in the area are largely separated from the Proposed Development by mature hedgerows and treelines. A minimum of 50m and up 150m buffers to residential dwellings were used in constraints mapping at the site.

Considerations for Solar Farms	Relevance to the Proposed Development
minimum separation distance of 22 meters should be considered a starting point. Appropriate screening can be utilised to minimise potential impacts on residential units, this could be the use of established hedgerows to obstruct views of the proposed solar arrays which mitigates potential visual impact or glint & glare impact or through the planting of new hedgerows or enhancements to existing hedgerows.	External hedgerows will largely be retained with a minor loss of 260 linear metres where access to the public road infrastructure occurs. Internal hedgerows have largely been retained except approximately 135 linear metres to be removed to allow access, fencing and gates. This gives a total of 395 linear metres of hedgerow, which will be removed throughout the site. This will be offset by 1,400 linear metres of new hedgerow planting, as well as the bolstering of up to 31,000m of linear hedgerow and mosaic hedgerow where necessary, to fill any gaps in existing hedgerows. In addition, some 19,600m^2 of native woodland will be planted for screening purposes. A Landscape Mitigation Plan has been prepared (Appendix E to this PER).
Potential yield for project and exclusions A potential yield analysis could be carried out to determine the viability of a site based on the opportunities and constraints identified at feasibility stage.	The potential yield of the project will be dependent on the final Solar PV panel type procured through a commercial tendering process. The yield is expected to be in excess of circa 250MW.
Conclusion for Site Selection It is recommended following the completion of a high level feasibility for a prospective solar site that a pre-planning meeting should be carried out with the relevant Planning Authority to present the Proposed Development and seek feedback on the site identified.	A feasibility study and constraints mapping exercise was undertaken for the Proposed Development. A preplanning meeting was held with Cork County Council on 02/07/2025 to discuss the site suitability in terms of the above topics.
Providing the public with a good flow of information about a proposed solar farm in their locality prior to a formal planning application can avoid conflict within the planning process. It is recommended that the applicant undertake community engagement before submitting a planning application, examples include letter notification, visits, a project website, community newsletters and online/in person public meetings. A 500m consultation area is recommended. Ongoing consultation with the community during the development's construction, operational and decommissioning phases is also advised. Any planned disruption or traffic restrictions in the local	Public consultations have included three letter drops in the vicinity of the Proposed Development Site in February, August and December 2025 with communications details of the Developer and community liaison officers, face-to-face meetings arranged with the Community Liaison Officer (CLO) since February 2025, five public consultation days offering one-to-one meetings on August 5th, 8th, 20th, 27th and September 3rd in Inch Community Centre, a press release and outreach to East Cork

Considerations for Solar Farms	Relevance to the Proposed Development
area associated with phases of the construction or decommissioning of the project should be highlighted to the local community in advance.	TD's. Refer to Appendix A of this PER for further information. The CEMP (Appendix F) and traffic management measures (included in the Traffic Impact Assessment, Appendix M) outline communication methods for the neighbours and local community during the construction phase of the Proposed Development.
Layout Designers should aim to assimilate the development within the existing landscape by using and enhancing existing hedges/tree lines where possible and maintaining existing field boundaries. Areas for enhancement, retention and proposed removal should be clearly shown on all project/application drawings.	The Proposed Development will retain the existing field boundaries; the panel layout has been designed to remain inside the existing field pattern. This has ensured that any hedgerow removal and tree cutting has been kept to the absolute minimum. External hedgerows will largely be retained with a minor loss of 260 linear metres where access to the public road infrastructure occurs. Internal hedgerows have largely been retained except approximately 135 linear metres to be removed to allow access, fencing and gates. This gives a total of 395 linear metres of hedgerow, which will be removed throughout the site. This will be offset by 1,400 linear metres of new hedgerow planting, as well as the bolstering of up to 31,000m of linear hedgerow and mosaic hedgerow where necessary, to fill any gaps in existing hedgerows. In addition, some 19,600m^2 of native woodland will be planted for screening purposes. A Landscape Mitigation Plan has been prepared (Appendix E to this PER). A summary of the EcIA for the Proposed Development is provided in Chapter 9 of this PER and a BEMP is provided in Appendix D with details of the various enhancement areas, retention and removals.
The location of transformers and inverters is largely determined by the electrical design configuration proposed for the solar farm; however, it is recommended that consideration is given to potential	A minimum set back of 50m from residential dwellings has been incorporated into the design of the solar layout. The location of Transformer Stations has taken into

Considerations for Solar Farms	Relevance to the Proposed Development
noise impact of transformers and inverters on sensitive receptors when determining the location of such equipment.	consideration the location of dwellings in the vicinity and placed as far from sensitive receptors as possible. The conclusions of the Noise Impact Assessment undertaken for the Proposed Development are summarised in Chapter 15 of this PER.
Solar farms proposed for agricultural land should be 'reversible' in so far as possible. Trenching and foundations, should therefore be minimised. Solar arrays can be installed using 'pile' driven or screw foundations, or pre-moulded concrete blocks/ballasts (shoes), and capable of easy removal. The use of concrete shoes may be required as a mitigation measure for archaeological sensitive areas or as an engineering solution to unsuitable ground conditions.	The Proposed Development is in line with this guidance. It is proposed that pile driven foundations will largely be used. There may be areas of ballast or concrete footing required, but these are expected to be minimal.
For security and insurance reasons, it is a requirement that solar farms are appropriately fenced with CCTV cameras installed. The impacts of security features on biodiversity and residential amenity can be minimised through the following measures: • Utilise existing features, such as hedges or landscaping, to screen security fencing; • Use natural elements, such as vegetation planting, to assist in site security; • Minimise the use of flood/security lighting. Any lighting should utilize a passive infra-red (PIR) technology and should be designed and installed in a manner which minimizes glare, light pollution and impacts on biodiversity, in particular bats (see ecology section); • Ensure that appropriate measures are in place to facilitate continued access through lands by larger mammals, such as badgers and foxes.	CCTV and fencing are included in the Proposed Development. External hedgerows will largely be retained with a minor loss of 260 linear metres where access to the public road infrastructure occurs. Internal hedgerows have largely been retained except approximately 135 linear metres to be removed to allow access, fencing and gates. This gives a total of 395 linear metres of hedgerow, which will be removed throughout the site. This will be offset by 1,400 linear metres of new hedgerow planting, as well as the bolstering of up to 31,000m of linear hedgerow and mosaic hedgerow where necessary, to fill any gaps in existing hedgerows. In addition, some 19,600m^2 of native woodland will be planted for screening purposes. A Landscape Mitigation Plan has been prepared (Appendix E of this PER). There will be no perimeter lighting at the solar farm, the inverter/transformers at the solar farm will require minimal lighting inside the containers used for maintenance purposes and only turned on only as required, as any maintenance will most

Considerations for Solar Farms	Relevance to the Proposed Development
	likely occur during daylight hours. No outside lighting is required. The installed fencing will incorporate mammal friendly access.
Access Roads Permeable tracks should be used, and localised.	Site access road material will be sourced from local suppliers and will be loaded into a mobile crusher using a wheeled loading shovel machine and crushed down into the correct grade for use in the construction of site access roads. A compacted gravel access track up to 4 metres wide will provide internal access to the solar arrays and associated infrastructure. The Proposed Development includes 7,115m of existing track to be upgraded and 5,135m of new access tracks. Access track have been designed to utilise existing tracks and minimise the length required.
Vegetation maintenance around panels may include mowing, grazing, strimming, spraying, or mulching. Grazing is encouraged wherever practicable.	Once operational, periodic cutting of grass will assist in maintaining the habitat as grassland.
Drainage; given the temporary nature of solar farms, sites should be configured or selected to avoid impacting on existing drainage systems and watercourses. Culverting existing watercourses/ drainage ditches should be avoided where possible. If a watercourse crossing is required, the details of the crossing should be adequately detailed and considered in the planning application. Sustainable Urban Drainage Systems (SUDS), such as swales and infiltration trenches, should be used to control any run-off where recommended. It is recommended that Nature-Based SUDS are utilised to ensure biodiversity gain.	Permanent site drainage will adopt a Sustainable Drainage (SuDS) nature-based approach to management of rainwater runoff. The approach to drainage ensures that existing site hydrology is maintained promoting on-site retention of flows and the use of buffers and other silt removal techniques. The finalised drainage design aims to result in attaining net beneficial effects through Nature Based Solutions (NBS). Coupling SuDS with ecology and biodiversity mitigation will also provide opportunities to attain biodiversity net gain (BNG).

7.6 Regional Planning Policy

7.6.1 Southern Regional Assembly – Regional Spatial and Economic Strategy

The Regional Spatial and Economic Strategy for the Southern Region 5.2.1. This document notes that the region is particularly rich in renewable energy resources. The RSES supports renewable industries and its associated requirements for transmission and distribution infrastructure.

RPO 100 states that it is an objective to support the integration of indigenous renewable energy production and grid injection.

The RSES also supports the development of a regional renewable energy strategy (RPO 98), the implementation of the national renewable energy action Plan, as well as leveraging the region as a lead and innovator in sustainable energy generation (RPO 95).

RPO 219 also states that it is an objective to support the provision of new energy infrastructure subject to suitable environmental assessments and the planning process to ensure the energy needs of the future population and economic expansion are met.

7.7 Development Plan Policies

7.7.1 Cork County Development Plan 2022-2028

The relevant development plan to this assessment is the Cork County Development Plan 2022 – 2028, which came into effect on Monday 6th June 2022. The subject site is in open countryside with no specific zoning or other designations. The Development Plan sets out detailed policies relating to solar energy, renewable energy and related issues, all within the overall EU, national, regional and local context.

Table 7.3: Project Design and 'Policy Fit' with Cork County Development Plan 2022-2028

Cork CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
Chapter 13 Energy and Telecommunications:		
ET 13-2: Renewable Energy	– A) Support Ireland's renewable energy commitments as outlined in Government Energy and Climate Change policies by facilitating the development of renewable energy sources such as wind, solar, geothermal, hydro and bio-energy and energy storage at suitable locations within the county where such development has satisfactorily demonstrated that it will not have adverse impacts on the surrounding environment (including water quality), landscape, biodiversity or amenities. – B) Support and facilitate renewable energy proposals that bring about a direct socio-economic benefit to the local community. The Council will engage with local communities and stakeholders in energy and encourage developers to consult with local communities to identify how they can invest in/gain from significant renewable energy development. – C) Support the development of new and emerging renewable energy technologies / fuels for the transport sector. – D) To promote the potential of micro renewables where it can be demonstrated that that it will not have adverse impacts on the surrounding environment	1. The Project is sited at an appropriate location for solar energy, and the PER, NIS and Biodiversity Enhancement Plan clearly demonstrate that the proposal has been designed to meet other county development plan objectives in relation to climate change, biodiversity, landscape, water management and environment, etc., 2. The Project will have a **beneficial effect on air quality and climate action** by supporting Cork's renewable energy production and greenhouse gas (GHG) reduction objectives and targets. 3. A RWMP has been prepared for the Proposed Development and is submitted as part of the CEMP (in Appendix F). 4. The Project drainage design uses the principles of Sustainable Drainage, promoting on-site retention of flows and the use of buffers and other silt removal techniques. All drainage-related mitigation measures will form part of a robust Sustainable Drainage System (SuDS) on the site. The finalised drainage design aims to result in attaining net beneficial effects through Nature Based Solutions (NBS). Coupling SuDS with ecology and biodiversity mitigation will also provide opportunities to attain biodiversity net

Cork CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	(including water quality), landscape, biodiversity or amenities. .	gain (BNG), which is also in compliance with the National Planning Framework.
EI 13.8 Solar Energy	At present, there are no national planning guidelines to guide the future development of solar farm proposals. In the absence of same, the Council will assess the appropriateness of individual applications received having regard to all other statutory requirements and guidelines, environmental sensitivity factors (if any) of the application-site, similar development guidance internationally, and the overall proper planning and sustainable development of the area. Proposals for solar farms should consider a range of issues, including, but not limited to, the following: - Landscape character; - Layout of the proposal including the scale of land cover, panel height, landscaping, road access, noise, etc: - Site suitability – lands of high environmental / biodiversity value are not generally suitable for such development while brownfield land may be suitable: - Drainage and flooding, - Environment; - Visual and landscape impact; - The effects of glint and glare on neighbouring sites and transportation routes, - Grid connections, In particular grid connections with the potential to impact on the strategic function of the national road network should be discussed and	1. The issues set out in the CCDP have all been assessed and included in the Planning and Environmental Report and its Appendices. Particular attention has been paid to Landscape character with appropriate screening and set back and omissions of solar development in key areas. Nature based solutions and SUDs have been designed into the Proposed Development to mitigate against potential for increased runoff and flooding. Minimisation of potential impact on hedgerow and trees coupled with Biodiversity enhancement has been enshrined in the design. In terms of Grid connection, the Proposed Development will occur through a Loop-in substation to the Knockraha- Cullenagh existing 220kV line, internal to the site and will not impact on national road network.

Cork CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	agreed with Transport infrastructure Ireland and should use alternative available routes where feasible in the first instance. - Fencing, lighting, and security, - Storage and maintenance, - Ecology and protection of habitats and species, - Traffic and noise impacts, - Ensuring Heritage assets are conserved appropriately and consider how or if any implications a large wind farm may have - on these sites, - Cumulative impacts; - Decommissioning and how the land can be restored to its previous use. -	
ET 13-4: Solar Farm Development	- a) In recognition of national targets and commitments to significantly increase renewable energy production, support will be given to solar farm projects at appropriate locations, where such development does not have a negative impact on the surrounding environment, landscape, historic buildings, or local amenities. - b) Promote the development of solar energy infrastructure in the county, in particular for on-site energy use, including solar PV, solar thermal and seasonal storage technologies. Such projects will be considered subject to environmental safeguards and the protection of natural or built heritage features, biodiversity views and prospects.	1. The Proposed Development is appropriately located in an area of high solar irradiance on agricultural lands of low biodiversity value and has been designed taking on board the requirements of the CCDP in terms of environmental safeguards and the protection of natural or built heritage features, biodiversity views and prospects 2. All the Criteria listed in the CCDP have been assessed and assessments included in the Planning and Environmental Report. 3. A Glint and Glare assessment has been prepared and is included in the PER.

Cork CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	- c) Require that new solar farm development proposals be assessed against the criteria listed in this Plan until such time as Section 28 Guidelines on Solar Farm Developments from the Department of Housing, Planning and Local Government are published to supersede same. - f) All proposed solar developments locating in close proximity to any roads and airport infrastructure will undergo a full glint and glare assessment. - g) Proposals for development of new solar developments and associated infrastructure including grid connections will be subject to ecological impact assessment and, where necessary Appropriate Assessment, with a view to ensuring the avoidance of negative impacts on designated sites, protected species and on-sites or locations of significant ecological value.	4. An EcIA has been prepared and a separate Natura Impact Statement prepared also.
Chapter 14 Green Infrastructure and Recreation		
GI 14-9: Landscape	a. Protect the visual and scenic amenities of County Cork's built and natural environment. b. Landscape issues will be an important factor in all land-use proposals, ensuring that a pro-active view of development is undertaken while protecting the environment and heritage generally in line with the principle of sustainability.	1. The Proposed Development is of a high-quality design standard and follows a clear rationale based on constraints identification and consultation with Cork County Council. Resulting from the constraints analysis appropriate set back distances exclusion areas and screening have been incorporated into the design to protect visual and scenic amenities.

Cork CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	c. Ensure that new development meets high standards of siting and design. d. Protect skylines and ridgelines from development. e. Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments.	2. The design of the proposed renewable energy Project ensures maximum use of existing built environment (farm access locations and farm trackways) thereby minimising potential tree and hedgerow loss. Where such loss will occur, like for like planting and additional planting resulting in biodiversity net gain (BNG), will be undertaken as set out in the PER and presented in the EcIA for the Proposed Development in Chapter 9 of this PER and a BEMP is provided in Appendix D.
GI 14-13: Scenic Routes	- Protect the character of those views and prospects obtainable from scenic routes and in particular stretches of scenic routes that have very special views and prospects identified in this Plan. The scenic routes identified in this Plan are shown on the scenic amenity maps in the CDP Map Browser and are listed in Volume 2 Heritage and Amenity Chapter 5 Scenic Routes of this Plan.	The Project design and layout has been informed and guided by the 1 no. pre-planning meeting with Cork County Council, which highlighted the scenic amenity features in the lands. This is summarised in Chapter 15 of this PER and outlined in a Landscape Mitigation Plan (Appendix E).
Chapter 15 Biodiversity and Environment		
BE 15-2: Protect sites, habitats and species	- Protect all natural heritage sites which are designated or proposed for designation under European National legislation and International Agreements. Maintain and, (where possible), enhance appropriate ecological linkages between these. This includes SACs, SPAs, Marine	1. The Project, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Sites identified in view of their conservation objectives, as demonstrated in the NIS.

Cork CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	Protected Areas, NHAs, proposed Natural Heritage Areas, Statutory Nature Reserves, Refuges for Fauna and Ramsar Sites. - Provide protection to species listed in the Flora Protection Order 2015, to Annexes of the Habitats and Birds Directives, and to animal species protected under the Wildlife Acts in accordance with relevant legal requirements. - Protect and enhance (where possible) areas of local biodiversity value, ecological corridors and habitats that are features of the County's ecological network. This includes rivers, lakes, streams and ponds, peatland and other wetland habitats, woodlands, hedgerows, tree lines, veteran trees, natural and semi-natural grasslands as well as coastal and marine habitats, i.e. habitats of special conservation significance in Cork. - Recognise the value of protecting geological heritage sites of local and national interest, as they become notified to the local authority, and protect them from inappropriate development. - Encourage, pursuant to Art 10 of the Habitats Directive, the protection and enhancement of features of the landscape, such as traditional field boundaries, important for the ecological coherence of the Natura 2000 network and essential for the migration, dispersal and genetic exchange of wild species.	2. The Project has been designed in accordance with the EU/EC Habitats and Birds Directives and the Wildlife Acts 1976-2023. 3. The Project includes significant biodiversity enhancement and biodiversity net gain, with habitat creation and enhancement totalling as set out in this PER, NIS and Biodiversity Enhancement Plan. 4. The Project has been designed to avoid any geological features as summarise in Chapter 11 of this PER. 5. The Project design and layout has been informed and guided by the 1 no. pre-planning meetings with Cork County Council, which highlighted existing features in the landscape. A detailed landscape character assessment was undertaken which highlighted the importance of traditional field boundaries to be protected and enhanced. This exercise was further strengthened by AA Screening and a NIS, in parallel with an archaeological assessment, which informed the overall design and layout of the scheme. The high-quality, design rationale is set out in the PER.
BE 15-6: Biodiversity and New Development	- Provide for the protection and enhancement of biodiversity in the development management process and when licensing or permitting other activities by:	1. The need for Biodiversity enhancement was highlighted at the pre-planning meeting with Cork County Council in 2025. As a result, Biodiversity has been incorporated into the design in

Cork CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	- a) Providing ongoing support and guidance to developers on incorporating biodiversity considerations into new development through preplanning communications and the Council's guidance document 'Biodiversity and the Planning Process – guidance for developments on the management of biodiversity issues during the planning process' and any updated versions of this advice; - b) Encouraging the retention and integration of existing trees, hedgerows and other features of high natural value within new developments; - c) Requiring the incorporation of primarily native tree and other plant species, particularly pollinator friendly species in the landscaping of new developments; - d) Fulfilling Appropriate Assessment and Environmental Impact Assessment obligations and carrying out Ecological Impact Assessment in relation to development and activities, as appropriate; - e) Ensuring that an appropriate level of assessment is completed in relation to wetland habitats subject to proposals which would involve drainage or reclamation. This includes lakes and ponds, watercourses, springs and swamps, marshes, heath, peatlands, some woodlands as well as some coastal and marine habitats; - f) Ensuring that the implementation of appropriate mitigation (including habitat enhancement, new planting or other habitat creation initiatives) is incorporated into new development, where the implementation of such development would result in unavoidable impacts on biodiversity – supporting the principle of biodiversity net gain.	accordance with CCC's *Biodiversity and the Planning Process* Guidance. 2. A Biodiversity Enhancement Plan has been prepared as part of the scheme and is in accordance with CCC guidance. 3. AA Screening Report and a NIS have been prepared for the Proposed Development and are included in the planning application, both are detailed and examine potential pathways to European Sites. The NIS objectively concluded, following examination, analysis and evaluation of the relevant information, with the successful implementation of mitigation measures proposed, that the Project, individually or in combination with other plans or projects will not adversely affect the integrity of any European Sites in view of their conservation objectives. 4. The proposal has paid particular attention to biodiversity, mitigation through avoidance, hedgerow enhancement and biodiversity net gain (BNG).

Cork CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
BE 15-7: Control of Invasive Alien Species	- Implement best practice to minimise the risk of spread of invasive alien species, on Council owned or managed land, and require the development and implementation of Invasive Alien Species Management Plans for new developments where required.	1. Two adjacent locations were identified where invasive alien species are located along a roadway These have been avoided by design of the Proposed Development and will not be disturbed by the development. Mitigation measures to protect against the spread of such species are set out in the EcIA and are incorporated into the CEMP. An Invasive Alien Species Management Plan has been prepared and included with the planning application
Chapter 16 Built and Cultural Heritage		
HE 16-9: Archaeology and Infrastructure Schemes	- Archaeological Assessment is required as part of the planning application process which should comply with the Department of Arts, Heritage and the Gaeltacht's codes of practice.	A full Archaeological Assessment was undertaken by a qualified archaeologist as part of the PER thereby safeguarding archaeological heritage, in line with Development Management (DM) Guidelines. In addition, buffer zones around SMRs and NIAH structures were used during the design process to ensure no significant impact on known archaeological and cultural heritage sites occur due to the development.

7.7.2 Cork County Development Plan 2022-2028 Landscape Character Assessment

The importance of specific county-based objectives to guide Development Management (DM) was highlighted by Cork County Council's Planners and Engineers during the pre-planning consultation meetings between the Applicant, RSK Ireland and Cork County Council, which took place on the 02nd July 2025.

The important pre-planning consultation meeting entailed detailed discussions in relation to project design, how the Proposed Development layout was arrived at taking account of key constraints, biodiversity protection and enhancement, which led to a design that optimised biodiversity net gain, as per the County Development Plan. In addition, the Project has been designed to avoid adverse impacts on residential amenity, through screening and set back areas particularly in relation to landscape and visual, traffic and transport, avoidance of Invasive species, protection of cultural heritage and archaeology and minimisation of hedgerow loss. As such, the Applicant and Project Team paid particular attention to relevant County Development Plan objectives, as highlighted by Cork County Council, throughout the overall project conception and design phase during 2024-2025 and during the preparation of the Planning and Environmental Report, NIS and BEMP.

The relevant Cork County Council CDP Objectives which support the Proposed Development, including an assessment of the Project's overall 'Policy Fit' with the Cork County Development Plan 2022-2028 objectives as discussed with Cork County Council at the pre-planning meeting are set out in Table 7.3.

In addition, and as noted above, it should be highlighted that the Project has been designed in accordance with the County Development Plans, Climate Action Objectives, specifically CA 17-2, which seeks to deliver on the reduction of greenhouse gas (GHG) emissions, enhanced ecological biodiversity, an increase in renewable energy production and reduced energy consumption, and climate adaptation measures such as SuDS.

7.7.3 Waterford County Development Plan 2022-2028

The relevant development plan to this assessment is the Cork County Development Plan 2022 – 2028, which came into effect on Monday 6th June 2022. However, due to the close proximity of the Proposed Development to the Cork-Waterford border, the Waterford City & County Development Plan 2022 – 2028 which came into effect on Tuesday 19th July 2022 is also relevant in this assessment. The Development Plan sets out detailed policies relating to solar energy, renewable energy and related issues, all within the overall EU, national, regional and local context. The Development Plan policies concerning this assessment will primarily focus on solar energy, renewable energy, landscape and biodiversity protection and management, and flood management.

Table 7.4: Project Design and 'Policy Fit' with Waterford City & County Development Plan 2022 – 2028

Waterford CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
Chapter 6 Utilities Infrastructure, Energy & Communication:		
UTL 13: Renewable Energy	It is the policy of Waterford City and County Council to promote and facilitate a culture of adopting energy efficiency/ renewable energy technologies and energy conservation and seek to reduce dependency on fossil fuels thereby enhancing the environmental, social and economic benefits to Waterford City and County. It must also be recognised that other sources of electricity generation such as natural gas, particularly renewable and indigenous gas, will continue to have a role to play in the transition to a low carbon economy. As such, renewable energy developments may require support from such sources in times of high energy demand. This will be achieved by: • Supporting the delivery of renewable energy to achieve the targets identified in Table 6.3 of the Development Plan. • Facilitating and encouraging, where appropriate, proposals for renewable energy generation, transmission and distribution and ancillary support infrastructure facilities including the necessary infrastructure required for the development of offshore renewable energy developments developed fully in accordance with the Waterford Renewable Energy Strategy, the wind energy designation map (Appendix 2 of the RES), the Waterford Landscape and Seascape Character Assessment	1. The Project, while not situated within County Waterford's boundary line, is relevant to the Waterford CDP 2022-2028. The Project is sited at an appropriate location for solar energy, and the PER, NIS and Biodiversity Enhancement Plan clearly demonstrate that the proposal has been designed to meet other county development plan objectives in relation to renewable energy, climate change, biodiversity, landscape, water management and environment, etc. 2. A Loop-in Grid Connection to the existing Knockraha – Cullenagh 220kV OHL is the proposed design with the electricity from the solar array areas being ducted to an on-site new 220kV AIS substation, which will be then connected to the national grid via the existing infrastructural assets which directly complies with Waterford CC renewable energy policy. 3. The decommissioning phase of the Proposed Development is discussed in Chapter 6.3 of this PER and a DRP is included in Appendix J.

Waterford CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	undertaken to inform this Development Plan, and the National Wind Energy Guidelines, or any subsequent update/ review of these • The Council recognizes and supports the role that the County can play in facilitating the onshore infrastructure required for the construction, operation and maintenance of offshore wind farm developments. This infrastructure includes but is not limited to: construction facilities, storage and lay-down areas, cable landfalls, onshore cable routing to substations, port and harbour infrastructure and coastal operations and maintenance bases, as well as use, reuse or repowering of existing infrastructure where appropriate. • The Wind Energy Designation Map and the Landscape and Seascape Character Assessment Map identify different landscape character areas and associated landscape sensitivities. These designations encompass the concept of buffers between areas of sensitivity which vary across the different landscape character types and their different locations. These buffers allow for a gradual change between contrasting landscape sensitivities and associated wind energy designations to be considered, as necessary, when determining any development proposal. • Promote and encourage the use of renewable energy, and low carbon resources, namely solar photovoltaic, geothermal, heat pumps, district heating, solar thermal, hydro, tidal power, offshore and onshore wind, biomass as well as micro-generation among business, agriculture, education, health, and other sectors.	4. Overall, the Proposed Development's design utilises sustainable development designs outlined in Waterford CDP through availing of the existing infrastructure like the public road network (R634, L3803, L78281, L38081 and L7829) which is outlined in the traffic management measures captured in the Traffic Impact Assessment (Appendix M).

Waterford CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	• Promoting, encouraging, ensuring, and facilitating community engagement, participation and implementation of/ in renewable energy projects. • Implementing, including in the Council's own activities and in the provision of services/ works, the use and integration of low carbon, renewable energy infrastructure and technologies. • Supporting appropriate options for, and provision of, low carbon and renewable energy technologies and facilities, including the development and provision of district heating (and/ or other low carbon heating technologies); anaerobic digestion and the extraction of energy and other resources from sewerage sludge. • The preparation and implementation of a Climate Action Plan (including adaptation and mitigation measures) for Waterford. • To support in conjunction with other relevant agencies, wind energy initiatives, both onshore and offshore, and wave energy, and onshore grid connections and reinforcements to facilitate offshore renewable energy development when these are undertaken in an environmentally acceptable manner. At initial design stage full consideration should be to reasonable alternatives and existing infrastructural assets. In this regard environmental assessments should address reasonable alternatives for the location of new energy developments, and where existing infrastructural assets such as sub-stations, power lines and roads already exist within Proposed Development areas, then such assets should be considered for sustainable use by the Proposed	

Waterford CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	Development where the assets have capacity to absorb the new development. All planning applications for Renewable Energy Projects such as wind farms and solar farms shall be accompanied by a Decommissioning and Restoration Plan (DRP) consistent with the Wind Energy Guidelines 2006 or any update thereof. Issues to be addressed shall include details of proposed restorative measures, the removal of above ground structures and equipment, the restoration of habitats, landscaping and/or reseeding roads etc.	

Waterford CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
UTL 14: Energy Developments & Human Health	Proposals for energy development should demonstrate that human health has been considered, including those relating to the topics of: • Noise (including consistency with the World Health Organisation's 2018 Environmental Noise Guidelines for the European Region developments must comply with the Wind Energy Development Guidelines (2006), or any subsequent update/ review of these), • Shadow Flicker (for wind turbine developments, including detailed Shadow Flicker Study), • Ground Conditions/Geology (including landslide and slope stability risk assessment), • Air Quality; and, • Water Quality	1. All the Criteria listed in the Waterford CDP UTL 14 have been assessed and assessments included in this PER. 2. A Glint and Glare assessment has been prepared and is included in this PER. 3. A Noise and Vibration assessment has been prepared and is included in this PER. 4. Extensive cumulative impacts have been assessed as part of this PER regarding the construction, operational, and decommissioning phases of the Proposed Development. 5. The Proposed Development will have a beneficial effect on Waterford's air quality and climate action by supporting Cork's renewable energy production and greenhouse gas (GHG) reduction objectives and targets, therefore displacing carbon emissions. **6.** The Proposed Development has been designed to avoid any geological features. Please refer to Chapter 11 of this PER which summarises the relevant assessment undertaken. 7. Permanent site drainage will adopt a Sustainable Drainage (SuDS) nature-based approach to management of rainwater runoff. The approach to drainage ensures that existing site hydrology is maintained to maintain water quality.
Chapter 9 Climate Action, Biodiversity & Environment:		

Waterford CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
BD 01: Biodiversity Policy Objectives	We will protect and conserve all sites designated or proposed for designation as sites of nature conservation value (Natura 2000 Network, Ramsar Sites, NHAs, pNHAs, Sites of Local Biodiversity Interest, Geological Heritage Sites, TPOs) and protect ecological corridors and networks that connect areas of high conservation value such as woodlands, hedgerows, earth banks and wetlands. We will contribute towards the protection and enhancement of biodiversity and ecological connectivity, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, the coastline, geological and geo-morphological systems, other landscape features, natural lighting conditions, and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones in the context of Article 10 of the Habitats Directive.	The Proposed Development does not form part of any Natura 2000 designated area. A separate AA Screening report was prepared and submitted as part of the Proposed Development planning application. The AA Screening concluded that likely significant effects on the Blackwater River (Cork/Waterford) SAC could not be ruled out, and as such, a NIS was prepared (also submitted as part of the planning application for the Proposed Development). The NIS concluded that the Proposed Development, individually or in combination with other plans or projects, would not have a likely significant effect on the Blackwater River or any other protected sites. See also a summary of the EcIA for the Proposed Development, presented Chapter 9 of this PER. Good design practices will minimise the impact on biodiversity through the inclusion of appropriate buffers for existing treelines and hedgerows. The retention of existing access points to the land areas have been incorporated into the overall design where possible to minimise requirement for new access locations thereby reducing hedgerow and tree loss, protecting ecological corridors and networks.
BD 05: Protection of European Sites	Projects giving rise to adverse effects on the integrity of European sites (cumulatively, directly or indirectly) 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 not be permitted 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	The Project, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Sites identified in view of their conservation objectives, as demonstrated in the NIS. The Project has been designed in accordance with the EU/EC Habitats and Birds Directives and the Wildlife Acts 1976-2023.

Waterford CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	interest for the project to proceed; and c) Adequate compensatory measures in place.	
BD 20: Hedgerow Policy Objectives	To protect hedgerows in all new developments, particularly species rich roadside and townland boundary hedgerows, such features should be incorporated into the open space provisions at the concept design stage. There will be a presumption against the removal of hedgerows however where their removal is unavoidable replacement planting shall involve establishment of new hedgerows with native species of local provenance and that support pollinating species.	The Project includes significant biodiversity enhancement and biodiversity net gain, with habitat creation and enhancement as set out in this PER, NIS and Biodiversity Enhancement Plan.
Chapter 10 Landscape, Coast/ Marine and Blue Green Infrastructure:		
L 02: Protecting our Landscape and Seascape	We will protect the landscape and natural assets of the County by ensuring that Proposed Developments do not detrimentally impact on the character, integrity, distinctiveness or scenic value of their area and ensuring that such proposals are not unduly visually obtrusive in the landscape, in particular, in or adjacent to the uplands, along river corridors, coastal or other distinctive landscape character units.	The Proposed Development is situated adjacent to Waterford CDP 'Landscape and Seascape Character Assessment - Low Sensitive', which have the capacity to absorb a wide range of new developments. A detailed landscape character assessment was undertaken which highlighted the importance of traditional field boundaries to be protected and enhanced with the protection of distinctiveness and scenic value accounted for also. This exercise was further strengthened by AA Screening and a NIS, in parallel with an archaeological assessment, which informed the overall design and layout of the scheme. The high-quality, design rationale is set out in the PER.

Waterford CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
L 03: Landscape and Seascape Character Assessment	We will assess all proposals for development outside of our settlements in terms of the 2020 Landscape and Seascape Character Assessment (Appendix 8) and the associated sensitivity of the particular location. We will require a LVIA for Proposed Developments with the potential to impact on significant landscape features within the City and County. Proposals for significant development (e.g. renewable energy projects, telecommunications and other infrastructure and the extractive industry) shall be accompanied by a LVIA which includes Zones of Theoretical Visibility (ZTV) which indicate the landscape impact zone within which the Proposed Development may be seen. There will be a presumption against developments which are located on elevated and exposed sites and where the landscape cannot accommodate such development with reasonable and appropriate mitigation.	A comprehensive LVIA was submitted within the PER and addresses the '2020 Landscape and Seascape Character Assessment' and the sensitivity of the boundary location in which the Proposed Development in located. The LVIA includes detailed Zones of Theoretical Visibility (ZTV) maps, confirming the solar farm avoids elevated, exposed sites and can be accommodated by the landscape. Furthermore, the design incorporates reasonable and appropriate mitigation measures, such as retaining existing mature hedgerows and planting new biodiversity buffers which in included in the Biodiversity Enhancement Plan. This ensures the Project does not detrimentally impact the scenic value of the adjacent Waterford landscapes and protected views of which one is located c. 3.33km east of the Proposed Development on the local road L6040 to Ardsallagh Quay viewing north over the River Blackwater.
BGI 04: Development Proposals	We will assess all proposals for development with the aim of no net loss of biodiversity and to achieve gain for BGI and ecosystem services. In particular we will: • Promote the retention and creation of open drainage ditches instead of underground pipes where appropriate as these provide additional habitats and water source for wetland species; and,	The Project drainage design uses the principles of Sustainable Drainage, promoting on-site retention of flows and the use of buffers and other silt removal techniques. All drainage-related mitigation measures will form part of a robust Sustainable Drainage System (SuDS) on the site. The finalised drainage design aims to result in attaining net beneficial effects through Nature Based Solutions (NBS). Coupling SuDS with ecology and biodiversity mitigation will also provide

Waterford CDP 2022-2028 Relevant Chapter & Objectives	CDP Requirement Summary and/or Extract of Text	Project Design & 'Policy Fit'
	• Promote the integration of Sustainable Drainage Systems (SuDS) in design concept and layout.	opportunities to attain biodiversity net gain (BNG), as outlined in Chapter 4.4 of the PER.

7.7.4 Cork Climate Action Plan 2024-2029

Cork County Council adopted its Climate Action Plan in February 2024. The plan is aligned with the national objective of transitioning to a climate-resilient, sustainable, and climate-neutral economy by 2050. The county's plan focuses on reducing emissions from its own assets and infrastructure, as well as influencing and coordinating actions among communities and other stakeholders.

Key Initiatives and Support for Solar Projects:

- **Renewable Energy:** The plan identifies the significant opportunities in Cork County to decarbonize electricity and industry through the deployment of renewable energy. This includes both utility-scale projects (e.g., floating offshore wind in Cork Harbour) and localized solar installations.
- **Built Environment:** The plan acknowledges the challenges of an old and energy-inefficient building stock and aims to address them through support and grant schemes. It recognizes that new developments need to meet stricter energy targets, such as those outlined in the Building Regulations (NZEB criteria), which often involves the use of solar PV.
- **Community and Business Support:** The plan aims to champion best practices in climate mitigation and adaptation across communities and other stakeholders. For businesses, there's a recognized need for collective procurement of renewable energy technologies, such as solar, to reduce costs and administrative burdens, especially for SMEs.

In summary, both Cork City and Cork County councils view solar projects as a critical component of their respective Climate Action Plans. They support the growth of solar energy through direct funding for community projects, strategic policy-making, and by encouraging the uptake of national grants and initiatives.

7.7.4 Planning Policy Conclusions

The Proposed Development is consistent with the hierarchy of planning policy, demonstrating a strong alignment across all levels of policy from international and EU, National, Regional and local level.

The proposed Greenhills Renewable Energy Park Project (Proposed Development) at an International and EU policy level directly supports the objectives of the Paris Agreement 2015 (limiting global temperature rise to 1.5 degrees) and the EU Green Deal and European Climate Law (achieving net-zero GHG emissions by 2050). By proposing a renewable energy generation facility (solar farm), the project aligns with the Repower EU goal of accelerating the green transition and the binding target of the EU Renewable Energy Directive III (RED III). Furthermore, as a RED III project, it is subject to the new accelerated consenting timelines under the European Union (Planning and Development) (Renewable Energy) Regulations 2025 (S.I. 274 of 2025).

At a national level, the Proposed Development aids in achieving Ireland’s legally binding objective under the Climate Action and Low Carbon Development (Amendment) Act 2021, which requires a 51% reduction in greenhouse gas (GHG) emissions by 2030. It contributes directly to the Climate Action Plan 2025 (CAP 2025) target of 8GW of energy from solar initiatives by 2030. The Proposed Development also is consistent with Project Ireland 2040: National Planning Framework, particularly National Strategic Objective (NSO) 8, which supports the transition to a low-carbon and climate-resilient society.

Additionally, on a regional level, the Proposed Development is in line with the Southern Regional Assembly Regional Spatial and Economic Strategy (RSES) objective on supporting indigenous renewable energy (RPO 100), alongside supporting the provision of new energy infrastructure subject to suitable environmental assessments and the planning process (RPO 219).

The Proposed Development aligns itself with the Cork CDP 2022-2028 while also complementing the adjacent Waterford City and County Development Plan 2022-2028. The Proposed Development directly addresses both counties relevant statutory objectives and goals on renewable energy, specifically renewable solar photovoltaic targets, such as renewable energy targets; ET 13-2, ET 13-4, ET 13-8 and UTL 13.

The Proposed Development supports Ireland's national and local level commitments to GHG reduction, directly contributing to Cork County Councils' Climate Action Objectives, specifically CA 17-2. All criteria for solar farm development (EI 13.8) have been met, as evidenced by the PER, NIS, AA, LVIA and other detailed technical reports.

The Proposed Development is fully compliant with the sustainable development policies outlined in both the Cork and Waterford City and County Development Plans 2022-2028. It emphasises biodiversity enhancement and net gain, with a Biodiversity Enhancement Plan being prepared in accordance with Cork County Council (CCC) guidance. The scheme's commitment to biodiversity is further supported by an AA Screening Report and a NIS. Specific measures, such as mitigation through avoidance and hedgerow enhancement, ensure compliance with Cork CDP BE 15-6 and Waterford CDP BD 20 policies.

The Development has adopted Best Practice Guidelines Report For Large Scale Solar Energy Development In Ireland, the Proposed Development conducted a thorough feasibility study and constraints mapping, informed by a pre-planning consultation with CCC. The design of the Proposed Development successfully mitigates potential cumulative impacts on sensitive receptors in the surrounding area by incorporating an on-site 220kV substation and loop-in grid connection to the existing overhead line, adhering to grid infrastructure setback guidance.

By utilising a 50m minimum buffer to residential dwellings, 50m buffer to Archaeology/ SMR Zones, 20m buffer to rivers and 7m buffer to habitats (hedgerows, treeline, scrub and woodland) and positioning the Proposed Development in an area determined by a LVIA to accommodate a development of this scale, the Proposed Development ensures no adverse impacts will occur on the surrounding area or European Sites within the vicinity of the Proposed Development.

8 EIA SCREENING

It is important to note that unlike AA Screening, measures envisaged to avoid or prevent what might otherwise be significant adverse effects on the environment can be considered in the EIA screening and can form part of the information on which an EIA determination is to be based.

Having regard to the criteria in Schedule 7 of the Regulations and based on the scale and nature of the Proposed Development, its location, along with the implementation of appropriate and robust environmental protection and control measures, it is considered that this Proposed Development will not have significant effects on the environment, either by itself or in combination with other plans or projects.

Refer to the separate EIA Screening Report submitted as part of the planning application. The assessment therefore indicates that an EIA, and the production of an EIAR, is not required.

9 ECOLOGY

9.1 Introduction

An EcIA has been undertaken by INIS Environmental Consultants Ltd. and is provided in Appendix K of this PER. A BEMP and Invasive Species Report have also been prepared (see Appendix D and L respectively). The findings have been summarised below.

9.2 Location of Development in Ecological Context

The Tourig River (18T03) runs adjacent to the western boundary of the Proposed Development. The Ballyneague River (18B47) and Knocknagappagh River (18K42) run through the Proposed Development site boundary, the Youghal Park (18Y01) and Ballyglavin Rivers (18B67) flow south of the Proposed Development site southern boundary. The Carriganass River (18C30) flows through the Proposed Development from the north. These rivers are within the Tourig_020 sub-basin (IE_SW_18T030700). The Proposed Development is located 3.5km upstream of the Blackwater River (Cork/Waterford) Special Area of Conservation (SAC) and the Blackwater Estuary Special Protection Area (SPA) and Blackwater River and Estuary proposed Natural Heritage Area (pNHA).

9.3 Methodology

9.3.1 Ecological Baseline Data

A desktop review was completed to identify relevant features of ecological importance within the receiving environment prior to the commencement of survey work. This involved an online assessment of relevant bird, mammal and other species data from published or open-access data and information. During the course of the survey efforts, this was updated with relevant literature, including reports from previous bird surveys and studies within the area.

In addition, a comprehensive programme in terms of field surveying was undertaken in support of the ecological impact assessment. Table 3.2 of Appendix K provides a list of the surveys conducted for each target group, the relevant guidance followed, and the survey timings (e.g. month and year).

9.3.2 Potential Impacts Associated with Solar Photovoltaic Farm Developments

Solar farm developments may result in the following impacts on ecological features:

Direct habitat loss and fragmentation: the construction and (typically to a lesser extent) operational maintenance and decommissioning of solar farm infrastructure have the potential to result in both permanent and temporary loss and alteration of habitats, potentially resulting in reduced habitat extent, quality and connectivity;

Disturbance and displacement: the construction, operation and decommissioning stages of a solar farm may result in disturbance of ecological features within and near to the solar farm. This may lead to certain species avoiding the solar farm and its surrounding habitats (i.e., displacement). Displacement may also include barrier effects, resulting in species being deterred from using normal dispersal routes and corridors both to and from feeding, breeding and roosting grounds;

Pollution of habitats: the construction, operation and decommissioning stages of a solar farm may result in the pollution of habitats within and adjacent to the site. In particular, aquatic ecological features can be subject to the following impacts;

Input of silt: as well as directly affecting fish and their ability to use their gills for respiration, the input of silt into waterbodies and watercourses has the potential for medium to long-term impacts as it settles on the riverbed, smothering coarse patches of sediment with fine particles. This can deplete oxygen levels within the sediment by reducing the flow of water through the sediment, causing direct mortality of eggs and early life stages of fish and other aquatic species;

Input of cement: the introduction of cement into an aquatic environment can change the water chemistry (particularly pH and dissolved oxygen) and add suspended solids, both of which can negatively impact aquatic species, resulting in significant adverse effects;

Input of hydrocarbons and chemicals: spillage of hydrocarbons and their chemicals into aquatic environments has the potential to cause increased mortality of plants and animals through physiochemical reactions and direct toxicity;

Input of nutrients: significant increases in nutrient levels in aquatic environments can result in elevated biological productivity and excessive plant and algal growth (e.g., from increased nitrogen and phosphorus). This causes ambient dissolved oxygen levels to fall and leads to eutrophication, which is known to result in adverse effects on a range of aquatic species; and

Hydro-morphological changes: these can result from direct mechanical disturbance to watercourses and/or significant changes within the catchment, potentially affecting the abundances and distributions of aquatic species.

For each of these potential impacts, detailed knowledge of the characteristics and distributions of ecological features within and adjacent to the site has been used to predict the impacts of the Proposed Development on biodiversity. Impacts are assessed during the construction, operation and decommissioning stages, and cumulatively in consideration of other plans and developments.

9.3.3 Identification of Key Ecological Receptors

The assessment methodology follows a precautionary screening approach regarding the identification of ecological features that were carried forward for impact assessment (i.e. Key Ecological Receptors (KERs)). Therefore, any feature assessed as being of Local importance (Higher value) has been brought forward for assessment of effects, unless it can be proven without any reasonable scientific doubt that effects would be negligible. Other features of lower importance (Local importance (Lower value), and Negligible importance) may also be carried forward; particularly where there may be legislative requirements pertaining to these features that are not necessarily associated with their ecological importance or a feature having a high sensitivity to solar farm projects.

9.3.4 Mitigation

The key mitigation measures identified to ensure that no adverse effects occur to key ecological receptors are set out in the EcIA report , Section 9. These include:

- mitigation for International and National designated sites (see NIS) which are sufficient to ensure that no likely significant effects on any European sites or their relevant QIs/SCIs and IBAs occur. management measures such as the appointment of an Ecological Clerk of Works (ECoW) who will be appointed to address issues relating to ecological features during the construction and decommissioning phases, as described within the CEMP,

- appointment of a Site manager with specific responsibilities,
- appointment of an Environmental Clerk of Works To ensure effective implementation of mitigation measures, environmental auditing, and monitoring of environmental obligations of the Developer an Emergency Response Plan
- New Hedgerow planting and bolstering of existing hedgerows and
- New Natural Woodland planting
- Invasive Alien Species Management

9.4 Conclusion on Ecological Impact Assessment

Following consideration of the predicted residual impacts (post-mitigation), the Proposed Development is unlikely to result in any significant impacts on the identified ecological receptors. The potential for impacts on European designated sites is fully described in the separate NIS report which is submitted as part of the planning application. Impacts to Nationally designated sites were regarded as unlikely or not significant**.**

Following a precautionary approach, potential impacts to ecological receptors present at the Proposed Development were identified and evaluated.

In conclusion, the Proposed Development, either individually or in-combination with other plans or projects is unlikely to result in significant impacts on the ecological receptors of conservation or biodiversity value to the baseline.

10 TRAFFIC AND TRANSPORT

10.1 Introduction

A Traffic Impact Assessment, which incorporates a Traffic Management Plan has been undertaken by Jennings O'Donovan and is provided in Appendix M of this PER**.** The findings have been summarised below.

10.2 Existing Public Road Network

10.2.1 Existing Roads in the Vicinity of the Proposed Development

The site of the Proposed Development is served primarily by the N25 national primary road, N72 national secondary road, R634 regional road and the L7829, L7806, L3803, L38032, L7828 and L3808 local roads. The public road network in the vicinity of the Proposed Development is shown on Figure 2.10**.**

10.3 Site Access

10.3.1 Proposed Development Site Entrances

Access to the Proposed Development will be from 11 No. site entrance points located on the regional and local road network. Site access 1 will be located on the R634 regional road, site access 2 will be located on the L7806 local road, site access 3 will be located on the L3803 local road, site access 4 and 5 will be located on the L3808 local road, site access 6 and 7 will be located on the L7828 local road, site access 8, 9 and 10 will be located on the L7829 local road and site access 11 will be located on the L38032 local road. The location of the site entrance points to the Proposed Development are shown on Figure 2.11.

The site entrance points will be constructed to withstand HGV wheel loading and to facilitate the turning movements of HGV vehicles which will be required to visit the site during the construction period. Site entrance 1 will be constructed with a temporary overrun area to accommodate the swept path of the abnormal load vehicle delivering the transformer to the substation within the Proposed Development. The temporary overrun area will be removed following the delivery of the transformer. Gates at the site entrances will be set back from the public road so as not to obstruct through traffic on the public road in the event that the gates are closed. Existing drainage at the site entrances will be upgraded and incorporated into the site drainage.

Drainage will be detailed to prevent any outfall of water onto the public road network. Boundary and verge vegetation adjacent to the site entrances will be trimmed and maintained for visibility during the lifetime of the Proposed Development.

10.3.2 Mitigation Measures

The impact of the traffic volumes generated by the Proposed Development have been identified as being temporary and associated with short term construction and decommissioning periods. The Proposed Development will generate low volumes of traffic during the operational phase. Operations traffic will observe posted speed limits and statutory regulations and specific mitigation measures are not required. Mitigation measures will be implemented during the construction and decommissioning periods to reduce the impact of development traffic on the public road network and the local community and will include among others specified in Appendix M

- A detailed Traffic Management Plan will be completed by the appointed contractor for works to be carried out on the public road network.
- Appointment of a competent traffic management coordinator who will be the main point of contact for all traffic management matters during the course of the works.
- Limiting traffic movements to 08:00 - 18:00 Monday to Friday and 08:00 – 16:00 on Saturdays with no movements on Sundays or Bank Holidays, unless otherwise agreed in writing with Cork County Council
- Avoiding HGV movements during peak rush hours with planning and sequencing of deliveries at the proposed Development
- Following dedicated haul routes to each site

10.4 Conclusion on Traffic and Transport Impact Assessment

Following assessment of the construction, operation and decommissioning of the Proposed Development on the public road network, it has been concluded that the quality of effects will be neutral with increased traffic flows during the construction and decommissioning of the Proposed Development with no permanent changes to the horizontal or vertical geometry of the public road network and its associated junctions.

Following assessment, it has been concluded that the significance of the effects on the public road network where traffic management / two-way traffic flows can be maintained during works has been assessed as slight.

Following assessment, it has been concluded that the duration of effects relating to increased HGV traffic flows in the vicinity of the Site have been assessed as temporary and may last up to 21 months during the construction of the Proposed Development, the maximum effects from increased HGV traffic flows will occur during 13 months of the 21 month construction period.

11 LAND, SOILS, GEOLOGY, HYDROLOGY AND HYDROGEOLOGY

11.1 Introduction

A Land, Soils, Geology, Hydrology and Hydrogeology Impact Assessment has been undertaken by RSK Ireland and is provided in Appendix N. The findings have been summarised below.

11.2 Methodology

11.2.1 Relevant EU Directive, Legislation and Guidance

This assessment was undertaken in accordance with the following Irish legislation (transposition of the directive):

- SI No. 296 of 2018: European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

In addition to this planning legislation, environmental legislation relevant to geological, geotechnical, hydrological, and hydrogeological aspects of the environment were referred to, such as:

- S.I. No. 30 of 2000: Planning and Development Act 2000 (e.g. sections 212 (1) f; Part IV, 6; Fifth Schedule Condition 21).
- S.I. No. 600 of 2001: Planning and Development Regulations 2001,
- S.I. No. 4 of 1995: The Heritage Act 1995,
- S.I. No. 33 of 2000: The Wildlife (Amendment) Act, 2000.
- S.I. No. 213 of 2003: European Communities (Protection of Waters Against Pollution from Agricultural Sources) Regulations, 2003.
- S.I. No. 272 of 2009: European Communities Environmental Objectives (Surface Waters) Regulations, 2009.
- S.I. No. 9 of 2010: European Communities Environmental Objectives (Groundwater) Regulations, 2010.

This assessment has been prepared using, inter alia, the following guidance documents, which take account of the aforementioned legislation and policy:

- BSI (1999) Code of Practice for Site Investigations - BS 5930
- Department of Housing, Planning, Community and Local Government (DHPLG) (2017) Interim Guidelines for Planning Authorities on Statutory Plans, Renewable Energy and Climate Change
- European Commission (EC) (2021) EU Soil Strategy for 2030
- EC (2017) Guidance on the preparation of the Environmental Impact Assessment Report
- European Communities (Water Policy) Regulations, 2003-22.
- EPA (2022) Guidelines on the Information to be Contained in Environmental Effect Assessment Reports

- Institute of Geologists of Ireland (IGI) (2002) Geology in Environmental Effect Statements – A guide
- IGI (2013) Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Effect Statements
- Fehily Timoney and Company (2023) Best Practice Planning Guidance Report for Large Scale Solar Energy Development in Ireland. Prepared with Irish Solar Energy Association (ISEA)
- National Roads Authority (NRA) (2008a) Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes
- NRA (2008b) Environmental Effect Assessment of National Road Schemes – A Practical Guide – Rev 1
- NRA (2014) Guidelines for the Management of Waste from National Road Construction Projects

11.2.2 Study Area

The study area or zone of influence for soils, geology, hydrology and hydrogeology is typically localised to the redline boundary and its immediate surrounds (minimum 2km which is reviewed in more sensitive environments such as karst systems).

The study area for surface water extends further to the wider catchment area and includes downstream receptors such as designated sites and other sensitive and protected areas.

11.2.3 Mitigation

11.2.3.1 Land, Soils and Geology Mitigation Measures

The solar farm layout was designed to minimise environmental impacts through early avoidance measures. Existing farm tracks and site entrances were used as far as practicable to reduce the need for new infrastructure and limit hedgerow loss. Although some hedgerow removal is unavoidable, this was minimised by aligning access routes with existing features. The location of solar arrays and associated infrastructure was largely dictated by existing access tracks, topography and identified constraints, with infrastructure placed outside buffer zones for sensitive receptors.

All construction works will be managed in accordance with the CEMP (see Appendix L), which will be updated by the civil engineering contractor and agreed prior to works commencing. The CEMP is a live document, incorporating lessons learned and best practice throughout construction. Measures include reducing double handling of materials to minimise site traffic and avoiding earthworks during periods of severe weather. Engineering controls will be informed by confirmatory geotechnical testing, with a geotechnical risk register maintained and monitoring of settlement, movement and vibration carried out to ensure construction remains within design limits.

Potential impacts on soils during construction, including soil sealing, erosion, excavation and stockpiling, will be mitigated through a combination of avoidance, reuse and remediation. The use of semi-permeable gravel tracks and geotextile membranes will reduce runoff and allow for reinstatement of land to its original agricultural use following decommissioning. Temporary construction compounds will be removed and reused as required during construction, with affected areas incorporated into the solar array and later fully reinstated. Stockpiles will be carefully managed, kept temporary and reused as soon as possible. Measures are also in place to prevent

soil contamination, manage invasive species, control materials and waste, and maintain ground stability under the supervision of a qualified geotechnical specialist. With these measures implemented, the residual effects on land, soils and geology are assessed as slight and not significant.

11.2.3.2 Hydrology and Hydrogeology Mitigation Measures

The hydrology and hydrogeology aspect of the Proposed Development has been addressed through design and avoidance measures. Sensitive receptors, drains and drinking water rivers have been avoided, with buffer zones of 20 m applied to mapped surface water features and 10 m to non-mapped drainage features. The drainage has been designed to reduce potential effects on surface water quality and quantity and to minimise flood risk on site and downstream. Nature based solutions will be used in constructed drainage, including SuDS, to attenuate runoff and reduce the hydrological response to rainfall, with potential to achieve a net reduction in runoff rates. The design minimises the use of concrete, reduces land take and soil disturbance, and uses shallow driven piles for panel supports to limit ground disturbance. Excavated topsoil and subsoil will be reused on site for backfilling and landscaping.

Existing drains and watercourses have been incorporated into the design, and construction activities will avoid buffer zones. Drainage, attenuation and runoff management systems will be installed alongside construction works to control runoff and suspended solids. Erosion controls will be included in drainage channels, and construction runoff will be managed using settlement ponds and check dams, which will be regularly maintained and desludged. Permanent site drainage will adopt a SuDS-based approach to maintain existing runoff rates and volumes. Temporary measures such as silt fencing, cut-off drains, drainage swales and silt/attenuation ponds will be installed in parallel with track construction. Drainage swales and silt ponds will be provided at several locations and soakaways and interceptor drains will be installed at the site entrances to prevent runoff onto public roads. No surface water runoff will discharge to public roads, foul sewers or adjacent property.

Sediment and pollution control measures will be implemented during construction. Excavated materials will be stockpiled for reuse, with limits on height, setbacks from surface water features and approval of stockpiling locations. Best practice measures include restricting earthworks during intense rainfall, limiting vehicle movements, erecting silt fencing around source areas and reinstating temporary works areas following construction. Refuelling and storage of fuels and chemicals will be carefully managed using bunded storage, designated refuelling areas and spill response measures. Concrete works will use ready-mixed concrete, with controlled delivery, washout in dedicated bunded areas and off-site disposal of wash water at licensed facilities. Wastewater from welfare facilities will be stored in sealed tanks and removed off-site for treatment, with no on-site wastewater treatment.

Groundwater is not expected to be encountered during construction, though any required dewatering will be managed using sump pumping and silt filtration prior to discharge. A production well will be installed to meet small abstraction requirements, with construction, protection, testing and setback measures designed to prevent contamination. Flood risk has been addressed through drainage designed for a 1 in 100 year storm event plus climate change allowance, supported by attenuation features such as swales. Fire risk management measures incorporated into the BESS design include multi-layer protection systems, which will mitigate risks to surface and groundwater receptors.

11.3 Conclusion on Land, Soils and Geology

From the baseline study and impact assessment it is considered that with the implementation of the mitigation measures outlined, the potential impacts of the proposed development on the identified receptors will not result in any likely significant effects on the land, soils, and geology.

11.4 Conclusion Hydrology and Hydrogeology

The Office of Public works (OPW) interactive flood maps were consulted to assess flood the risk of flooding at the site and a detailed FRA was undertaken as part of the assessment (see Appendix N of this PER for further information).

From the baseline study and impact assessment undertaken the following hydrology and hydrogeology environment sensitive receptors have been identified in the receiving environment:

- Surface water features: Tourig_020, Glendine (Blackwater)_010 and Blackwater Estuary
- The Glenville Groundwater Body and a Locally Important Aquifer (Ll)
- Potential private supply wells in area

It is considered that with the implementation of the mitigation measures outlined in this report the potential impacts of the proposed development on the identified receptors will not result in any likely significant effects on the hydrology and hydrogeology. In terms of flood risk, mitigation measures including drainage and attenuation features will help reduce the potential for downstream flooding, a residual, beneficial effect of the Proposed Development.

12 LANDSCAPE AND VISUAL

12.1 Introduction

A Landscape and Visual Impact Assessment has been undertaken by Macro Works and is provided in Appendix O of this PER**.** The findings have been summarised below.

12.1.1 Study Area

From similar studies, it is anticipated that the Proposed Development is likely to be difficult to discern beyond approximately 5km and is not likely to give rise to significant landscape or visual impacts beyond approximately 2km. In the interests of a comprehensive appraisal, a 5km radius study area is used in this instance. However, there will be a particular focus on receptors contained within 2km, except where iconic or designated scenic viewpoints exist at greater distances out to 5km.

12.2 Methodology

12.2.1 Landscape Impact Assessment Criteria

This part of the LVIA provides an assessment of how the introduction of the Proposed Development will affect the physical features and fabric of the landscape, and then how the proposals influence landscape character with reference to published descriptions of character and an understanding of the contemporary character of the landscape as informed through desktop and site studies.

When assessing the potential landscape effects of the development, the value and sensitivity of the landscape receptor is weighed against the magnitude of impact to determine the significance of the landscape effect. Criteria used to guide these judgements is discussed further in Appendix O of this PER.

12.2.2 Visual Impact Assessment Criteria

This part of the LVIA provides an assessment of how the introduction of the Proposed Development will affect views within the landscape. It therefore needs to consider:

- Direct impacts of the proposed development upon views through intrusion or obstruction;
- The reaction of viewers who may be affected, e.g. residents, walkers, road users; and
- The overall impact on visual amenity.

It has been deemed appropriate to structure the assessment around a series of representative viewpoint locations. All viewpoints are located within the public domain and are representative of views available from main thoroughfares and pedestrian areas within the vicinity of the proposed development. The selected viewpoints are considered to be comprehensive in communicating the variable nature of the visual effects.

When assessing the potential visual effects of the development, the sensitivity of the visual receptor is weighed against the magnitude of the visual impact to determine the significance of the visual effect. Criteria used to guide these judgements is discussed further in Appendix O of this PER.

The assessment of visual impacts is aided by photomontages of the Proposed Development at selected viewpoints. Photomontages are a 'photo-real' depiction of the scheme within the view utilising a rendered three-dimensional model of the Proposed Development, which has been geo-referenced to allow accurate placement and scale. For each viewpoint, the following images have been produced:

1. Existing view;
2. Outline view (yellow outline showing the extent of the proposed development location including all associated overground works overlaid on the photograph);
3. Montage view
4. Montage view with mitigation established.

Refer to Appendix P of this PER which presents the photomontages prepared as part of the LVIA.

12.3 Existing Environment

12.3.1 Landscape Baseline

The landscape baseline represents the existing landscape context and is the scenario against which any changes to the landscape brought about by the Proposed Development will be assessed. A description of the landscape context of the proposed application site and wider study area is provided below under the headings of landform and drainage, vegetation and land use, centres of population and houses, transport routes and public amenities and facilities. Although this description forms part of the landscape baseline, many of the landscape elements identified also relate to visual receptors i.e. places and transport routes from which viewers can potentially see the Proposed Development.

12.3.2 Visual Baseline

Only those parts of the receiving environment that potentially afford views of the Proposed Development are of concern to this section of the assessment. A computer-generated Zone of Theoretical Visibility (ZTV) map has been prepared to illustrate where the Proposed Development is potentially visible from. The ZTV map is based solely on terrain data (bare ground visibility), and ignores features such as trees, hedges or buildings, which may screen views. Given the complex vegetation patterns within this landscape, the main value of this form of ZTV mapping is to determine those parts of the landscape from which the proposed development will definitely not be visible, due to terrain screening within the 5km study area.

The following key points are illustrated by the 'bare-ground' ZTV map (see Figure 1-7 in Appendix O of this PER):

- The principal point to note is that the Proposed Development has very limited potential to be viewed in full. Indeed, only a small part of the north-west quadrant of the study area has the potential to afford comprehensive visibility (blue pattern) of the proposed solar array.
- The largest potential visibility pattern relates to views of less than 20% of the proposed panel area, which is likely a direct consequence of the rolling nature of the surrounding terrain and the dispersed panel array that comprises several solar parcels.

- Much of the most notable areas of theoretical visibility relates to the western extent of the study area, where the terrain tends to be more elevated than the site and the surrounding landscape.
- The study area also encompasses considerable areas where visibility of the proposed panels will be fully screened by the surrounding intervening terrain. The full extent of the River Blackwater within the study area will have no potential for visibility.
- The N25 National Primary route corridor has limited potential to afford visibility of the Proposed Development. Indeed, the entire extent of the route in the southern periphery of the study area will have no visibility of the Proposed Development, whilst there is very limited potential to afford visibility of the Proposed Development from sections of the N25 route in the south-east quadrant of the study area.
- The wider areas of the settlement of Youghal have intermittent potential to afford visibility of the proposed solar development, ranging from 1–40% of the proposed panel area. Nonetheless, visibility tends to drop off and is entirely eliminated within the more central parts of the settlement in the south-east periphery of the study area.

The most important point to make in respect of this 'bare-ground' ZTV map is that it is theoretical. The proposed PV panels will not rise more than 3.4m above the underlying terrain and will therefore be considerably screened by surrounding and intervening hedgerow vegetation, trees and numerous buildings, walls and embankments scattered throughout the study area, resulting in a much lesser degree of actual visibility. Whilst the proposed substation and BESS structures are slightly larger, many of the larger elements comprise a slender built form and will not be prominently visibility, even in the immediate surrounds of the development. Indeed, the BESS and substation development have been strategically sited within a more contained part of the site well offset from the nearest surrounding residential receptors.

The second form of ZTV mapping relies on a Digital Surface Model ("DSM"), which also accounts for terrestrial land cover elements, such as hedgerows and buildings (see Figure 1-8 in Appendix O of this PER). This is of far more value in determining the likely visibility of the solar panels. For this finer grain of visibility analysis, a more consolidated area incorporating the surrounding network of roads and dwellings within approximately 1km of the application site boundary is used.

When comparing the 'bare-ground' ZTV map and the DSM based ZTV map:

- The visibility pattern in comparison to the theoretic visibility, has notably reduced, with visibility of the Proposed Development most often being less than 20% of the proposed panel areas, and localised areas affording visibility of up to 40% of the proposed panel areas. However, areas with visibility of up to 40% of the proposed panel area tend to relate to pastoral fields and/or are not highly populated.
- Whilst there is still potential for views of the Proposed Development throughout the study area, existing vegetation will result in more filtered and partially screened views of the proposed solar development, with glimpsed views of the development represented by the splays of the visibility pattern emanating from the site.

12.4 Mitigation Measures

The Proposed Development has been designed to minimise landscape and visual effects through careful siting, avoidance and landscape enhancement. It is located within a robust, modified rural landscape of county-level importance and is largely enclosed by established hedgerows, allowing the development to sit within the existing field pattern without imposing on the surrounding

landscape. Vegetation removal is limited to localised areas, and the layout has been designed around the existing hedgerow network.

Key landscape mitigation measures include:

- Retention of existing perimeter and internal hedgerows to maintain landscape structure and visual screening.
- Reinforcement of hedgerows through under-planting and inter-planting with native species, including whip transplants and advanced nursery stock, managed to heights of 3–4 m.
- Planting of new boundary hedgerows and localised native woodland thickets to further screen the development, soften views and break up visual mass.
- Additional setbacks from nearby dwellings and removal of panels in sensitive areas, including near the S45 scenic route, to reduce visual impacts and protect key views.

Construction and operational measures further limit landscape effects, including low-impact panel installation, underground cabling, use of existing farm tracks and full reinstatement of temporary construction areas. On decommissioning, all infrastructure will be removed and the site restored to agricultural use, with enhanced hedgerow boundaries remaining intact.

12.5 Conclusion on Landscape and Visual

Based on the LVIA effect judgements provided by Macro Works, the Proposed Development is not considered to give rise to any significant residual effect. Instead, landscape effects are not considered to exceed ‘Moderate’ significance, even in the immediate context of the site and residual visual effects are not considered to exceed ‘Substantial-moderate’ significance, with a large majority of visual effects classified as 'Moderate-slight' or less.

Additionally, the Proposed Development will result in a localised increase in the apparent scale and intensity of renewable energy infrastructure, most noticeably within the immediate surroundings of the site where combined visibility with the consented wind farm is possible. However, the robust nature of the receiving landscape, the contained visibility of the Proposed Development, the separation distance between the developments and the contrasting landscape contexts within which they are experienced ensure that cumulative landscape and visual effects remain relatively limited. Accordingly, cumulative landscape and visual effects generated by the Proposed Development are assessed as Not Significant.

13 GLINT AND GLARE

13.1 Introduction

A Glint and Glare Impact Assessment has been undertaken by Macro Works and is provided in Appendix Q of this PER**.** The findings have been summarised below.

13.1.1 Study Area and Methodology

13.1.1.1 Assessment Methodology For Ground-Base Receptors

Macro Works' glint and glare assessment methodology follows a rational sequence of steps to identify receptors that might potentially be affected by glint and glare. These receptors are then analysed further to yield those receptors that are likely to actually experience reflectance effects.

These steps are set out below.

1. Identify study area within which to assess the potential for glint and glare effects. The potential for substantial nuisance or hazardous impacts are greatest in close proximity to the source of reflectance and the potential for adverse impacts reduces with increased distances therefore to balance these factors a buffer extent of 1km from the site boundary is used by default on all solar farms.
2. Pre-analyse the study area for potential glare effects by populating the study area with a regular grid of receptor points (100m spacing). This analysis (1st analysis) allows us to determine those areas theoretically exposed to glint and glare effects that might warrant further investigation. We call this the "Area of Consideration for Further Analysis". This pre-analysis is based on a 3D model of the development superimposed onto a Digital Terrain Model (DTM) of the study area. Note: This DTM accurately replicates the profile of the terrain but does not account for screening by the vegetation or buildings that are present – in this sense the results are somewhat theoretical but they do offer a representation of a bare-earth, worst-case scenario.
3. Identify relevant receptors (dwellings and transport routes) that fall within the theoretically affected zones of the study area (or the "Area of Consideration for Further Analysis"). Dwelling identification utilises a combination of up to date aerial photography and the Eircode Finder tool which locates and identifies buildings classed as residential. Transport route receptors are defined by regularly spaced points along roads and rail lines (50m spacing). The height of the road Receptor Points are set to 1.7m above ground level. This is broadly equivalent to the eye level a person walking or a driver of a 4x4 / SUV type vehicle. The height of rail Receptor Points are set to 2.8m above ground level to represent the eye level of a train driver.
4. Execute the glint and glare analysis on the DTM-based 3-D model (2nd analysis), in respect of each of the theoretically affected receptors. This identifies the times of the day and months of the year that glint and glare could potentially affect receptors in the absence of screening.

Note: When the sun is situated within 10 degrees of a reflecting PV panel as viewed from a particular receptor, the sun will be a much greater source of glare than what emanates from the surface of the PV panel therefore any potential glare during these periods is excluded when assessing potential impacts.

5. Perform the same calculations (3rd analysis) using a high-resolution digital surface model (DSM) that accounts for the existing screening inherent on and surrounding the site at the time of capture. This offers a truer reflection of the actual glare that is likely to occur and highlights where landscape mitigation may be required.

Note: A limitation of DSM data in the context of this assessment type is that it is a snapshot of the screening situation at the time of the data capture. This situation is broadly indicative as hedgerows are a semi-permanent feature of the Irish countryside, however, seasonal variation through growth and/or cutting may result in minor changes to their screening potential. A further limitation is due to the aerial overhead nature of data capture. This can result in the under-reporting of potential visibility beneath the tree or woodland canopy and can understate the visibly porous nature of some thin hedgerows. This can result in minor underestimating of glare periods. However, where the data is deemed to be significantly unreliable for the reasons stated, analysis is supplemented, where possible, with a thorough assessment of aerial photography, Google Street View imagery and on-site verification.

6. Where instances of glint and glare remain, determine whether they are likely to cause a hazard / nuisance. For dwellings, this is achieved by comparing the periods of glare potential with our 'Magnitude of Glint and Glare Effects' table, while transport routes are examined in further detail for potential for hazardous impacts.
7. If hazard / substantial nuisance is likely to occur, mitigation measures are proposed where possible. This might relate to the re-siting of particular panels and / or the provision of additional screening.
8. If necessary, re-run the glint and glare calculations (4th analysis) to verify the effectiveness of the proposed mitigation measures and determine if there are any residual glare impacts.

13.1.1.2 Magnitude of Impacts for Dwelling Receptors

Although there is currently no regulation or guidance as to acceptable levels of glint and glare effects at receptors in Ireland, it is considered necessary to provide a gauge for determining relative levels of impact across a range of development types. Macro Works has established the following indicative textual categories of effect, which have been used to determine relative impact levels (see Table 1.1. of Appendix Q of this PER). The percentage figures provided in this table are intended as a relative guide only. The final category of assessment is determined on the basis of professional judgement, and accounts for mitigating factors where relevant and the careful consideration of a range of circumstantial variables that may act to intensify or reduce the effect upon a particular receptor.

Note: The magnitude of glint and glare effects in Table 1.1. of Appendix Q relates only to static receptors such as residential dwellings. As road receptors are moving objects and will only ever have the potential to experience momentary reflectance periods, the following impact magnitudes are not considered relevant for road receptors. Instead, road receptors will be assessed on whether periods of reflectance have the potential to generate significant nuisance or hazard effects.

13.1.1.3 Relevant Parameters of the Proposed Development

The PV panels are to be oriented in a south-facing direction to maximise solar gain and will remain in a fixed position throughout the day and year (i.e. they will not rotate to track the movement of the sun). The panels will maintain a maximum height of up to 3.4 m above the terrain and will be tilted at a pitch ranging between 10-25 degrees from horizontal towards the south. It is not

geometrically possible for glare to occur in the terrain to the north of these south-facing PV panels; hence the 1 km study area does not extend to the north of the proposed PV panels.

A ZTV analysis was undertaken as part of the LVIA (see Appendix O of this PER), but it should be noted that areas shown on the ZTV map to have the potential for visibility of the PV array do not necessarily have the potential to be impacted by glint and glare (e.g. there is no geometric potential for glare anywhere to the north of the site but there may be the theoretical potential to see the back of PV panels).

The landform of the study area is gently rolling, with more elevated lands located in its northern extent. Several watercourses traverse the study area, the nearest of which is the River Tourig, located to the south of the site and contained within steep valleys in some locations. The River Blackwater is the principal watercourse in relation to the proposed development, albeit contained outside of the glint and glare study area circa 3km east of the site.

The site and central study area represent a relatively typical rural context, where pastoral farmland is the predominant land use and is surrounded by hedgerows comprising mixed vegetation and mature trees. Some of the pastoral fields within the study area are notably larger than others and have been modified over time, with large areas of hedgerow removed to facilitate farming practices. There are also notable areas of mature woodland and riparian vegetation along the valleys of streams and watercourses within the study area, whilst blocks of conifer woodland are also prominent land uses, particularly in the northern extent of the study area.

The only settlement within the 1 km glint and glare study area is the village of Inch, located to the west of the site along the alignment of the River Tourig. Otherwise, the study area comprises a modest but notable rural population of residential dwellings, consisting of linear clusters of dwellings, farmsteads, and one-off dwellings. With regard to transport routes, the R634 is the only major route within the glint and glare study area and traverses the northern and northeastern quadrant of the study area, passing immediately adjacent to the site. A dense network of interconnecting local roads also traverses the surrounding study area, with many of these passing directly adjacent to the proposed solar parcels.

Due to the southerly orientation of the PV panels in the proposed solar farm, ground-based receptors (houses and transport routes) situated to the west of the solar array can only be affected by morning reflectance, when the sun is rising in the east. Conversely, receptors situated to the east of the site can only be affected by evening reflectance, when the sun is setting in the west.

Further, south facing panels in a landscape such as this result in a typical pattern of glare with potential glare impacts upon surrounding receptors occurring during the months February – October. This broadly represents the season where some or all foliage is present on vegetation. The assessment of the screening capacity of the surrounding vegetation in its winter state is therefore not necessary.

13.1.1.4 Mitigation by Design

It is proposed that all existing hedgerows within and around the perimeter of the site be allowed to ‘grow-out’ prior to construction. Additionally, advanced nursery stock in the form of 8-10cm girth trees will be used to fill any noticeable gaps. It is also proposed to plant new sections of hedgerow, along some sections of the site boundary, whilst extensive new corridors of native thicket/woodland will be planted along the boundary of localised sections of the site to further screen the proposed development from some of the nearest surrounding receptors. The location of the proposed mitigation planting is indicated on the Landscape Plans (Appendix E of this PER).

Once the relevant construction and associated works are complete, the hedgerows will be brought under regular agricultural management and trimmed to a height of circa 3m-4m for hedgerows (generally greater than the maximum height of the proposed panels) whilst native woodland thickets will be allowed to grow out, reaching an established height of circa 8-10m within c. 5 years from implementation. Other existing hedgerows and vegetation will also be maintained to maximise screening of the proposed development to provide consistent screening of the solar farm from nearby dwellings and transport routes. These proposed mitigation measures were added to the DSM analysis in order to produce the 'post-mitigation' results.

13.1.1.5 Identification of Relevant Aviation Receptors

In accordance with current Irish Aviation Authority (IAA) and Dublin Airport Authority (DAA) protocol, 10 km and 15 km radius study areas were established for the identification of IAA registered aerodromes and main airports respectively, that might require testing for glint and glare impacts. However, there are no IAA registered aerodromes within the 10 km aviation study area and neither of DAA's Dublin or Cork airports occur within 15 km of the proposed solar farm. For these reasons, no further aviation analysis was undertaken.

Furthermore, the Planning and Development (Solar Safeguarding Zone) Regulations 2022 set out 43 Solar Safeguarding Zones (SSZs). A SSZ is an area around an airport, aerodrome or helipad in which there is a potential for glint or glare from solar panels to impact aviation safety. The Proposed Development is not located within any of the defined SSZs, and therefore, an aviation-based glint and glare analysis was scoped out for further assessment.

13.2 Mitigation Measures

Glint and glare effects will be mitigated primarily through design and landscape measures that enhance screening of the proposed development. Existing hedgerows within and around the site will be retained and allowed to grow out prior to construction, with advanced nursery stock used to fill any noticeable gaps. New sections of hedgerow will be planted along parts of the site boundary, and extensive corridors of native thicket and woodland will be established in localised areas to further screen the development from nearby receptors, as shown on the Landscape Masterplan Plan (Appendix E to this PER).

Key mitigation measures include:

- Retention and strengthening of existing hedgerows to maximise screening prior to and during operation.
- Planting of new boundary hedgerows where required to reduce potential views of panels.
- Establishment of native thicket and woodland corridors along selected boundaries to provide additional screening from nearby dwellings and transport routes.
- Use of advanced nursery stock to ensure early and effective screening.

Following construction, hedgerows will be managed under regular agricultural practices and maintained at heights of approximately 3–4 m, generally exceeding the height of the solar panels. Native woodland thickets will be allowed to mature, reaching heights of approximately 8–10 m within around five years. Existing vegetation across the site will continue to be maintained to maximise screening. These mitigation measures have been incorporated into the analysis to inform post-mitigation glint and glare assessment results.

13.3 Conclusion on Glint and Glare

13.3.1 Residential Receptors

Each dwelling within 1km of the proposed development has been fully assessed based on location, height and orientation in relation to the proposed solar farm. For the reasons outlined above, it has been determined that glint and glare impacts are at the lower end of the spectrum (i.e. ranging between Medium and Negligible) as the proposed panels are not considered to be highly reflective surfaces, and the frequency/durations involved are not considered excessive to the degree that they will have a material impact on the enjoyment of any property.

It must also be re-emphasised that the reflectance periods provided are theoretical by default and represent a worst-case scenario in that they assume that the sun is always shining and at full intensity. In the Irish context, the reflectance frequency/duration figures provided are likely to be at least double the reality, according to Met Eireann data.

Thus, it is considered that there will be no significant nuisance effects generated from glint and glare towards surrounding dwellings as a result of the proposed solar farm.

13.3.2 Road Receptors

For the reasons outlined above, it is not considered that the glint and glare emanating from the proposed solar PV panels will generate significant nuisance or hazard effects for road users within the study area. Whilst there is some potential for residual reflectance along sections of the surrounding local and regional road network, the receptors likely to be affected are limited to short and intermittent stretches of these routes. The proposed panels are not considered to be highly reflective surfaces, and any potential effects on road receptors would be of very short duration, limited to the time taken for vehicles to pass through the affected sections. Reflectance would only occur under conditions of full sunlight, and only when such periods coincide precisely with the theoretical angles of potential reflectance.

It is also reiterated that the predicted reflectance periods represent a theoretical worst-case scenario, assuming continuous clear-sky conditions and full solar intensity. In the Irish context, such conditions are infrequent, and the actual frequency and duration of any potential reflectance events are therefore expected to be considerably lower, likely less than half of the theoretical values indicated, based on Met Éireann climate data

From the analysis and discussions contained in the glint and glare assessment conducted for the Proposed Development, it is considered that there will not be any significant nuisance effects from glint and glare at dwellings within the study area. It is also considered that there will not be any hazardous glint and glare effects upon road receptors resulting from the Proposed Development.

14 ARCHAEOLOGY, ARCHTECTURAL AND CULTURAL HERITAGE

14.1 Introduction

An Archaeological and Cultural Heritage Impact Assessment has been undertaken by RSK ADAS and is provided in Appendix R of this PER**.** The findings have been summarised below.

14.1.1 Study Area

The Study Area for the assessment effects were defined based on professional opinion and are in accordance with EPA guidelines (2022) for assessment. The size of the Study Area used in this assessment were based on all the likely direct and indirect effects that the various elements of the Proposed Development may have on the historic environment. The size of the Study Area was also determined based on the type of heritage asset and its level of legal protection combined with their determined significance (sensitivity).

It is considered that any potential for significant adverse direct effects will be confined to historic environment assets recorded within the site boundary and within 1km of the site boundary.

The Study Area for the assessment of indirect effects were defined based on professional opinion and are in accordance with EPA guidelines for assessment, as defined in Table 2 of the Archaeological and Cultural Heritage Impact Assessment (Appendix R of this PER).

14.2 Methodology

The likely effects on the existing archaeological and cultural heritage environment are assessed using the criteria as set out in the EPA guidelines (2022).

14.2.1 Desktop Study

The assessment of the archaeological, architectural and cultural heritage potential of the Study Area around the Proposed Development is based on a number of documentary and cartographic sources as listed below.

- Record of Monuments and Places for County Cork and County Waterford;
- Sites and Monuments Record for County Cork and County Waterford;
- National Inventory of Architectural Heritage;
- National Monuments in State Care Database;
- Preservation Orders List;
- Topographical files of the National Museum of Ireland;
- Cartographic and written sources relating to the Study Area;
- Cork County Development Plan 2022-2028;
- Waterford County Development Plan 2022-2028;
- Aerial photographs;
- Excavations Bulletin (1970-2025);

- Logainm.ie;
- Online sources for Folklore and Traditions relating to the Study Area; and
- Heritagemaps.ie

14.2.2 Field Inspection

A walkover survey and setting impact assessment was undertaken of the Site and the surrounding landscape on the 14th, 15th and 16th of May 2025 in overcast, sunny, dry weather. The site visit comprised a walkover of the Site and along publicly accessible areas in the surrounding landscape to assess setting impacts.

Two historic 19th century farmyards located inside the site boundary survive as upstanding ruins today. One of these is located in the northern part of Ballydaniel townland in the north-eastern part of the Site to the west of the modern R634 road. It comprises a small stone farmhouse and yard. The second is located in the southern part of Ballydaniel townland in the central part of the Site to the west of the Park Hill road. It comprises a farmhouse and outbuildings in a small rectangular farmyard.

No other previously unknown archaeological earthworks, artefacts or standing remains were observed within the site boundary during the walkover survey.

A fully digital photographic record was made of the Site visit. This forms part of the project archive.

14.2.3 Geophysics Survey

A programme of geophysical survey was undertaken by Archaeological Consultancy Services Unit (ACSU). The geophysical report is presented in Appendix I to the Archaeological, Architectural and Cultural Heritage Baseline Report (Appendix R to this PER). The geophysical survey identified four discrete anomalies, referenced as M1-M4 in the geophysical report. At these locations, a buffer zone will be marked out to delineate the areas in which gabion basket / ballasted foundations are to be used for the mounting of solar panels (details of such gabion baskets/ballasted foundations is provided in Appendix D of the CEMP, see Appendix F to the PER).

Elsewhere across the site, the geophysical survey identified a limited number of linear anomalies that are interpreted as former field boundaries or historic land divisions together with isolated anomalies of uncertain origin. These features are largely capable of being preserved beneath the proposed solar infrastructure and are assessed as experiencing effects that are Imperceptible to Not Significant.

Outside the identified anomaly areas, the potential for previously unknown archaeology is considered relatively low due to the results of the geophysical survey and evidence for long-term agricultural disturbance across much of the Site.

Elsewhere across the site, the geophysical survey identified a limited number of linear anomalies that are interpreted as former field boundaries or historic land divisions together with isolated anomalies of uncertain origin. These features are largely capable of being preserved beneath the proposed solar infrastructure through micrositing.

14.2.4 Mitigation Measures

Archaeology and cultural heritage mitigation focuses on avoiding and managing potential impacts to known and unknown heritage features during construction and operation. Measures combine avoidance, monitoring, and, if necessary, excavation to preserve or record archaeological assets.

Key mitigation measures:

- No groundworks, construction traffic, or material storage within exclusion zones around monuments and historic buildings.
- Additional targeted geophysical surveys and/or archaeological test trenching may be conducted as a part of pre-construction planning compliance to identify any unknown buried remains. Scope of further surveys to be agreed with the Local Authority Archaeologist.
- The archaeological potential of the four anomalies identified by the Geophysics survey is considered sufficient to warrant a precautionary avoidance strategy. Embedded mitigation has therefore been incorporated into the design through the use of non-intrusive above-ground gabion basket/ballasted foundation systems and associated stand-off buffers. This approach avoids excavation and preserves any surviving archaeological remains in situ.
- All major sub-surface works (compound, substation, access roads, underground cabling) will be subject to archaeological monitoring by a qualified archaeologist under license.
- If significant archaeological material is found:
    - Efforts will be made to preserve in situ where possible.
    - If preservation in situ is not feasible, full archaeological excavation will be undertaken to preserve the material by record.
- All work will comply with the Archaeological Heritage and Miscellaneous Provisions Act 2023.
- A written report detailing all archaeological findings and works will be prepared and submitted to the relevant authorities.

These measures ensure that both known and potential archaeological and cultural heritage features are appropriately protected or documented throughout the development.

14.3 Conclusion on Cultural Heritage and Archaeology

14.3.1 Direct Effects

14.3.1.1 World Heritage Sties, National Monuments and Architectural Conservation Areas

There will be no direct physical effects from the Proposed Development on any World Heritage Site, National Monument or Architectural Conservation Area as none of these types of heritage assets are located within the site boundary or within a 1km radius of the site boundary. Therefore, the construction, operational and decommissioning phase of the Proposed Development will have a No Change direct effect on these types of heritage assets. In relation to direct effects, the significance of effect on these types of heritage assets will be neutral.

14.3.1.2 Protected Structures

There are no Protected Structures recorded within the site boundary. The nearest Protected Structure to the Site is Roisin: a 19th century house (39/47), which is recorded on land within 5 m of the Site boundary (Figure 2). However, this building and its curtilage are clearly demarcated on the ground and are located outside of the site boundary. The remaining Protected Structures

recorded within the 1km Study Area are all located away from the site boundary. Therefore, the construction, operational and decommissioning phase of the Proposed Development will have a No Change direct effect on these types of heritage assets. In relation to direct effects, the significance of effect on these types of heritage assets will be neutral.

14.3.1.3 Sites and Monuments Record

There are no monuments recorded by the Sites and Monuments Record within the site boundary.

There are six monuments recorded by the Sites and Monuments Record in close proximity to the site boundary (10, 11, 16, 17, 22, 23). These comprise two Fulachtaí Fias (10, 17), a ringfort (22), a souterrain (23), and a holy well (16) recorded in the fields around the south-eastern part of the Site. A lime kiln (11) is recorded on land just outside of the north-eastern part of the Site. This limekiln was not visible at this location during the site visit and may have been demolished. There is a house (13) recorded on land 4 m east of parcel CK62854F (NMS, 2025). These monuments and their associated SMR buffer zones are all located outside of the site boundary. Therefore, the construction, operational and decommissioning phase of the Proposed Development will have a No Change direct effect on these types of heritage assets. In relation to direct effects, the significance of effect on these types of heritage assets will be neutral.

14.3.1.4 National Inventory of Architectural Heritage

There are ten buildings or structures recorded on the National Inventory of Architectural Heritage (NIAH) within a 1 km Study Area around the Site (NIAH, 2025). These are described in Appendix A and are shown on Figure 2. The nearest historic buildings recorded on the NIAH to the Site comprise an 18th century house (37) and a cast-iron water pump (40). These structures and their associated curtilages are all clearly demarcated on the ground and are located outside of the site boundary. Therefore, the construction, operational and decommissioning phase of the Proposed Development will have a No Change direct effect on these types of heritage assets. In relation to direct effects, the significance of effect on these types of heritage assets will be neutral.

14.3.1.5 Currently unknown buried archaeology

As the proposed groundworks will be carried out in areas where no known buried archaeological features have been identified, and due to the previous ground disturbance resulting from 20th agricultural activity over the Site, the potential direct effect of the Proposed Development on currently unknown buried archaeology without mitigation is assessed as Negligible to Very High. The significance of this effect on currently unknown buried archaeology on the Site could range from Imperceptible to Profound.

14.3.1.6 Unregistered Historic Structures

Two historic 19th century farmyards located inside the site boundary survive as upstanding ruins today. One of these is located in the northern part of Ballydaniel townland in the north-eastern part of the Site to the west of the modern R634 road. It comprises a small stone farmhouse and yard. The second is located in the southern part of Ballydaniel townland in the central part of the Site to the west of the Park Hill road. It comprises a farmhouse and outbuildings in a small rectangular farmyard (Figure 5). Although these structures and their associated curtilages are located inside the site boundary it is understood that they will be preserved in situ and will not be demolished. Therefore, the construction, operational and decommissioning phase of the Proposed Development will have a No Change direct effect on these types of heritage assets. In relation to direct effects, the significance of effect on these types of heritage assets will be neutral.

14.3.1.7 Historic Field Boundaries

Short sections of the Grid Connection Route divert off the existing public road through adjacent fields. This will potentially involve the removal of short sections of some field boundaries, which appear on 19th century historic maps. However, the site visit and historic mapping analysis indicates that many of the historic field boundaries shown on 19th century maps have been either removed or replaced by modern field boundaries of Negligible archaeological significance. As the construction of the cable trench will go through fields where no archaeological features or architectural features have been identified, and as only short sections of existing field boundaries will need to be removed, this potential direct effect on currently unknown buried archaeology and existing historic field boundaries is likely to be Negligible to Low. The significance of this effect on currently unknown buried archaeology and on existing field boundaries will likely be at worst Not Significant (An effect which causes noticeable changes in the character of the historic environment, on archaeological features or monuments or on architectural heritage but without significant consequences).

14.3.2 Indirect Effects

14.3.2.1 World Heritage Sites, National Monuments and Architectural Conservation Areas

There will be no indirect effects from the Proposed Development on the setting of any World Heritage Site, National Monument or Architectural Conservation Area as none of these types of heritage assets are located within the site boundary or within a 1km radius of the site boundary. Therefore, the construction, operational and decommissioning phase of the Proposed Development will have a No Change direct effect on these types of heritage assets. In relation to direct effects, the significance of effect on these types of heritage assets will be neutral.

14.3.2.2 Protected Structures

There are five Protected Structures recorded on the County Cork Record of Protected Structures within 1 km of the proposed Site (Figure 2). Desk-based analysis and site visits indicate that there will be no views at all of the Proposed Development from four of these Protected Structures (45,46, 48, 49) due to the distances between these structures and the Site and due to the presence of intervening landform and mature tree belts. Due to the distances between these buildings and the Site no other potentially harmful effects on setting are predicted. Therefore, the construction, operational and decommissioning phase of the Proposed Development will have a No Change direct effect on these types of heritage assets. In relation to direct effects, the significance of effect on these types of heritage assets will be neutral.

The nearest of Protected Structure to the Site is Roisin, a 19th century vernacular house (39/47) which is recorded on land within 5 m of the Site boundary. This building is described as a detached four-bay single-storey direct-entry thatched house, built c. 1830, with recent one-bay single-storey extension to south end. It had a hipped reed thatched roof with red brick chimneystack and painted rendered walls. The house has square-headed openings with two-over-two pane timber sliding sash windows and replacement timber half-door. The curtilage of the building comprised painted rendered boundary walls with square-profile piers and pedestrian gate (NIAH, 2025). At the time of the site visit for this assessment the building appeared had been gutted by a recent fire which had destroyed the thatch roof and the building appeared to be uninhabitable.

The setting of this building is confined to its immediate curtilage and its position fronting onto a narrow country lane. There are potential views of one field of the Site from the house looking immediately to the west and north-west. However, as the house was not habitable at the time of the site visit is considered unlikely that the Proposed Development would affect any significant

historic views or sightlines that contribute to the significance of the setting of this building. The visual change will also be reversed once the Proposed Development is decommissioned.

For these reasons it is assessed the Proposed Development may have a long term (during the operational phase) Low effect on the setting of this Protected Structure and its curtilage. It will likely have an adverse indirect effect on the significance this Protected Structure and its curtilage. However, the significance of this effect will be at worst slight adverse (an effect which causes noticeable changes in the character of the historic environment without affecting its sensitivities). This effect could be mitigated by the planting of native hedgerow vegetation around the part of the Site boundary which borders the curtilage of this Protected Structure.

14.3.2.3 National Inventory of Architectural Heritage

There are ten buildings or structures recorded on the National Inventory of Architectural Heritage (NIAH) within a 1km Study Area around the Site (NIAH, 2025). Four of these are also recorded as Protected Structures (38, 39, 35 and 43) and are therefore assessed primarily as Protected Structures.

Out of the remaining six NIAH structure desk-based analysis and site visits indicate that there will be no views at all of the Proposed Development from NIAH structures (36) and (42) due to the presence of intervening landform and mature tree belts. There will potentially be some views of the parts of the Site from NIAH waterpump (40) and milestone (44). However, it is considered that the setting of these structures is limited to their location on the existing roadway and therefore the changes in these views will have at worst a Negligible effect on their setting. There will potentially be some highly restricted views of parts of the proposed development from the curtilages of vernacular houses (37) and (41). However, the curtilages around these cottages contains mature trees and hedgerows which effectively screen views of the site from these buildings. The boundaries around these houses also restrict views from how they are viewed by the general public from the public roads adjacent to these buildings. These views will not be changed by the Proposed Development.

The changes in views during the construction and operational phases of the Proposed Development are therefore considered to have a long term Negligible to Low effect on the settings of NIAH Structures (excluding Protected Structures) and their curtilages. It will likely have an adverse indirect effect on the significance these NIAH Structures. The significance of these effects will range from imperceptible (an effect capable of measurement but without significant consequences) to not significant (an effect which causes noticeable changes in the character of the historic environment, on archaeological features or monuments or on architectural heritage but without significant consequences). These effects will also be reversed once the Proposed Development is decommissioned.

14.3.3 Further Surveys and Outline Mitigation Strategy

The mitigation strategies outlined in this section detail the techniques to be adopted in order to ameliorate the effects that the proposed development may have on feature of archaeological, architectural, and/or cultural heritage within the Site and Study Area during both the construction and the operation phases of the proposed development.

The following proposed mitigation measures are subject to approval by Cork County Council and the National Monuments Service of DHLGH and include an integrated, coordinated approach to ameliorate the effects of the Proposed Development.

No groundworks, construction vehicle movements or storage of materials should be carried out within the exclusion zones around monuments and buildings of historic interest located within and in close proximity to the site boundary shown on Figure 6.

Due to the potential for currently unknown buried archaeological remains to exist on parts of the site targeted geophysical survey and/or archaeological test trenching may be required by way of planning condition for an advanced programme of pre-construction works. Consultation with the Local Authority Archaeologist and landowners is recommended to agree the scope of any further surveys which may be required for this project as a part of planning compliance.

All major sub-surface groundworks associated with the proposed development works (compound and substation locations, new site access roads through the site and off-road open-cut trenching along any underground cables) will be subject to a programme of archaeological monitoring during construction:

- This will be carried out by a suitably qualified archaeologist under license and in accordance with the provisions of the Archaeological Heritage and Miscellaneous Provisions Act 2023.
- If significant archaeological material is encountered during the course of archaeological monitoring, then resolution of any such significant material will be determined in consultation with the National Monuments Service (DHLGH) and Cork County Council.
- Where possible, every reasonable effort will be made to preserve in situ or reduce the effect on any identified archaeological material. Where preservation in situ cannot be achieved, either in whole or in part, then a programme of full archaeological excavation will be implemented to ensure the preservation by record of the portion of the site that will be directly affected. This work will be carried out by a suitably qualified archaeologist under license and in accordance with the provisions of the Archaeological Heritage and Miscellaneous Provisions Act 2023.
- A written report will be prepared detailing the results of all archaeological work undertaken.

15 NOISE AND VIBRATION

15.1 Introduction

A Noise Impact Assessment has been undertaken by RSK Ireland and is provided in Appendix S of this PER**.** The findings have been summarised below.

15.1.1 Study Area

A study area for the construction and operational noise and vibration assessment has not been defined as the approach has been to assess the impacts at the closest sensitive receptors in accordance with the relevant guidelines.

15.2 Methodology

15.2.1 Relevant EU Directive, Legislation and Guidance

There is no specific noise/vibration guidance relating to the operation of solar farms and associated infrastructure. This section presents relevant guidance documents and criteria in relation to noise and vibration generated at noise sensitive receptors.

The guidance documents used in this assessment include:

- British Standards Institution (BSI), British Standard (BS) 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites - Noise* (hereafter referred to as BS 5228-1). BS 5228-1 is used for all construction noise calculations and assessment;
- BS 5228-2:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Vibration* (hereafter referred to as BS 5228-2). An assessment of the likelihood of significant impacts as a result of ground-borne vibration has been carried out using the guidance contained within BS 5228-2;
- Environmental Protection Agency (EPA) Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) (hereafter referred to as the NG4 Guidance Note for Noise);
- ISO9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation;
- BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (hereafter referred to as BS 4142);
- National Roads Authority (NRA) *Guidelines for Treatment of Noise and Vibration in National Road Schemes* (hereafter referred to as NRA Road Noise Guidelines);
- National Roads Authority (NRA) *Good Practice Guidance for Treatment of Noise during the Planning of National Road Schemes* (hereafter referred to as NRA Good Practice Road Noise Guidelines); and
- United Kingdom Highways Agency (UKHA) Design Manual for Roads and Bridges (DMRB) LA 111 Noise and Vibration.

S.I. No. 549/2018 - European Communities (Environmental Noise) Regulations 2018 (as amended) transposes Directive 2002/49/EC of the European Parliament and of the Council of 25

June 2002 relating to the assessment and management of environmental noise (as amended) (commonly referred to the Environmental Noise Directive (END)) for the strategic control of environmental noise in Ireland. The relevant local authorities are required to prepare noise action plans based on strategic noise mapping to identify how noise will be managed and to deliver their obligations under the END.

Nuisance due to noise is dealt with by Number 7 of 1992 - Environmental Protection Agency Act, 1992 (as amended), and S.I. No. 179/1994 - Environmental Protection Agency Act, 1992 (Noise) Regulations, 1994 (as amended), and Number 27 of 2003 - Protection of the Environmental Act 2003 (as amended). The legislation requires the use of Best Available Techniques to control noise because of human activity "*which may be harmful to human health or the quality of the environment, result in damage to material property, or impair or interfere with amenities and other legitimate uses of the environment*."

Other policy documents relevant to the assessment include:

- Cork County Council (CCC) *Noise Action Plan 2024-2028*, February 2025.

15.2.2 Desk Study

The desk study has comprised of an assessment of the potential noise and vibration impacts in line with relevant guidance and using the following sources:

- GIS data of the Red Line Boundary, Transformers, Solar Arrays, Cable Routes, Access Roads, Substation, BESS and Eircode data (supplied in August 2025); and
- Google Maps.

15.2.3 Field Assessment

The field assessment comprised of a series of baseline noise surveys undertaken in March 2025.

15.2.4 Mitigation Measures

Noise and vibration mitigation focuses on minimising impacts during construction and decommissioning, with operational noise considered negligible. Measures follow best practice standards and aim to protect nearby sensitive receptors.

Key mitigation measures:

Construction:

- Apply Best Practicable Means (BPM) per BS 5228-1 to minimize noise and vibration.
- Comply with local authority noise and vibration controls.
- Use high-quality hoarding around noise-sensitive boundaries (reduces noise by ~10 dB where line-of-sight is blocked).
- Develop a Community Liaison Plan with a single point of contact for residents.
- Display contact details of site manager and liaison officer.
- Brief staff on complaint procedures and responsibilities.
- Provide regular updates to neighbours via newsletter or site hoarding.
- Use plant and equipment conforming to relevant standards, maintain in good condition, and switch off when not in use.

- Plan transport routes and programming to reduce noise and vibration.
- Use equipment and operational techniques that reduce noise (e.g., mufflers, low-impact plant, sequential start-up, minimize material drop heights).
- Position noisy activities away from sensitive receptors.
- Conduct construction noise and vibration monitoring at agreed locations using standard equipment.

Operational:

- No significant adverse noise impacts expected; no mitigation required.

Decommissioning:

- Same mitigation measures as the construction phase, as noted above.
- Noise monitoring during decommissioning at agreed locations using standard measurement equipment.

This approach ensures noise and vibration is controlled effectively during all phases.

15.3 Conclusion on Noise and Vibration

This chapter has presented the noise and vibration assessment of the construction, operational and decommissioning impacts of the Proposed Development.

During the construction and decommissioning phases, mitigation measures will ensure that residual noise and vibration impacts do not occur.

During the operational phase, noise impacts are not anticipated to be significant as the predicted noise levels from the Proposed Development are below noise guideline threshold levels.

16 ELECTROMAGNETIC FIELD AND ELECTROMAGNETIC COMPATIBILITY

16.1 Introduction

An EMF and EMC Impact Assessment has been undertaken by Ai Bridges and is provided in Appendix T of this PER**.** The findings have been summarised below.

16.2 EMF

The EMF generated by electrical powerlines are low frequency and are in the non-ionising end of the spectrum.

16.2.1 OHLs

The largest potential source of electric field at the Proposed Development would be the 220kV loop-in lines, which would connect the Proposed Development to the existing OH power transmission line. These OH loop-in cables are relatively short and internal to the site. The strength of the magnetic field from the alternating current lines dissipates rapidly with lateral distance from the cable. The proposed development would pose no issue to human health or any other sensitive receptor, as emissions from the OHL cables at the proposed development would dissipate rapidly within the proposed site, and would be considerably lower than recommended levels (see Appendix T for further information). It should be noted that the proposed loop-in would connect to the existing 220kV OHL which has its own electric and magnetic fields.

16.2.2 Underground Cables

The underground cables at the Proposed Development would not emit an electric field as electrical underground cables are shielded, hence there would be no issue relating to electric fields. There would be a magnetic field associated with the underground cables, as a magnetic field would occur when electric charges flow through the cables. However, this is usually limited to the immediate vicinity of the cable and will be low for a 33kV cable, and well within recommended levels (see Appendix T for further information).

16.3 EMC

EMC concerns the ability of electrical / electronic systems and devices to function properly when in close proximity to each other.

High levels of electromagnetic fields can cause Electromagnetic Interference (EMI) to electrical devices and telecommunications systems. A desktop survey was carried out to identify the nearest telecommunications infrastructure to the Proposed Development site. The results of the desktop survey found that there are four telecom mast-sites within 5 km of the Proposed Development site boundary (Ballinteosig, Foxhole, Ballymacask and Clashdermot).

16.4 Mitigation Measures

As no significant impacts related to EMF/EMC were identified, no mitigation measures are deemed necessary.

16.5 Conclusion on EMF/EMC

EMF levels due to the Proposed Development and associated underground cables would be significantly lower than the basic restriction level which is the level at which radiation is potentially harmful to humans. There are no sensitive receptors that would be impacted by EMF due to the Proposed Development and mitigation measures would not be required.

The EMF signals due to the Proposed Development would be very low and would be negligible at the telecoms mast-sites at Ballinteosig, Foxhole, Ballymacask and Clashdermot.

The relevant telecom operators with network equipment at Ballinteosig, Foxhole, Ballymacask and Clashdermot have been notified about the Proposed Development, and no issues have been raised regarding EMC.

There are no sensitive receptors that would be impacted by EMC due to the Proposed Development and mitigation measures would not be required.

17 CONCLUSION

This PER has been prepared to accompany and inform the planning application for the proposed Greenhills Energy Park Development, submitted to Cork County Council under Section 34 of the Planning and Development Act 2000 (as amended). The PER has considered the Proposed Development in the context of national, regional and local planning policy, including the provisions of the Cork County Development Plan, as well as relevant environmental legislation and best practice guidance.

The assessment demonstrates that the Proposed Development aligns with strategic planning objectives supporting renewable energy generation, climate action, and the transition to a low-carbon economy. The location, scale and design of the Proposed Development have been informed by a detailed understanding of the receiving environment and have evolved to minimise environmental effects while delivering long-term strategic benefits.

Comprehensive assessments have been undertaken across all relevant environmental topics. The EcIA concludes that, following the implementation of mitigation measures, the Proposed Development is unlikely to result in significant adverse impacts on ecological receptors, either alone or in-combination with other plans or projects. Impacts on European designated sites are fully addressed in the accompanying NIS report, while effects on nationally designated sites are considered unlikely or not significant. Collectively, the proposed mitigation and enhancement measures are expected to deliver a net positive outcome for biodiversity over the lifetime of the Proposed Development.

Some limited loss of hedgerows will occur to facilitate site access and internal infrastructure. However, this will be offset through extensive hedgerow reinforcement and new native hedgerow planting, as detailed in the BEMP (Appendix D) and Landscape Mitigation Plan (Appendix E). Measures include the enhancement of up to 31,000m of linear hedgerow and mosaic hedgerow as necessary and the establishment of approximately 1,400 linear metres of new ‘Type 2’ native hedgerows. These measures will provide effective long-term screening, enhance habitat connectivity and contribute to a net positive landscape and biodiversity outcome.

The Traffic and Transport Impact Assessment concludes that the Proposed Development will give rise to temporary increases in construction traffic, including HGV movements, over a defined construction period. These effects are assessed as slight and temporary in nature, with no permanent changes required to the public road network and no significant residual impacts anticipated.

The assessment on Land, Soils And Geology concludes that, with appropriate mitigation measures in place, the Proposed Development will not result in any likely significant effects on identified receptors. Similarly, the Hydrology and Hydrogeology assessment, informed by its accompanying detailed Flood Risk Assessment, concludes that potential impacts on surface water bodies, groundwater resources and private wells can be effectively mitigated. Drainage and attenuation measures will reduce the potential for downstream flooding, resulting in a residual beneficial effect in flood risk terms.

The Landscape and Visual Impact Assessment concludes that the Proposed Development will not give rise to significant residual effects, with landscape effects not exceeding moderate significance and the majority of visual effects assessed as moderate-slight or lower.

The Glint and Glare assessment confirms that no significant nuisance or hazard effects are predicted for residential or road receptors, with any potential effects limited, intermittent and well below thresholds of concern.

The Cultural Heritage and Archaeology assessment confirms that there will be no direct impacts on world heritage sites, national monuments, architectural conservation areas, protected structures or recorded archaeological sites. Potential impacts on currently unknown buried archaeology will be managed through a programme of archaeological monitoring during construction and, where necessary, further targeted investigation in consultation with Cork County Council and the National Monuments Service, by way of pre-construction planning compliance. Any indirect effects on the setting of nearby heritage assets are assessed as at worst slight adverse and capable of mitigation, and all effects would be reversible on decommissioning.

Noise and vibration assessments conclude that, with mitigation measures implemented, no significant residual impacts are predicted during construction, operation or decommissioning. Operational noise levels are predicted to remain below relevant guideline thresholds.

EMF and EMC assessments confirm that emissions associated with the Proposed Development will be well below relevant safety limits, with no sensitive receptors affected and no mitigation required.

The Proposed Development will contribute to Ireland's indigenous renewable energy generation, exporting enough energy to power over 80,000 houses. In the context of the ongoing climate emergency, this is an urgent Irish national priority that must be given significant weight based on national and international policies. This is especially the case in the context of Renewable Energy Directive III (RED III) which has introduced measures to speed up and simplify renewable energy infrastructure permitting procedures in order to combat climate change. RED III has introduced new legally binding targets for the EU to achieve at least 42.5% renewable energy consumption by 2030.

The development process adopted by the Applicant has represented a best practice approach to a renewable energy scheme design, minimising the potential impact on the receiving environment through multiple design iterations.

The proposed layout represents the optimum fit with the technical and environmental parameters of this project and this site. Furthermore, the embedded mitigation, mitigation by avoidance and reduction and compensation through management and restoration of degraded habitats as outlined in the PER, CEMP and BEMP are considered to adequately mitigate the predicted environmental effects.

Having regard to the scale and nature of the Proposed Development, the relevant provisions of the Cork County Development Plan, and the comprehensive suite of mitigation and enhancement measures proposed, it is concluded that the Proposed Development is generally consistent with the principles of proper planning and sustainable development. Subject to the Planning Authority's assessment and consideration of all material planning considerations, the Proposed Development is considered capable of being accommodated within the receiving environment and of delivering net positive environmental effects over its operational lifetime.