



Natura Impact Statement

Harristown Solar Farm

14/02/2020



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Contents

1. Executive Summary	5
2. Introduction	6
Consultation	11
3. Legislation	11
4. Assessment Methodology	14
Stages of Appropriate Assessment	14
Study Zone Identification	14
5. Baseline	17
6. Impact Assessment.....	20
Assessment of Impacts	21
7. Consideration of cumulative impacts	34
8. Mitigation Measures	35
9. Conclusion	38
Appendices.....	41

1. EXECUTIVE SUMMARY

- 1.1. This Stage 2 Appropriate Assessment: Natura Impact Statement (NIS) has been produced in response to item 1 of a Request for further information (RFI) from Meath County Council for the planning application for a solar farm at Castlejordan, Harristown and Clongall, Co. Meath (**Planning Reference: TA/181225**). An Environmental Impact Assessment Report (EIAR) was also requested (Item 2) and this NIS is produced to accompany the EIAR. It is referenced where relevant within the EIAR chapters.
- 1.2. The NIS assesses the impact of the proposal on the integrity of Natura 2000 sites within 15km of the Application Site, considering the conservation objectives of the designated sites and their ecological structure and function.
- 1.3. Within the 15km zone of influence surrounding the Application Site there are three Special Areas of Conservation (SACs) consisting of Mount Hevey Bog SAC, River Boyne and River Blackwater SAC and the long Derries, Edenderry SAC. There is only one Special Protection Area (SPA) within the study zone; the River Boyne and River Blackwater SPA.
- 1.4. Of the four Natura 2000 sites it was found that connectivity exists between the Application Site and the River Boyne and River Blackwater SAC and SPA, providing a pathway for potential impacts. The main qualifying features of the River Boyne and River Blackwater SAC and SPA have been outlined and assessed in full in this report.
- 1.5. With the implementation of best practice construction methods and proposed mitigation measures as detailed in the Outline Construction Management Plan (OCEMP) (see **Technical Appendix 6.3 in Volume 3 of the EIAR, Item 2 of RFI Response Planning Reference: TA/181225**) and the adopted design principals outlined in this NIS, it can be concluded that there will be **no significant effects** on the integrity of the River Boyne and River Blackwater SAC and SPA. However, precautionary measures have been proposed to further reduce any potential impacts arising from the Proposed Development.
- 1.6. It has been concluded that as there is no connectivity with the other two Natura 2000 designated sites that they **will not be impacted**.
- 1.7. It is therefore considered that the next stage of the Appropriate Assessments is not required as the development will **not result in any adverse effects** on the integrity for any Natura 2000 site.

2. INTRODUCTION

Background

- 2.1. Neo Environmental Ltd has been appointed by Lightsource Renewable Energy Ireland Ltd (the “Applicant”) to undertake a Natura Impact Statement (NIS) for a proposed solar farm (the “Proposed Development”) on lands at Castlejordan, Harristown and Clongall Co. Meath (the “Application Site”).
- 2.2. This NIS has been produced as part of a Request for Further Information (RFI) by Meath County Council dated 10/12/18 (**Planning Reference TA/181225**). An Environmental Impact Assessment Report (EIAR) was also requested and this NIS forms part of the EIAR submission.
- 2.3. An Environmental Impact Assessment (EIA) Biodiversity Chapter (**Chapter 5 of Volume 2 of the EIAR**)¹ and Biodiversity Management Plan (**Technical Appendix 5.2; Volume 3 of the EIAR**)² have also been undertaken for the Proposed Development and should be read in conjunction with this assessment.

Development Description

- 2.1. The proposed solar farm development will consist of the construction of PV panels mounted on metal frames, new access tracks, underground cabling, perimeter fencing with CCTV cameras and access gates, a temporary construction compound, battery storage and all ancillary grid infrastructure and associated works.
- 2.2. A substation will need to be constructed, which will form part of a separate Strategic Infrastructure Development (SID) application to An Bord Pleanála. However, an assessment of this has been included within the main sections of this report.
- 2.3. Additionally, a fibre wrap (fibre optic cable) will be required for the development but will not form part of either the SID or solar farm planning application. However, it is assessed as part of this NIS for completeness.
- 2.4. Please see **Appendix A: Figure 1** for the Proposed Development layout.
- 2.5. The development footprint will only be circa 4.47% of the total Application Site (piling constitutes circa 0.04% of this) and the infrastructure required is outlined below:

¹ Thompson, D. (2019). Volume 2 Environmental Impact Assessment Report (Chapter 5 Biodiversity): Harristown Solar Farm. Neo Environmental

² Thompson, D. (2019). Volume 3 Biodiversity Management Plan (Technical Appendix 5.1). Harristown Solar Farm. Neo Environmental

- Solar panels will be attached four deep onto open metal frames and are known as 'solar arrays'. These arrays will be tilted to a 20 ° slope, with the panels set off the ground by 1.0m and extending to between 2.406m and 2.769m in height above the ground;
- The 14 AC box, transformer and Switchgear substation units are distributed amongst the panels in the fields and next to the access tracks. The transformer structure measures 4.48m (L) x 3.2m (H) x 5.480m (W) and the Switchgear substation measures 4.20m (L) x 3.150m (H) x 2.60m (W), with an antenna extending 1.5m above the roof.
- A cluster of supporting buildings and structures can be found within Field 15. The various buildings and structures include: client-side substation, monitoring house, storage container and a toilet facility which comprises a foul holding tank to be emptied periodically. These will be finished in colour RAL 6005 Moss Green.
- The full details of these individual buildings can be found in the Chapter 1 of the EIAR.
- All structures will be secured along the outer boundaries by timber posts and deer fencing of 2m high and small infra-red security camera on poles up to 2.4m high facing into the site.
- No lighting will be provided through the proposed solar farm, except for the lighting within the 110kv substation compound which will only be turned on when required for servicing.
- The elements of the proposed 110kv substation within Field 15 will include: transformer, client-side substation, EirGrid building, the various electricity infrastructure structures, lighting posts, lightning masts and electricity masts. These will be secured within the compound by a palisade security fence line. The final details of the substation will be provided as part of a separate planning application.
- A fibre optic cable will be wrapped along the existing 110kV overhead line running from the solar farm project at Harristown for circa 5.285km in a northwest direction to the Kinnegad 110kV electrical substation.
- Fibre wrap provides a retro-fit solution for installing a fibre optic cable on overhead power lines. The cable is small and imposes minimal additional load on the overhead line conductors, poles and towers. The installation technique means that the fibre wrap can be deployed quickly and cost effectively, increasing network fibre capacity with minimum disruption to electricity supply services. There will be no additional

disturbance or footprint from this element of the project than currently exists from the overhead line.

Adopted Design Principles

- 2.6. Where possible, measures have been implemented as part of the iterative design process to prevent the various phases of the Proposed Development affecting sensitive ecological features.
- 2.7. Measures incorporated into the Proposed Development design include the following:
- A 6m buffer from the OPW water course within the Application Site
 - A 2m buffer from all ditches
 - A 5m buffer from hedgerows.
 - 30m buffer from a badger sett
 - One permanent swale of approximately 65m to be located in Field 15 adjacent to the battery storage containers
 - Use of silt traps and a swale positioned within the southeast corner of **Field 15**.

Site Description & Receiving Environment

- 2.8. The area containing all elements of the Proposed Development (the “Application Site”), consists of 21 fields (including field 15 with the SID substation) currently used as pasture and covers a total area of 91.44 ha. The site lies at an elevation range of 66m— 71m AOD and is centred at approximate Irish Grid Reference (IGR) E260861 N238688. The River Boyne flows 0.19km to the east and 0.62km to the south of the site, forming the county border of Kildare and Offaly, respectively. Access will be via a pre-existing track which runs north to south through the site and connects to the L4091 north of the Application Site. The nearest settlement is the village of Castlejordan, which is located approximately 650m to the northwest of the site.
- 2.9. Please see **Figure 2 in Appendix A** for a map with the annotated field numbers.

Local Habitat

- 2.10. An extended phase 1 habitat survey was undertaken on the 19th and 20th June 2019 by Eilish Smyth which identified seven habitat types within the ESA, each of these are outlined below along with other relevant target notes. See **Figure 3 Appendix A** for the phase 1 habitat classification map.

2.11. Habitats present within the survey area include:

- Improved grassland (GA1)
- Arable Crops (BC1)
- Buildings and artificial surfaces (BL3)
- Treelines (WL2)
- Hedgerows (WL1)
- Drainage ditch (FW4)
- Watercourses (FW2)

2.12. Fields consist of improved grassland (GA1) with wide field margins, bordered by treeline and drainage ditch boundaries. Swards comprised of perennial rye-grass (*Lolium perenne*) interspersed with Yorkshire fog (*Holcus lanatus*), meadow buttercup (*Ranunculus acris*), dandelion (*Taraxacum officinale*), cuckooflower (*Cardamine pratensis*), broad-leaved dock (*Rumex obtusifolius*), nettle (*Urtica dioica*), field gentian (*Gentianella campestris*) and red clover (*Trifolium pratense*). Sward height varied throughout fields, with some fields cut short for silage and others varying tussock heights.

2.13. Treelines (WL2) within the Application Site were mature with good bat roost and bird nesting potential. Species-rich treelines included; hawthorn (*Crataegus monogyna*), ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), oak (*Quercus robur*), willow species (*Salix* spp.), rowan (*Sorbus aucuparia*), scots pine (*Pinus sylvestris*) and downy birch (*Betula pubescens*). Treelines have a densely vegetated and scrubbed over understory (WS1) comprising of bramble (*Rubus fruticosus*), cleavers (*Galium aparine*), nettle (*Urtica dioica*), herb Robert (*Geranium robertianum*), and rosebay willowherb (*Chamaenerion angustifolium*).

2.14. Small sections of hedgerow (WL1) exist throughout the site as field boundaries, although mature treeline and scrub make up the majority of field boundaries. Hedgerows are dominated by hawthorn and interspersed with mature trees. Patches of holly (*Ilex aquifolium*), dog rose (*Rosa canina*) and bramble (*Rubus fruticosus*) are scattered throughout the hedgerows as well as species such as bush vetch (*Vicia sepium*) and herb Robert (*Geranium robertianum*).

2.15. Drainage ditches (FW4) mark the majority of field boundaries within the site and are bordered by treelines or hedgerows. The water levels within the ditches vary from dry to flowing water, with some holding stagnant water. The majority of drainage ditches are heavily vegetated with common hogweed (*Heracleum sphondylium*), bramble (*Rubus fruticosus*) and nettle (*Urtica dioica*). Drainage ditches within the ESA flow into two streams, Castlejordan and Rahin, which flow west to east and drain into the River Boyne, which lies outside the ESA.

- 2.16. An access track (BL3) runs north to southwest through the Application Site providing access to fields on the western side of the site. Field boundaries along the access track consist of electric fence. Species typical of disturbed ground grow along the access track, such as hedge mustard (*Sisymbrium officinale*), pineappleweed (*Matricaria discoidea*), horsetail (*Equisetum arvense*) and ragwort (*Jacobaea vulgaris*). Within **Fields 21 and 22** there is a hard-standing area (BL3) and cattle crush which functions as a storage platform for silage bales.
- 2.17. No rare, notable or invasive floral species were identified during the extended phase 1 habitat survey.

Statement of Authority

- 2.18. The assessment has been conducted by ecologists registered with the Chartered Institute of Ecology and Environmental Management (CIEEM). All work has been carried out in line with the relevant professional guidance; CIEEM's Guidelines for Report Writing³ and the Environment, Heritage and Local Government's Guidance on Appropriate Assessments⁴.
- 2.19. Dawn Thompson is an experienced ecologist with twelve years of experience in ecological surveys and assessments. Dawn is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), and the Association of Environmental & Ecological Clerks of Works (AEECoW). She has experience in undertaking and managing a range of surveys and assessments including Ecological Impacts Assessments, Natura Impact Assessments / Appropriate Assessments, extended phase 1 habitat surveys, as well as ornithological, and protected species surveys, for over 300 projects. These numerous projects include a variety of development types such as energy, residential, utilities, roads and flood prevention schemes.
- 2.20. Eilish Smyth has over two years' experience in the ecology and nature conservation sector and has assisted in writing management plans for designated sites and site-specific remedial management plans. Eilish has undertaken protected species surveys and habitat assessment surveys and is working towards her bat license.

³ CIEEM, 2017. Guidelines for Report Writing. Available at www.cieem.net

⁴ Environment, Heritage and Local Government, 2009. Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities. Available at www.npws.ie

CONSULTATION

- 2.21. Please see **Table 2-1** below, which details all consultee responses received relevant to Biodiversity.

Table 2-1: Consultation

Consultee & Date	Summary of Response	Addressed within EIAR
RFI Meeting Meath County Council 10.12.2018	The Planning Authority requested a Stage 2 Natura Impact Statement (NIS).	Please see Item 1 of RFI response Planning Reference: Planning Reference TA181225). Volume 1: Natura Impact Statement.

3. LEGISLATION

Requirement for Appropriate Assessment

- 3.1. The requirement for Appropriate Assessment (AA) of plans or projects originates from Article 6 (3) and (4) of European Union (EU) Habitats Directive. This is implemented in Ireland through the European Communities (Natural Habitats) Regulations of 1997, and the European Communities (Birds and Natural Habitats) Regulations 2011 – 2015 (as amended) and in particular, in relation to the planning consent process, in Part XAB of the Planning and Development Act 2000 – 2015 (as amended) (the Planning and Development Act) where Section 177U sets out the requirements for Screening for AA.
- 3.2. This Natura Impact Statement has been prepared in accordance with the above and the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (European Commission 2002), the European Commission Guidance Managing Natura 2000 Sites (European Commission 2000) and with reference to the Department of the Environment and Heritage and Local Government guidance on Appropriate Assessment of plans and projects in Ireland (DEHLG 2009) and Natura 2000 (European Commission 2010).
- 3.3. The EU Habitats Directive (92/43/EEC) provides the framework for legal protection for habitats and species of European importance. The directive provides the legislative means to establish a network of sites (known as the Natura 2000 network) throughout the EU with the objective of conserving habitats and species deemed to be of International Importance. These

sites include Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive (formally known as the Conservation of Wild Birds Directive 79/409/EEC).

3.4. The wording of Article 6 (3) of the Directive is as follows:

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

3.5. The relevant wording of Section 177U (4) of the Planning and Development Act is as follows:

“The competent authority shall determine that an appropriate assessment of a [...] proposed development [...] is required if it cannot be excluded, on the basis of objective information, that the [...] proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.

3.6. As outlined in the European Commission document ‘Assessment of plans and projects significantly affecting Natura 2000 sites’⁵, any project that is not directly connected with or necessary to the management of a Natura 2000 site, but likely to have a significant effect upon it, either individually or cumulatively will be subject to Appropriate Assessment.

3.7. Where significant effects are uncertain or unknown at the screening stage an AA will be required, due to the need to apply the precautionary principle. Conversely, if a project will have impacts on a site, but these impacts will clearly not affect or undermine those conservation objectives, it is not considered that it will have a significant effect on the site concerned.

3.8. The aim of Stage 2 of the Appropriate Assessment is to assess the impact of the Proposed Development on the integrity of the Natura 2000 site, considering the conservation objectives of the site and its ecological structure and function. This is done by considering the type of development and the conservation objectives of any Natura 2000 sites which may be impacted.

3.9. As part of the assessment consideration is afforded to ‘in combination’ effects with other plans or projects on the integrity of Natura 2000 sites. Where adverse impacts are identified, mitigation measures can be proposed that would avoid reduce or remedy any such negative

⁵ European Commission (2001) *Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats directive 92/43/EEC*. Available at: http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf

impacts and the plan or project should then be amended accordingly, thereby avoiding the need to proceed to Stage 3 'Alternative Solutions'.

- 3.10. If the assessment cannot exclude adverse effects through mitigation, then the process must proceed to Stage 3.
- 3.11. The following legislation were used to inform the Article 6 assessments within this report:
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, 1992⁶;
 - Council Directive 2009/147/EC on the conservation of wild birds, 2009⁷;
 - The Planning and Development Acts 2000 (as amended)⁸.
 - NPWS, The Status of EU Protected Habitats and Species in Ireland. Habitat Assessments, Unpublished Report, 2013⁹.

Guidance

The following guidance has been compiled and reviewed to inform the Article 6 assessments within this report:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities, 2009 (as amended)¹⁰;
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10¹¹ & PSSP 2/10, 2008¹²;
- Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, 2001¹³;
- CIEEM, Guidelines for Ecological Report Writing, 2017¹⁴.

⁶ Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043>

⁷ Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147>

⁸ Available at: <http://www.irishstatutebook.ie/eli/2017/act/20/enacted/en/html>

⁹ Available at: https://www.npws.ie/sites/default/files/publications/pdf/Article_17_Print_Vol_3_report_species_v1_1_0.pdf

¹⁰ Available at: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

¹¹ Available at: <https://www.npws.ie/sites/default/files/general/Circular%20NPW1-10%20%26%20PSSP2-10%20Final.pdf>

¹² Available at: <https://www.npws.ie/sites/default/files/general/circular-npws-02-08.pdf>

¹³ Available at: http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf

¹⁴ CIEEM (2017) Guidelines for Ecological Report Writing

4. ASSESSMENT METHODOLOGY

STAGES OF APPROPRIATE ASSESSMENT

4.1. The Appropriate Assessment process comprises of four stages in order to identify whether proposals have the potential to significantly impact upon Natura 2000 designations. The stages are as follows:

- **Stage 1 Screening:** To determine the likelihood of significant impacts.
- **Stage 2 Natura Impact Statement:** To assess the impact of proposals on the integrity of the Natura 2000 site, considering the conservation objectives of the site and its ecological structure and function.
- **Stage 3 Assessment of alternatives:** Where significant impacts are anticipated despite mitigation measures, the proposal should progress to Stage 3 or no longer proceed.
- **Stage 4 Assessment where no alternative exists and where adverse impacts remain:** The final stage involves examining whether there are imperative reasons of overriding public interest for allowing the proposal to adversely impact upon a Natura 2000 site.

STUDY ZONE IDENTIFICATION

4.2. The 'Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities'¹⁵ states that the NIS should include the following:

- *“Any Natura 2000 sites within or adjacent to the plan or project area.*
- *Any Natura 2000 sites within the likely zone of impact of the plan or project.*
- *A distance of 15km is currently recommended in the case of plans, and derives from UK guidance (Scott Wilson et. al., 2006). For projects, the distance could be much less than 15km, and in some cases less than 100m, but this must be evaluated on a case-by-case*

¹⁵ Department for Environment, Heritage and Local Government (2009) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Available at: http://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects.

- *Natura 2000 sites that are more than 15km from the plan or project area depending on the likely impacts of the plan or project, and the sensitivities of the ecological receptors, bearing in mind the precautionary principle. In the case of sites with water dependent habitats or species, and a plan or project that could affect water quality or quantity, for example, it may be necessary to consider the full extent of the upstream and/or downstream catchment.*
- *Identify the conservation objectives of the Natura 2000 site and to identify those aspects of the plan or project (alone and in combination with other plans or projects) that will affect those objectives.*
- *The types of impact be identified, e.g. direct and indirect effects; short- and long-term effects; construction, operational and decommissioning effects.*
- *Assess whether there will be adverse effects on the integrity of the site as defined by the conservation objectives and status of the site.*

4.3. Provide mitigation measures that are;

- *Aimed at minimising, cancelling out or ideally avoiding the negative impact of a plan or project before, during or after its completion or implementation. Mitigation measures may be an integral part of the specifications of a plan or project, or an add-on.”*

4.4. It is considered that the Zone of Influence (ZOI) for the Natura 2000 designated sites and their qualifying features will fall within a 15km radius of developments.

Desk Study

4.5. Sources of material that were consulted as part of the desk study for the purposes of the assessment are as follows:

- National Parks & Wildlife Service (NPWS) natural heritage database for Natura 2000 sites within the 15km Zone of Influence (ZOI) of the Application Site¹⁶;
- NPWS site synopses, Natura 2000 Data Form and conservation objectives relating to each site and aerial images;

¹⁶ Environment, Heritage and Local Government (2009) Appropriate Assessment of Plan and Projects in Ireland. Available at: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

- Environmental Protection Agency (EPA) interactive maps¹⁷.

Impact Assessment Process

4.6. The assessment process involves:

- Identifying and characterising Natura 2000 sites identified within the 15km zone of influence surrounding the Application Site and their qualifying features and addressing whether any of these designated sites have any connectivity with the Proposed Development. If any site is found to have no connectivity then these designated sites will be 'scoped out' or not considered further;
- Assess whether there will be any adverse effects on the integrity of the Natura 2000 site, based on the conservation objectives and status of the site qualifying features, in regard to changes that result from the construction, operation and decommissioning phases of a project. Qualifying features of a Natura 2000 site that lie outside of the ZOI and not subject to any impacts from the Proposed Development then these will be 'scoped out' or not considered further;
- Identify any adverse effects on the integrity of the Natura 2000 site from the development and 'in combination' with any other development within 5km;
- Incorporating measures to avoid and mitigate negative impacts and effects on the conservation objectives;
- Identify the need for the Appropriate Assessment process to move to Stage 3: 'Alternative Solutions', or if mitigation measures provided enables the risk of impacts from the development to be fully avoided, then the development may proceed.

¹⁷ Available at: <https://gis.epa.ie/EPAMaps/>

5. BASELINE

- 5.1. In accordance with National Parks & Wildlife Service (NPWS) guidance¹⁸, all Natura 2000 sites located within 15km of the Application Site at Harristown (**Figure 4**) have been identified. NPWS site synopses, Natura 2000 Data Form and conservation objectives relating to each site as well as aerial images and Environmental Protection Agency (EPA) interactive maps¹⁹ were reviewed. The potential impacts associated with the Proposed Development have been identified and assessed to determine if there is potential for the Proposed Development to affect the integrity of a Natura 2000 designated site. This has been done by considering the conservation objectives of Natura 2000 sites and their ecological structure and function. Those Natura 2000 sites which will not be significantly impacted upon (due to lack of connectivity) will be ruled out of any further assessment.
- 5.2. These impacts can depend more on the nature of impacts, sensitivity of receptors and causal linkage, rather than actual distances. The assessment below considers connectivity, either ecological or hydrological, that may exist between the Proposed Development and the designated sites.

Identification of Natura 2000 Sites

- 5.3. There are three Special Areas of Conservation (SACs) and one Special Protection Area (SPA) located within 15km of the Application Site. The designated features of each have been outlined within **Table 5-1** below. **Figure 4** of this report details the location of these sites in relation to the Proposed Development.

¹⁸ Environment, Heritage and Local Government (2009) Appropriate Assessment of Plan and Projects in Ireland. Available at: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf

¹⁹ Available at: <https://gis.epa.ie/EPAMaps/>

Table 5-1: Natura 2000 sites within 15km

	Site Name	Qualifying Features	Distance (km)	Direction	Potential Connectivity with Application Site
SAC					
002342	Mount Hevey Bog SAC	<ul style="list-style-type: none"> Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150] 	7.8	North	None
002299	River Boyne And River Blackwater SAC	<ul style="list-style-type: none"> Alkaline fens [7230] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] River Lamprey (<i>Lampetra fluviatilis</i>) [1099] Atlantic Salmon (<i>Salmo salar</i>) [1106] Otter (<i>Lutra lutra</i>) [1355] 	9.8	Northeast	Hydrological
000925	The Long Derries, Edenderry SAC	<ul style="list-style-type: none"> Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] 	10.1	Southeast	None
SPA					
004232	River Boyne And River Blackwater SPA	<ul style="list-style-type: none"> Kingfisher (<i>Alcedo atthis</i>) [A229] 	9.8	Northeast	Hydrological

- 5.4. As shown in **Table 5-1**, the Application Site is not located within or directly adjacent to any Natura 2000 site. The Application Site has hydrological connections with the River Boyne and River Blackwater SAC and SPA, which are the only Natura 2000 sites with connectivity to the Proposed Development and associated Substation which will form part of a separate SID Application.

6. IMPACT ASSESSMENT

6.1. Standard best practice pollution prevention measures will be adhered, which will reduce the potential for impacts on ecology during the construction stage. As these are standard requirements, they are separate to mitigation measures which are outlined later in this report. An Outline Construction Environmental Management Plan (OCEMP) has been produced, incorporating these measures as a minimum (Please see **Technical Appendix 6.3 in Volume 3 of the EIAR; Item 2 of RFI Response Planning Reference: TA/181225**) and should be read in conjunction with this report.

6.2. Relevant measures include but are not limited to:

Pollution Prevention

- Hydrocarbons, greases and hydraulic fluids will be stored in a secure compound area;
- All plant machinery will be properly serviced and maintained thereby reducing risk of spillage or leakage;
- All waste produced from construction will be collected in skips with the construction site kept tidy at all times;
- Excavated soil will be stored on site or removed by a licensed waste disposal unit;
- All materials and substances used for construction will be stored in a secure compound and all chemicals to be stored in secure containers to avoid potential contamination.
- Location of spill kit to be known by all construction workers and implemented in the event of spillage or leakage.
- Permanent swale to be implemented in the southeast corner of **Field 15**.
- Ecological Clerks of Works (ECoW) to be appointed prior to works commencing. ECoW to monitor compliance with these measures throughout the construction phase, and recommend alterations or additional measures where necessary, in the event of proposed measures failing to prevent pollution entering the aquatic system.

Waste management

- Skips are to be used for site waste/debris at all times and collected regularly or when full;

- All hydrocarbons and fluids are to be collected in leak-proof containers and removed from site for disposal or recycling;
- All waste from construction is to be stored within the site confines and removed to a permitted waste facility.

Environmental monitoring

- Contractor to nominate member of staff as the environmental officer with the responsibility to ensure best practice measures are implemented and adhered to, with any incidents or non-compliance issues being reported to project team.
- 6.3. The implementation of these measures can be secured by a suitably worded condition attached to the Planning Consent for the Proposed Development, requiring a Construction Environmental Management Plan (CEMP), which will be based on the OCEMP (**Technical Appendix 6.3 in Volume 3 of the EIAR Item 2 of RFI Response Planning Reference: TA/181225**). The CEMP will be produced and agreed with Meath County Council prior to works commencing, with measures implemented prior to and/or throughout the construction phase as appropriate.
- 6.4. To ensure the measures are implemented correctly, and monitored throughout the construction phase, a suitably qualified and experienced Ecological Clerks of Works (ECoW) will be appointed prior to works commencing. The ECoW will monitor compliance with the CEMP and advise changes in measures or working practices as appropriate. This measure can also be secured by a suitably worded condition attached to the Planning Consent for the Proposed Development.

ASSESSMENT OF IMPACTS

- 6.5. This section discusses and evaluates the likely impacts of the Proposed Development affecting the Natura 2000 sites which are within the 15km Zone of Influence (ZOI) of the Proposed Development (i.e. there is some ecological or hydrological connection between the Proposed Development and the Natura 2000 site). As outlined above, the River Boyne and River Blackwater SPA and SAC are the only Natura 2000 sites that have a potential hydrological connectivity with the Proposed Development.
- 6.6. Therefore, an assessment of the likely impacts affecting the River Boyne and River Blackwater SPA and SAC are discussed below. The other Natura 2000 sites within the study area have not been considered further due to their lack of connectivity.
- 6.7. Potential impacts for ecological features associated with a Natura 2000 designated site from the construction, operation and decommissioning of a solar farm may occur from the

contamination of surface and/or ground waters. Those features (species) which are ecologically connected to a development site, and are mobile, may be impacted upon through disturbance as well as loss of habitat through contamination of surface waters.

6.8. Aquatic systems and the species/habitats which are dependent on these systems are sensitive to pollution/contamination of surface waters. Pollution can result from any of the following entering a body of surface or groundwater:

- Poisonous, noxious or polluting matter;
- Waste matter (including silt, cement, concrete, oil, petroleum spirit, chemicals, solvents, sewage and other polluting matter);
- Other harmful activities detrimentally affecting the status of a waterbody.

6.9. The status of a waterbody can be affected not only by chemical pollution, but also by activities directly or indirectly affecting ecology, including changes in physico-chemical parameters such as temperature and turbidity or physical modification to the hydrology of a waterbody.

6.10. **Table 6-1** below details common water pollutants and their effect on the aquatic environment (Table extracted from Ciria guidance²⁰).

Table 6-1: Common water pollutants and their effects on the aquatic environment

Common Water Pollutants	Adverse effect on aquatic environment
Silt	Reduces water quality, clogs fish gills, covers aquatic plants, impacts aquatic invertebrates, leads to a reduction in prey for species including otter and fish species, and leads to degradation of habitat
Bentonite (very fine silt)	Reduces water quality, clogs fish gills, covers aquatic plants, impacts aquatic invertebrates, leads to a reduction in prey for species including otter and fish species, and leads to degradation of habitat
Cement or concrete wash water (highly alkaline)	Changes the chemical balance, is toxic to fish and other wildlife. This can lead to direct impacts for aquatic species (including otter), or indirect through loss of prey resources

²⁰ Ciria (2015) Environmental good practice on site guide, fourth edition

Detergent	Removed dissolved oxygen, can be toxic to fish and other wildlife present within the aquatic environment
Hydrocarbons (e.g. oil, diesel)	Suffocates aquatic life, damaging to the wildlife (e.g. birds), and to water supplies including industrial abstractions
Sewage	Reduces water quality, is toxic to aquatic wildlife including otter, and damages water supplies

The River Boyne and River Blackwater SAC

- 6.11. The River Boyne and River Blackwater SAC is designated for its importance for the following Annex I habitats and Annex II species of the E.U. Habitat Directive, which are detailed within **Table 5-1** above.
- 6.12. As the separation distance between the Application Site and the SAC boundary is approximately 9.80km, it is considered that potential impact pathways are restricted to hydrological pathways (with the exception of otter, which also has ecological connectivity due to the mobility of this species).

Scoped-out of assessment for the River Boyne and River Blackwater SAC

- 6.13. The following qualifying features have been scoped out of the assessment below due to predicted impacts for these features being **negligible as** they do not fall within the ZOI:
- Alkaline fens [7230]
 - Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]

Scoped-in assessment for the River Boyne and River Blackwater SAC

- 6.14. Due to their known occurrence within and adjacent to the SAC, and/or their mobility to commute through waterways, the following features are considered to fall within the ZOI, and therefore, they have been included within the assessment below:
- River Lamprey (*Lampetra fluviatilis*) [1099]
 - Atlantic Salmon (*Salmo salar*) [1106]
 - Otter (*Lutra lutra*) [1355]

Conservation Objectives for the River Boyne and River Blackwater SAC

- 6.15. The main conservation objectives²¹ of the River Boyne and River Blackwater SAC are to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.
- 6.16. The qualifying features of the River Boyne and River Blackwater SAC for which there is a pathway for impacts on the status of conservation objectives from the proposal are:
- Annex I habitats such as; alkaline fens and alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*).
 - Annex II species such as; river lamprey (*Lampetra fluviatilis*), Atlantic salmon (*Salmo salar*) and otter (*Lutra lutra*).

Character of the Qualifying Interests of the River Boyne and River Blackwater SAC

- 6.17. **Table 6.2** outlines the qualifying interests of the River Boyne and River Blackwater SAC and describes the extent and character of these interests in the context of their national status. The table below identifies the percentage of the extent of various habitat types within the River Boyne and River Blackwater SAC.

Table 6.2: Qualifying Interests of the River Boyne and River Blackwater SAC and their extent and character within the site and within national context.

Code	Qualifying Habitats The River Boyne and River Blackwater SAC	Extent and Character (%)
N10	Humid grassland, Mesophile grassland	10
N12	Extensive cereal cultures (including rotation cultures with regular fallowing)	8
N14	Improved grassland	22
N02	Tidal rivers, estuaries, mud flats, sand flats, lagoons (including saltwork basins)	1
N16	Broad-leaved deciduous woodland	2
N07	Bog, marshes, water fringed vegetation, fens	12
N08	Heath, scrub, maquis and garrigue, phygrana	4

²¹ NPWS (2018) Conservation Objectives for River Boyne and River Blackwater SAC [002299]. Generic version 6.0. Department of Culture, Heritage, Regional and the Gaeltacht.

N23	Other land (including towns, villages, roads, waste places, mines, industrial sites)	1
N12	Extensive cereal cultures (including rotation cultures with regular fallowing)	1
N20	Artificial forest monoculture (e.g. Plantations of poplar or exotic trees)	1
N09	Dry grassland, steppes	1
N19	Mixed woodland	7
N06	Inland water bodies (Standing water, running water)	30

Threats and Pressures on the River Boyne and River Blackwater SAC

6.18. **Table 6.3** lists the threats, pressures and activities impacting the River Boyne and River Blackwater SAC.

Table 6.3: Threats, pressures and activities impacting the River Boyne and River Blackwater SAC.

Code	Threats and Pressures	Rank	+/-	Inside/Outside
J02.11	Siltation rate changes, dumping, depositing of dredged deposits	M	-	I
C01.01	Sand and gravel extraction	M	-	I
A10.01	Removal of hedges and copses of scrub	M	-	I
E02	Industrial and commercial areas	H	-	I
G05.06	Tree surgery felling for public safety, removal of roadside trees	L	-	I
A05.02	Stock feeding	M	-	O
A10.01	Removal of hedges and copses of scrub	M	-	I
E05	Storage of materials	M	-	I

J02.15	Other human induced changes in hydraulic conditions	H	-	I
I01	Invasive non-native species	H	-	I
D01.02	Roads, motorways	M	-	I
G02.10	Other sport/leisure complexes	M	-	I
A01	Cultivation	M	-	I
J02	Human induced changes in hydraulic conditions	M	-	I
B01.02	Artificial planting on open ground (non-native trees)	M	-	I
E03.02	Disposal of industrial waste	M	-	I
A07	Use of biocides, hormones and chemicals	M	-	I
E03.04	Other discharges	H	-	I
H01	Pollution to surface waters (limnic, terrestrial, marine and brackish)	H	-	I
G01	Outdoor sports and leisure activities, recreational activities	L	-	I
E01.04	Other patterns of habitation	M	-	I
D01.05	Bridge, viaduct	L	-	I
G05	Other human intrusions or disturbances	L	-	I
J02.10	Management of aquatic and bank vegetation for drainage purposes	M	-	I
A08	Fertilisation	M	-	I
J02.05.02	Modifying structures of inland water courses	H	+	I

A03	Mowing/cutting grassland	of	M	+	I
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Rank: H = High, M = Medium, L = Low

I = inside, O = outside, B = both

+/- = Positive/Negative Impact

Assessment of Likely Impacts Affecting the River Boyne and River Blackwater SAC

- 6.19. The River Boyne and River Blackwater SAC is located approximately 9.8km north-northwest of the Proposed Development boundary and has been designated for a number of important Annex I habitats and Annex II species (please see **Table 5-1** above). Hydrological connectivity exists between this SAC and the Application Site.
- 6.20. The potential occurrence of contaminants outlined within **Table 6-1** above and their capability of affecting water quality have been considered during the various phases of the Proposed Development.
- 6.21. Measures have been included within the Proposed Development Design to prevent pollution entering the aquatic environment. These are outlined below:
- Silt/Bentonite
 - During the construction and decommissioning phase, ground disturbance is limited to the Application Site boundary. As part of the Proposed Development design, Sustainable Drainage Systems (SuDS) will be implemented (please refer to **Figure 5 Appendix A**) to control surface water movement and prevent silt/bentonite entering the aquatic environment. These have been incorporated into the design of the Proposed Development and are required due to relevant regional drainage policies in light of the objectives of the Water Framework Directive and associated water quality Directives and Regulations.
 - Cement or concrete wash water
 - Best practice pollution prevention measures, as detailed in the OCEMP²² accompanying this report, will be followed during the use of these materials during the construction phase, which will ensure cement/concrete wash water does not enter the aquatic environment.
 - Detergent

²² Thompson, D., and McGhee, M. (2019). Volume 3 of EIAR Technical Appendix 6.3: *Outline Construction Environment Plan. Harristown Solar Farm*. Neo Environmental

- This material will not be used within the Application Site.
- Hydrocarbons (e.g. oil, diesel)
 - During the construction phase, all work will be undertaken following best practice pollution prevention measures, as detailed in the OCEMP, which include suitable storage of oil/fuels and correct refuelling processes. This will prevent hydrocarbons entering the aquatic system.
- Sewage
 - The only potential sewage produced within the Application Site will be from the welfare facilities provided for staff during the construction and operational phase. These facilities shall include an appropriate storage facility for sewage, which shall be collected regularly by a licensed waste contractor. Therefore, sewage will not enter the local environment, including aquatic habitats. There will be foul tank toilets in each of the substation buildings during the operational period which will be emptied annually. Given the low volume of staff on site (visitors and maintenance only) there is no significant risk to river systems.
 - During the operational period, a separate composting toilet will be located in Field 15 for Operations and Maintenance staff, and for tours of the site by community groups, schools or councillors. The toilet is waterless, chemical free and self-composting, made from sustainably logged wood, thus it is compatible with the environmental aims of the development. The toilet uses a dehydration process resulting in an odour free compost which is collected annually for further processing off-site at a licensed facility and therefore no sewage will enter the environment including aquatic habitats. Please see **Figure 6 Appendix A** for details.
 - Each of the potential contaminants outlined in **Table 6-1** above have been considered and assessed for their potential occurrence during the various phases of the Proposed Development. Potential contaminants are capable of undermining water quality and the conservation objectives of each qualifying species and habitats occurring within the ZOI of the Proposed Development. A large swale (see **Figure 5 Appendix A** for SuDS design) of approximately 65m in length and have a total storage volume of approximately 65m³ and will be incorporated during the life of the Proposed Development and maintained by the site owner and/or operator. Additional drainage measures to be implemented on-site will include;

- retention of grass-cover to maximise bio-retention under solar panels;
 - Access tracks are to be constructed from local stone with temporary swales in places to catch runoff and discharged to ground percolation points;
 - Transformer/inverter stations are unlikely to require or warrant a formalised drainage system due to the scale of these types of structure.
- 6.22. The implementation of these measures can be secured by a suitably worded condition attached to the Planning Consent for the Proposed Development, requiring a Construction Environmental Management Plan (CEMP), which will be based on the OCEMP (**Technical Appendix 6.3 in Volume 3 of the EIAR Item 2 of RFI Response Planning Reference: TA/181225**). The CEMP will be produced and agreed by the Local Planning Authority prior to works commencing, with measures implemented prior to and/or throughout the construction phase as appropriate.
- 6.23. To ensure the measures are implemented correctly, and monitored throughout the construction phase, a suitably qualified and experienced Ecological Clerks of Works (ECoW) will be appointed prior to works commencing. The ECoW will monitor compliance with the CEMP and advise changes in measures or working practices as appropriate. This measure can also be secured by a suitably worded condition attached to the Planning Consent for the Proposed Development.

River Lamprey and Atlantic Salmon

- 6.24. River lamprey (*Lampetra fluviatilis*) and Atlantic salmon (*Salmo salar*) are mobile species confined to the aquatic environment. As this species is mobile within the aquatic environment there is potential for this species to occur adjacent to the Application Site. From the data search undertaken as part of the EclA desk study (**Volume 2 Chapter 5: Biodiversity** of the EIAR, Item 2 of **RFI Response Planning Reference TA/181225**), no records of either local river lamprey or Atlantic salmon were identified within or near to the Application Site. However, this is likely due to a lack of recording effort rather than complete absence of the species. These species require good water quality, and are therefore sensitive to pollution from development entering this habitat through contamination of surface waters.
- 6.25. Approximately 0.19km east of the Application Site is the closest section of the River Boyne, which flows in a general northeast direction. The section of river which flows within close proximity to the Application Site is designated as a Salmonid water (European Communities (Quality of Salmonid Waters) regulations, S.I. No 84 of 1988)²³. Therefore, it is likely that salmon will be present within close proximity to the Application Site.

²³ <http://www.irishstatutebook.ie/eli/1988/si/293/made/en/print>

- 6.26. The design of the Proposed Development has incorporated a number of measures to reduce the potential for contaminated waters leaving the Application Site. These measures incorporated into the Proposed Development design include the following:
- A 6m buffer from the water courses within the Application Site
 - A 2m buffer from all ditches
 - A 5m buffer from hedgerows.
 - 30m buffer from a badger sett
 - Use of silt traps and a swale positioned within the southeast corner of **Field 15**.
- 6.27. An Outline Construction Environmental Management Plan (OCEMP) (**EIAR Volume 3, Technical Appendix 6.3 Item 2 of RFI Response Planning Reference: TA/181225**) has been produced detailing measures that will be implemented during the construction phase to reduce potential for contaminated waters from the Application Site entering the aquatic system associated with the SAC.
- 6.28. Due to the separation distance between the Application Site and SAC, the measures adopted in the Proposed Development design and the implementation of the OCEMP, including best practice pollution prevention measures, these species **will not be significantly impacted** by the Proposed Development.

Otter

- 6.29. Otter (*Lutra lutra*) are a highly mobile species and can hold territories between 2km – 20km. It is therefore likely that otter could potentially interact with the Application Site. Potential impacts for otter include the loss of habitat, disturbance, fragmentation of habitat and pollution.
- 6.30. No evidence of otter activity was observed within or directly adjacent to the Application Site during the survey. The main streams that flow through the Application Site connect to the River Boyne and are noted as being suitable for commuting otter.
- 6.31. From the current survey findings, it is considered that it is unlikely that the Proposed Development will lead to direct disturbance of otter. As part of the Proposed Development's design mammal gates will be incorporated into all security fencing to allow for the free movement of otter within the site. As part of best practice all exposed excavations overnight are to be covered and will prevent the accidental trapping of this species. Therefore, there are **no direct significant impacts** predicted for foraging/commuting otter.
- 6.32. There will be limited waste produced during the construction of the Proposed Development. However, site contractor will be responsible for the monitoring and appropriate disposal

of waste from the site. Please see **EIAR Volume 2, Chapter 12: Resources and Waste Management** for further details.

- 6.33. Due to the separation distance and with the implementation of best practice pollution prevention measures (as outline in the construction methods section above and the **Technical Appendix 6.3: Outline Construction Environment Plan in Volume 3 of the EIAR**), it is considered that affects from pollution will be reduced.
- 6.34. Therefore, the Proposed Development will **not significantly affect the integrity** of the River Boyne and River Blackwater SAC or its qualifying features.

The River Boyne and River Blackwater SPA

- 6.35. The River Boyne and River Blackwater SPA is designated for its importance for the following Annex I habitats and Annex II species:
- Kingfisher (*Alcedo atthis*) [A229]

Conservation Objectives for the River Boyne and River Blackwater SPA

- 6.36. To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SPA has been selected. The details of these objectives for the River Boyne and River Blackwater SPA are outlined in the Conservation Objectives (2018) document²⁴.
- 6.37. The conservation status objectives for those habitats within this site which have a pathway for impacts from the proposal, namely the Annex II species Kingfisher (*Alcedo atthis*) [A229].

Character of the Qualifying Interests of The River Boyne and River Blackwater SPA

- 6.38. **Table 6.4** outlines the qualifying interests of The River Boyne and River Blackwater SPA and describes the extent and character of these interests in the context of their national status. The table below identifies the percentage of the extent of various habitat types within the River Boyne and River Blackwater SPA.

Table 6.4: Qualifying Interests of the River Boyne and River Blackwater SPA and their extent and character within the site and within national context.

Code	Qualifying Habitats	Extent and Character
	The River Boyne and River Blackwater SPA	
N15	Other arable land	2

²⁴ NPWS (2018) Conservation Objectives for River Boyne and River Blackwater SPA [004232]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

N23	Other land (including towns, villages, roads, waste places, mines, industrial sites)	6
N12	Extensive cereal cultures (including rotation cultures with regular fallowing)	10
N10	Humid grassland, mesophile grassland	5
N14	Improved grassland	12
N08	Heath, scrub, maquis and garrigue, phygrana	8
N07	Bogs, marshes, water fringed vegetation, fens	5
N06	Inland water bodies (standing water, running water)	50
N09	Dry grassland, steppes.	2

Threats and Pressures on the River Boyne and River Blackwater SPA

6.39. **Table 6.5** lists the threats, pressures and activities impacting the River Boyne and River Blackwater SPA.

Table 6.5: Threats, pressures and activities impacting the River Boyne and River Blackwater SPA.

Code	Threats and Pressures	Rank	+/-	Inside/Outside
E01	Urbanised areas, human habitation	H	-	O
J02	Human induced changes in hydraulic conditions	M	-	I
D01.02	Roads, motorways	H	-	I
E01.03	Dispersed habitation	H	-	O
D01.02	Roads, motorways	H	-	O
X	No threats or pressures	L	+	I

Rank: H = High, M = Medium, L = Low

I = inside, O = outside, B = both

+/- = Positive/Negative Impact

Assessment of Likely Impacts Affecting the River Boyne and River Blackwater SPA

- 6.40. The River Boyne and River Blackwater SPA is located approximately 9.8km northeast of the Proposed Development boundary and has been designated for the Annex II species, Kingfisher [A229].
- 6.41. Although the Application Site is hydrologically connected to the River Boyne and River Blackwater SPA, due to the separation distance, the SPA will not be affected by habitat loss. Therefore, kingfisher will not be directly significantly impacted by the Proposed Development.
- 6.42. However, Kingfisher are sensitive to indirect impacts from pollution as identified from sources in **Table 6.4** above.
- 6.43. Each of the potential contaminants outlined in **Table 6.4** above have been considered and assessed for their potential occurrence during the phases of the Proposed Development. Potential contaminants are capable of undermining water quality and the conservation objectives of each qualifying species and habitats occurring within the ZOI of the Proposed Development.
- 6.44. Due to the separation distance and the implementation of best practice pollution prevention methods (as outline in the construction methods above and the submitted **Technical Appendix 6.3 Outline Construction Environment Plan in Volume 3 of the EIAR**) as a standard procedure during the construction phase of the Proposed Development, there will be **no significant impacts that will affect the integrity** of the River Boyne and River Blackwater SPA or its qualifying features.

Summary of Potential Impacts on Natura Sites within 15km

- 6.45. From the findings of the above assessment it is considered that the Proposed Development **will not significantly affect the integrity** of the Natura 2000 designated sites within the study area.

7. CONSIDERATION OF CUMULATIVE IMPACTS

- 7.1. As well as singular effects, cumulative effects also need to be considered. Article 6 of the EU Habitats Directive and Regulation 15 of the European Communities (Natural Habitats) Regulations state that any plan or project that may, either alone or in combination with other plans or projects, significantly affect a Natura 2000 site, should be the subject of an Appropriate Assessment.
- 7.2. Cumulative impacts can be an issue even when proposals have a small impact on Natura 2000 sites. This is due to the combined impacts resulting in an overall significant effect for the Natura sites.
- 7.3. A search of the Meath County Council online planning portal revealed that currently there are no solar farm development planning applications (granted or being considered) within 5km of the Proposed Development.
- 7.4. The only other relevant development within the same 5km study area includes quarry extraction of aggregates outlined in **Table 7.1** below.

Table 7.1: Developments within 5km of the Proposed Development

Planning Reference & Council Authority	Planning Status	Date Granted	Project
MCC Ref: TA160820	Granted (conditional)	16/03/2017	Extraction of aggregates

- 7.5. Extraction from aggregates from a quarry requires strict measures in place (conditioned as part of the Planning Consent) to discharge water that will not impact upon the quality of the local aquatic environment. Therefore, no pollution or sediments will dissipate from this development into the watercourse.
- 7.6. It has been concluded above, that in the absence of mitigation measures, there will be **no significant cumulative** effects on the Natura 2000 sites or their qualifying features.

8. MITIGATION MEASURES

8.1. The measures (design and mitigation) outlined throughout this report are summarised in **Table 8.1** below. Each of these measures can be secured by suitably worded conditions attached to the Planning Consent.

Table 8.1: Mitigation Measures

Feature	Potential Impact	Survey	Mitigation
Aquatic environment/	Pollution	N/A	<p>Best practice pollution prevention measures implemented prior to and throughout the construction phase to prevent contaminants entering the aquatic environment.</p> <p>These measures have been outlined in the supporting OCEMP.</p> <p>A suitably worded condition will secure these measures, by requesting a Construction Environmental Management Plan (CEMP) based on the OCEMP prior to works commencing.</p> <p>The relevant measures within the CEMP will be implemented prior to, or throughout the construction phase as appropriate.</p>
Otter	Disturbance	N/A	<p>Excavations left exposed overnight the placing of a ramp at a 45-degree angle to allow a means of escape.</p>

			<p>A suitably worded condition will secure this measure, which will be implemented throughout the construction phase.</p>
	Disturbance	N/A	<p>Mammal gates within the security fencing to allow free movement in and out of Application Site.</p> <p>A suitably worded condition will secure this measure, which will be implemented prior to the construction phase.</p>
	Pollution	N/A	<p>Best practice pollution prevention measures implemented prior to and throughout the construction phase to prevent contaminants entering the aquatic environment.</p> <p>These measures have been outlined in the supporting OCEMP.</p> <p>A suitably worded condition will secure these measures, by requesting a Construction Environmental Management Plan (CEMP) based on the OCEMP prior to works commencing.</p> <p>The relevant measures within the CEMP will be implemented prior to, or throughout the construction phase as appropriate.</p>
Kingfisher	Pollution	N/A	<p>Best practice pollution prevention measures implemented prior to and</p>

			<p>throughout the construction phase to prevent contaminants entering the aquatic environment.</p> <p>These measures have been outlined in the supporting OCEMP.</p> <p>A suitably worded condition will secure these measures, by requesting a Construction Environmental Management Plan (CEMP) based on the OCEMP prior to works commencing.</p> <p>The relevant measures within the CEMP will be implemented prior to, or throughout the construction phase as appropriate.</p>
All of the features outlined above	Disturbance/Pollution	N/A	<p>A suitably experienced Ecological Clerks of Works (ECoW) to be appointed by the Applicant prior to works commencing, to monitor compliance with the planning conditions and measures outlined within the relevant documents (EIAR Chapter 5: Biodiversity, NIS, OCEMP) and provide further advice throughout the construction phase as necessary.</p> <p>This can be secured by a suitably worded condition attached to the planning consent.</p>

8.2. By conditioning/appointing an ECoW for the Proposed Development prior to works commencing, the ECoW will monitor compliance with the relevant mitigation and planning conditions. This will also provide an opportunity for implementing further measures if it is deemed that any measure has failed, and ensure that this is reported to the site manager and rectified immediately.

9. CONCLUSION

- 9.1. To minimise potential impacts on Natura 2000 designated sites, ecological measures have been incorporated into the Proposed Development as part of the iterative design process. These include buffers from potentially sensitive ecological receptors (see **Table 9-1** below). Standard best practice pollution prevention measures for the construction stage have also been outlined and considered as part of the impact assessment stage, prior to mitigation. These measures are also outlined within **Table 9-1** below.
- 9.2. Within the 15km zone of influence surrounding the Application Site there are five Special Areas of Conservation (SACs) consisting of the Mount Hevey Bog SAC, the River Boyne and River Blackwater SAC and the Long Derries, Edenderry SAC. Only one Special Protection Area (SPA) was identified which consists of the River Boyne and River Blackwater SPA.
- 9.3. Of the four Natura 2000 sites it was found that hydrological connectivity only exists between the Application Site and the River Boyne and River Blackwater SAC and SPA. The main qualifying features of the River Boyne and River Blackwater SAC and SPA have been outlined and assessed in full within this report. It has been concluded that as there is no connectivity with the two Natura 2000 designated sites that they will **not be impacted**.
- 9.4. As a precaution, mitigation measures have been provided which are outlined in **Table 9-1** of this report. The implementation of these mitigation measures will ensure that any potential impacts to the River Boyne and River Blackwater SAC and SPA during the course of all phases of the Proposed Development are minimised. The EclA baseline found that otters were not present at that point but given that they are a highly mobile species and in the local area with suitable commuting habitat present on site A pre-commencement survey is recommended to assess the baseline prior to development.
- 9.5. It is therefore considered that the next stage of the Appropriate Assessments is not required and that the development will **not result in any adverse effects** on the integrity for any Natura 2000 site.

Table 9-1: Protected and Notable Species Constraints Evaluation

Site/ Species	Potential Development Impacts	Phase of Development	Measures implemented
INTEGRAL DESIGN MEASURES			
Aquatic environment	Pollution	Construction	6m buffer along waterways, and 2m buffer zone along ditches (both sides)

River lamprey and Atlantic salmon	Pollution	Construction	6m buffer along waterways, and 2m buffer zone along ditches (both sides)
Otter	Excluded from foraging habitat	Operational	Security fencing to have mammal gates at base to allow free movement of otter through the site. 6m buffer along waterways, and 2m buffer zone along ditches (both sides)
STANDARD BEST PRACTICE MEASURES			
Aquatic environment	Pollution	Construction	Best practice pollution prevention measures implemented prior to and throughout the construction phase to prevent contaminants entering the aquatic environment. Implementation of OCEMP.
River lamprey and Atlantic salmon	Pollution	Construction	Best practice pollution prevention measures implemented prior to and throughout the construction phase to prevent contaminants entering the aquatic environment. Implementation of OCEMP.
Otter	Accidental trapping with excavations	Construction	All excavations should be securely covered, or a suitable means of escape provided at the end of each working day. Implementation of OCEMP.

Table 9-2: Mitigation Measures

MITIGATION MEASURES			
Otter	Disturbance	Pre-construction	Pre-commencement survey (Measures dependant on survey findings).

All relevant ecological features	Disturbance/Pollution	Pre-commencement	ECoW to be appointed prior to works commencing, to monitor compliance with the relevant measures and working practices.
----------------------------------	-----------------------	------------------	---

9.6. According to NPWS (2009), the Appropriate Assessment Stage 1: Screening Exercise can result in one of three conditions:

- An Appropriate Assessment is not required i.e. where the plan/proposal is associated with the management of the site;
- There is no potential for significant effects i.e. Appropriate Assessment is not required;
- Significant effects are certain, likely or uncertain i.e. the project must either proceed to Stage 2: Appropriate Assessment or be rejected.

9.7. The Application Site does not occur within or adjacent to any Natura 2000 sites with two out of the four Natura 2000 sites with a 15km ZOI identified as having hydrological connectivity with the Proposed Development; the River Boyne and River Blackwater SAC and SPA. Although, these designated sites were identified as having hydrological connectivity, it is concluded that there will be **no significant affects** to the integrity of these Natura 2000 sites. With the implementation of the mitigation measures within the project design and outlined in **Table 9-2** within the mitigation section, will reduce any impacts further.

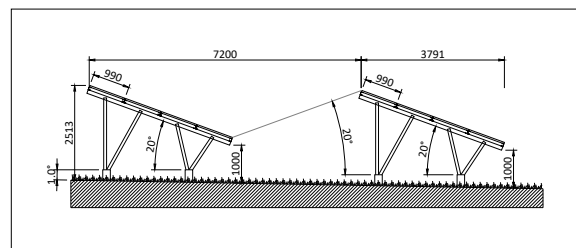
APPENDICES

Appendix A

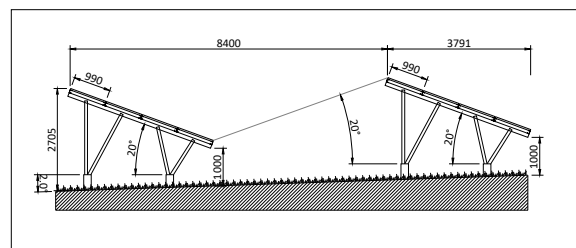
- Figure 1: Proposed Development Layout
- Figure 2: Field Numbers
- Figure 3: Habitat Map
- Figure 4: Natura 2000 Designated Sites
- Figure 5: SuDs Design
- Figure 6: Composting Toilet

Harristown Solar Farm_Indicative_Layout_Rev14

Area 914,412 m2 (225.96 acres)

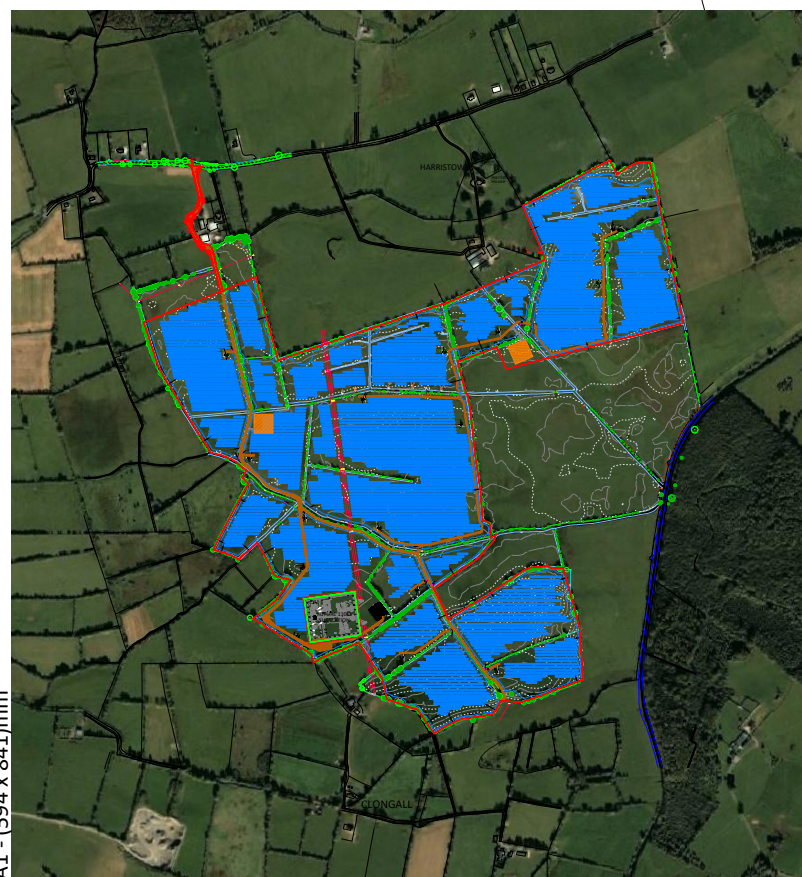


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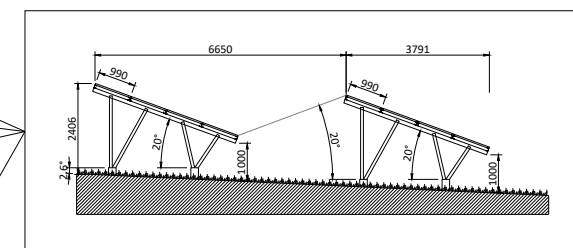
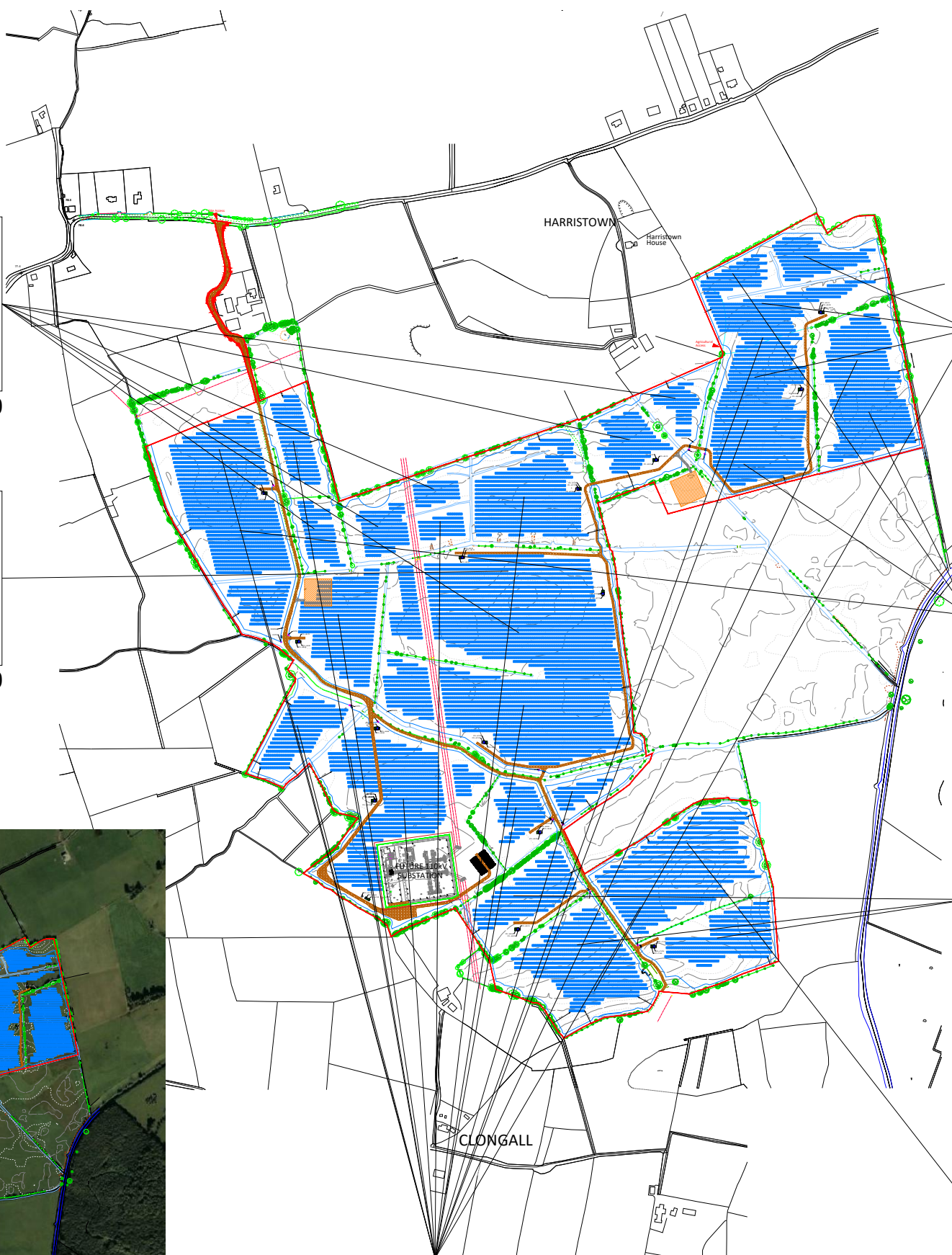


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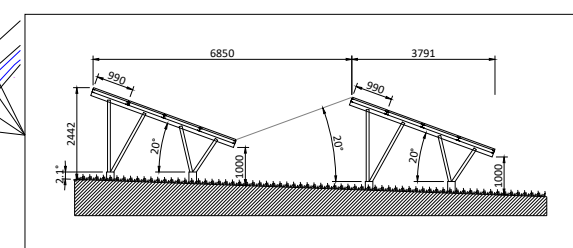
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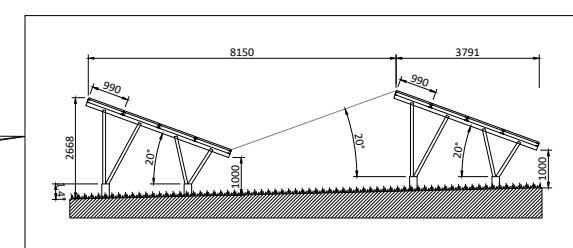
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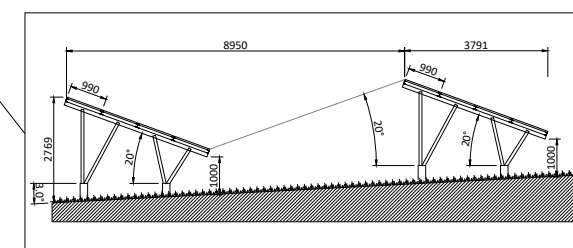
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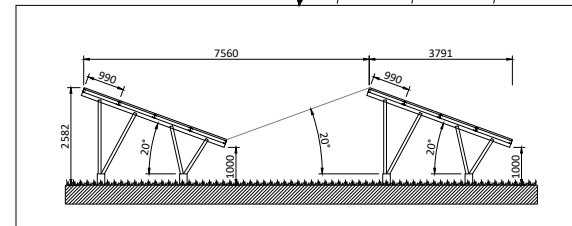
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Scale 1:100



Scale 1:100



Scale 1:100



	Site Boundary
	Site Access
	Security Fence
	Module Table 14 x 4
	Module Table 28 x 4
	Transformer
	AC Box
	Switchgear Substation
	Client Side Substation
	Monitoring House
	Storage
	Access Road
	Compound Area
	Overhead Line
	Tree
	Access Gates
	CCTV
	Temporary Access Road
	Toilet
	Battery Container
	Site Boundary of Future 110kV Substation

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Rev	Date	Comments	DA	Chkd
14	19/08/19	Future 110kV Substation Boundary added	DA	
13	24/07/19	Panels and batteries updated	DA	
12	10/07/19	Buffers added	GM	
11	04/07/19	Configuration changed	DA	
10	26/04/19	Substation location changed	DA	
9	19/12/18	Changed to bifacial	DA	
8	24/10/18	Minor amendments	GM	
7	10/10/18	Minor amendments	DA	
6	25/09/18	Field removed	DA	
5	17/08/18	Field added	DA	
4	31/07/18	Topo added, fields changed	DA	
3	23/05/18	Estimated flood area taken into account	DA	
2	19/04/18	Flood risk area added	DA	
1	11/04/18	Fields added	DA	

DA	CHECKED	APPROVED	DATE
			24.05.17

PROJECT NAME & ADDRESS: Location: Harristown Farm
Co. Meath

NOTES:
- Bifacial 410 Wp modules

Paper Size:	Scale:	Sheet:
A1	1:5000@A1	1

CAPACITY: 133,000 Modules 54.53 MWp


DRAWING TITLE: Harristown Solar Farm_Indicative_Layout_Rev14

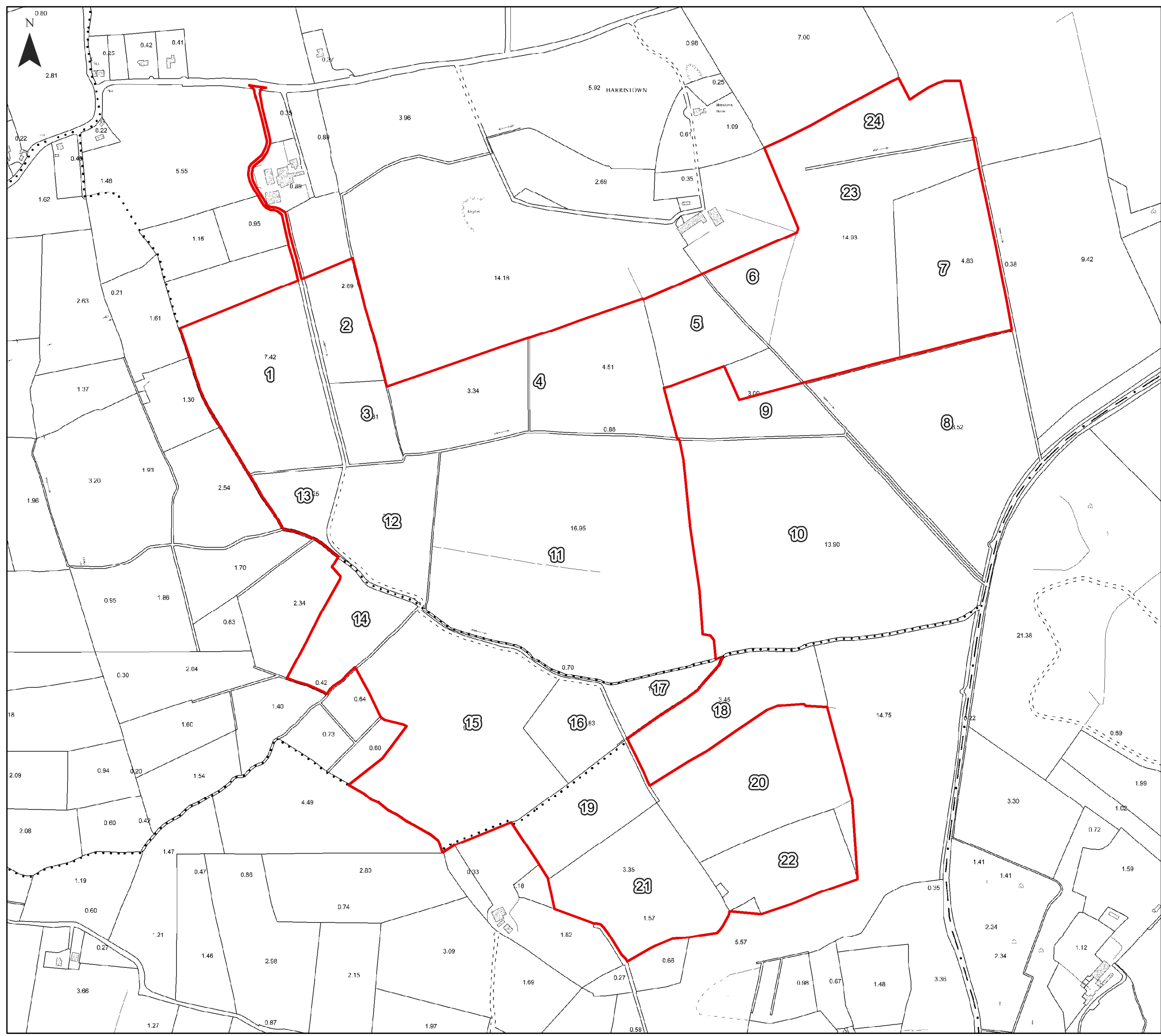
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HTW_01_Rev14	Preliminary

Lightsource Renewable Energy Ireland Limited
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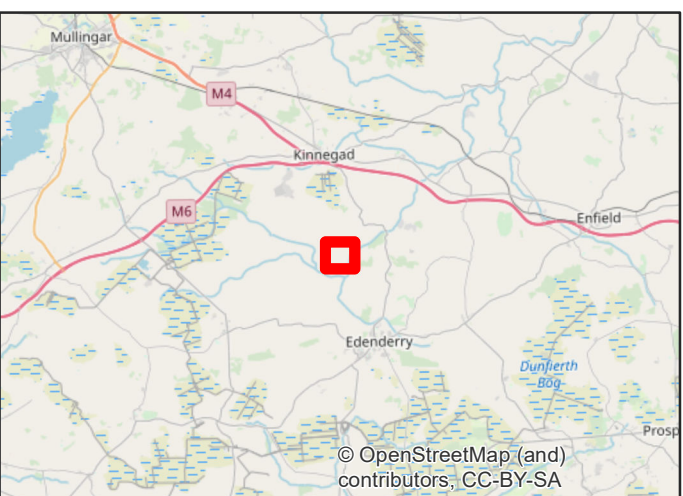
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Harristown Solar Farm Field Numbers Figure 2

Key
 Development Boundary



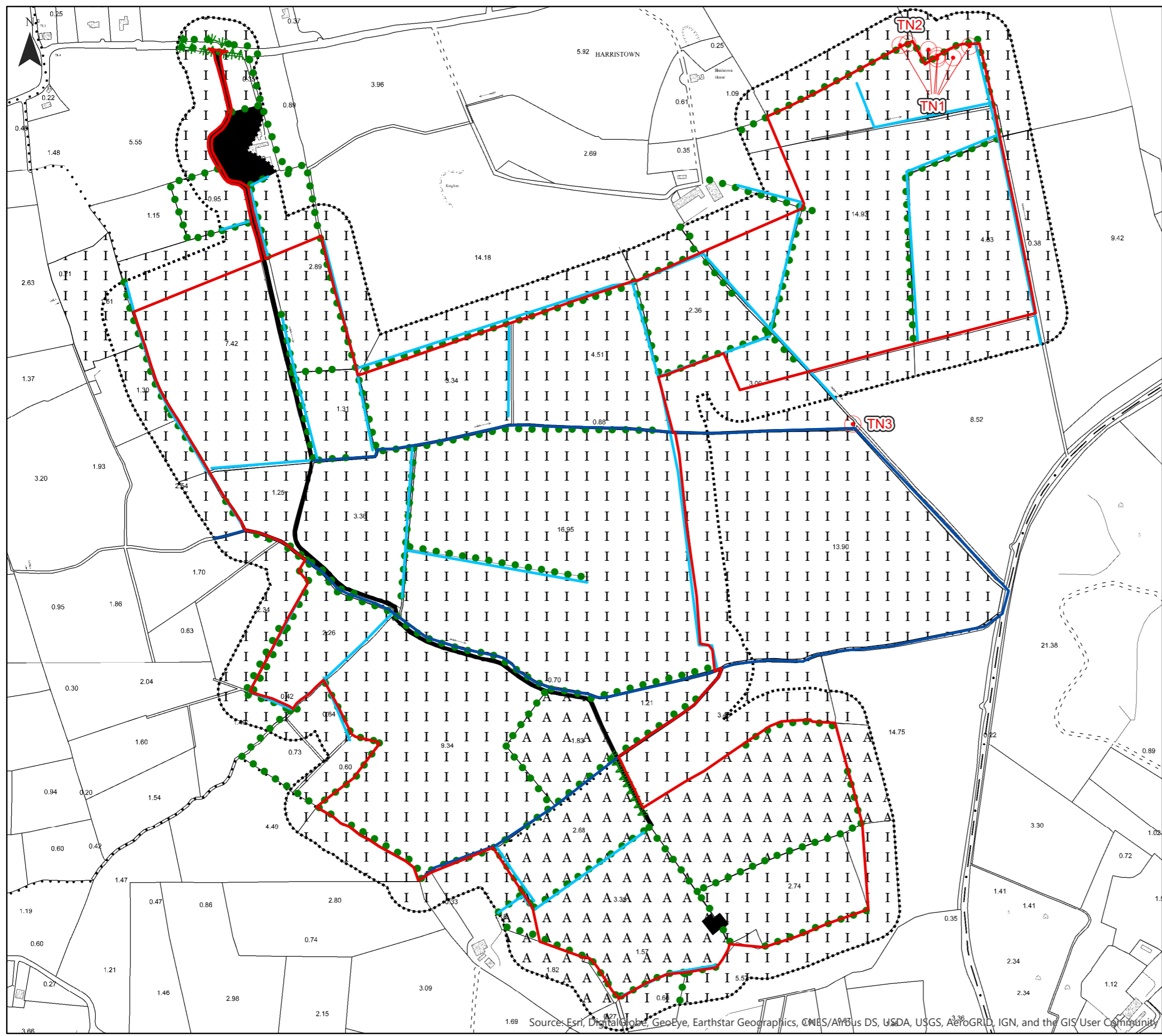
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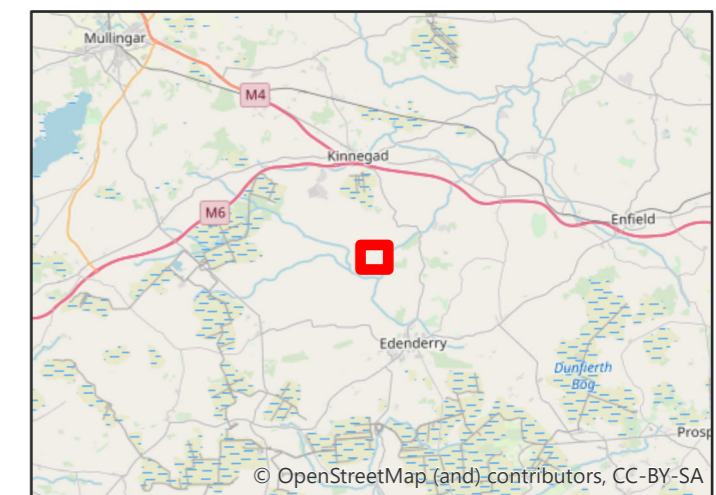
Harristown Solar Farm Extended Phase 1 Habitat Map Figure 3



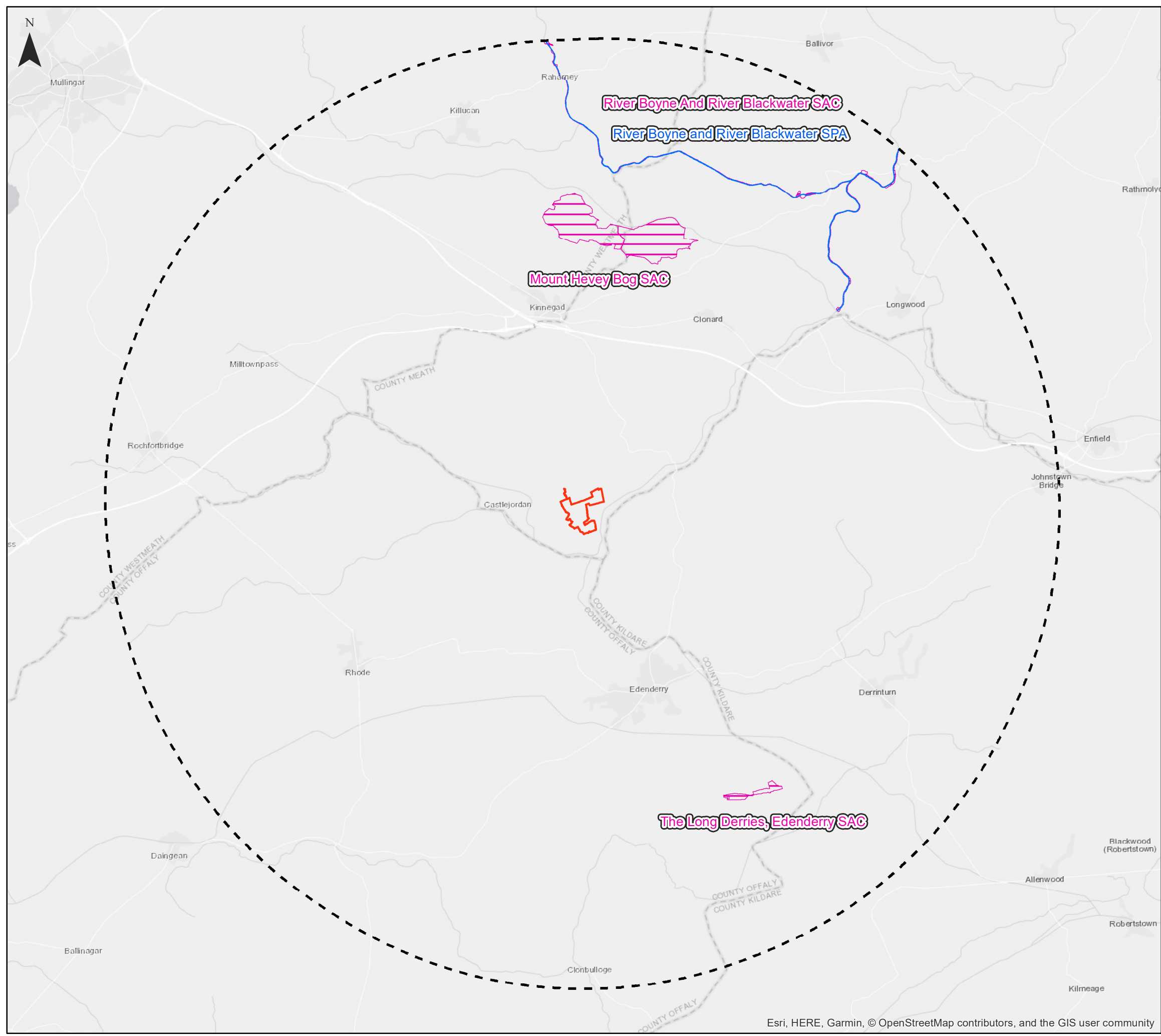
Key

- Development Boundary
- ESA 50m
- Target Notes (TN)
- Watercourses (FW2)
- Drainage Ditch (FW4)
- A Arable Crops (BC1)
- Buildings and Artificial Surfaces (BL3)
- I Improved Agricultural Grassland (GA1)
- ~ Hedgerows (WL1)
- Treelines (WL2)

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Johnstown Business Centre, Johnstown House, Naas, Co. Kildare

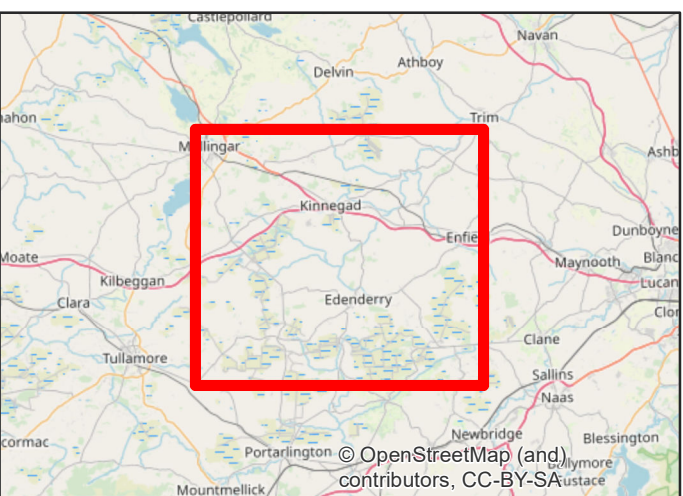


Harristown Solar Farm Natura 200 Designated Sites Figure 4



Key

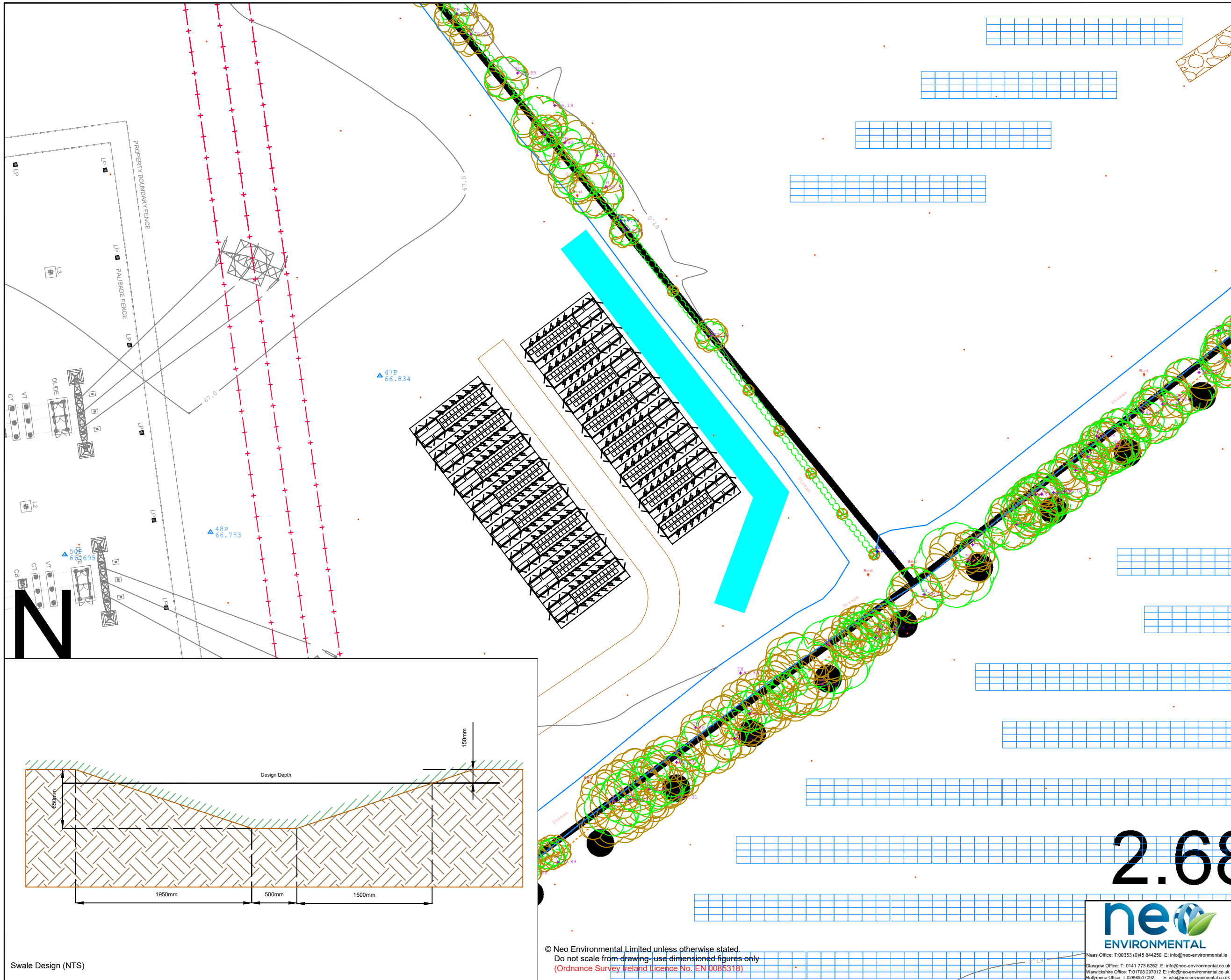
-  Development Boundary
-  15km Study Area
-  Special Protection Areas (SPA)
-  Special Areas of Conservation (SAC)




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Date: 05/04/2018
 Drawn By: JM
 Scale (A3): 1:125,000
 Drawing No: A0890/010/A





Key
 Swales

- GENERAL**
1. Do not scale from drawing.
 2. All dimensions are in metres, unless stated otherwise.
 3. This drawing to be read & printed in colour.
 4. This drawing to be read in conjunction with other contract drawings.

Swale Design (NTS)

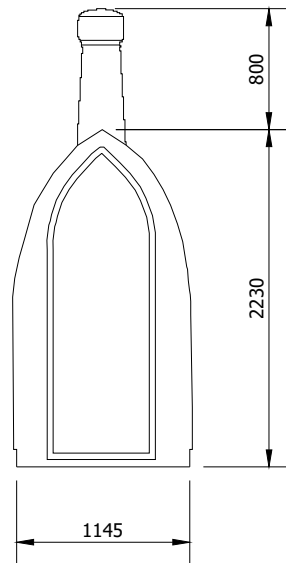
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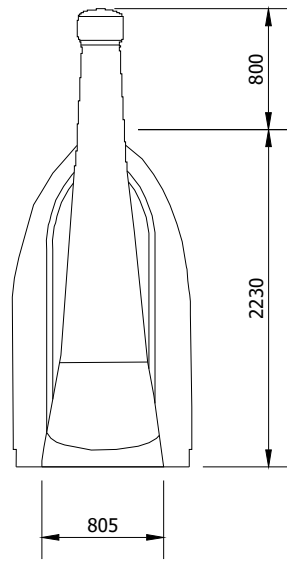
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 Ballymena Office: T: 02890517092 E: info@neo-environmental.co.uk

Project: Harristown Solar Farm			
Client: Lightsource BP			
Drawing: Figure 5: Outline SuDS Design			
Project No.: NEO00515			
Drawing No.: NEO00515/042I/B			
Drawn: MM	Checked: KM	Approved: PN	
Scale: 1:500@A3	Date: 01/08/2019	Status: PLAN	Rev: A

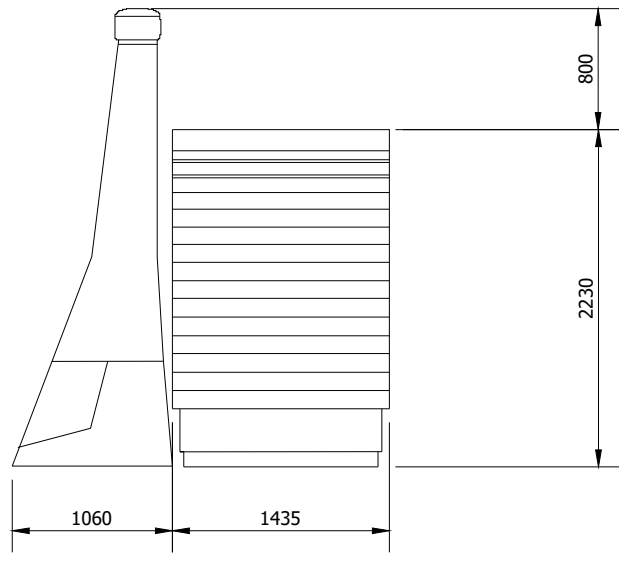
Indicative Toilet Cabinet Details



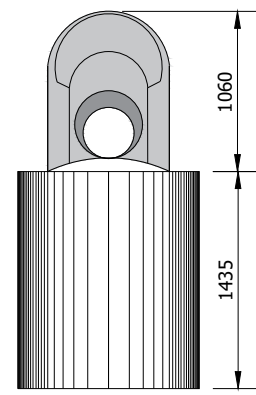
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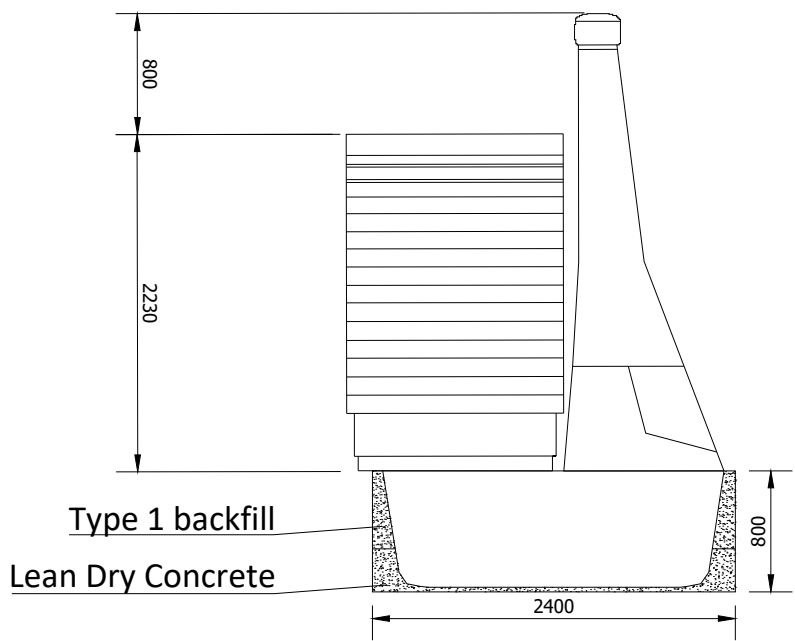
BACK ELEVATION



SIDE ELEVATION



FLOOR PLAN



SIDE ELEVATION



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Indicative Toilet Cabinet Details			
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DRAWN	CHECKED	APPROVED	DATE
Paper Size: A3	Scale: 1:50@A3	Sheet: 1	
DRAWING NUMBER: TLT_01		STATUS: Preliminary	

lightsource bp

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 Web: www.lightsourcebp.com

A3 - (420 x 297)mm



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